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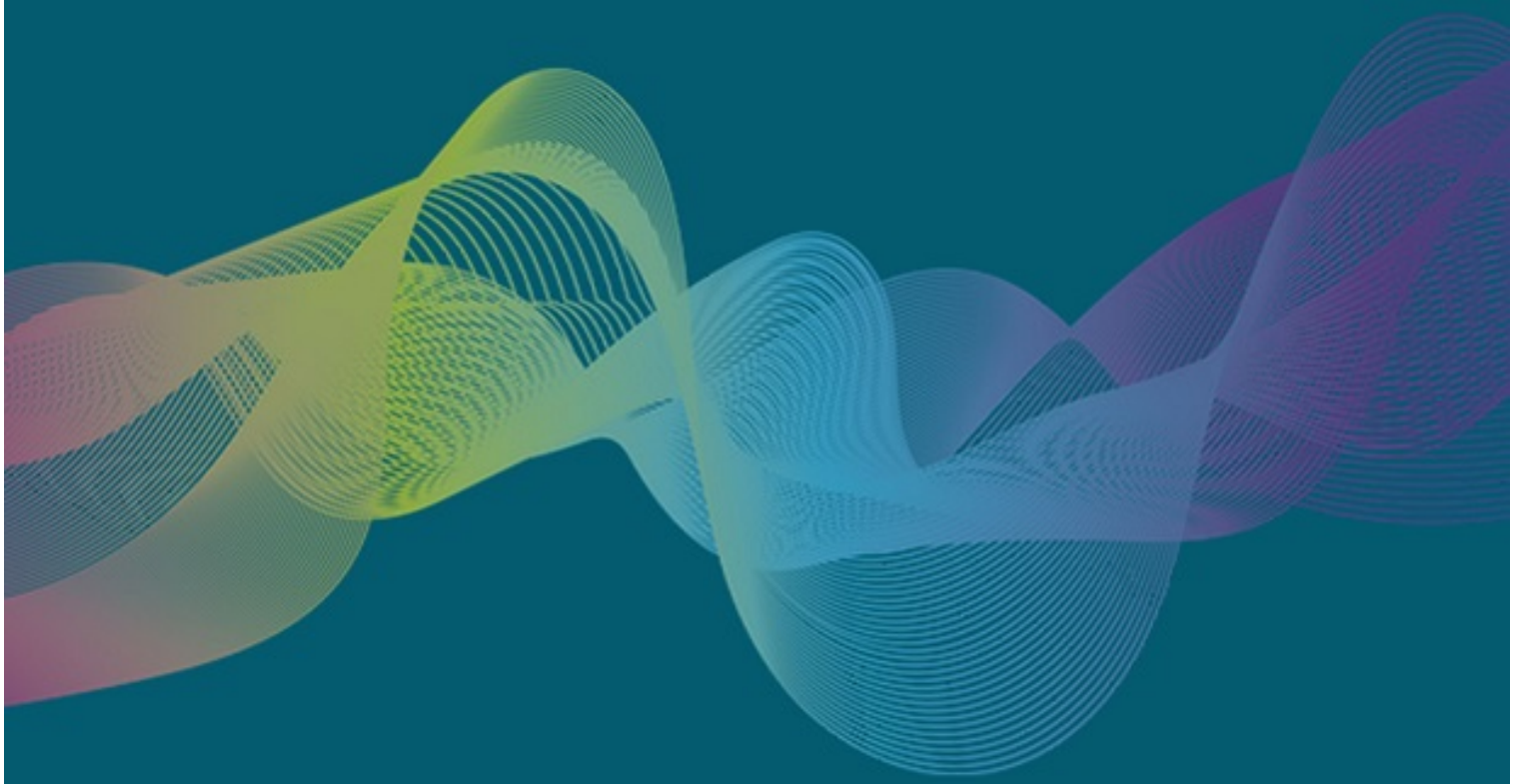

Volume 11. Issue 1. June 2023

Original Research

Policymakers must assess patient satisfaction in preparing the amount of health workers' income.
See Page 4-12

Original Research

Being employed, married, having a male household head, and being poor were risk factors for home delivery.
See Page 81-92

Literature Review

Strategies for preventing medication errors are the implementation of CPOE and staff training.
See Page 145-153

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LIST OF CONTENT

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LIST OF CONTENT

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ENVISIONING HEALTHCARE SERVICE QUALITY, SAFETY AND EQUITY: FROM PUBLIC HEALTH CENTRE TO MILITARY HOSPITAL

Memvisualisasikan Kualitas, Keselamatan, dan Kesetaraan Layanan Kesehatan: Dari Puskesmas Sampai Rumah Sakit Militer

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Moreover, healthcare services quality and safety still become major concerns over time. Waiman *et al*. (2023) reported that the Lean Six Sigma method had lowered long waiting times in outpatient services. Furthermore, one of the frequent errors that contribute to patient safety accidents in hospitals is medication error. Medication errors cause fatalities in multiple nations. Amalia and Basabih (2023) evaluate the difference in medication errors in various developing and developed countries, from Uganda to Japan. They describe medication errors as encompassing multiple stages, such as prescribing, administration, transcribing, and drug dispensing, and most errors tend to occur specifically during the prescribing phase. As a result, introducing effective strategies such as implementing an information system known as Computerized Physician Order Entry (CPOE) and providing comprehensive staff training is essential to prevent medication errors.

In addition, a key risk-reduction method for patient safety programs in healthcare is patient engagement (PE). In Indonesia, however, there are relatively few studies related to this topic, Sjaaf *et al*. (2023) explored the healthcare recipient's perspective and their potential role in patient safety. The author emphasizes that various factors led to the lack of readiness among healthcare recipients to actively participate in patient safety, primarily confined to administrative tasks, supporting the healthcare process, injury prevention, and communication. Apart from that, in terms of the workforce's well-being in healthcare settings, this volume contains two papers that address this issue. Yusuf and Wulandari (2023) examined that

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Another topic in this volume concerns the development of public health programs. Stunting is a significant nutritional problem in Indonesia, and prioritizing its prevention has become essential for the government and society. Ipa *et al*. (2023) examine decision-maker's contributions in facilitating efforts to reduce stunting in Garut Regency. However, the study indicated that the convergence strategy in this area could not be executed optimally due to ego barriers across sectors. Thus, they advise fostering active involvement, and it is crucial to define stakeholders' responsibilities clearly.

Aside from stunting issues, HIV and other sexually transmitted diseases have become a top concern. The prevention program of HIV and Syphilis transmission among adolescents has been evaluated by Lubis and Susilawati (2023). In this study, the authors acknowledge that HIV testing at the North Sumatra laboratory is both rapid and free of charge. However, there is a lack of willingness to provide a referral process, which undermines the effective implementation of the HIV and Syphilis transmission prevention program. The next topic is maternal and reproductive health. The probability of maternal mortality rises with home delivery. Wulandari *et al*. (2023) identified approximately 23,8% of mothers giving birth at home. The study found that older age, higher education, being a first-time mother, having insurance coverage, awareness of pregnancy danger signs, residing in urban areas, and receiving antenatal care at least four times reduced the likelihood of home delivery. This edition also explores the evaluation of public service motivation (PSM) among village cadres in Indonesia, specifically focusing on providing care for people with mental illness. Setijaningrum *et al*. (2023) emphasize that PSM can be classified into three distinct categories: rational motivations, norm-based motivations, and affective motivations. Also, they highlight the efficacy of PSM in mobilizing human resources and enhancing the standard of care for individuals with mental health conditions in areas that lack sufficient services.

References

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FACTORS AFFECTING INDONESIAN PUBLIC HEALTH CENTERS' HEALTH WORKERS' INCOME ADEQUACY

Faktor yang Memengaruhi Kecukupan Pendapatan Tenaga Kesehatan Puskesmas di Indonesia

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Abstract

Background: Dissatisfaction, additional work, and desired compensation are related to the needs and perceptions of civil servant health workers to increase their income. However, the probability and influencing factors regarding the income adequacy of civil servant health workers in Indonesia are still unknown.
Aims: to find out the factors related to the income adequacy of health workers.
Methods: This is an observational study with a cross-sectional design using data from the Employment Research in the Health Sector (RISNAKES) 2017 in Public Health Centers in Indonesia. Probit analysis was conducted to assess the probability of income adequacy.
Results: A total of 963 respondents were analyzed. The study found that changes in each variable including income, official residence facilities, training facilities/ seminars/ training, motivation, and job satisfaction of a unit would increase the probability of income adequacy ranging from 2% - 81%, except for the age variable. By referring to high job satisfaction of > 75% and taking into account the probability of 80%, the presumed adequate income is no less than IDR 28,800,000.
Conclusion: The probability of the monthly income adequacy of civil servants in the health sector is influenced by job satisfaction, ability to save, official residence facilities, facilities to attend seminars, age, and amount of income. Increasing and reformulating the amount of income must be done to optimize the performance and productivity of health workers.

Keywords: health workers, income adequacy, public health center, saving

Abstrak

Latar Belakang: *Ketidakpuasan, pekerjaan tambahan, kompensasi yang diinginkan berhubungan dengan kebutuhan dan persepsi bagi tenaga kesehatan PNS untuk meningkatkan pendapatannya. Seberapa besar kemungkinan kecukupan pendapatan pegawai pemerintah tenaga kesehatan di Indonesia masih belum diketahui, termasuk faktor-faktor yang mempengaruhinya.*
Tujuan: *Untuk mengetahui faktor-faktor yang berhubungan dengan kecukupan pendapatan tenaga kesehatan di Puskesmas.*
Metode: *Desain penelitian ini adalah observasional dengan jenis potong lintang, menggunakan data dari Riset Ketenagaan di bidang Kesehatan (RISNAKES) 2017 di Indonesia pada Puskesmas. Analisis probit dilakukan untuk menilai probabilitas kecukupan pendapatan.*
Hasil: *Sebanyak 963 responden dianalisis dan ditemukan bahwa terjadi perubahan pada setiap pendapatan, fasilitas perumahan dinas, fasilitas pelatihan/ seminar/ pelatihan, motivasi, kepuasan kerja satu unit akan meningkatkan kemungkinan kecukupan pendapatan berkisar antara 2% - 81%, sebaliknya berbeda untuk variabel usia. Dengan mengacu pada kepuasan kerja yang tinggi > 75% dan dengan memperhitungkan probabilitas 80% maka penghasilan yang disebut cukup adalah lebih dari Rp.28.800.000.*
Kesimpulan: *Probabilitas kecukupan pendapatan bulanan PNS bidang kesehatan dipengaruhi oleh kepuasan kerja, kemampuan menabung, fasilitas rumah dinas, dan fasilitas menghadiri seminar, usia, dan jumlah pendapatan. Peningkatan dan perumusan ulang besaran pendapatan harus dilakukan untuk mengoptimalkan kinerja dan produktivitas tenaga kesehatan.*

Kata kunci*: kecukupan pendapatan, puskesmas, tabungan, tenaga kesehatan,*

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Introduction

Health workers are the driving force to achieve health programs in healthcare facilities. The World Health Organization (WHO) has devised various strategies to optimize the performance and productivity of health workers as human resources for health services in the era of National Health Insurance (Cometto and Dussault, 2020). In this strategy, strengthening health workers is carried out in various aspects, especially in creating an ideal work environment to increase motivation, job satisfaction, and retention, where one approach relates to the provision of compensation. Thus, it is expected that health service facilities as an organization shall be able to carry out their duties to meet the health targets given by the policymakers.

Compensation is a monetary value for work performed by workers provided by the organization and it is given based on agreements and adjusted to the capabilities of the organization (Conte and Landy, 2018). Various components such as basic salaries and bonuses are important parts of compensation in the form of financial and non-financial matters (Bussin and Diez, 2021; Rose, 2022). The amount of shared salary financial benefits and incentives are the value of income to make ends meet, while the non-financial is a guarantee of various expected comfort measures (Bussin and Diez, 2021). The compensation explains that this reward can affect the response of satisfaction or vice versa for what is obtained. This is due to a process of comparing what they obtained with what other people obtained based on the same job, whether they are satisfied or not regarding their income (Bussin and Diez, 2021).

Health workers' incomes are given according to their competencies and years of service. Salaries, benefits, and financial incentives illustrate how much income individuals work both as government or private employees. Health workers who are civil servants have relatively the same salary, but they usually receive additional benefits or incentives every month. The same goes for civil servant health workers in health services such as Public Health Centers (PHCs) in Indonesia. The amount of benefits and incentives in Indonesia varies because payments depend on the ability of local governments, fiscal, inflation, and political will of the policyholder.

The income adequacy of Indonesian health workers, especially civil servants (PNS) in PHCs is often questionable. Dissatisfaction often occurs with the obtained salary, research at Regional Hospitals concluded that there is dissatisfaction among doctors whose salaries are 6 million and above (Mulyana, Zulfendri and Aulia, 2019). As for nurses, they still do additional work to increase their income, thus it shows that there is still a lack of compensation from their workplace (Purwandari *et al.*, 2021). What is the ideal income that must be given by following the needs and perceptions of health workers to meet the desired compensation based on work performance? Whether today their compensation can be declared adequate? Then whether the income adequacy is only determined by the amount of income? Adequacy is a perception that can vary for various reasons. Adequacy is important to secure and make employees give their best performance to work at an organization (Adeoye, 2019; Muruga, 2019; Rose, 2022).

The probability of the income adequacy of civil servant health workers in Indonesia is still unknown, as well as the factors that influence it. There is no certainty on the ideal number to prove and the factors that play a role in determining income adequacy. This question is needed to support the policy strategy of providing adequate and appropriate income for civil servant health workers to achieve health targets in Indonesia. Based on this reason, the purpose of this paper is to find out the factors related to the income adequacy of health workers in PHCs.

Method

The research design is an observational study with a cross-sectional design, using secondary data from the Employment Research in the Health Sector (RISNAKES) 2017 in PHCs as Public

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
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Health Centers in Indonesia (Indonesian Ministry of Health, 2018). The population of this study was health workers in PHCs who participated in the RISNAKES 2017, with a sample of civil servants following the research time. The research criteria were civil servants who had worked for at least 6 months in the selected health centers.

The process of collecting data from RISNAKES 2017 began with the process of doing consent, observation, collecting interview data, and self-questionnaire. Observations were made by trained independent enumerators. Respondents were selected by grouping the types of health workers, then one person from each group was chosen randomly.

The dependent variable was income adequacy within 1 month (1 = yes, 0 = no). Some independent variables were composite data such as motivation and job satisfaction (Likert scale) as measured by a standard questionnaire. The productivity variable was calculated based on productive time which fulfills 80% of work time (<100% = not fulfilled; ≥100% = fulfilled). Furthermore, the income variable was the sum of the salary and incentive obtained.

Univariate data analysis was performed to obtain respondent characteristics. Single probit analysis was performed to select the independent variables that entered the final probit analysis, i.e. variables with p<0.05. Then, probit analysis was performed on all selected variables so that the final model which was assessed by the hypothesis (H0) model was rejected if P<0.05 with the Chi2 (Goodness of fit) test. To assess whether the model is good, the McFadden test was carried out around 0.2 - 0.4, then a marginal test was conducted to assess the probability of the independent variable on the dependent variable. The analysis test was performed with STATA software version 16.

Result and Discussion

A total of 963 respondents were analyzed based on the completeness of the time study research data with the characteristics described in Table 1. The authors found eight (8) variables that could be included in the multiple probit test (p <0.05).

Based on the simultaneous Probit test results, all eight variables were obtained with significant test results (p<0.05) (Table 2). The results of the study found that changes of one unit in each income, official residence facilities, training/ seminar/ training facilities, motivation, and job satisfaction would increase the probability of adequate income (Table 2). Furthermore, changing one unit of age would reduce the probability of the adequacy of income.

In addition, the above model gets a probability prediction of around 56.2%, and this probit model can correctly predict 76.5%. The Goodness of fit test was conducted with the value of prb>chi2 = 0.234, so this model can be accepted, supported by the McFadden test = 0.247, which means the regression line was able to explain the variation of the dependent distribution. If we pay attention to the adequacy of income in a month, the results of this study refer to high satisfaction above 0.75. In conclusion, the income that is considered adequate is more than Rp. 28,800,000 per month (Figure 1).

The probability of the monthly income adequacy of civil servant health workers in Indonesia depends on regulation to provide the ideal work environment from PHC management. The results of this study found that job satisfaction was a variable that has the role of increasing the highest probability of earning income. The work environment is related to how job satisfaction is formed which is related to the psychology of the worker or the attitude or tendency at work, influencing their motivation and happiness (Akhtar *et al.*, 2018; Arnold *et al.*, 2020), when referring to work satisfaction theory, job satisfaction is closer to individual response or work personality (Pancasila, Haryono and Sulistyo, 2020). Research studies in other countries showed that many strategies can stimulate job satisfaction of health workers such as the ability to manage stresses at work relating to the organization by creating a strategy that can help health workers to adapt their work (Doki,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.4-12

Sasahara and Matsuzaki, 2018), be able to encourage health workers to be more efficient in services related with the leadership (Głód, 2018; Asgari, Mezginejad and Taherpour, 2020). Furthermore, the other ideal work environment that can support them includes salary (Marija, Andreja and Sandra, 2020), supervision from supervisors (Davidescu, Apostu and Paul, 2020; Marija, Andreja and Sandra, 2020), promotion (Asgari, Mezginejad and Taherpour, 2020), and pursuing higher education (Arifin, 2018).

Table 1. Characteristics of research respondents

Variable (N=963)	Mean	SD	Min	Max	P value*
Income Adequate	0.56	0.50	0	1	-
Productivity of health workers	0.83	0.27	0.04	1.5	0.015
Gender	0.21	0.40	0	1	0.680
Saving	0.41	0.49	0	1	0.000
Official residence facilities	0.13	0.33	0	1	0.026
Facilitated training / seminars / training	0.61	0.49	0	1	0.000
Get further education facilities	0.12	0.33	0	1	0.409
Married Status	0.06	0.24	0	1	0.929
Types of Health Workers	1.88	0.70	1	3	0.224
Age group	0.49	0.50	0	1	0.001
The region	0.42	0.49	0	1	0.000
Motivation	0.74	0.06	0.46	0.97	0.000
Job satisfaction	0.70	0.08	0.37	1	0.000
Duration of Work at the Health Center	9.50	7.02	0	35	0.593
Earnings (* 1000000)	5.05	2.65	1.8	38.8	0.000
Total liabilities	1.81	1.14	0	6	0.001

*P value Probit: a single probit test for each independent variable to be tested

Table 2. Results of probit analysis

Variable	Koef	SE Robust	dy/dx	p	95%CI (dy/dx) Min	Max
Productivity of health workers	0.06	0.095	0.02	0.507	-0.04	0.07
Saving	1.48	0.10	0.48	0.000	0.43	0.54
Official residence facilities	0.32	0.15	0.09	0.03	0.01	0.17
Facilitated training / seminars / training	0.30	0.10	0.08	0.002	0.03	0.14
Age	-0.25	0.1	-0.07	0.013	-0.13	-0.02
The region	0.13	0.10	0.04	0.209	-0.02	0.9
Motivation	-0.39	0.95	-0.11	0.683	-0.64	0.42
Job satisfaction	2.89	0.60	0.81	0.000	0.49	1.00
Salary (* 1000000)	0.06	0.02	0.02	0.020	0.003	0.03
Total liabilities	-0.06	0.04	-0.02	0.146	-0.04	0.01
Constanta	-2.45	0.71				
Pseudo R2	0.2711					
Prob> Chi2	0.000					

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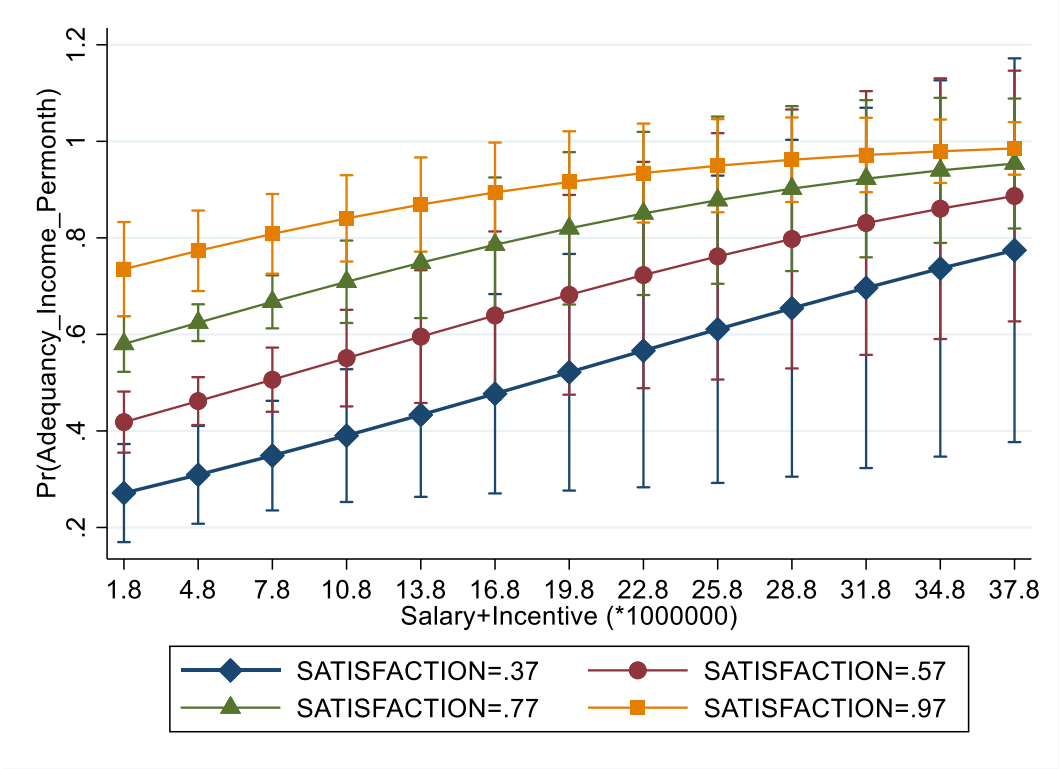

Source: Indonesian Ministry of Health, (2018)

Figure 1. Probability of PHC Health Workers' by income and job satisfaction

The results of this study found several factors that play a role in job satisfaction that becomes an important part to increase the probability of income adequacy. Perception of income adequacy is certainly related to the ability to make ends meet, including being able to set aside income for saving. Saving is an important part of human life. It can answer questions such as how much of your income can be saved, what risks must be borne, how to invest from what you have, and whether to buy something in the future (Bussin and Diez, 2021). With various increasing economic needs, saving becomes an inseparable part to ensure the future of health workers. Based on this study, the probability of a sufficient income of around 48% (Table 2) due to the addition of 1 unit can be saved, showing that health workers still need financial certainty for their future, even though, as civil servants, they will receive salary until their retirement. On the other hand, many employees tend to be consumptive in Indonesia (Arifin, 2018).

In this study, the existence of official residence ownership facilities or seminars is related to the adequacy of the income of health workers. The official residence is related to the ownership and comfort of health workers, which causes them not to have to think about funding, and stimulates retention of the workers (World Health Organization Regional Office for Africa, 2020; Bussin and Diez, 2021b). While funding for attending seminars is needed to elevate the workers' knowledge and boost their confidence (Arifin, 2018; Mulyana, Zulfendri and Aulia, 2019; Marija, Andreja and Sandra, 2020) and external motivation, therefore health workers no longer need to incur additional costs. However, the results of the study found that in the age group of > 38.8 years, the probability of decreasing income adequacy was more common (marginal analysis < 38.8 years vs. > 38.8 years, the probability was 59.8% compared to 52.7% with p = 0.000). The results are quite interesting because job satisfaction should increase along with the age variable, but based on the questionnaire related to job satisfaction, the result was

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.4-12

different. This condition could be related to changes in priorities and motivation, including worries about insufficient income (Cavanagh, Kraiger and Henry, 2020).

The results of this study inform that the amount of salaries only provides the lowest probability of income adequacy. As is well-known, salary is a reward or compensation for all the work done, but if the amount is improper, it will reduce job satisfaction. The compensation will result in a job performance that the organization needs from employees and will increase job satisfaction which is the key to describing financial satisfaction, ability to meet the needs of life, self-actualization, self-esteem, valuable experience, workers' perception of their contribution to the organization, and comparison with others in the same job (Sessa and Bowling, 2021). Thus, although it seems only to provide a low probability, large salaries still play an important role in income adequacy. The results of this study are in line with the mentioned theories. Those workers who have high job satisfaction tend to have higher incomes so they have a perception of having sufficient income (Figure 1). However, it is also possible that unsatisfactory conditions among workers can be caused by other factors, such as those obtained from the results of this study, plus other factors such as social support, family conflict, human relation, working condition, and physical health (Deng *et al.*, 2018; Kowitlawkul *et al.*, 2018; Bello, Adewole and Afolabi, 2020; Sessa and Bowling, 2021).

The probability of salary per month based on job satisfaction is a classic question from various parties. Based on the results of this study, it was found that the expected salary was 28 million with a note that job satisfaction was > 75%, with a probability of about 80%. These results indicate we need to increase income, especially in low-income areas, whatever the challenge, like fiscal problems, low inflation, and other economic problems. However, the results of this study confirm that efforts to increase salaries need to be carried out because they are related to job satisfaction to achieve the optimization of the performance and productivity of health workers. Moreover, it is hoped that the health program can run as expected.

The results showed that time productivity did not significantly affect the income adequacy of health workers. It is known that productivity is related to the target achieved, while income adequacy is a form of compensation for what has been done according to their perception. The conditions in which the time productivity was not related to the adequacy of income could be assessed: first, productivity at PHCs was assessed only as a final annual target, not a target for health workers. Second, salaries in Indonesia did not include time productivity as part of the calculation, if the final target is the only aspect to be taken into account, it can lead to dissatisfaction among workers at PHCs (Indonesian Government Regulation Number 36 of 2021 concerning Wages), early identification is needed by policymakers to determine the right strategy for linking time productivity and income adequacy.

Regions also do not show a role in influencing the income adequacy of health workers. Civil Servant (PNS) health workers both in Java and outside Java Island still feel deprived if their income does not meet expectations. Moreover, there is an imbalance in the distribution of health workers and different incomes with regions in Java whose economy is better than other regions. If the problem persists, the adequacy of income will return to their respective perceptions. Expectancy theory explains that every worker expects results based on expectations (Rose, 2022). Wherever they work, they would still respond "insufficient" if the income is deemed improper.

This research has implications for strategies to improve job satisfaction and health workers' income. To be able to make it ensue is not an easy matter. The challenges that must be overcome are the ability of countries and regions to increase health workers' income and the management's optimal efforts in providing an ideal work environment for workers. Therefore, an ideal model is essential as a strategy that can realize the required income while at the same time realizing the

Indonesian Journal of Health Administration
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desired job satisfaction. The model can be developed to measure the ideal amount of income adequacy from the amount of income and job satisfaction and other factors that have an important role in increasing the probability of adequacy. In addition, another implication is that the government must pay attention to the income adequacy of workers in the health service system, especially in the era of health insurance, in which health workers experienced many complaints related to income issues. With the national health insurance scheme now in place and data collection taking place in 2017, it can be assessed that there are still many health workers with low-income adequacy probabilities due to job satisfaction and low income. Through the results of this research, it is hoped that the central and regional governments will consider providing intensive assistance to all health workers without focusing only on the type of work or other factors. Furthermore, it is also necessary to pay attention to all the determinants that influence ensuring the optimization of the sustainability of the national health insurance system.

The limitation of this study is that it is a cross-sectional study, so it cannot measure cause and effect. However, this study's results can explain a relationship between the probability of sufficiency and the various factors that play a role. Another limitation is that there is no information on the expenditure of health workers, so it was challenging to calculate the ideal adequacy in terms of income and expenditure. However, from the information regarding income, the probability of adequacy can be assessed with a certain income.

Conclusion

The conclusion of this study was the probability of the adequacy of income of health workers per month in public health centers in Indonesia is IDR 28,800,000 and is influenced by job satisfaction, ability to set aside income, official residence facilities, facility for attending seminars, age, and salary. Based on the results of the study, it is expected that in preparing the amount of income, policymakers must assess the level of patient satisfaction so that income adequacy can be met. The development of models to calculate the amount of income needed is based on the variables that are present.

Abbreviations

RISNAKES: *Riset Ketenagaan di Bidang Kesehatan* (Employment Research in Health Sector); WHO: World Health Organization; Puskesmas (PHC): *Pusat Kesehatan Masyarakat* (Public Health Center); PNS: *Pegawai Negeri Sipil* (civil servants), SE: Standard Error; CI: Confident Interval.

Declarations

Ethics Approval and Consent Participant

The research ethics of RISNAKES were obtained from the Ethics Commission of the Health Research and Development Agency, Ministry of Health of the Republic of Indonesia. Respondents were addressed before the survey regarding the survey's objectives and purposes, and verbal consent to participate in the study was taken from them.

Conflict of Interest

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance.

Availability of Data and Materials

The datasets are available from the corresponding author but need permission from the management Data of the Ministry of Health of the Republic of Indonesia.

Authors' Contribution

ARH: Main Contributor, Original, Concept, develop and discuss ideas; data management, data analysis, data interpretation; manuscript writing. JI, HH, and AB: Develop and discuss ideas, interpret data, and provide advice and policies that can be recommended.

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References

Adeoye, A.O. (2019) 'Compensation Management and Employees' Motivation in The Insurance Sector: Evidence From Nigeria', *Economics and Organization*, 16, pp. 31–47.

Akhtar, A. *et al.* (2018) 'Impact of Job Stress on Employees' Job Satisfaction: An Empirical Study of Private Banks of Pakistan', *Pakistan Journal of Social Sciences (PJSS)*, 38(1), pp. 137–151.

Arifin, A.Z. (2018) 'Influence of financial attitude, financial behavior, financial capability on financial satisfaction', *Advances in Social Science, Education and Humanities Research (ASSEHR),* 186(INSYMA), pp. 100–103.

Arnold, Cj. *et al.* (2020) *Work Psychology: Understanding Human Behaviour in the Workplace*. 7th Editio. Harlow: Pearson.

Asgari, A., Mezginejad, S. and Taherpour, F. (2020) 'The Role of Leadership Styles in Organizational Citizenship Behavior through the Mediation of Perceived organizational Support and Job satisfaction Gestión y Organización', *Innovar*, 30(75), pp. 87–97.

Bello, S., Adewole, D.A. and Afolabi, R.F. (2020) 'Work Facets Predicting Overall Job Satisfaction among Resident Doctors in Selected Teaching Hospitals in Southern Nigeria: A Minnesota Satisfaction Questionnaire Survey', *JOHE*, 9(1), pp. 52–60.

Bussin, M. and Diez, F. (2021) *The remuneration handbook: a practical and informative handbook for managing reward and recognition*. International 2nd edition. S.l.: KR Publishing.

Cavanagh, T.M., Kraiger, K. and Henry, K.L. (2020) 'Age-Related Changes on the Effects of Job Characteristics on Job Satisfaction : A Longitudinal Analysis', *The International Journal of Aging and Human Development*, 91(1), pp. 60–84. Available at: https://doi.org/10.1177/0091415019837996.

Davidescu, A.A., Apostu, S. and Paul, A. (2020) 'Work Flexibility, Job Satisfaction, and Job Performance among Romanian Employees — Implications for Sustainable Human Resource Management', *Sustainability*, 12(6086).

Deng, S. *et al.* (2018) 'Doctors' Job Satisfaction and Its Relationships With Doctor-Patient Relationship and Work-Family Conflict in China: A Structural Equation Modeling', *Inquiry*, 55(December), pp. 1–16.

Doki, S., Sasahara, S. and Matsuzaki, I. (2018) 'Stress of working abroad: a systematic review', *International Archives of Occupational and Environmental Health*, 91(7), pp. 767–784. Available at: https://doi.org/10.1007/s00420-018-1333-4.

Głód, W. (2018) 'Transformational leadership style in the relationship between innovation and efficiency of healthcare units in Poland', *Oeconomia Copernicana*, 9(4), pp. 731–753. Available at: https://doi.org/10.24136/oc.2018.036.

Indonesian Ministry of Health (2018) 'Employment Research in Health Sector (RISNAKES) 2017. National Institutes of Health Research and Development Minsitry of Health of Republic of Indonesia'.

Kowitlawkul, Y. *et al.* (2018) 'Investigating nurses' quality of life and work-life balance statuses in Singapore', *International Nursing Review*, 00, pp. 1–9. Available at: https://doi.org/10.1111/inr.12457.

Marija, S., Andreja, K. and Sandra, B. (2020) 'Job Satisfaction of Nurses in Croatia, Slovenia and Serbia: A Cross-Sectional Study', *Central European Journal of Nursing and*

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.4-12

Midwifery, 11(4), pp. 154–162. Available at: https://doi.org/10.15452/cejnm.2020.11.0027.

Mulyana, Zulfendri and Aulia, D. (2019) 'Satisfaction Towards Compensation and Doctor Commitment In General Hospital', *Scientific Periodical of Public Health and Coastal*, 1(2), pp. 83–96.

Muruga, G. (2019) 'Management Model to Measure and Evaluate Physicians Dual Practice (DP)', *European Journal of Business and Strategic Management*, 4(1), pp. 19–29.

Pancasila, I., Haryono, S. and Sulistyo, B.A. (2020) 'Effects of Work Motivation and Leadership toward Work Satisfaction and Employee Performance: Evidence from Indonesia', *Journal of Asian Finance, Economics and Business*, 7(6), pp. 387–397. Available at: https://doi.org/10.13106/jafeb.2020.vol7.no6.387.

Purwandari, A. *et al.* (2021) 'A Comparative Study of Quality of Nursing Work Life in Indonesia', *Malaysian Journal of Medicine and Health Sciences*, 17(SUPP14), pp. 9–15.

Rose, M. (2022) *Reward Management. A Practical Introduction*. 3rd Editio. London: KoganPage.

Sessa, V.I. and Bowling, N.A. (eds) (2021) *Essential of Industrial and Organizational Psychology*. New York: Routledge, Taylor & Francis Group.

World Health Organization Regional Office for Africa (2020) *The African Regional Framework For The Implementation Of The Global Strategy On Human Resources For Health: Workforce 2030*. 9789290234425.

Original Research

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KNOWLEDGE AND ATTITUDES OF HEALTH WORKERS TOWARDS COVID-19 VACCINATION IN ACEH, INDONESIA

Pengetahuan dan Sikap Tenaga Kesehatan Terhadap Vaksinasi COVID-19 di Aceh, Indonesia

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Abstract

Introduction: Herd immunity through vaccination is one of the major strategies for overcoming the COVID-19 pandemic, but there are still doubts about vaccines among health workers.
Aims: This study aims to assess the relationship between knowledge of the COVID-19 vaccine and the attitudes of health workers.
Methods: This is a cross-sectional study, which involves the distribution of a validated online questionnaire through Google forms to health workers at Zainoel Abidin general Hospital Banda Aceh. The data consist of general characteristics, 13 questions regarding knowledge, and nine inquiries related to attitudes.
Results: There were 301 respondents, of which 87.4% were females, and 48.8% were nurses. Only 27.9% of the health workers have a history of COVID-19 courses, 67.8% have good knowledge about the vaccine, and 70.8% with a positive attitude. There was a significant relationship between the knowledge of the vaccine and health workers' attitudes. Furthermore, gender, age, education level, and training history did not affect the knowledge of vaccination, while profession was the main influential factor.
Conclusion: This study shows that there is a relationship between knowledge of the COVID-19 vaccine and health workers' attitudes. However, stakeholders must always focus on strategies that can increase understanding and practice of disease prevention

Keywords: attitude, COVID-19 vaccine, knowledge, health workers

Abstrak

Latar Belakang: *Kekebalan kelompok melalui vaksinasi merupakan salah satu kunci untuk mengatasi pandemi COVID-19. Tetapi keragu-raguan vaksin masih saja terjadi di kalangan tenaga kesehatan.*
Tujuan: *Penelitian ini bertujuan untuk menilai hubungan pengetahuan vaksin COVID-19 terhadap sikap tenaga kesehatan.*
Metode: *Penelitian ini merupakan penelitian cross sectional, menggunakan kuesioner yang disebarkan melalui google form kepada tenaga kesehatan di rumah sakit dr. Zainoel Abidin Banda Aceh. Data yang dikumpulkan berupa karakteristik umum, tingkat pengetahuan vaksin COVID-19 dan sikap tenaga kesehatan.*
Hasil: *Penelitian ini telah mengumpulkan 301 responden. Mayoritas responden adalah perempuan (87,4%) dan perawat (48,8%). Hanya sedikit tenaga kesehatan yang mengikuti pelatihan COVID-19 (27,9%). Sebagian besar tenaga kesehatan memiliki pengetahuan mengenai vaksin COVID-19 (67,8%) dan sikap positif (70,8%). Terdapat hubungan signifikan pengetahuan dengan sikap tenaga kesehatan. Jenis kelamin, usia, tingkat pendidikan, dan riwayat pelatihan tidak memiliki pengaruh terhadap pengetahuan vaksinasi. Profesi merupakan faktor utama yang berpengaruh terhadap pengetahuan mengenai vaksinasi COVID-19.*
Kesimpulan: *Penelitian ini menunjukkan bahwa terdapat hubungan pengetahuan vaksin COVID-19 terhadap sikap tenaga kesehatan. Namun, pemangku kepentingan harus selalu fokus pada strategi untuk peningkatan pengetahuan dan praktik pencegahan penyakit.*

Kata kunci*: pengetahuan, sikap, tenaga kesehatan, vaksin COVID-19*

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Introduction

The use of vaccine is among the major methods to curtail the escalation of Corona Virus Disease 2019 (COVID-19) (WHO, 2022) because it is highly contagious and affects the population globally. In response to its massive spread, the President of Indonesia has officially provided vaccination services for the community (Simangunsong, 2021). Previous studies showed that vaccine can increase individual and community immunity by lowering the spread of vaccine-preventable diseases (Wong, 2021). However, its presence caused a new polemic in the community due to concerns about the safety, halalness, and effectiveness in inhibiting the transmission of COVID-19 (Sholeh and Helmi, 2021). This hinders the goal of global immunization in the country; hence, health authorities have a significant role in providing knowledge about the importance of the developed vaccine (WHO, 2022).

Vaccination is the most effective preventive measure to inhibit the transmission of COVID-19. This has led to continuous competition and striving among developing countries to produce a vaccine. Due to various problems, there are demographic and geographic differences regarding the implementation of vaccination. However, it is reported that there is an estimated 67% vaccine acceptance rate globally (Malik *et al.*, 2020). This primarily determines the success of a vaccination program by health workers, including nursing students, as influential proponents of the process. Vaccination can potentially provide critical interventions that significantly limit the spread of this deadly infectious disease. The SARS-CoV-2 vaccine will be available by the end of 2020, and in many countries, health workers are being targeted as the first recipients. Moreover, safety concerns and the incidence of side effects have been reported during the implementation of vaccination programs, leading to many vaccine-related disadvantages and reducing public interest in the process. The refusal to vaccinate against COVID-19 can trigger the risk of transmission of the pathogen from patients to healthcare workers and reduce interest in getting vaccinated (Jiang *et al.*, 2021). Negative stigma and neglect of the COVID-19 vaccine can also hinder global vaccination coverage. Nurses are the most critical community partners in supporting the COVID-19 vaccination program. Therefore, the knowledge, attitudes, and practices of nurses are closely related to their ability to find solutions to mitigate the COVID-19 pandemic (Mostoles *et al.*, 2022).

The attitude of the community during the pandemic period shows a clear picture of vaccines and recipients that can affect their absorption in the community. A study reports that high side effects and protection, minimal effects, and full FDA recognition can increase American willpower (Ciardi *et al.*, 2021).

Another study shows that the factors influencing the ability to accept include young age, minority groups, non-health workers, and the individual's perceived low risk. According to Azlan *et al.* (2020), 86% of COVID-19 vaccine receipts with pre-existing respiratory conditions correlated with increased perceptions of morbidity.

Ensuring safe and life-saving vaccine is considered one of the most responsible weapons for eliminating and stopping all infectious diseases worldwide. It is generally accepted that vaccinating half the population against certain infectious diseases can indirectly protect the rest who are not vaccinated. Investigations have shown that vaccination is among the best preventive measures in dealing with the transmission and spread of COVID-19 as well as death. After several years of COVID-19, experts and the WHO continue to study and develop this vaccine (Dror *et al.*, 2020).

The COVID-19 vaccine has been developed much more rapidly than others in various parts of the world. Based on the analysis, it is discovered that in less than 12 months, more than 100 vaccines are still being developed at the pre-clinical stage, where 60 and above have been recognized for use globally. Despite the rapid development of the SARSCOV-2 vaccine and the availability of materials, public acceptance is still a significant obstacle.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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This is because vaccine doubts are still prevalent in Africa, including Ethiopia, which presents an excellent opportunity for another peak in the incidence of COVID-19, posing a significant threat to global public health, as confirmed by WHO (Spinewine *et al.*, 2021). Some reports indicate that only 60.5% of the global population has received the vaccine. As of November 24, 2021, there were 5.4 million people vaccinated in Ethiopia (WHO, 2021).

Several reports suggest that the non-acceptance of the vaccine in the community can increase COVID-19 cases and reduce the achievement of the vaccine itself. A study in Egypt shows that 80.5% of respondents are unaware of the COVID-19 vaccine (Abdelhafiz *et al.*, 2020). Other investigations reveal that respondents have good knowledge of the COVID-19 vaccine to accept vaccination. Furthermore, a study conducted in Dessie, Ethiopia, shows that participants have a negative attitude towards the COVID-19 vaccine, leading to an increase in indecision threefold compared to those with a positive attitude (Aklil and Temesgan, 2022). In Indonesia, every health worker is knowledgeable about vaccinations and wants to learn more about to inform their patients (Theodorea *et al.*, 2021). More than 1 million healthcare workers have already received the COVID-19 vaccine. This will protect and reduce the spread of disease among patients and healthcare personnel (COVID-19 Public Communication Team, 2021).

The development of vaccine production in a short time, the recognition obtained from Emergency Use Authorization (EUA) rather than full FDA approval, the mixed political perception, and the shallow level of safety are essential causes for hesitation. Regarding healthcare workers, a Hong Kong Nursing Staff socialization survey conducted on patients at the start of the pandemic showed 40% acceptance of the COVID-19 vaccine. However, extensive multicenter observation of health workers in October and November 2020 in parts of the midwest and southwestern states showed marked uncertainty ahead of the initial release of safety data, where only 36% of respondents immediately accepted as well as 56% were undecided [15]. Previous reports have failed to show a sufficiently diverse sample population, leading to limited data on ethnic groups. This is of concern because mixed data through public observations can identify vaccine acceptance and hesitation factors (Ciardi *et al.*, 2021).

COVID-19 has been recognized as a growing public health problem worldwide. Scientists are working diligently to develop vaccine and alternative therapies. Social scientists, public health, and health communication all seek to discover the level of knowledge, attitudes, and practices about COVID-19 among the public regarding healthy living behaviors as well as educational programs at low cost (Azlan *et al.*, 2020).

In the first hurricane of COVID-19 in the spring of 2020, public health in New York City (NYC) rapidly expanded treatment techniques and capabilities across all hospitals to deal with unprecedented acute cases in response to the pandemic. However, the keys to successful pandemic control are the adequate supply and minimal vaccines side effects. The government and stakeholders involved in the health sector must also ensure the trust and acceptance of the community, especially health workers. This is because rejection and restrictions can hinder vaccination program, harm general health, and delay the potential for health workers to minimize the challenges of a pandemic (Elhadi *et al.*, 2021). This study presents an overview of the knowledge and attitudes of health workers toward the COVID-19 vaccine in Aceh.

COVID-19 is an infectious disease discovered in 2019, with a devastating impact in a short time. Several published studies still exist on knowledge of and attitudes toward vaccination in Indonesia. As this disease evolves with uncertainties, stakeholders must develop further strategies for preparing and managing communities. Therefore, knowledge and attitudes are essential factors to learn in a population (Azlan *et al.*, 2020).

One of the major factors causing the low vaccination coverage is psychology, which is related to a person's awareness

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.13-25

and practice of healthy living behaviors. The psychological factor has three aspects, namely thoughts and feelings, social processes, and direct practical attitude. In the attitude aspect, one of the problems faced is vaccine refusal, which causes low vaccination coverage. Furthermore, in the United States, 6-25% of parents have refused one or more types of vaccine for their children (Setyaningsih and Siregar, 2021). The success of a vaccination program is determined by the level of information absorption and understanding by the community, specifically health workers (Field, 2009). Therefore, it is very important to understand their knowledge and attitudes, which helps to curtail the spread of the disease (Adane, Ademas and Kloos, 2022).

Based on the WHO Strategic Advisory Group of Experts on Immunization (SAGE) Roadmap as well as a study from the National Immunization Expert Advisory Committee (Indonesian Technical Advisory Group on Immunization), health workers are very important in the vaccination program (Ministry of Health, 2016). They are also a trusted source of health information and the most important factor in influencing parents' decisions to vaccinate their children (Madkor *et al.*, 2020). Good knowledge and a positive attitude help them to promote vaccination in the community. This aligns with Ajens' Theory of Planned Behavior (TPB) that subjective norms, attitudes, and perceived control can influence an individual's behavior (Cvjetkovic, Jeremic and Tiosavljevic, 2017). The presence of differences or disparities in methods, demographic data from respondents, and accessibility of health care infrastructure are the cause of variation in knowledge level in each country (Raghupathi and Raghupathi, 2020). Therefore, this study aims to assess the relationship between knowledge of the COVID-19 vaccine and the attitude of health workers at Zainoel Abidin General Hospital Banda Aceh. This hospital is the largest, with the most significant number of health workers in Aceh. At the beginning of the vaccination, this hospital became the leading center for all health workers to get vaccinated.

Method

This is a cross-sectional study, and the respondents consisted of health workers at Zainoel Abidin general Hospital Banda Aceh. The inclusion criteria involved people who are still actively working, willing to fill out an e-informed consent and be contacted through social media applications.

The questionnaire consisted of 13 questions regarding knowledge and nine related to attitudes. The 13 questions used the Guttman scale to assess participants' knowledge. Each response was given a total score and depending on the mean score, it was determined whether the response demonstrated good or lack of knowledge. The nine questions comprised the Likert scale used to gauge attitudes. When the T score was less than 50%, the attitude was positive. Otherwise, it should be negative. In addition to socio-demographics such as professions, respondents also provided information about age, gender, education level, and attending COVID-19 courses. They tuned in to an online seminar hosted by many organizations of the Indonesian Doctors Association and the Ministry of Health. The questionnaire was modified from a previous study and translated by a standardized linguist (Cvjetkovic, Jeremic and Tiosavljevic, 2017). This study used a questionnaire to test knowledge and attitude. Each of these variables demonstrated greater than 0.497 validity as well as 0.883 and 0.841 reliability, respectively. All questions and answer choices were adapted to the COVID-19 vaccine. In the measurement, knowledge used the Guttman scale, and the Likert scale was used for attitudes.

Questions with COVID-19 vaccination knowledge were: 1. The COVID-19 vaccine is effective in handling the pandemic ; 2. The vaccine is essential for maintaining health during the pandemic, 3. When administered, the vaccination may be harmful, 4. Vaccinations can cause allergic reactions, 5. Self-vaccination is essential to protect others in the immediate community, 6. A decrease in vaccination rates can lead to

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.13-25

high COVID-19 cases, 7. The vaccine can reduce the severity of COVID-19 symptoms, 8. Vaccination can improve the quality of life for individuals with chronic diseases, and 9. Giving the COVID-19 vaccine with other types simultaneously can affect an individual's immune system, 10. All vaccines offered by government programs are very beneficial, 11. The information I have received is accurate and trustworthy, 12. I do what my doctor or healthcare provider recommends about vaccine, 13. The best strategy to guard against the disease is to be vaccinated. Moreover, Figure 1 shows the percentage of respondents' responses on their knowledge of the COVID-19 vaccine.

Questions attitudes of vaccine COVID-19 are 1. The COVID-19 vaccine is essential for health workers, 2. When it is available in Indonesia, I will not think twice about getting it, 3. I will also invite my family/friends/relatives to vaccinate, 4. Vaccination can reduce the incidence of COVID-19, 5. I am worried about the side effects, 6. Pharmaceutical companies will develop a safe and effective COVID-19 vaccine, 7. I do not believe in the benefits of the COVID-19 vaccine, 8. Vaccine side effects prevent me from getting vaccinated to avoid COVID-19, 9. The vaccines produced in Europe or America are safer than those manufactured in other countries. Figure 2 displays the percentage of respondents who responded positively or negatively to the COVID-19 vaccination.

This study received ethical committee clearance from Zainoel Abidin General Hospital, with signed approval number 229/EA/FK-RSUDZA/2021. The data used were collected from health workers at Zainoel Abidin general Hospital Banda Aceh using a non-probability sampling technique, namely consecutive sampling. The required sample size was established by using a sample size calculator (http://www.raosoft.com/samplesize.html) with a 5% margin of error, a 95% confidence level, and a 50% response distribution. The relationship between knowledge of the COVID-19 vaccine and the attitude of health workers was assessed using the Chi-square test with a probability level of 95% ($p<0.05$). Meanwhile, the effect of the various variables was evaluated with a multivariate regression test.

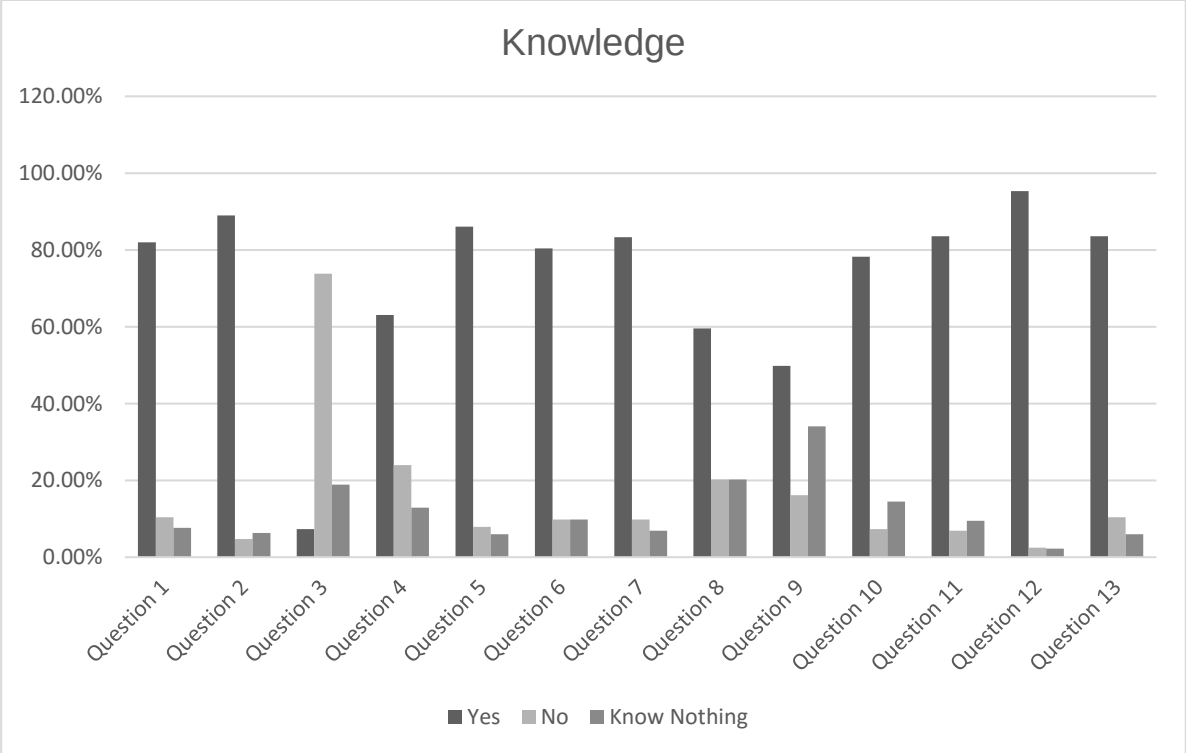

Figure 1. Participants' knowledge of COVID-19

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.13-25

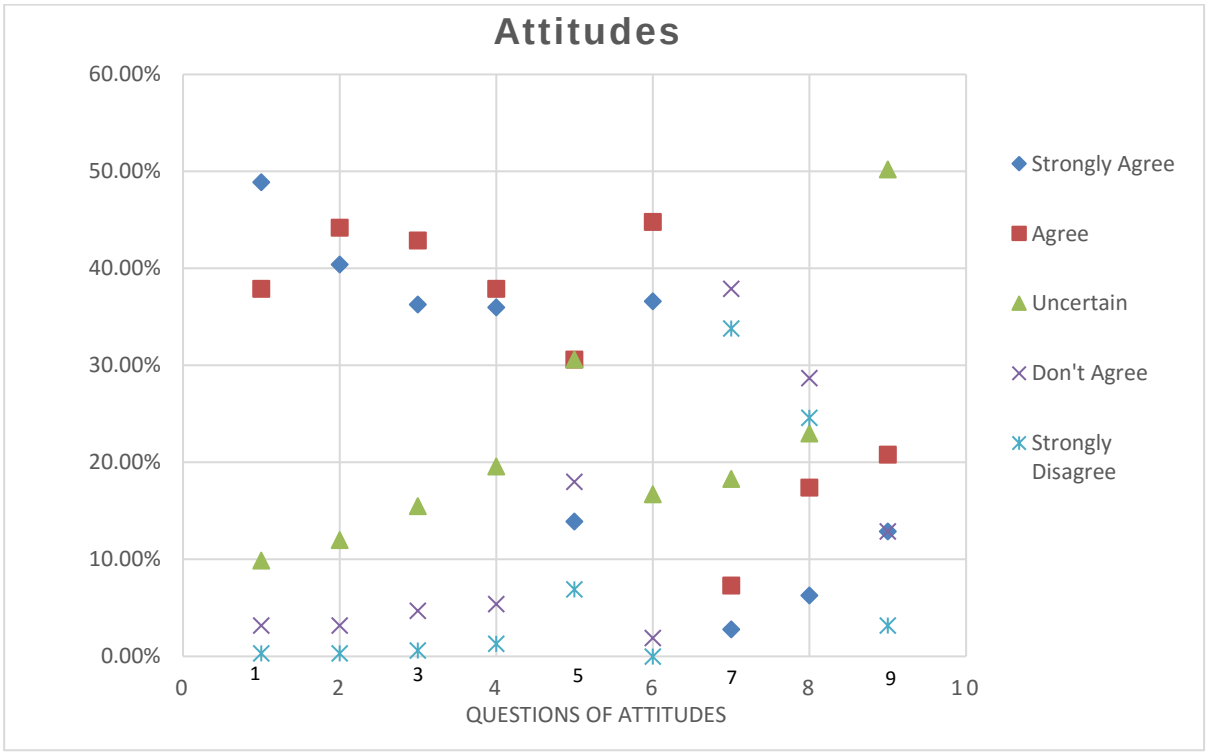

Figure 2. Participants' Attitudes of vaccine COVID-19

Result and Discussion

COVID-19 has been recognized as a growing public health problem worldwide. Scientists are working diligently to develop vaccine and alternative therapies. Social scientists, public health, and health communication are all seeking to discover the level of knowledge, attitudes, and practices about COVID-19 among the public regarding healthy living behaviors as well as educational programs at low cost (Azlan *et al.*, 2020).

In the first hurricane of COVID-19 in the spring of 2020, public health in New York City (NYC) rapidly expanded treatment techniques and capabilities across all hospitals to deal with unprecedented acute cases in response to the pandemic. However, the keys to successful pandemic control are the adequate supply and minimal side effects of the COVID-19 vaccine. The government and stakeholders involved in the health sector must also ensure the trust and acceptance of the community, especially health workers. This is because rejection and restrictions can hinder vaccination programs, harm general health, and delay the potential for health workers to minimize the challenges of a pandemic (Elhadi *et al.*, 2021). Therefore, this study presented an overview of the knowledge and attitudes of health workers toward the COVID-19 vaccine in Aceh.

COVID-19 is an infectious disease that was only discovered in 2019, with a devastating impact in a short time. Until now, there have been several published studies on knowledge of and attitudes toward the COVID-19 vaccination in Indonesia. As this disease evolves with uncertainties, stakeholders must develop strategies for preparing and managing communities. Therefore, knowledge and attitudes are essential things to learn in a population (Azlan *et al.*, 2020).

This study was carried out at Zainoel Abidin general hospital Banda Aceh with a total of 301 respondents. The general characteristics of the respondents consisted of gender, age, education, profession, and history of attending COVID-19 courses. The result showed 263 (87.4%) and 38 (12.6%) health workers were females and males, respectively.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.13-25

Furthermore, they were within the age range of 23-32 years and had undergraduate education with a total of 151 (50.2%) and 130 (43.2%), respectively. Approximately 147 (48.8%) were nurses, and only 84 (27.9%) had attended training on how to handle the COVID-19 pandemic, as presented in Table 1.

Table 1. Respondent characteristics

Characteristics	n	%
Gender		
Male	38	12,6
Female	263	87.4
Age		
23-32	151	50.2
33-42	108	35.9
43-52	33	11.0
>52	9	3.0
Educational Attainment		
Diploma level 1	124	41.2
Diploma level 4	20	6.6
Bachelor	130	43.2
Master	17	5.6
PhD	10	3.3
Profession		
Medical specialist	21	7.0
General practitioner	33	11.0
Nurse	147	48.8
Midwife	44	14.6
Pharmacist	24	8.0
Nutritionists	32	10.6
COVID-19 course		
Yes	84	27.9
No	217	72.1
Knowledge		
Good	204	67.8
Lack	97	32.2
Attitude		
Positive	213	70.8
Negative	88	29.2
Total	**301**	**100.0**

Nursing was the most common profession in this study, with a total of 147 nurses, accounting for 48.8% of the population, while 263 (87.4%) were females. It was discovered that the respondents were lazy to search for information in various media and were different from women who helped collect the latest information about the COVID-19 vaccine. Studies showed that laziness caused resignation in receiving the COVID-19 vaccine, while some women preferred non-pharmacological treatment for COVID-19. These different perceptions can affect the knowledge of men and women (Aklil and Temesgan, 2022).

Several investigations revealed that nurses played a vital role in mentoring, providing physical and psychosocial care, and serving as members of a large-scale healthcare team (Oldland *et al.*, 2020). They also pass through health promotion and prevention as well as maintain diseases, health, and well-being. Furthermore, nurses are generally united as a profession through common standards, codes of ethics, professional rights, and obligations. Women are also dominant in the field, where they perform various tasks, thereby negating the effects of gender segregation in other sectors (Clayton-Hathway *et al.*, 2020).

The result showed that the majority of health workers had good knowledge of the COVID-19 vaccine, although some did not attend training about the virus. Online social media platforms also affected their experience and knowledge (Glasdam *et al.*, 2022). A previous study revealed that 53% of nursing schools now use the media. For example, Twitter was used to improve clinical decision-making skills. Nurses can view videos of clinical scenarios and tweet their observations on the patient's condition for instructor feedback. Another study also used Twitter for nursing education by posting a live stream of student insights during class, or content material through resources, such as videos, websites, articles, and shareable photos. Media-sharing sites, such as YouTube, can also be used in class to stimulate discussion, illustrate a point, or reinforce a concept. Therefore, nurses can view videos and respond to questions that promote clinical reasoning (Lee Ventola, 2014).

The extensive knowledge and awareness of infectious diseases and COVID-19 vaccination, as presented in this study, can be applied as well as become an integrated part of the government's work program as a preventive effort in the public health sector. This is because interest in reading and health awareness influence a

Indonesian Journal of Health Administration
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10.20473/jaki.v11i1.2023.13-25

person's willingness to act based on health recommendations, which are important things to avoid since they can harm the pandemic. These include the disposal of personal protective equipment used and healthy living behaviors to reduce the burden of COVID-19 in the world. Therefore, there is a need to empower the interest in reading about public health through various social and educational programs to prepare individuals who are strong in facing the difficulties of the times and ensure the success of the vaccination program in the community (Islam *et al.*, 2020).

Observations in the field showed a great need for an education program that was more comprehensive, focused, and consistent in providing accurate news from the government and related authorities. Therefore, COVID-19 education efforts should be carried out proactively to eliminate fake news from conflicting opinions and misinformation. This referred to the level of media and communication technology use in society and evidence from other studies that the government will benefit from this mainstream and social media strategy in disseminating truthful information (Sukeri *et al.*, 2018).

The varying level of knowledge may reflect the current picture of COVID-19 information, especially in Indonesia. Although policymakers had made every effort to disseminate information on COVID-19 since this pandemic was first discovered, there is still much false information and inaccurate news circulating. Information overload can lead to confusion and difficulty ensuring correct information (Parzi, 2020).

Several studies in other Asian countries showed a high knowledge of COVID-19 among the general public and health workers. This can be due to differences in assessment and measurement methods; therefore, they can not be accurately compared (Azlan *et al.*, 2020).

High reading interest can also protect against harmful effects that arise in society and various problems due to COVID-19. Several investigations stated that higher education is interested in literacy related to COVID-19, leading to positive attitudes and practices towards COVID-19 problems reported in countries, including this study (Islam *et al.*, 2020).

COVID-19 has been recognized as a growing public health problem worldwide. Therefore, scientists are working diligently to develop vaccine and alternative therapies. Social scientists, public health, and health communications are also seeking to discover the knowledge, attitudes, and practices about the disease among the public regarding healthy living behaviors as well as educational programs at low cost (Azlan *et al.*, 2020).

Figure 1 displays respondents' opinions on the COVID-19 vaccination. It showed that the majority of respondents think positively about the COVID-19 vaccination. The results illustrated that Aceh's healthcare professionals had favorable perceptions of the COVID-19 vaccine. They also believed that vaccination is crucial for surviving the pandemic and allowing people to resume their normal lifestyles.

Table 2. Knowledge and attitude towards COVID-19 vaccination

Knowledge	Attitude				Total	p
	Positive		Negative			
	n	%	n	%		
Good	178	83.5	26	29.5	301	<0.001
Lack	35	16.5	62	70.5		

This study also revealed that 204 (67.8%) health workers had good knowledge about the COVID-19 vaccine, and 213 (70.8%) showed a positive attitude. A total of 178 (83.5%) health workers had good knowledge with a positive attitude, while 62 (70.5%) had less knowledge and negative attitudes. This indicated that good knowledge had a significant relationship with positive attitudes towards the COVID-19 vaccine among health workers at Zainoel Abidin general Hospital Banda Aceh (p<0.001), as shown in Table 2.

This result showed a relationship between knowledge of the COVID-19

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.13-25

vaccine and the attitude of health workers at Zainoel Abidin general Hospital Banda Aceh (p<0.001). It only indicated that respondents' attitude toward the vaccine was related to their understanding of the vaccination program. This was in line with Marsa, where 58.65% of respondents were knowledgeable about the prevention (Marsa, 2021). Information about the vaccine can be obtained easily from the internet or independently (El-Elimat *et al.*, 2021). Vinkan and Michele reported that the internet plays an important role in providing complete information about the vaccine (Vinka and Michele, 2021). Nasir *et al.* also showed that 95.99% of respondents had a positive attitude toward its effectiveness, availability, and safety. Furthermore, it can influence the community's decision to accept vaccination (Cordina, Lauri and Lauri, 2021). These results are also in line with Madkor *et al.*, who stated that there was a significant relationship between knowledge and attitudes (Madkor *et al.*, 2020). According to Cvjetkociv *et al.*, good vaccine knowledge is often accompanied by improvement in the health sector (Cvjetkovic, Jeremic and Tiosavljevic, 2017). This indicates that knowledge is an important factor influencing a person's attitude. However, knowledge is not the most dominant influential factor (Fabrigar *et al.*, 2006). They believed that the level of knowledge was the best indicator of favorable attitudes about vaccination.

This study assessed the influential factors of knowledge related to the vaccine COVID-19. The results showed that gender, age, education level, and attending the course did not affect knowledge, where OR: 1.10; 95% CI: 0.54-2.27; p>0.05. Meanwhile, the profession had a significant effect of aOR: 0.04; 95% CI: 0.00-0.64; p<0.05, as shown in Table 3. Professional identity and previously acquired sources of professionalism, such as educational background, were closely related. It was also discovered that bachelor's degree graduates were most frequently employed in the nursing profession. This indicated that today's nurses are competent in practice, health policy, and system improvement. They also have a surplus of skills and the ability to assess knowledge. However, one aspect of knowledge varied throughout the occupations examined. According to a study conducted in Cyprus, nurses had higher vaccination knowledge scores (more in-depth knowledge) regarding the COVID-19 vaccine (Fakonti *et al.*, 2022).

In the multivariable analysis, age, gender, and education were not significantly related to knowledge of vaccine, but the profession of health workers was the main factor. The COVID-19 course was not significantly related because not all health workers had the same opportunity to participate in training due to crowded field conditions during the pandemic. Side effects of the vaccination were the cause of hesitancy, as stated in various studies among the aged and general public. A previous report showed that side effects and poor efficacy were the cause of doubt among university students. Meanwhile, studies among other demographic groups revealed that low knowledge, adverse effects, speed of development, uncertainty about the effectiveness, duration of effectiveness, and medical distrust led to hesitancy (Jain *et al.*, 2021). Similarly, Kabamba Nzaji et al (2020) stated that the health profession has a relationship with the acceptance of the COVID-19 vaccine (Kabamba Nzaji *et al.*, 2020). Kazi et al (2020) also showed that the high acceptance is supported by knowledge or information from the government or health authorities (Mannan and Farhana, 2021).

Health workers consisted of various professionals with different levels of education. Several studies have shown that education level plays a role in a person's ability to scout out the correct information about the COVID-19 vaccine (Ciardi *et al.*, 2021).

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.13-25

Table 3. Unadjusted and adjusted logistic regression analyses showing factors associated with knowledge of COVID-19 vaccination

Characteristic	n (%)	Good Knowledge (%)	Unadjusted		Adjusted	
			OR (95% CI)	p–value	OR (95% CI)	p–value
Gender						
Male (R)	38 (12.6)	25 (66.67)	1			
Female	263 (87.4)	179 (68.02)	1.10 (0.54-2.27)	0.780		
Age						
23-32 (R)	151 (50.1)	99 (66.04)	1			
33-42	108 (35.9)	76 (69.36)	1.05 (0.25-4.37)	0.946		
43-52	33 (11.0)	23 (71.42)	0.84 (0.19-3.57)	0.816		
>52	9(3.0)	6 (66.67)	0.80 (0.18-4.18)	0.862		
Profession						
Medical specialist (R)	21 (7.0)	20 (95.00)	1		1	
Pharmacist	24 (8.0)	9 (37.50)	0.09 (0.01-0.74)	0.025	0.04 (0.00-0.64)	0.026
Nutritionists	32 (10.6)	12 (37.50)	3.23 (1.32-7.90)	0.010	3.15 (1.27-7.80)	0.013
General practitioner	33 (11.0)	29 (87.87)	3.23 (1.46-7.14)	0.004	3.36 (1.37-8.24)	0.008
Midwife	44 (14.6)	37 (84.09)	0.26 (0.08-0.80)	0.019	0.37 (0.11-1.25)	0.112
Nurse	147 (48.8)	97 (65.98)	0.36 (0.15-0.88)	0.025	0.33 (0.12-0.87)	0.025
Educational Attainment						
Diploma level 3 (R)	124 (41.2)	74 (58.69)	1		1	
Diploma level 4	20 (6.6)	15 (72.72)	6.08 (0.74-49.50)	0.092	0.55 (0.02-10.46)	0.691
Bachelor	130 (43.2)	93 (73.84)	3.00 (0.30-29.94)	0.349	0.26 (0.11-6.34)	0.408
Master	17 (5.6)	13 (76.47)	3.58 (0.43-29.26)	0.234	0.39 (0.21-7.51)	0.537
PhD	10 (3.3)	9 (90.00)	2.76 (0.26-29.04)	0.396	1.10 (0.57-21.47)	0.946
COVID-19 course						
Yes (R)	84 (27.9)	65 (77.52)	1		1	
No	217 (72.1)	139 (64.03)	0,52 (0.29-0.93)	0.028	0.64 (0.32-1.27)	0.206

Conclusion

The results showed a relationship between knowledge of the COVID-19 vaccine and the attitude of health workers. Furthermore, the profession was the major factor affecting the knowledge about vaccination. Health workers were partners, and they positively influenced the community's vaccination behavior. They can also be a source of health information and a determining factor for the acceptance of vaccine. However, stakeholders must always focus on strategies to increase understanding and practice disease prevention.

Abbreviations

COVID-19: Corona Virus Disease 2019; WHO: World Health Organization; SAGE: Strategic Advisory Group of Experts on Immunization; TPB: Theory of Planned Behavior;

Ethics Approval and Consent Participant

This study was reviewed and approved by the Institutional Review Board of the School

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Conflict of Interest
The authors declare there is no conflict of interest in this study.

Availability of Data and Materials
Data and material study can be provided at an open data repository.

Authors' Contribution
Handling manuscript and data collection: BY, RA, and IZ. Review and improvement: BY, IZ. All authors participated in the manuscript's preparation and agreed on the final version.

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References

Abdelhafiz, A. S. *et al.* (2020) 'Knowledge, Perceptions, and Attitude of Egyptians Towards the Novel Coronavirus Disease (COVID-19)', *Journal of Community Health*, 45(5), pp. 881–890. doi: 10.1007/s10900-020-00827-7.

Abdelhafiz, A. S. *et al.* (2020) 'Knowledge, Perceptions, and Attitude of Egyptians Towards the Novel Coronavirus Disease (COVID-19)', *Journal of Community Health*, 45(5), pp. 881–890. doi: 10.1007/s10900-020-00827-7.

Adane, M., Ademas, A. and Kloos, H. (2022) 'Knowledge, attitudes, and perceptions of COVID-19 vaccine and refusal to receive COVID-19 vaccine among healthcare workers in northeastern Ethiopia', *BMC Public Health*, 22(1), pp. 1–14. doi: 10.1186/s12889-021-12362-8.

Aklil, M. B. and Temesgan, W. Z. (2022) 'Knowledge and Attitude towards COVID-19 Vaccination and Associated Factors among College Students in Northwest Ethiopia,2021', *Health Services Research and Managerial Epidemiology*, 9, pp. 1–11. doi: 10.1177/23333928221098903.

Azlan, A. A. *et al.* (2020) 'Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia', *PLoS ONE*, 15(5), pp. 1–15. doi: 10.1371/journal.pone.0233668.

Ciardi, F. *et al.* (2021) 'Knowledge, attitudes and perceptions of covid-19 vaccination among healthcare workers of an inner-city hospital in New York', *Vaccines*, 9(5), pp. 1–16. doi: 10.3390/vaccines9050516.

Clayton-Hathway, K. *et al.* (2020) *Gender and Nursing as a Profession: Valuing nurses and paying them their worth*, *The Royal College of Nursing*.

Cordina, M., Lauri, M. A. and Lauri, J. (2021) 'Attitudes towards covid-19 vaccination, vaccine hesitancy and intention to take the vaccine', *Pharmacy Practice*, 19(1), pp. 1–9. doi: 10.18549/PharmPract.2021.1.2317.

COVID-19 Public Communication Team (2021) *More Than 1 Million Indonesian Health Workers Have Received the Covid-19 Vaccine*, *COVID-19 Hotline*.

Cvjetkovic, S. J., Jeremic, V. L. and Tiosavljevic, D. V (2017) 'Journal of Infection and Public Health Knowledge and attitudes toward vaccination : A survey of Serbian students', *Journal of Infection and Public Health*, 10(5), pp. 649–656. doi: 10.1016/j.jiph.2017.05.008.

Dror, A. A. *et al.* (2020) 'Vaccine hesitancy: the next challenge in the fight against COVID-19', *European Journal of Epidemiology*, 35(8), pp. 775–779. doi: 10.1007/s10654-020-00671-y.

El-Elimat, T. *et al.* (2021) 'Acceptance and attitudes toward COVID-19 vaccines:

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.13-25

A cross-sectional study from Jordan', *PLoS ONE*, 16(4 April), pp. 1–15. doi: 10.1371/journal.pone.0250555.

Elhadi, M. *et al.* (2021) 'Knowledge, attitude, and acceptance of healthcare workers and the public regarding the COVID-19 vaccine: a cross-sectional study', *BMC Public Health*, 21(1), pp. 1–21. doi: 10.1186/s12889-021-10987-3.

Fabrigar, L. R. *et al.* (2006) 'Understanding knowledge effects on attitude-behavior consistency: The role of relevance, complexity, and amount of knowledge', *Journal of Personality and Social Psychology*, 90(4), pp. 556–577. doi: 10.1037/0022-3514.90.4.556.

Fakonti, G. *et al.* (2022) 'General vaccination knowledge influences nurses' and midwives' COVID-19 vaccination intention in Cyprus: a nationwide cross-sectional study', *Human Vaccine and Immunotherapeutics*, 18(1), pp. 1–9. doi: 10.1080/21645515.2021.2016008.

Field, R. I. (2009) 'Mandatory vaccination of health care workers: Whose rights should come first?', *P & T : a peer-reviewed journal for formulary management*, 34(11), pp. 615–617.

Glasdam, S. *et al.* (2022) 'Nurses' use of social media during the COVID-19 pandemic-A scoping review', *PLoS ONE*, 17(2 February), pp. 1–18. doi: 10.1371/journal.pone.0263502.

Islam, S. M. D. U. *et al.* (2020) 'Perception and Attitudes Toward PPE-Related Waste Disposal Amid COVID-19 in Bangladesh: An Exploratory Study', *Frontiers in Public Health*, 8(November), pp. 1–6. doi: 10.3389/fpubh.2020.592345.

Jain, L. *et al.* (2021) 'Factors Influencing COVID-19 Vaccination Intentions Among College Students: A Cross-Sectional Study in India', *Frontiers in Public Health*, 9(December), pp. 1–8. doi: 10.3389/fpubh.2021.735902.

Jiang, N. *et al.* (2021) 'Nursing students' attitudes, knowledge and willingness of to receive the coronavirus disease vaccine: A cross-sectional study', *Nurse Education in Practice*, 55(July), p. 103148. doi: 10.1016/j.nepr.2021.103148.

Kabamba Nzaji, M. *et al.* (2020) ' Acceptability of Vaccination Against COVID-19 Among Healthcare Workers in the Democratic Republic of the Congo ', *Pragmatic and Observational Research*, Volume 11, pp. 103–109. doi: 10.2147/POR.S271096.

Lee Ventola, C. (2014) 'Social media and health care professionals: Benefits, risks, and best practices', *P and T*, 39(7), pp. 491–500.

Madkor, K. A. *et al.* (2020) 'Knowledge and attitudes toward vaccination among Saudi medical students', pp. 1–6. doi: 10.4103/jfmpc.jfmpc.

Malik, A. A. *et al.* (2020) 'Determinants of COVID-19 vaccine acceptance in the US', *EClinicalMedicine*, 26, p. 100495. doi: 10.1016/j.eclinm.2020.100495.

Mannan, K. A. and Farhana, K. M. (2021) 'Knowledge, Attitude and Acceptance of a COVID-19 Vaccine: A Global Cross-Sectional Study', *SSRN Electronic Journal*, 6(4). doi: 10.2139/ssrn.3763373.

Marsa, M. F. (2021) 'Faktor Yang Memengaruhi Pemahaman Vaksin COVID-19 Berdasarkan Pengetahuan, Sikap, Penerimaan Pada Warga Kelurahan Pejuang Kota Bekasi Periode April 2021', *Poltekes Kemenkes Jakarta II*.

Ministry of Health (2016) 'NCD_Prevention_and_Control_in_Indonesia.pdf', p. http://p2ptm.kemkes.go.id.

Mostoles, R. *et al.* (2022) 'Knowledge and attitudes toward COVID-19 vaccination among student nurses from Saudi Arabia', *Jurnal Ners*, 17(1), pp. 31–35. doi: 10.20473/jn.v17i1.34233.

Oldland, E. *et al.* (2020) 'A framework of nurses' responsibilities for quality healthcare — Exploration of content validity', *Collegian*, 27(2), pp. 150–163. doi: 10.1016/j.colegn.2019.07.007.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.13-25

Parzi, M. N. (2020) *Five more probed for spreading fake news on Covid-19*.

Raghupathi, V. and Raghupathi, W. (2020) 'The influence of education on health: An empirical assessment of OECD countries for the period 1995-2015', *Archives of Public Health*, 78(1), pp. 1–18. doi: 10.1186/s13690-020-00402-5.

Setyaningsih, A. and Siregar, K. N. (2021) 'Factor influencing vaccine rejection of complete basic immunization in indonesia', *Open Access Macedonian Journal of Medical Sciences*, 9(E), pp. 1300–1306. doi: 10.3889/oamjms.2021.7195.

Sholeh, M. A. N. and Helmi, M. I. (2021) 'The COVID-19 vaccination: Realization on halal vaccine for benefits', *Samarah*, 5(1), pp. 174–190. doi: 10.22373/sjhk.v5i1.9769.

Simangunsong, T. (2021) *Indonesian Government Official Threatens Legal Trouble For Those Who Refuse Covid-19 Vaccine*, *The New Lens*.

Spinewine, A. *et al.* (2021) 'Attitudes towards covid-19 vaccination among hospital staff—understanding what matters to hesitant people', *Vaccines*, 9(5), pp. 1–13. doi: 10.3390/vaccines9050469.

Sukeri, S. *et al.* (2018) 'A qualitative exploration of the misconceptions, knowledge gaps and constructs of leptospirosis among rural and urban communities in Malaysia', *PLoS ONE*, 13(7), pp. 1–12. doi: 10.1371/journal.pone.0200871.

Theodorea, C. F. *et al.* (2021) 'COVID-19 Vaccine in Indonesia: Knowledge, Attitudes, and Acceptance Among Dental Professionals', *Frontiers in Medicine*, 8(December), pp. 1–8. doi: 10.3389/fmed.2021.784002.

Vinka, A. M. and Michele, N. (2021) 'Pengaruh Teknologi Internet Terhadap Pengetahuan Masyarakat Jakarta Seputar Informasi Vaksinasi Covid-19', *Jurnal Teknologi Informasi Dan Komunikasi*, 8(1), pp. 1–13.

WHO (2021) *Ethiopia launches a COVID-19 vaccination campaign targeting the 12 years and above population*, *Regional Office for Africa*.

WHO (2022) 'Strategy to Achieve Global Covid-19 Vaccination by mid-2022', *Who*, pp. 1–16.

Wong, R. S. Y. (2021) 'Covid-19 vaccine and herd immunity: Perspectives, challenges and prospects', *Malaysian Journal of Pathology*, 43(2), pp. 203–217.

Original Research

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STAKEHOLDERS' ROLE IN THE IMPLEMENTATION OF STUNTING MANAGEMENT POLICIES IN GARUT REGENCY

Peran Pemangku Kepentingan dalam Implementasi Kebijakan Penanganan Stunting di Kabupaten Garut

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Abstract

Background: Convergence is a comprehensive integrated and coordinated activity to accelerate stunting reduction.
Aims: This exploratory qualitative study analyzed the roles of stakeholders in stunting management.
Methods: This study was conducted in Garut District from April to July 2021. Key informants including policymakers across programs were selected from the district, sub-district, and village levels. All of them were interviewed, and the interview data were processed with content analysis techniques and presented descriptively.
Results: Stakeholders had roles in the implementation of stunting handling programs as seen in the four quadrants indicated by vertical (interest) and horizontal (influence) lines. The Head of the District and the Deputy of the Head District had the most contribution and influence on the program's success. District-level government institutions (i.e., the DHO, Regional Planning and Development Agency, DPMD, PPKBP3A and PUPR) in Quadrant II are critical. Others can be found in Quadrant III for provincial and district institutions (medium category). The sub-district, community leaders, and cadres (Quadrant IV) all significantly contributed to the program's success.
Conclusion: Policymaker participation is acknowledged as a major concern in developing health policies. It is important to clearly outline the roles of stakeholders to promote their involvement actively, especially of local stakeholders that need to be advocacy-oriented in stunting management.

Keywords: policy, stakeholder, stunting

Abstrak

Latar Belakang: *Aksi konvergensi merupakan upaya mempercepat penurunan stunting yaitu kegiatan penyelarasan sumber daya secara menyeluruh yang terintegrasi, terpadu dan terkoordinir pada target prioritas.*
Tujuan: *Tujuan penelitian ini adalah menganalisa secara kualitatif peran pemangku kepentingan dalam implementasi kebijakan penanganan stunting.*
Metode: *Penelitian ini dilaksanakan di Kabupaten Garut mulai April hingga Juli 2021. Informan kunci termasuk pemangku kebijakan lintas program dipilih dari berbagai tingkat kabupaten, kecamatan, desa/ kelurahan. Semua informan diwawancara, dan data hasil wawancara dianalisis dengan teknik analisis konten dan disajikan secara deskriptif .*
Hasil: *Hasil analisis menunjukkan bahwa terdapat hubungan peran antar pihak yang dideskripsikan pada empat kuadran dengan garis vertikal (kepentingan) dan horisontal (pengaruh). Bupati dan Wakil Bupati memiliki kepentingan tertinggi dan pengaruh terbesar terhadap keberhasilan program. Perangkat daerah meliputi Dinas Kesehatan, BAPPEDA, DPMD, Dinas PPKBP3A dan PUPR (kuadran II), memiliki kepentingan tinggi. Perangkat daerah provinsi dan kabupaten lainnya berada di kuadran III (kategori sedang). Tingkat Kecamatan, Desa/ Kelurahan, tokoh masyarakat dan kader memiliki pengaruh cukup besar terhadap keberhasilan implementasi program.*
Kesimpulan: *Partisipasi pemangku kebijakan dianggap menjadi isu besar dalam pengembangan kebijakan kesehatan. Penting untuk merinci secara jelas peran pemangku kepentingan untuk mendorong keterlibatan mereka secara aktif, khususnya peran pemangku kepentingan lokal yang perlu mengarah pada advokasi dalam penanganan stunting.*

Kata kunci*: kebijakan, pemangku kepentingan, sunting*

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Introduction

One of the nutritional problems in Indonesia is stunting, a developmental disorder in children caused by poor nutrition, repeated infections, and inadequate psychosocial stimulation (World Health Organization, 2020). In 2020, Indonesia had the highest stunting rate in Southeast Asia after Timor Leste, with 31.8% (ADB, 2021). Based on data released by Indonesian Nutritional Status Survey (SSGI) in 2021, Indonesia experienced a decline in stunting rates from 27.7% in 2019 to 24.4% in 2021. The condition also happened in several provinces, one of which was West Java although they still had a relatively high stunting rate above 20%. The highest prevalence of stunting in Garut Regency, West Java reached 35.2%, and reducing stunting is still relatively challenging (RI, 2021).

However, stunting prevention is a priority for the government and society at all levels. One of the government's efforts to speed up stunting handling in Indonesia is through convergence (Indonesia, 2021). It is a program that integrates and aligns various resources and is performed using a comprehensive approach that includes specific nutrition interventions on priority groups and locations. Convergence is carried out through planning, budgeting, implementation, and monitoring and evaluation stages. Through convergence, it is expected that the implementation of programs at all levels can be integrated. For example, some nationally initiated services such as 1000 First Day of Life can be accessed by all groups, including the priority ones (Kementrian Bidang Pembangunan Manusia dan Budaya, 2018). Research conducted in Banggai Regency, Central Sulawesi shows convergence interventions successfully reduce stunting rates in children aged 0-11 months (Gani *et al*., 2021).

Policymakers have a big responsibility for mobilizing their organizational roles across programs and sectors. Coordination, commitment, a multi-sectoral approach, division of tasks at all organizational levels, and the development of access to health services need to be carried out as a whole for a program to succeed (Kathuria, Digwaleu-Kariko and Arur, 2019). Similar to research conducted in Padang, the convergence of policies in reducing stunting rates is still not optimal because the government still does not have specific regulations related to stunting, and sensitive nutrition interventions are still run independently (Iqbal and Yusran, 2021). In addition, research conducted in Semarang recommends that coordination mechanisms and roles should be precisely formulated and referred to the program targets (Lailia, Kismartini and Rahman, 2021).

The government has issued many policies and regulations to reduce stunting faster. However, stunting prevention programs at national or regional levels will be successful if they are carried out comprehensively and synergized (Titaley *et al*., 2019). Garut Regency, with a reasonably high stunting rate, offers a health problem landscape that is interesting to investigate**.**

A stunting intervention can be successful if a variety of stakeholders get involved in figuring out the social or health issues through policy-making processes. It is important to identify stakeholders who want to get involved further and to outline their roles in any intervention programs. Therefore, this study aims to analyze the roles of policymakers in accelerating actions to reduce stunting cases in Garut Regency.

Method

This study is a type of qualitative research conducted through in-depth interviews with guidelines. These guidelines were compiled based on themes about the roles of policymakers from the provincial to sub-district/ village levels in implementing stunting prevention policies. The research was carried out at four levels including province, district, sub-district and community. The data collection took place from April to July 2021 in Garut Regency.

In-depth interviews were conducted with key informants who are policymakers across programs in related sectors at the

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.26-35

district, sub-district, and community levels. They were selected through purposive sampling with the criteria as regional officials who are members of the stunting convergence team at the district, sub-district and village levels. They include those in charge of health programs at the district level (holders of stunting programs, intestinal worms, environmental health, health promotions at healthcare facilities), primary healthcare center level (heads and officers holding stunting programs, infectious diseases, intestinal worms, environmental health, health promotions, and maternal child health). They also need to work in related sectors (Regional Planning and Development Agency, Population Control Agency, Family Planning, Women's Empowerment and Child Protection, Social Service, Fisheries and Food Service, Education Office, Public Works and Human Settlements Office).

Some themes used in the analysis include resources, evaluation monitoring, cross-sectoral collaboration, and barriers to program implementation. Data were analyzed using a stakeholder's theory (Elwy *et al*., 2022), to map the relationships between stakeholder interests and influence. According to this theory, the research was conducted by (1) identifying the parties and their interests; (2) categorizing and classifying them; and (3) exploring the relationship between the parties. The relationships between one stakeholder and the others are described in four quadrants. The vertical line of the quadrant shows the size of the stakeholders' interests in the stunting programs, and the horizontal line of the quadrant demonstrates the size of their influence.

Data were analyzed through content analysis, and the analysis results were described. Data were collected using recorders and field notes. The data obtained were validated by triangulating the information from several informants (provincial, district, primary healthcare center, village, and community levels. Thematic analysis was applied with a deduction approach. Interview data were then coded to maintain the consistency of the results (IS, 2012). The recordings were transcribed and then thematically arranged in a matrix. Content in the matrix was grouped based on similarities and differences associated with the relevant theory on each theme.

Result and Discussion

This current study revealed some significant findings on the influence of stakeholders in stunting interventions. Some regional strategic policies had been effectively implemented, particularly in the health sector. However, some policymakers in some areas still did not synergize their activities. Research in Ethiopia and Nepal shows that the main obstacles are the lack of stakeholder participation in program implementation, the absence of integration between national and local officials, lack of awareness of programs, and lack of allocated budget. Therefore, it is imperative to identify top-down strategies in addressing the health issues through possible policies(Kennedy *et al*., 2016)**.**

According to the World Health Organization (WHO), inviting all stakeholders, both inside and outside the health sector, may successfully promote the development and negotiation of national health policies, strategies, and plans. Stakeholders from various expertise can formulate together meaningful policies that can inform values, objectives, and general directions of good health practices (WHO, 2021)**.**

Identification and Role of Policymaker

The roles of policymakers in handling stunting in Garut Regency are regulated in Garut Regent Decree Number 44 of 2018 concerning the Establishment of the National Movement Task Force for the Acceleration of Nutrition Improvement in Stunting Prevention (Barat, 2018).

The Head of the District and Deputy district are key policymakers who determine policies needed to prevent stunting. The roles and commitment of the Regional Head of Garut Regency can be seen from the policies that have been issued in addition to Garut Regent Decree, Number 44 of 2018. Although the head of

Indonesian Journal of Health Administration
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the task force team is the Deputy Regent, planning and coordinating roles at the district level are performed by the regional planning and development agency. These findings are supported by the information from several informants:

> *"…in the teamwork, yes, so far, the regional planning and development agency has also done this, Mam, yes, the motorbike…"*
> *(AS, Head of Early Childhood Education of the Department of Education and Culture)*

> *"Yes, it is usually coordinated by regional planning and development agency, and it is called a stunting discussion. The stunting meeting is usually opened by the head of the stunting task force or the regent...all SKPD are present. The analysis of the data from various SKPDs was intervened, and the location of the evaluation unit has been determined concerning what must be intervened. For example, twenty villages must be intervened in 2021." (IM, Head of Socio-cultural Regional Planning and Development Agency)*

Various activities carried out such as task force planning meetings, intervention design, evaluation, and situation analysis are coordinated by the Regional Planning And Development Agency of Garut Regency. Similarly, the Regional Planning And Development Agency of West Java Province also directs the planning of the Regional Medium Term Development Plan (RPJMD) of each region to focus on stunting prevention activities. Besides, the Bureau of People's Welfare at the Regional Secretariat of West Java Province also supports stunting management. Along with the Healthy City District development program, stunting handling is encouraged through stunting consultations in each region.

> *"…so when we conduct training to districts and cities, we always remember and address stunting handling properly. Our budget is more than expected for monitoring and monitoring assistance. The budget must be paid out when we are invited, for example, to stunting coordination meetings and so on."*
> *(MT, Provincial Welfare Bureau Staff)*

Public health is the leading sector in handling stunting at the Garut Regency Health Office. One of the integrated public health measures is the Family Health and Nutrition Section providing MMR, IMR and stunting. Besides this, others are the Environmental Health Section with the Community-Based Total Sanitation (STBM) program and the Clean and Healthy Behavior (PHBS) program, as well as a newly launched integration program, the Gagah ti Garut program. The following informants' responses support these findings.

> *"… the health office is responsible for stunting, right… I mean, our general policies are expected to target here... MMR, IMR, stunting, STBM, and PHBS that I want to remove from public health. MMR, IMR, stunting, family health-nutrition, 5 pillars of STBM, clean and healthy behavior (PHBS), especially for household arrangements go directly to the community. We have conveyed that here... and we have an additional big movement for stunting…"*
> *(TNC, Head of Public Health of the District Health Office)*

> *"...the health department is the one that plays the most role. We follow the steps suggested by the health department. The second is Regional Planning and Development Agency, to plan the activities. I followed the directions based on the leader's deliberation and instructions …"*
> *(CH, Head of Institutional Human Resources Department of Agriculture)*

The District Health Office handles stunting cases directly. However, it is not effective without empowerment and institutional development to prevent stunting in the community. The prevention of stunting in the community is closely related to the roles of integrated health posts. In addition, the Village Community Empowerment Service (DPMD) fosters its capacity to function, and the Health Office plays in its technical development. Other institutions that are also significant in

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.26-35

providing data include the Office of Population Control, Family Planning, Women's Empowerment, and Child Protection (DPPKBPPPA). Specifically, DPPKBPPPA primarily provides data on children under five, pregnant women, and women of childbearing age. The informants' answers below support the findings.

> *"However, for DPMD itself, we are not very technical about health, so we are also collaborating with the Health Office … "*
> *(FD, Staff at West Java Provincial DPMD)*

> *"… the role of our agency, especially the family planning service, is the first in providing data, Baduta data like toddler data, mothers who have toddlers and babies under two years old, hmm… mothers or families who have babies under 2 years, including pregnant ones. From 2019 to 2020, we will first continue to update data on children under two years old and pregnant women."*
> *(AS, Secretary of the DPPKBPPPA Service)*

In addition to supporting data, DPPKBPPPA also performs intervention efforts in handling stunting. They launched Communication, Information, and Education (CIE) regarding the First 1000 Days of Life to target families through the Toddler Family Development Program (BKKBN). They used educational media such as an anti-stunting ready-to-marriage kit for the program. These findings were confirmed by the informants in the interview.

> *"After we had data in 2019, CIE was carried out in 2020 on a large scale to the targeted families. It conveys information, especially on 1000 Days of Life. Procurement of anti-stunting ready-to-marriage kits is provided by the center."*
> *(AS, Secretary at the Service Department of DPPKBPPPA)*

Although all policymakers had carried out their respective roles, some of their areas were not directly related to the stunting program but supporting the stunting program. One of the informants mentioned organizations that are closely related to the stunting program.

Intervention programs supporting stunting management include the clean water program by the Public Works and Housing Service, the Pamsimas program by the Office of Perkim, the Toddler Family Empowerment program by DPPKBPPPA, the Family Hope Program (PKH) by the Social Service, health promotion support by the department of information and communication, food and community nutrition assistance by the Agriculture Service, Fisheries and Livestock Service and Food Security Service, and human development cadre program and integrated health post-development by the DPMD. At the sub-district and health centre levels, the organizations play different roles in stunting management, and primary healthcare centers implement policies and programs that are rolled out from the district level. The primary healthcare centers mostly handle programs related to stunting prevention as confirmed by the informants' answers.

> *"Finally, as time went on, the activities at the health center did, hmm… almost all start with mother-child health activities, health promotions, surveillance. In Sundanese, stunting is "poke." Come along and pay attention to the causes. Hmmm, stunting has three factors, right? Parenting patterns, then… nutrition and health are…"*
> *(IH, Head of Health Center)*

In contrast to the role of primary healthcare centers, the sub-district government said they did not contribute to stunting handling since they thought it was the responsibility of the healthcare facilities or primary healthcare centers. However, the village government took a part to support the stunting program at a village level through various interventions.

> *"Indeed in Garut, the Regional Work Units (SKPD) poorly perform their job, so the sub-districts* government *are not maximized. We sometimes have related programs, but that is the health department's task."*
> *(TS, Head of Garut Sub-district Capital)*

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(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.26-35

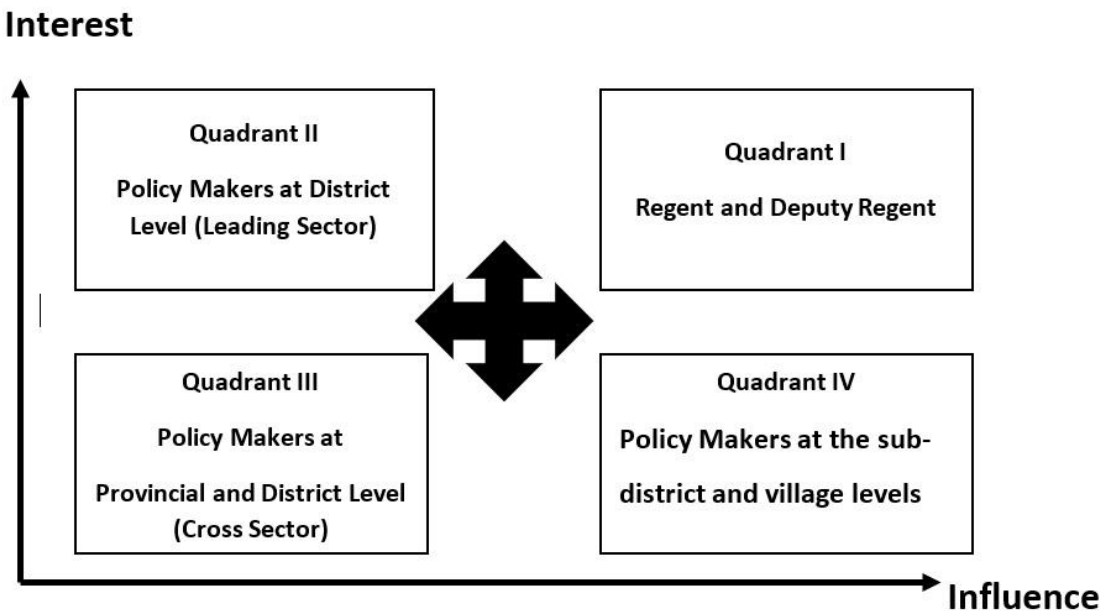
"Socialization to the community. There are usually meetings from the primary healthcare centers to facilitate rooms for activities with Family Health Education (PKK) cadres, and health cadres at integrated health posts. Our main agenda, hopefully in the future, is to hold programs both from preventive to evaluative measures or activities related to stunting prevention in our area. For wider distribution, we will provide socialization, education, and more information, such as billboards and pamphlets." (Head of Sukanegla Village)

Categorization of Stunting Handling Program in Garut Regency

The relationships between parties are described in four quadrants, with the vertical line showing the size of their interests in the stunting program and the horizontal line showing the size of their influence. Results showed the perceived roles of policymakers are quite diverse. Some mentioned Regional Planning And Development Agency, Health Office, and Family Planning Office, and all units at regional levels had the same portion of contribution to the task force team. However, only units at regional levels played more roles in the program.

"We have formed a teamwork, none of which has… hmmm… the most dominant role, but we contribute to each other, right, back up each other... meet the needs of the program..." (AJ, Head of Division, Garut Regency PMD)

"The driving force... for data collection and so on, is in the Health Office, so regional planning and development agency plans to do the distribution... Data from the Health Office are sent to Bapeda, who will then direct us."
(DK, Head of PUPR, Male)



Source: Petkovic *et al*. (2020)
Figure 1. Position of Stakeholders in Handling Stunting Program

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(Jurnal Administrasi Kesehatan Indonesia)
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Stunting prevention measures in Garut Regency were performed according to the functions and authorities of each institution. The Head of the District is the key policyholder showing his commitment by issuing Garut Regent Decree Number 44 of 2018 concerning the Establishment of the National Movement Task Force for the Acceleration of Nutrition Improvement in Stunting Prevention and Regent Circular Letter Number 555 of 2018 2018 regarding Strategy for Implementation of Community Behavior Change Communication to Prevent Stunting (Garut, 2018). However, support, cooperation, and collaboration among all existing policymakers are required to put the policies in place. Saufi (2021) revealed that stunting prevention policies made by local governments will only be limited to a shared commitment if the roles and alignments of each stakeholder are not elaborated in-depth. Many collaborative governance gaps happened in stunting prevention programs due to uneven roles among stakeholders (Ansell and Gash, 2008; Saufi, 2021).

The main policy stakeholder that acts as the spearhead in stunting prevention is the Health Office. Although the Stunting Task Force needs the contributions of institutions in various sectors, the Health Office still has the bigger portion. Studies by Syafrina (2019) and Febrian (2021) show that the dominant role of the Health Office in stunting prevention was also found in Padang Pariaman. The Regional Government should maximize coordination across all sectors to balance, synergize, and support preventive measures (Syafrina, Masrul and Firdawati, 2019; Febrian and Yusran, 2021).

Regional Planning and Development Agency organize various activities such as task force planning meetings, intervention design, evaluation, and situation analysis. Like the Regional Planning and Development Agency of Garut Regency, the Regional Planning and Development Agency of West Java Province also directs the RPJMD plan of each region on stunting prevention. In other words, the Regional Planning and Development Agency is a driving force for other sectors in the stunting handling task force. Due to in-optimal socialization, tasks are not evenly distributed to all institutions. As a result, they do not fully understand their roles in stunting prevention programs. Sectoral ego is also one of the challenges in program convergence (Permanasari *et al*., 2020).

Each policyholder in Garut Regency seems to perform their role in the program. Deficiencies in the initial planning often occur as various activities are not carried out synergistically (Iqbal and Yusran, 2021). Research in Kepahiang Regency similarly shows that the implementation of the intervention is ineffective due to unintegrated work from all stakeholders (Iswarno *et al*., 2013). Such individual performance gives disadvantages to the distribution of specific and sensitive nutrition programs (Iqbal and Yusran, 2021).

Overall, as a key policyholder with BAPPEDA, the regent needs to monitor the performance of each regional apparatus. Intervention programs carried out by related sectors and supporting stunting management in Garut Regency include interventions for providing clean water by the PUPR Service; Pamsimas program by the Office of Perkim; the Toddler Family Development program by DPPKBPPPA; Family Hope Program (PKH) by the Social Service; health promotion support by Diskominfo; support for the fulfilment of food and community nutrition by the Agriculture Service, Fisheries and Livestock Service and Food Security Service, and one which is no less important and directly related to stunting prevention convergence action is the human development cadre program and Posyandu development by the DPMD. Saputri (2019) revealed that monitoring every program carried out by policymakers to support stunting prevention is necessary to ensure that the programs that have been implemented achieve the program objectives as expected.

Community empowerment was chosen to be one of the strategies for stunting prevention. The Village Community Empowerment Service (DPMD) supported community empowerment by collaborating with cadres and integrated health posts, which

Indonesian Journal of Health Administration
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encourage community reliance. Capacity building for cadres and revitalization of integrated health posts become continuous actions with substantial budget support in partnership with other institutions such as healthcare facilities, Social Services, PKK Mobilization Team, and others. In line with the results of Astuti's (2018) research, sustainable community empowerment and independence are keys to the success of stunting prevention. Development training for cadres of integrated health posts, massive health promotion, atmosphere building, advocacy and partnership ultimately suppress stunting rates (Astuti, Megawati and Samson, 2018).

Moreover, the village government acts as the implementer and facilitator of every policy and program launched by the Regional Government. With sufficient socialization, adequate capacity building, and an allocated budget, challenges might still be found in program implementation. Research also confirms that these three factors are important to get them well-informed (Widianingsih, Gunawan and Rusyidi, 2018; Khoisah and Muhardini, 2019). The Village Fund that can be allocated for stunting programs can reach up to 20%. Given training on program planning, implementation, and monitoring, the village government could be more focused on program targets.

An independent and empowered community is more able to monitor the growth and development of its children. Therefore, they could overcome child growth and development issues (Laili and Andriani, 2019).

Conclusion

There were 16 stakeholders who have implemented stunting management policies in Garut Regency. Their roles are grouped into main, key, and supporting stakeholders. Policymakers had carried out their responsibilities although some of their areas were unrelated to stunting. Due to ego barriers across sectors, the convergence strategy in this area was not operated optimally. Future studies should examine ways to maximize stakeholder participation in the convergence team and whether stakeholder participation is positively associated with successful stunting prevention strategies.

Abbreviations

DHO: District Health Office, DPMD: Village Community Empowerment Service, BAPPEDA: Regional Planning and Development Agency, DPPKBPPPA: Office of Population Control, Family Planning, Women's Empowerment, and Child Protection.

Declaration

Ethics Approval and Consent Participant

This study has passed the ethics review from the Ethics Committee of the National Institute of Health Research and Development, Indonesian Ministry of Health.

Conflict of Interest

The authors declare that they have no competing interests.

Availability of Data and Materials

Data and materials are available based on demand from journals and readers.

Authors' Contribution

Study conceptualization: MI, EP, YY. Methodology: MI, EP. Formal analysis: MI, YY. Validation: ADL, MI, WR. Data Visualization: ADL, EP, WR. Writing (original draft): MI. Writing (review and editing): all authors

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References

ADB (2021) *Prevalensi Stunting Balita Indonesia Tertinggi ke-2 di Asia Tenggara*. https://databoks.katadata.co.id/datapublish/2

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.26-35

Ansell, C and Gash, A. (2008) 'Collaborative governance in theory and practice', *Journal of Public Administration Research and Theory,* 18(4),p. 543. https://doi.org/https://doi.org/10.1093/jopart/mum032

Astuti, S., Megawati, G. and Samson (2018) 'Gerakan Pencegahan Stunting Melalui Pemberdayaan Masyarakat Di Kecamatan Jatinangor Kabupaten Sumedang', *Jurnal Aplikasi Ipteks untuk Masyarakat*, 7(3), pp. 185–188.

Barat, P.D.K.G.P.J. (2018) *Keputusan Bupati Garut Nomor 44 tahun 2018 tentang Pembentukan Satgas Gerakan Nasional Percepatan Perbaikan Gizi Dalam Penanggulangan Stunting*.

Elwy, A.R. *et al*. (2022) 'Involving Stakeholders as Communication Partners in Research Dissemination Efforts', *Journal of General Internal Medicine*, pp. 123–127. https://doi.org/10.1007/s11606-021-07127-3

Febrian, F. and Yusran, R. (2021) 'Koordinasi Dalam Implementasi Kebijakan Pencegahan Stunting di Kota Padang', *Jurnal Manajemen dan Ilmu Administrasi Publik*, 3(1), pp. 11–21.

Gani, A.A. *et al*. (2021) 'The effect of convergent action on reducing stunting prevalence in under-five children in Banggai District, Central Sulawesi, Indonesia', *Gaceta sanitaria*, 35(2), pp. S421–S424. https://doi.org/https://doi.org/10.1016/j.gaceta.2021.10.066

Garut, P.D.K. (2018) 'Strategi Implementasi Komunikasi Perubahan Perilaku Masyarakat Untuk Mencegah Stunting', *Surat Edaran Bupati Nomor 555 Tahun 2018* [Preprint].

Indonesia, K.H. dan H.A.M.R. (2021) *Peraturan Presiden Republik Indonesia No 72 Tahun 2021 tentang Percepatan Penurunan Stunting*.

Iqbal, M. and Yusran, R. (2021) 'Upaya Konvergensi Kebijakan Pencegahan Stunting di Kota Padang', *Jurnal Manajemen dan Ilmu Administrasi Publik*, 3(2), pp. 109–116.

Iswarno *et al*. (2013) 'Analisis Untuk Penerapan Kebijakan: Analisis Stakeholder Dalam Kebijakan Program Kesehatan Ibu Dan Anak Di Kabupaten Kepahiang', *Jurnal Kebijakan Kesehatan Indonesia*, 2 No. 02 J.

Kathuria, A.K., Digwaleu-Kariko, E.A.B. and Arur, A. (2019) *Success Stories with Reducing Stunting : Lessons for PNG*. Available at: https://policycommons.net/artifacts/1462680/success-stories-with-reducing-stunting/2106149/

Kementrian koordinator Bidang Pembangunan Manusia dan Budaya (2018) 'Strategi Nasional Percepatan Pencegahan Anak Kerdil (Stunting)'.

Kennedy, E. *et al*. (2016) 'Implementing Multisector Nutrition Programs in Ethiopia and Nepal: Challenges and Opportunities from a Stakeholder Perspective', *Food and Nutrition Bulletin*, 37(4_suppl), pp. S115–S123. https://doi.org/10.1177/0379572116674552

Khoisah and Muhardini, S. (2019) 'Pelatihan Pengembangan Sumber Daya Manusia (PSDM) Unsur Perangkat Desa Dan Kader Pembangunan Manusia Se-Kecamatan Aikmel Kabupaten Lombok Dalam Konvergensi Pencegahan Stunting', *Jurnal Pendidikan Mandala*, 4(5), pp. 318–322.

Laili, U. and Andriani, R.A.D. (2019) 'Pemberdayaan Masyarakat Dalam Pencegahan Stunting', *Jurnal Pengabdian Masyarakat Ipteks*, 5(1), pp. 8–12.

Lailia, I., Kismartini and Rahman, A.Z. (2021) 'Peran Stakeholders Dalam Implementasi Kebijakan Intervensi Gizi Sensitif Di Kota Semarang', *Journal Of Public Policy And Management Review*, 10(3). 10.14710/jppmr.v10i3.31228

Permanasari, Y. *et al*. (2020) 'Tantangan Implementasi Konvergensi pada Program Pencegahan Stunting di

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.26-35

Kabupaten Prioritas', *Media Penelitian dan Pengembangan Kesehatan*, 30(4), pp. 315–328.

Petkovic, J. *et al*. (2020) 'Protocol for the development of guidance for stakeholder engagement in health and healthcare guideline development and implementation', *Systematic Reviews*, 9(1). https://doi.org/10.1186/s13643-020-1272-5

RI, B.L.K. (2021) *Buku Saku Hasil Studi Status Gizi Nasional (SSGI) Tingkat Nasional, Provinsi, dan Kabupaten/Kota Tahun 2021*.

Rubin, H.J. and Rubin, I. (2012) *Qualitative Interviewing: The Art of Hearing Data.* 2nd edn. Thousand Oaks: SAGE Publications.;

Saputri, R.A. (2019) 'Upaya Pemerintah Daerah Dalam Penanggulangan Stunting Di Provinsi Kepulauan Bangka Belitung', *Jdp (Jurnal Dinamika Pemerintahan)*, 2(2), pp. 152–168. https://doi.org/10.36341/jdp.v2i2.947.

Saufi, A. (2021) 'Dinamika Collaborative Governance dalam Penanggulangan Stunting Ditengah Pandemi Covid-19', *Prosiding Seminar Nasional Penanggulangan Kemiskinan*, 1(1), pp. 80–95.

Syafrina, M., Masrul and Firdawati (2019) 'Analisis Komitmen Pemerintah Kabupaten Padang Pariaman dalam Mengatasi Masalah Stunting Berdasarkan Nutrition Commitment Index 2018', *Jurnal Kesehatan Andalas*, 8(2), pp. 233–244.

Titaley, C.R. *et al*. (2019) 'Determinants of the stunting of children under two years old in Indonesia: A multilevel analysis of the 2013 Indonesia basic health survey', *Nutrients*, 11(5). https://doi.org/10.3390/nu11051106.

Widianingsih, I., Gunawan, B. and Rusyidi, B. (2018) 'Peningkatan Kepedulian Stakeholder Pembangunan Dalam Mencegah Stunting Di Desa Cangkuang Wetan Kecamatan Dayeuhkolot Kabupaten Bandung', *Kumawula: Jurnal Pengabdian Kepada Masyarakat*, 1(2), pp. 120–130. https://doi.org/10.24198/kumawula.v1i2.20836.

World Health Organization (2020) *Global targets 2025*.

World Health Organization (WHO). (2021) *National health policies, strategies and plans: engaging stakeholders*. Geneva, Switzerland.

Original Research

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WILLINGNESS TO ACCEPT AND SATISFACTION OF COVID-19 VACCINE IN EAST JAVA CULTURAL AREAS

Kesediaan Menerima dan Kepuasan Terhadap Vaksin COVID-19 di Wilayah Kebudayaan Jawa Timur

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Abstract

Background: Vaccinations are considered to be most effective solution to end a pandemic. Various issues develop inclusively regarding doubts about vaccines, which can be formed by various factors, such as social and cultural environment.
Aims: This study aims to analyze factors that affect willingness to accept (WTA) COVID-19 vaccine in four dominant cultural areas in East Java (Arek, Madura, Mataraman and Pandalungan) and analyze what factors influence satisfaction of vaccination.
Methods: This is quantitative research which analyzes 825 participants (40% men; 60% women). By using primary data the probit regression method is applied. We use dummy variables of WTA and level of satisfaction as dependent variables, while the independent variables include economic, health, socio-demographic and internal-external factors of vaccination program.
Results: This research showed different results in each cultural area; WTA of vaccines was influenced by income, assets, employment, health, education, gender, and age, while satisfaction with vaccines is associated with side effects, type of vaccine, and time of service (AOR: 0.31 to 0.56, αlpha: 1%-10%).
Conclusion: This study concludes that people of Arek and Mataraman tend to be willing and satisfied with vaccination, while Madura and Pandalungan show an opposite result due to lower accessibility, welfare, and culture.

Keywords: COVID-19, East Java, cultural areas, satisfaction, vaccine, willingness to accept

Abstrak

Latar Belakang: *Program vaksinasi dianggap sebagai solusi paling efektif untuk mengakhiri pandemi. Berbagai isu berkembang secara inklusif terkait keraguan terhadap vaksin dapat terbentuk dari berbagai hal, seperti lingkungan sosial dan budaya masyarakat.*
Tujuan: *Penelitian ini bertujuan untuk menganalisis faktor yang mempengaruhi kesediaan menerima vaksin COVID-19 di empat wilayah budaya dominan di Jawa Timur yaitu Arek, Madura, Mataraman dan Pandalungan serta menganalisis faktor-faktor yang mempengaruhi tingkat kepuasan vaksinasi tersebut.*
Metode: *Jenis penelitian ini adalah kuantitatif yang menganalisis 825 partisipan (40% pria dan 60% wanita). Dengan menggunakan data primer, digunakan metode regresi probit. Penulis menggunakan variable dummy kesediaan menerima dan tingkat kepuasan sebagai variable dependen, sedangkan variabel independen meliputi faktor ekonomi, kesehatan, sosial-demografis dan internal-eksternal dari program vaksin.*
Hasil: *Penelitian menunjukkan hasil yang berbeda di setiap wilayah kebudayaan, kesediaan individu untuk menerima vaksin dipengaruhi oleh pendapatan, aset, pekerjaan, kesehatan, pendidikan, jenis kelamin, usia, dan tempat wilayah Arek, Madura, Pandalungan, dan Mataram, sedangkan kepuasan terhadap vaksin berhubungan dengan efek samping, jenis vaksin, dan waktu pelayanan (AOR: 0.31 to 0.56, αlpha: 1%-10%).*
Kesimpulan: *Studi ini menyimpulkan bahwa masyarakat Arek dan Mataraman cenderung bersedia dan puas dengan vaksinasi, sedangkan Madura dan Pandalungan menunjukkan hasil sebaliknya karena aksesibilitas, kesejahteraan, dan budaya yang lebih rendah.*

Kata kunci*: COVID-19, Jawa Timur, kepuasan, kesediaan untuk menerima, vaksin, wilayah kebudayaan*

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Introduction

The coronavirus pandemic, commonly referred to as COVID-19, has infected 223 countries. Meanwhile, in Indonesia, positive cases in 2021 reached 882,418 cases (KPCPEN, 2021). This condition has become a historical record as the largest global virus with negative impacts in various sectors (Perez and Abadi, 2020)

With various policy steps taken, vaccines are expected to be the most effective and efficient solution to end this health disaster/pandemic (Haynes *et al*., 2020). Therefore, not surprisingly, various research and development institutions collaborate globally to develop a COVID-19 vaccine (Akhtar *et al*., 2020).

However, the fact that vaccine issues are developing in the community and often make people curious and afraid becomes a challenge that must be addressed. For example, regarding the perception of Sinovac's COVID-19 vaccine, which is considered no better than Pfizer's (Smitha and Thomas, 2020), the public has doubts because the vaccine is debated about the manufacturing process and feasibility (Ophinni *et al*., 2020), safety level, efficacy level and post-vaccination effects (Su *et al*., 2020), and various other issues that occurred not only in Indonesia but also in other countries. Therefore, in the end, it was not enough for the government to urge but also "directly point out" the list of participants who must get the vaccine first.

Vaccine hesitancy exists among people, which could be a serious problem for efforts to control the current pandemic (Kruketi, 2022). About less than half of the respondents were unwilling to accept the COVID-19 vaccines when available mainly due to misconception about the vaccines (Abubakar, 2022). Consequently, eliminating public hesitancy and skepticism in the face of vaccination campaigns is a critical factor for policymakers concerned with addressing such threats (Tsutsumi, 2022). They must have a good understanding of the willingness of the population, especially those individuals who are likely to refuse or delay vaccination.

Various issues that developed in the era of inclusive media regarding "doubt" about vaccines can be formed by various things, for example, the social and cultural environment of society (Al-Mohaithef and Padhi, 2020; Harapan *et al*., 2020; Malik *et al*., 2020). This issue has happened in the context of public perception of doubts about the spread and danger of COVID-19 in the early days of entering East Java, Indonesia, which is quite diverse in culture.

Meanwhile, based on the research of Sutarto and Sudikan (2004), East Java has at least ten cultural areas, including Arek, Mataraman, Osing (Banyuwangi) cultures, Samin, Tengger, Pandalungan (East Java's horse-shoe areas assimilation of Mataraman and Madura Javanese), Panaragan (Ponorogo region and its surroundings), large Madura, small island Madura, and Bawean Madura. If the cultural plurality existed before the vaccination program (pre-vaccine), according to the team's observations in the Madura, Surabaya, and surrounding areas, it shows a different perspective on the COVID-19 preventive attitude (through 3M and 3T).

Data from the Ministry of Health of the Republic of Indonesia, as of January 2023 show that the coverage of COVID-19 vaccination in East Java has reached 85%, where Surabaya has contributed the most to achieving the vaccination target in East Java, which is 9.4%. If viewed based on cultural areas, the achievement of vaccine coverage in the Arek area reached 5%, Pandalungan 2.9%, Mataraman 2.3% while Madura 2%. As we observed, there is a gap of vaccination coverage among those areas. So, it is quite relevant and interesting when considering the approach of the cultural area in this social humanities research to see a comparison of the Willingness to Accept (WTA) COVID-19 vaccine in the East Java community.

The WTA concept can be found in environmental and economic studies, which show an individual's ability to accept the damage that occurs in the environment (Horowitz and McConnell, 2003; Wang *et*

Indonesian Journal of Health Administration
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al., 2020). This concept means that there is an economic assessment of the compensation (e.g., from the factory) that the community (around the factory) is willing to accept as the environmental quality decline is equivalent to the cost of improving the environmental quality.

A simple example is if the community accepts CSR (Corporate Social Responsibility) from factories or similar assistance around their settlements, their WTA is high. In economics, WTA can also mean the minimum amount of money that a person is willing to accept to sell goods or services (producer/seller position (Skeva *et al*., 2016)) (consumer willingness to buy goods/services (Lanzini *et al*., 2016), or can be associated with a willingness to bear negative externalities, such as pollution (Sun *et al*., 2016), congestion (Jia *et al*., 2018) and others.

In association with the field of health economics or public health studies, in the context of this study, WTA is people's willingness to accept public health programs from the government in a pandemic emergency, namely the COVID-19 vaccine. This context is unique and interesting because psychologically, marketing people will generally pay attention to something free which is generally expensive, such as vaccines. However, because this vaccine is new and in the media, it shows a lot of debate and analysis of various perspectives on it. Therefore, it is not surprising that even though it is applied free of charge, the public's willingness to receive the vaccine, not necessarily acceptable. Even the policies seem to "encourage" certain parties (in order of priority) to be willing to be the first to receive the COVID-19 vaccine.

There are ten cultural areas consisting of Arek culture, Mataraman, Osing (Banyuwangi), Samin, Tengger, Pandalungan (East Java horseshoe area assimilated Java Mataraman and Madura), Panaragan (Ponorogo area and its surroundings assimilated with Mataram), Madura Besar, Madura small islands, and Madura Bawean (Sutarto and Sudikan, 2004). Such division of cultural areas is not meant to differentiate/separate but as an understanding of the characteristics of society. It is based on Kluckhohn's (2017) thinking about the seven elements of culture: religious systems, community organization systems, knowledge systems, livelihood systems, living equipment systems and technology, and language.

The previous study was carried out by Al-Mohaithef and Padhi (2020) to see the acceptance of the vaccine if the government gave it in Saudi Arabia. An online-based survey with a snowball sampling system of 1000 respondents in four cities (Riyadh, Dammam, Jeddah, and Abha) showed that 68 were willing to receive the vaccine. The chosen logistic regression model shows the dominance of those willing to receive the vaccine because of the age factor > 45 years, working in public institutions, having a minimum education of S1, and being married. Malik *et al*.'s (2020) research in the United States showed that an online survey included 674 participants, with 450 people (67%) saying they would receive the COVID-19 vaccine if it were recommended. Whereas adults who are already working permanently, male, over 55 years old, have higher education (minimum bachelor degree) and are not residents tend to be more accepting or have WTA on the COVID-19 vaccine if one is found. Meanwhile, Harapan *et al*. (2020) carried out a similar study in Indonesia, although the assumption used is WTP (Willingness to Pay). Their findings, using a simple dichotomous contingent assessment method and a linear regression model on online survey data, showed that 1,359 respondents completed the survey.

In addition, as terms of tracing previous studies on cultural pluralism, research so far tends to link the cultural area of East Java with social life/behavior, politics, livelihood, economic models, artistic styles, and the like (Setyaningsih and Rofi, 2014). Economic variables (income, asset, employment) were considered as the main factor influencing individuals' perception. Higher economic status is related to drive higher education and health which indirectly affects

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p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

individuals' knowledge, awareness and willingness to accept vaccination. Other than that, in term of services and quality of the program these are assumed to determine individuals' satisfaction. The survey established by UNICEF (2020) found that community groups that have more information about vaccines are more likely to accept the vaccine. The same was true of respondents with health insurance, who said they were more likely to accept the vaccine. These findings indicate that accurate information is needed about the vaccine.

Tsutsumi el al. (2022) recorded characteristics that might influence individuals, including age, gender, household structure (living alone or with others), and job (employed or unemployed). Jabessa and Bekele (2022) stated that the factors that directly promoted vaccination behavior were a lack of vaccine hesitancy, recommendations from friends or family for vaccination and absence of perceived barriers to COVID-19 vaccination (Chen, 2021). Regarding the demographic factors, women were found to be less willing to accept the vaccine than men, while people under the age of 25 years and less well-educated respondents were marginally more willing to take the vaccine than educated (Bekele *et al*., 2021; Jabessa and Bekele, 2022). While Wang *et al*. (2021) stated that beside socioeconomic status, health condition of individuals also influences acceptance.

However, it is quite rare to find studies that lead to multicultural factors in East Java related to the health sphere, specifically referring to their willingness or volunteerism to use the new COVID-19 vaccine. It is a separate research gap that will be answered in this study.

Based on the background, this research aims to analyze what factors determine the willingness to accept and aspects that influence satisfaction after receiving COVID-19 vaccination. We anchored spatial approaches in four dominant cultural areas in East Java, Arek, Pandalungan, Mataraman and Madura, which appears as the novelty of this study. The authors' expectation that this research would be considered by any stakeholders or government in decision-making.

Method

This research is a quantitative research using primary survey data from four cultural areas in East Java. The authors use dummy variable to measure the level of willingness to accept and satisfaction after receiving the vaccine. According to the study of the literature, the willingness to accept is determined by several aspects including economics, health, and social demographics, while the level of satisfaction is influenced by internal and external factors from the vaccination program itself.

Data and scope

This study focused on four large and dominant cultural areas: (1) Madura, (2) Arek, (3) Pandalungan, and (4) Mataraman, where this survey was conducted from June – August 2021. The authors used primary data by creating and distributing online questionnaires with purposive random sampling.

Based on data from the Central Statistics Agency (2020), the population of East Java is 40 million people, where the proportion of distribution based on cultural areas in the Mataraman group is 34.62%, Arek at 30.86%, Pendalungan at 24.67%, and Madura 9.85%. In this survey, the number of individuals was 40% male and 60% female, with an age range of 16-50 years-old.

The Slovin method was used to obtain a sample to be representative of the entire population on that object. The minimum number of samples is 400 with a Mataraman distribution of 138 respondents, Arek 123 respondents, Pandalungan 99 respondents, and Madura 39 respondents. We consider Slovin due to its ability to map minimum adequate numbers of distribution sample in a given region. However, the distribution is experiencing data uniformity constraints, so estimates cannot be made. Thus, we increased the respondent number according to the East Java population

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

distribution issued by BPS, so that the number of respondents is 825, with Arek as many as 250, Mataraman 271, Pandalungan 197, and Madura 107.

Table 1. Respondents' Characteristics

Variables	Percentage
Gender	Male: 40% Female: 60%
Education	SD (primary school): 2.7% SMP (secondary school): 2% SMA (high school): 70% D3/D4 (Diploma III/IV): 1.6% S1/S2 (bachelor/master degree): 23.7%
Age	18 – 20 y.o: 40% 21 – 25 y.o: 30% 26 – 30 y.o: 16% 31 – 50 y.o: 14%
Income	≤ IDR 1.000.000: 54.3% IDR 2.000.000 – IDR 4.000.000: 25% ≥ IDR 4.000.000: 20.7%

Estimation models

This study uses binary logistic regression to estimate the probability trend prediction of an independent variable. Qualitatively, both models produce almost the same output (Vasisht, 2000). The diversity that exists in the four cultural areas in East Java might have implications for differences in individual willingness and satisfaction of vaccines.

Prior to formulating the model, we studied many previous researches to determine possible variables that authors would use. We use two main models in this research, the first is the willingness to accept model to analyze what factors influence individuals to accept the vaccine, and the second model to discover individual satisfaction after being vaccinated using probit estimation. Where the model is formulated as follows:

$$WTA_i = \alpha + \beta_1 * economic_i + \beta_2 * health_i + \beta_3 * socio\_demographic_i + \beta_4 * cultural\_area_i + \varepsilon_i$$

Where WTA is the willingness to receive the vaccine, the economic consists of income, employment, vehicles, and work from home; health consists of comorbid, the number of neighbors affected by COVID-19, insurance, and paid vaccines; socio-demographic consists of age, gender, education, place of residence and number of families, while for the cultural area, authors use dummy variables for Arek, Mataraman, Madura and Pandalungan region, i is a representation of the individual. Authors also analyze individuals' satisfaction after receiving COVID-19 vaccination.

$$Satisfaction_i = \alpha + \beta_1 * internal_i + \beta_2 * external_i + \beta_3 * cultural\_area_i + \varepsilon_i$$

Satisfaction shows the level of individual satisfaction after receiving the vaccine, internal consisting of vaccine side effects, obstacles in activities, and pain obtained during the vaccine; *external* components consist of the Astra Zeneca vaccine, service time, and cost of accessing the vaccine.

Result and Discussion

Table 3 shows the results of the estimated probit related to the willingness to accept the COVID-19 vaccine. In our estimation, we use six models divided in the aggregate to East Java and the model per cultural area itself.

From an economic perspective, an increase of 1% in individual income tends to increase the probability of receiving vaccines, both in the aggregate in East Java and per region. It correlates with the findings of Wake (2020) and Lazarus *et al*. (2021), where income indicates an individual's economic status. The higher a person's economic status, the greater the probability value shown by Arek cultural areas, where the tendency of their willingness is 90 times greater than in other regions because most Arek tribes are in urban areas with higher economic activity.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

Table 2. Variables Description

No.	Variables	Description
Dependent variables		
1.	WTA	1 for individuals who are willing to accept, 0 otherwise
2.	Satisfaction	1 for individuals who are satisfied, 0 otherwise
Independent variables		
Economic		
3.	Income	The average amount of individual expenditure for one month in units of rupiah
4.	Employment	1 for individuals who have a job, 0 otherwise
5.	Vehicle Ownership	Number of transportation owned in units
6.	Work from Home	1 for individuals who do online working, 0 otherwise
Health		
7.	Comorbid	1 for individuals who have comorbid, 0 otherwise
8.	Infected Neighbors	Number of neighbors infected with COVID-19
9.	Vaccine Cost	The maximum amount price one is willing to pay for the vaccine
10.	Assurance	Amount of insurance owned by an individual
Social Demographic		
11.	Gender	1 for individuals who are male, 0 otherwise
12.	Age	Number of age
13.	Education	Individual education Elementary school: 6 years of school Middle school: 9 years of school High school: 12 years old school D3 (diploma): 15 years old school D4/S1 (bachelor): 16 years old school S2 (master): 18 years old school
14.	Number of Family	Number of core families living at home
15.	Residence	1 for individuals who live in the city, 0 otherwise
Cultural Area		
16.	Madura Area	1 for individuals who are from Madura cultural area, 0 otherwise
17.	Arek Area	1 for individuals who are from Arek cultural area, 0 otherwise
18.	Pandalungan Area	1 for individuals who are from Pandalungan cultural area, 0 otherwise
19.	Mataram Area	1 for individuals who are from Mataram cultural area, 0 otherwise
Internal		
20.	Sick After Being Vaccinated	1 for individuals who feel sick after being vaccinated, 0 otherwise
21.	Side Effect	Number of side effects experienced after vaccination
22.	Activity	1 for individuals whose activity is hampered after being vaccinated, 0 otherwise
External		
23.	AstraZeneca	1 for individuals who used the AstraZeneca vaccine, 0 otherwise
24.	Time of Service	Service time (minutes)
25.	Cost to Access	Costs incurred in accessing vaccines in rupiah

Original Research
Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

Table 3. Estimation Result for Model I Willingness to Accept Determinants of Vaccine

Variables	Probit Models Estimation					
	Sub Model I.I	Sub Model I.2	Sub Model I. Madura	Sub Model I. Arek	Sub Model I. Pandalungan	Sub Model I. Mataraman
Economics						
Income	0.038**(0.019)	0.032***(0.145)	0.089**(0.033)	0.901***(0.281)	0.029***(0.013)	0.301***(0.001)
Employment	0.291** (0.016)	0.211* (0.102)	0.072(0.324)	0.081*** (0.004)	0.088(0.124)	0.021*** (0.002)
Vehicle Ownership	0.020***(0.101)	1.002***(0.212)	0.020**(0.001)	0.053**(0.021)	0.030(0.211)	0.253**(0.031)
Work from Home	0.122**(0.004)	0.423(0.344)	0.200(0.170)	0.212*(0.083)	0.321(0.201)	0.120*(0.003)
Health						
Comorbid	-0.901*** (0.101)	-1.121*** (0.211)	-0.821*** (0.211)	-0.077** (0.008)	-0.783***(0.204)	-0.047*** (0.000)
Infected Neighbor	0.071*(0.021)	0.094*(0.021)	0.130(0.229)	0.043*(0.003)	0.130**(0.009)	0.063**(0.010)
Paid Vaccine	0.932***(0.100)	1.211***(0.342)	0.822(0.227)	0.985***(0.289)	0.652(0.201)	0.211***(0.009)
Insurance	0.231(0.201)	0.481(0.321)	0.830(0.819)	0.301(0.289)	0.710(0.619)	0.172(0.102)
Social Demographic						
Gender	0.317*(0.108)	0.532*(0.345)	0.009(0.083)	0.532*(0.198)	0.032(0.012)	0.532*(0.198)
Age	-0.066**(0.017)	-0.076**(0.044)	-0.521*(0.351)	0.042*(0.201)	-0.321*(0.011)	0.122*(0.023)
Education	0.037*(0.217)	0.027(0.012)	0.037(0.021)	0.521*(0.218)	0.037(0.021)	0.022(0.010)
Number of Family	0.224(0.150)	0.331(0.087)	0.832(0.780)	0.792***(0.192)	0.211(0.087)	0.322**(0.092)
Residence	0.023***(0.100)	0.564*(0.212)	-0.048**(0.016)	0.281**(0.023)	-0.091(0.051)	0.322(0.180)
Cultural Areas						
Madura	-0.502*(0.308)	-	-	-	-	-
Arek	0.063*(0.013)	-	-	-	-	-
Pandalungan	-0.422*(0.297)	-	-	-	-	-
Mataraman	0.730**(0.109)	-	-	-	-	-
Statistics						
Constant	0.772	0.791	0.580	0.925	0,718	0.801
Number of obs	825	825	107	250	197	271
Minimal obs (Slovin method)	-	-	39	123	99	138
Pseudo r-squared	0.432	0.562	0.310	0.521	0.482	0.391
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01, errors: ()
Source: Author's calculation

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

Dummy for employment showed significant results for the Arek and Mataraman areas. Individuals who have a job had a two times higher probability of being willing to receive the vaccine for the Mataraman area and eight times for the Arek area, while in aggregate, East Java it was 29 times (Sub Model I.1). As previously mentioned, Arek and Mataraman areas tend to have higher economic activity because they are categorized as urban areas, thus affecting the density of individual work in both the formal and informal sectors. This statement is supported by Al-Mohaithef and Padhi (2020), who state that individual workers tend to be willing to receive vaccines because of company recommendations and health precautions to support them in doing their work.

The vehicle variable refers to individual asset ownership, which is ultimately related to income or economic status, where the results show that it is significant both in the aggregate East Java (Sub Model I.1) and the region, an increase in the number of vehicles owned tends to increase the probability that individuals are willing to receive the vaccine

Furthermore, from the health aspect, individuals with comorbidities in all regions tend to have a lower probability of individual willingness to receive vaccines, even at the aggregate level of East Java, which is 112 times lower (Sub Model I.1). This result is in contrast to the findings of Wake (2021), where comorbid patients tend to be more receptive to vaccines, which may be due to concerns about their low immunity.

The 1% increase in neighboring cases infected with COVID-19 tends to increase the probability of individuals being willing to receive the vaccine in the Arek, Pandalungan, and Mataraman by four times, 13 times, and six times, respectively. This result is correlated with the findings of Zewude and Habtegiorgis (2021). More people around the environment are infected, encouraging the individual to vaccinate as a motive to protect health and contain the spread.

The variable related to paid vaccines shows a significant value for the Arek and Pandalungan. The probability of respondents in these areas tends to be willing to receive a vaccine even though the vaccine is paid for. In the Madura and Pandalungan areas, these variables do not influence an individual decision to accept the vaccine or not. However, at the aggregate level of East Java (Sub Model I.1), the opportunity increased by 93 times. That is probably due to the perception of some individuals that the more expensive the vaccine, the better the quality (Harapan *et al*., 2020).,

In the social aspect of the population, the gender variable shows an influence for the Arek and Mataraman, where if the individual is male, the probability of being willing to receive the vaccine is 52 times greater than that of female individuals. These results are associated with Malik *et al*. (2020), where male individuals tend to receive the vaccine more than women (Kaplan *et al*., 2021; Wake, 2021). That is due to the physical mobility of males more than females, especially for work.

The age variable in all regions showed significant and negative results in the aggregate for East Java (Sub Model I.1). It indicates that the older the individual, the lower the probability of being willing to receive the vaccine. That correlates with the findings of Kaplan *et al*. (2021) and. Wake (2021) It can be due to concerns regarding the low immunity of older individuals, lower physical mobility, and lack of literacy related to the importance of vaccines owned by the elderly. It is the exception for Arek and Mataraman areas, where increasing age tends to increase the probability of individuals being willing to receive the vaccine. That correlates with research by Al-Mohaithef and Padhi (2020), Malik *et al*. (2020), and Lazarus *et al*. (2021), where the older the individual, the easier it is to accept vaccine recommendations.

In the Arek area, education affects a person's WTA toward vaccines. A higher education level tends to increase the probability of being willing to receive. Education is also an individual determinant in receiving a lot of information and knowledge. These results are in line with

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

Al-Mohaithef and Padhi (2020), Malik *et al*. (2020), Lazarus *et al*. (2021), and Wake (2021). This is because people with a higher level of education might have a better possibility of grasping and applying knowledge, thus, they will consciously accept the COVID-19 vaccine (Belayneh *et al*., 2022). However, this variable is not significant for other regions.

The larger the number of families, the higher the probability that individuals will be willing to receive the vaccine. The results of this study correlate with the findings of Kaplan *et al*. (2021). The probability that an individual is willing to receive the vaccine is 79 times for the Arek area and 32 times for the Mataraman area, and the reason is related to the motive to protect family because there is an assumption that there will be more chances of spreading the virus.

In aggregate (Sub Model I.1), individuals living in urban areas have a two times higher probability of being willing to receive the vaccine than individuals living in rural areas, while for the Arek area, the probability is 28 times greater. That is because the rate of virus spread is higher in urban areas than in rural areas (Wake, 2021). It is because the dissemination of information and vaccination socialization in urban areas is faster than in villages (Lazarus *et al*., 2021). It also might be influenced by accessibility to reach vaccination services. However, the Madura region shows the opposite result, where the probability of being willing to receive the vaccine is lower if the individual is in a rural area since we know that most individuals in Madura live more rural than Arek. Jabessa and Bekele (2022) stated that individuals who resided in rural areas were 0.85 times less likely to receive the vaccination than those who resided in urban areas.

In aggregate, individuals in the Arek and Mataram areas tend to be willing to receive the vaccine, while for the Madura and Pandalungan areas, it is the opposite. The high level of willingness in the Arek and Mataram regions was due to the high level of awareness related to education and individual economic status compared to other regions. The characteristics of receiving vaccines for the Madura and Pandalungan areas tend to be similar, and this is because the Pandalungan area is a horseshoe area of East Java where the majority of the population has a Madurese cultural background (Kemendikbud, 2014).

Table 4. Estimation Result for Model 2 Vaccination Satisfaction

Block	Variables	Sub Model II.1	Sub Model II.2
Internal	Sick After Vaccinated	-0.830 (0.819)	-0.423 (0.321)
	Side Effect	-0.391*** (0.003)	-0.412**(0.102)
	Activity	-0.364* (0.111)	-0.048*** (0.006)
External	AstraZeneca	-0.802*** (0.117)	-0.532** (0.119)
	Time of Service	-0.618* (0.271)	-0.361** (0.098)
	Cost to Access	-0.311** (0.021)	-0.231** (0.018)
Cultural Area	Madura Area	-0.312** (0.005)	-
	Arek Area	0.325* (0.003)	-
	Pandalungan Area	0.219 (0.114)	-
	Mataraman Area	0.719 (0.617)	-
Statistic	Constant	0.702	0.711
	Pseudo r-squared	0.401	0.380
	Prob > chi2	0.000	0.000

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01, errors: ()
Source: Author's calculation

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

Table 4 shows the output of individual satisfaction, where the respondents surveyed are those who have been vaccinated. The results show that the higher the number of side effects felt after being vaccinated, the lower the individual satisfaction with the vaccine program (Zewuda and Habtegiorgis, 2021). Fear of side effects from a COVID-19 vaccine was the most common concern regarding COVID-19 vaccination (Govere-Hwenje *et al*., 2022). In addition, if these side effects cause problems for individuals in their activities, it will reduce the probability of satisfaction.

Furthermore, if an individual uses the AstraZeneca vaccine, the probability of an individual getting the vaccine is 80 times lower (Sub Model II.1) and 53 times (Sub Model II.2) compared to individuals using a vaccine other than AstraZeneca. That is because the side effects caused by the vaccine are higher than other vaccines.

The longer the vaccine service time, the lower the probability of individual satisfaction because most people are reluctant to queue. Furthermore, related to access costs, the more expensive it is to access the vaccine, the probability of satisfaction will be 31 times lower (Sub Model II.1). This finding correlates with Wake's (2021) findings. Some respondents even stated that they did not want to do the vaccine if it cost money to receive it.

In aggregate, individuals in the Madura area tend to be dissatisfied with the vaccine program, and Arek tends to be satisfied. It is due to the possibility that the Madura region has lower accessibility than Arek, and some areas in Madura are still categorized as inland, so satisfaction with the vaccine itself is lower.

This research was conducted at the beginning of the pandemic, where the vaccination program was not as wide as present, where the vaccination achievement in East Java for the first dose has reached 85% in January 2022, and this is a limitation of this research; further research could consider it for future study. Cultural spatial approach in growing studies on willingness to accept vaccines have not been greatly explored, which appears as the novelty of this study. We find several interesting findings in each observed cultural area. We believe that the result of this study would provide stakeholders or government in decision-making regarding vaccination program in East Java.

Conclusion

This research attempts to analyze several factors that influence individuals' willingness to accept and satisfaction regarding COVID-19 vaccination. The results of this study showed that the willingness of individuals to receive vaccines was influenced by income, assets, employment, health, education, gender, age, and place in Arek, Madura, Pandalungan, and Mataram areas. Meanwhile, vaccine satisfaction is associated with side effects, vaccine type, and service time. This study concludes that vaccine reception in each cultural area in East Java has a different attitude, which happens because the culture in the Arek, Madura, Mataraman, and Pandalungan areas is different. Therefore, suggestions given to policymakers are expected to give vaccine doses in the East Java region according to the culture in the region, given the large diversity of cultures in East Java.

Abbreviations

BPS: *Badan Pusat Statistik*; CSR: Corporate Social Responsibility; COVID-19: Coronavirus Disease 2019; KPCPEN: *Komite Penanganan COVID-19 dan Pemulihan Ekonomi Nasional*; UNICEF: United Nations International Children's Emergency Fund; WTA: willingness to accept.

Declarations

Ethics Approval and Consent Participant

The Faculty of Economics and Business have approved this research

Conflict of Interest

The authors declare that no conflict of interests might have affected the performance.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

Availability of Data and Materials
Data and materials are available based on demand from journals and readers.

Authors' Contribution
APD, HA, and AE conceptualized the study; APD and HA did the survey. KSA and AE created the methodology; KSA and AE wrote, reviewed, and edited the manuscript; ADP and HA wrote the original draft.

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References

Abubakar, A.A., Shehu, A.U., Umar, A.A., Babandi, Z., Sokomba, A., Sadiku, S., Esekhaigbe, C.E., Adagba, K.O., Belgore, S., Zakka, M. and Saulawa, F.A. (2022). Willingness to accept COVID 19 Vaccines in a Rural Community in Kaduna State, Northwestern Nigeria, *International Journal of Infectious Diseases*, 116(562).

Akhtar, S., Benter, I.F., Danjuma, M.I., Doi, S.A., Hasan, S.S. and Habib, A.M. (2020). Pharmacotherapy in COVID-19 patients: A review of ACE2-raising drugs and their clinical safety. *Journal of Drug Targeting*, 28(7-8).

Al-Mohaithef, M. and Padhi, B. K. (2020). Determinants of COVID-19 vaccine acceptance in Saudi Arabia: a web-based national survey. *Journal of Multidisciplinary Healthcare*, 13.

Bekele F., Fekadu G., Wolde T.F. and Bekelcho L.W. (2021). Patients' acceptance of COVID-19 vaccine: implications for patients with chronic disease in low-resource settings. *Patient Prefer Adherence*, 15(2519).

Belayneh, A., Temesgan, W.Z., Gessesse, D. N., Kassa, B.G., Tiguh, A.E., Kebede, A.A., Ayalew, M.D. and Yismaw, A.E. (2022). Willingness to Receive COVID-19 Vaccine and Associated Factors Among College Students in Gondar City, Northwest Ethiopia. *Frontiers in Education*, 7.

Chen H., Li X. and Gao J. (2021). Health belief model perspective on the control of COVID-19 vaccine hesitancy and the promotion of vaccination in China: web-based cross-sectional study. *Journal of Medical Internet Research,* 23(9).

Govere-Hwenje, S., Jarolimova, J. and Yan, J. (2022). Willingness to accept COVID-19 vaccination among people living with HIV in a high HIV prevalence community. *BMC Public Health*, 1239(22).

Harapan, H., Wagner, A.L., Yufika, A., Winardi, W., Anwar, S., Gan, A.K., Setiawan, A.M., Rajamoorthy, Y., Sofyan, H. and Mudatsir, M. (2020). Acceptance of a COVID-19 vaccine in southeast Asia: A cross-sectional study in Indonesia. *Frontiers in Public Health*, 8.

Haynes, B.F., Corey, L., Fernandes, P., Gilbert, P.B., Hotez, P.J., Rao, S. and Arvin, A. (2020). Prospects for a safe COVID-19 vaccine. *Science Translational Medicine*, 12(568).

Jabessa, D. and Bekele, F. (2022). Willingness to receive the COVID-19 vaccine and associated factors among residents of Southwestern Ethiopia: A cross-sectional study. *Patient Prefer Adherence*, 3(16), PP.1177-1185.

Jia, J.J., Xu, J.H., Fan, Y. and Ji, Q. (2018). Willingness to accept energy-saving measures and adoption barriers in the residential sector: An empirical analysis in Beijing, China. *Renewable and Sustainable Energy Reviews*, 95, pp. 56-73

Kaplan, A.K., Sahin, M.K., Parildar, H. and Adadan Guvenc, I. (2021). The willingness to accept the COVID-19 vaccine and affecting factors among healthcare professionals: A cross-sectional study in Turkey. *International Journal of Clinical Practice*., 75(7), e14226.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.36-47

KPCPEN (Komite Penanganan COVID-19 dan Pemulihan Ekonomi Nasional). (2021). *Situasi Virus COVID-19 di Indonesia*. Available at: https://COVID19.go.id/peta-sebaran (Accessed: 16 January 2021).

Kluckhohn, C. (2017). *Mirror for man: The relation of anthropology to modern life*. Routledge.

Kukreti, S., Ahmad, R., Sriyani, P., Chung-Ying, L., Tsung, Y., Wen-Chien, K., Po-Lin, C., Carol, S. and Nai-Ying, K. (2022). Willingness to Obtain COVID-19 Vaccination in General Population: A Systematic Review and Meta-Analysis. *Journal of Global Health,* 12.

Lazarus, J.V., Ratzan, S.C., Palayew, A., Gostin, L.O., Larson, H.J., Rabin, K. and El-Mohandes, A. (2021). A global survey of potential acceptance of a COVID- 19 vaccine. *Nature Medicine*, 27(2).

Lanzini, P., Testa, F. and Iraldo, F. (2016). Factors affecting drivers' willingness to pay for biofuels: the case of Italy. *Journal of Cleaner Production*, 112.

Malik, A.A., McFadden, S.M., Elharake, J. and Omer, S.B. (2020). Determinants of COVID-19 Vaccine Acceptance in the US. *EClinical Medicine,* 26, 100495.

Ophinni, Y., Hasibuan, A.S., Widhani, A., Maria, S., Koesnoe, S., Yunihastuti, E. and Djauzi, S. (2020). COVID-19 Vaccines: Current Status and Implication for Use in Indonesia. *Acta Medica Indonesia*, 52(4).

Perez, G.I.P. and Abadi, A.T.B. (2020). Ongoing Challenges Faced in the Global Control of COVID-19 Pandemic. *Archives of Medical Researc*h, 51(6).

Skevas, T., Hayden, N. J., Swinton, S.M. and Lupi, F. (2016). Landowner willingness to supply marginal land for bioenergy production. *Land Use Policy*, 50, pp.507- 517.

Smitha, T. and Thomas, A. (2020). A brief outlook on the current emerging trends of COVID 19 vaccines. *Journal of Oral and Maxillofacial Pathology*, 24(2).

Su, S., Du, L. and Jiang, S. (2020). Learning from the past: development of safe and effective COVID-19 vaccines. *Nature Reviews Microbiology*, 19(3), pp. 211–219.

Sun, C., Yuan, X. and Yao, X. (2016). Social acceptance towards the air pollution in China: evidence from public's willingness to pay for smog mitigation. *Energy Policy*, 92.

Sutarto, A. and Sudikan, S.Y. (2004). *Pendekatan kebudayaan dalam pembangunan provinsi Jawa Timur*. Kelompok Peduli Budaya dan Wisata Daerah Jawa Timur (Kompyawisda Jatim). Jember.

Tsutsumi, S., Maeda, N., Tashiro, T., Arima, S., Mizuta, R., Fukui, K., Naito, K., Komiya, M. and Urabe, Y. (2022). Willingness to Receive the COVID-19 Vaccination and the Psychological State of Japanese University Students: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, 19(3).

Vasisht, A.K. (2007). *Logit and probit analysis*. New Delhi: Technical report: I.A.S.R.I.

Wake, A.D. (2021). The willingness to receive COVID-19 vaccine and its associated factors: "vaccination refusal could prolong the war of this pandemic"–a systematic review. *Risk Management and Healthcare Policy*, 14.

Wang, Y., He, K., Zhang, J. and Chang, H., (2020). Environmental knowledge, risk attitude, and households' willingness to accept compensation for the application of degradable agricultural mulch film: Evidence from rural China. *Science of The Total Environment*, 744.

Wang, J., Beibei, Y., Xinran, L., Xiaoxue, L., Li, L., Shufan, G., Haijun, Z., Xiaozhen, L., Yun, L., Huangyufei, F., Rize, J., Jia, G., Yingzhe, H., Xun, L., Wenzhou, Y. and Hai, F. (2021). Willingness to accept COVID-19 vaccine among the elderly and the chronic disease population in China, *Human Vaccines and Immunotherapeutics*, 17(12).

Zewude, B. and Habtegiorgis, T. (2021). Willingness to Take COVID-19 Vaccine Among People Most at Risk of Exposure in Southern Ethiopia. *Pragmatic and Observational Research*, 12(37).

Original Research

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COST ANALYSIS OF HOME PHARMACY CARE PROGRAM AMONG DIABETES PATIENTS IN PHARMACY

Analisis Biaya Program Home Pharmacy Care pada Pasien Diabetes di Apotek

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Abstract

Background: Home pharmacy care is expected to be able to provide a pharmaceutical care service that not only reduces the incidence of drug interactions and side effects but also increases the effectiveness of therapy and patient compliance in using drugs.
Aims: The study aimed to analyze the costs incurred for the home pharmacy care program for diabetic patients at the pharmacy.
Methods: This study decribed the cost required of running the home pharmacy care for diabetes patients. The sample was the pharmacist in charge of the pharmacies in the districts of Banyumas and Cilacap, Central java, which provides a home pharmacy care service program. The sample was conducted by purposive sampling method and the pharmacists were interviewed after they signed the informed consent. Break Even Point (BEP) was calculated to determine the number of patients who must be served in order to achieve the balance of expenses and income from providing the services. The cost analysis was performed using the activity-based costing (ABC) method.
Results: The lowest rate for home pharmacy care services is Rp.17,000, and the highest is Rp.31,000 without including home pharmacy care services. The average cost and revenue on providing the home pharmacy care was Rp.9,963 and Rp.22,000, respectively.
Conclusions: Pharmacies continue to benefit from the home pharmacy care program, and currently, there is no provision for home pharmacy care service rates.

Keywords: Activity Based Costing (ABC), Cost Analysis, Diabetes Mellitus, Home pharmacy care (HPC), Indonesia

Abstrak

Latar Belakang: *Diabetes melitus merupakan masalah kesehatan global dengan jumlah yang terus meningkat. Home Pharmacy Care diharapkan mampu memberikan pelayanan kefarmasian yang tidak hanya menurunkan kejadian interaksi obat dan efek samping tetapi juga meningkatkan efektivitas terapi dan kepatuhan pasien dalam menggunakan obat.*
Tujuan: *Penelitian ini bertujuan untuk menganalisis biaya yang dikeluarkan untuk program home pharmacy care pada pasien diabetes di Apotek.*
Metode: *Penelitian dilakukan terhadap apoteker penanggung jawab apotek di wilayah kabupaten Banyumas dan Cilacap yang telah menjalankan program pelayanan home pharmacy care. Break Even Point (BEP) dihitung untuk menentukan jumlah pasien yang harus dilayani. Analisis biaya dalam penelitian ini menggunakan metode activity based costing (ABC).*
Hasil: *Biaya operasional yang dibutuhkan untuk menjalankan pelayanan home pharmacy care berkisar antara Rp.17.000 hingga Rp.31.000, diluar biaya obat untuk pasien. Sedangkan jasa profesi apoteker berkisar antara Rp.1.000,- hingga Rp.10.000,-. Secara umum, seluruh apotek mendapatkan keuntungan dari praktek pelayanan home pharmacy care.*
Kesimpulan: *Praktek home pharmacy care berpotensi memberikan manfaat kepada apotek secara finansial, namun jasa profesi apoteker untuk melakukan analisis resep dan konseling perlu dirasionalisasi.*

Kata kunci: *Analisa Biaya, Activity Based Costing (ABC), Diabetes Mellitus, Home Pharmacy Care (HPC), Indonesia*

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Introduction

Diabetes mellitus is one of the global health problems whose cases are still increasing (IDF, 2021). According to the International Diabetes Federation, there were 463 million adults with diabetes mellitus, and the prevalence was 9.3% globally. In 2045, it is estimated that the number of diabetes mellitus cases will increase by 45%, or equivalent to 629 million. As the fourth most populous country, Indonesia is in the seventh position with the largest number of people with diabetes in the world, with 10.7 million adults with diabetes and 97.5 million people with diabetes type II (Soewondo *et al.*, 2017; Blakely *et al.*, 2019; Saeedi *et al.*, 2019).

Increasing diabetes cases that continue to occur can be due to an unhealthy lifestyle, the number of failed therapies, or undisciplined patients undergoing therapy. Based on research conducted at Puskesmas throughout Bantul Regency in 2018, the majority of patients' clinical outcomes were not achieved (68.7%) because most patients had low adherence to taking antidiabetic drugs (57%) (Saibi, Romadhon, and Nasir, 2020). Meanwhile, a study conducted in Japan stated that 60% of diabetic patients forget to take their medication. To achieve the desired blood glucose level, patients must adhere to the rules of proper drug use, healthy diet, regular exercise, and self-monitoring of blood glucose (Inzucchi *et al.*, 2018; Ahola and Groop, 2018).

Pharmacists, through home pharmacy care, are expected to be able to provide pharmaceutical services that not only reduce the incidence of drug interactions and side effects but also increase the effectiveness of therapy and patient compliance in using drugs (Venturini *et al.*, 2017; Mulyagustina, Wiedyaningsih and Kristina, 2017). The PERMENKES Number 73 of 2016 has regulated the home pharmacy care service regarding the standard of pharmaceutical services in pharmacies. It is stated in paragraph (1) letter b in point e that one of the clinical pharmacy services is pharmaceutical services at home or called home pharmacy care. Based on previous research, home pharmacy care has positively contributed to improving the quality of life and glycemic control of diabetic patients. It is proven by the decrease in HbA1c of patients receiving home pharmacy care services, which is -0.66% (p-value 0.09) (Purwonugroho *et al.*, 2021). Another study showed that 57% of patients getting home pharmacy care services were compliant and had their blood sugar under control based on their MMAS-8 score and pill count. (Najiha *et al.*, 2017). Although several studies have proved the clinical benefits of home pharmacy care, there is currently no information available regarding the costs associated with providing these services. Therefore, this study aims to analyze the costs incurred for the home pharmacy care program at the pharmacy.

Method

This research was conducted on pharmacists in charge at Banyumas and Cilacap regencies who provided home pharmacy care services between 2017 and 2021, which were taken by purposive sampling method. Data collection was carried out online and offline with the following inclusion criteria: Responsible Pharmacist (*Apoteker Penanggung Jawab/ APJ*), pharmacists providing home pharmacy care services, and willing to participate in the study by signing informed consent. Despite the exclusion criteria being pharmacists who resigned during the study and from the research process, five pharmacists who met the criteria were obtained.

The cost of home care was calculated using the ABC (Activity Based Costing) analysis method by identifying the activities and resources that were required in order to provide the services. Furthermore, the total cost of activity per the total number of services provided was calculated. The BEP (Break Even Point) was calculated to weigh the profit and loss of pharmacies.

Cost data were obtained from pharmacists directly or based on normative prices if the informants did not know or forget the components of the costs incurred for home pharmacy care services. Cost

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10.20473/jaki.v11i1.2023.48-56

data were categorized into several groups based on the source of information. Cost data from sources include costs for advertising and promotion, purchasing electronic devices (HP and Computers), purchasing medical devices (devices for testing blood sugar), maintaining the devices, and buying diabetes drugs. Data were derived from resource persons and combined with assumptions, including the cost of reading prescriptions and consultation. Cost data derived from normative assumptions include the cost of electricity, credit/ internet, and administration (etiquette, packaging, informed consent, and documentation). Combining data from sources and these assumptions was necessary because the primary data obtained is data on the costs incurred by pharmacies each month for the operation of the entire pharmacy, not only for home pharmacy care services. Hence, it is necessary to assume that the proportion of these costs was used specifically for home pharmacy care services. The assumption was conducted by dividing the cost incurred by the pharmacy monthly by the number of services performed each month. Some cost data on this service needed to be assumed with normative data because there was no information from the source. Still, these costs were considered included in the operational costs of home pharmacy care services.

This study calculated the BEP to identify the amount of service needed to break even between the revenue received and the costs associated with providing PHC. This BEP calculation was carried out for two scenarios, including PHC when it was calculated with and without the drug cost. The BEP formula used in this study was as follows (Grala, 2020).

$$BEP = \frac{total\ fixed\ cost}{(selling\ price\ per\ unit - variable\ cost\ per\ unit\ of\ PHC)}$$

Result and Discussion

There were only a few patients receiving PHC services in the study (less than ten patients per month). Specific costs intended to provide PHC services were also not explicitly applied or charged to patients. The cost component related to the pharmacist profession was only limited to reading prescriptions (3 out of 5 pharmacies) and pharmacist consultation rates (all pharmacies) when patients receive services at the pharmacy. Cost components in every home pharmacy care service included consulting services, blood sugar checks, transportation costs to patients' homes, electricity, credit, investments for communication tools, blood sugar checking tools, and drugs (Table 3).

The monthly costs incurred by each pharmacy to provide home pharmacy care services vary significantly among pharmacies. It was because each pharmacy offered a varied range of services. As a point of comparison, Barokah Farma Pharmacy incurred costs of Rp.917,790 (without medicine), and Rp. 1,206,410 (with medicines), while As Salam Pharmacy incurred costs of Rp. 13,419 (without medicine) and Rp.16,630 (with medicine). The comparison was obvious, even with the other three pharmacies. Due to the fact that Apotek Barokah Farma provided 80 home pharmacy care services per month while Apotek As-single Salam only provided one, the costs incurred each month would definitely be very different.

Table 1. Rates for Consulting Services and Reading Prescriptions (Rp)

Pharmacy name	Prescription reading service	Consulting services	Total
3S'mart	5,000	5,000	10,000
Barokah Farma	0	1,000	1,000
As Salam	0	2,500	2,500
Pasir	2,500	2,500	5,000
Desa	1,000	2,500	3,500

Based on table 1, service rates in home pharmacy care services only apply to prescription reading and consulting services, while home pharmacy care services have not been implemented. They provide consulting services and reading prescriptions with a maximum of Rp.10,000, and the lowest is Rp.2,500. The

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difference in service rates is due to differences in the policies of each pharmacy in setting service rates. This policy is based on the community's characteristics around the pharmacy. As a result, some pharmacies set high service rates while others set relatively low service rates.

An overview of the cost of PHC per patient was necessary to provide an overview of the need for service costs and the potential economic benefits of PHC itself. PHC fees charged to patients included prescription reading services, temporary blood sugar checks, administration, and drugs (Table 3). The cost of electricity, credit/ internet, advertising/ promotion costs, investment in communication equipment and blood sugar checking equipment, and maintenance were not charged to the patients. Most pharmacies charge a pharmacist consultation service fee (4 out of 5 pharmacies), and only a Desa pharmacy exempts patients from it.

Viewing the table, Apotek Pasir was a pharmacy with the lowest capital and highest profit, with a capital of Rp.12,270 (including medicine) while making Rp.19,730 profit. The patient had to pay Rp.32,000 for home pharmacy services, whereas services devoid of drugs would have required Rp.10,345 in total. Apotek Pasir got a profit of Rp.15,655 from blood sugar check services, the sale of drugs, prescription reading services, and counselling services. The cost of checking blood sugar was the same compared to Barokah Farma, As Salam, and Desa pharmacies. In spite of this, the Pasir Pharmacy had implemented service rates for prescription reading and counselling services, taking significant profits from drugs.

Based on the identified cost components, BEP is also calculated to determine the number of patients who must be served so that the income and the amount spent are balanced in PHC practice. The calculation of BEP showed that 3S'mart had two drugs (with drug) and one drug (without drug), the highest BEP result was Barokah Farma, 32 drugs (with drug) and two drugs (without drug), while the lowest BEP with drugs was one drug and without drug was one drug at Apotek As Salam, Pasir and Desa. It was known that the pharmacy could return the capital spent for one month if it could provide home pharmacy treatment for as many patients as BEP and that it would get more profit if it exceeded that amount (Table 2).

Table 2. Break Even Point (BEP)

Pharmacy Name	BEP With Drugs	BEP Without Drugs
3S'mart	2	1
Barokah Farma	32	2
As Salam	1	1
Pasir	1	1
Desa	1	1

Based on cost data analysis, it could be seen that pharmacies made an additional profit by providing home pharmacy care services. However, based on the pharmacist's information, the cost of this home pharmacy care service was still fully borne by the patient and the pharmacy. This would cause consideration for economically disadvantaged patients due to cost constraints, so most people are still reluctant to choose this service because BPJS or JKN do not cover it. However, based on research by Nakagawa and Kume, Indonesia can learn from Japan's success regarding home pharmacy care services, in which the national health insurance covers the cost of home pharmacy care for pharmacists who provide it. This policy was established in 2016 to strengthen community pharmacists in obtaining service recognition while providing patient-focused services, including home pharmacy care. The Japanese government recognizes that pharmacists can provide solutions to the problem of non-compliance with drug use to contribute to more efficient health financing (Nakagawa and Kume, 2017).

Previous studies have estimated the cost-effectiveness of pharmacy care plan services from a healthcare perspective. This study's results align with that study, which states that pharmacy care plan service can improve the patient's health

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10.20473/jaki.v11i1.2023.48-56

condition within 12 months. The study results also show that pharmacy care plan services can save treatment costs even in bad cases (Twigg *et al.*, 2019).

The home pharmacy care program at the pharmacy is a form of support for patients with chronic diseases such as diabetes. Previous studies have shown that these services are acceptable to patients, can lead to improved health outcomes, and result in modest cost savings (Seston *et al.*, 2020). A good relationship between patients and pharmacists also affects the handling of home pharmacy care. A study conducted by Alzubaidi *et al.* showed a less effective relationship with community pharmacists when their prescriptions were filled. The expertise of community pharmacists appears to be underutilized. This minimal relationship reduces the chances of optimally promoting health outcomes (Alzubaidi, Mc Namara, and Versace, 2018). Previous research in Central Java showed that home pharmacy care is rarely practiced in Cilacap. Still, it must be selectively implemented because it is supported by doctors, nurses, and patients (Nurfauzi *et al.*, 2020).

From the results of the cost analysis, it can be compared with the results of Wang Y's 2018 study, which states that pharmacist-managed services have a positive return in terms of economic feasibility with an average cost per 10.9-mmol /mol (1%) reduction in HbA1c of $ 160 ($174 in 2014 US dollars) per patient. The comparison is significantly different from service rates in Cilacap and Banyumas.

It is also supported by the 2017 study by Janati *et al.*, which stated that home-based care strategies are more dominant than hospital-based care in terms of lower costs for reducing HbA1c levels in diabetic patients. The results of the study also show that a home-based care approach can save the average cost of diabetes treatment by about 61%. (Janati *et al.*, 2017)

Table 3. Pharmacy Fee Data Per Month and Cost Data Per Patient

Services	Cost Type	Pharmacy Name					$\bar{X}$ (Average)
		3S'mart	Barokah Farma	As Salam	Pasir	Desa	
Number of patients		7	8	1	2	1	4
		Once a month	Every 3 days	Once a month	Once a month	Once a month	
Pharmacy Fee Data Per Month (Rp)							
Prescription Reading Service**	Capital	35,000	0	0	5,000	1,000	13,667
	Charge	70,000	0	0	10,000	2,000	27,333
Consulting Services**	Capital	35,000	80,000	2,500	5,000	2,500	25,000
	Charge	70,000	160,000	5,000	10,000	0	49,000
Blood Glucose Check*	Capital	22,400	240,000	3,000	6,000	3,000	54,880
	Charge	70,000	1,200,000	15,000	30,000	15,000	266,000
Transportation*	Capital	5,872	23,490	85	240	221	5,982
	Charge	0	0	0	0	0	0
Electricity***	Capital	2,632	30,080	376	752	376	6,843
	Charge	0	0	0	0	0	0
Credit/internet***	Capital	4,200	48,000	600	1,200	600	10,920
	Charge	0	0	0	0	0	0
Administration***	Capital	7,000	0	2,000	2,000	1,000	2,400
	Charge	7,000	0	2,000	2,000	1,000	2,400
Advertisement/ promotion*	Capital	0	3,680	0	0	91	1,886
	Charge	0	0	0	0	0	0
Electronic devices*	Capital	1,596	10,400	7	456	96	2,511
	Charge	0	0	0	0	0	0

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.48-56

Services	Cost Type	Pharmacy Name					$\bar{X}$ (Average)
		3S'mart	Barokah Farma	As Salam	Pasir	Desa	
Medical device*	Capital	91	1,040	13	42	13	240
	Charge	0	0	0	0	0	0
Maintenance*	Capital	0	5,520	0	0	208	2,864
	Charge	0	0	0	0	208	208
Drugs*	Capital	12,659	611,380	1,789	3,850	1,925	126,321
	Charge	45,500	900,000	5,000	12,000	3,000	193,100
Totally with drugs	Capital	126,450	1,053,590	10,370	24,540	11,030	245,196
	Charge	262,500	2,260,000	27,000	64,000	21,208	526,942
SD	Capital	13,108	178,171	1,128	2,275	1,019	
	Charge	31,733	410,096	4,454	9,079	4,281	
Totally without drugs	Capital	113,791	442,210	8,581	20,690	9,105	118,875
	Charge	217,000	1,360,000	22,000	52,000	18,208	333,842
SD	Capital	13,730	70,807	1,143	2,310	1,016	
	Charge	32,355	360,202	4,583	9,264	4,471	
Cost Data Per Patient (Rp)							
Prescription Reading Service**	Capital	5,000	0	0	2,500	1,000	2,833
	Charge	10,000	0	0	5,000	2,000	5,667
Consulting Services**	Capital	5,000	1,000	2,500	2,500	2,500	2,700
	Charge	10,000	2,000	5,000	5,000	0	4,400
Blood Glucose Check*	Capital	3,200	3,000	3,000	3,000	3,000	3,040
	Charge	10,000	15,000	15,000	15,000	15,000	14,000
Transportation*	Capital	838	294	85	120	221	312
	Charge	0	0	0	0	0	0
Electricity***	Capital	376	376	376	376	376	376
	Charge	0	0	0	0	0	0
Credit/internet***	Capital	600	600	600	600	600	600
	Charge	0	0	0	0	0	0
Administration***	Capital	1,000	0	2,000	1,000	1,000	1,250
	Charge	1,000	0	2,000	1,000	1,000	1,250
Advertisement/ promotion*	Capital	0	46	0	0	91	69
	Charge	0	0	0	0	0	0
Electronic devices*	Capital	228	130	7	228	96	138
	Charge	0	0	0	0	0	0
Medical device*	Capital	13	13	13	21	13	15
	Charge	0	0	0	0	0	0
Maintenance*	Capital	0	69	0	0	208	139
	Charge	0	0	0	0	0	0
Drugs*	Capital	1,808	7,642	1,789	1,925	1,925	3,018
	Charge	6,500	11,250	5,000	6,000	3,000	6,350
Totally with drugs	Capital	18,063	13,170	10370	12,270	11,030	12,981
	Charge	37,500	28,250	27,000	32,000	21,000	29,150
SD	Capital	1,873	2,227	1,128	1,137	1,019	
	Charge	4,533	5,126	4,454	4,539	4,288	
Totally without drugs	Capital	16,255	5,528	8,581	10,345	9,105	9,963
	Charge	31,000	17,000	22,000	26,000	18,000	22,800
SD	Capital	4,622	4,503	4,583	4,632	4,478	
	Charge	1,589	2,307	1,148	1,088	1,069	

Description: *original data, **original data and assumptions, ***assumption data

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Pharmacist-managed services have a positive return in terms of economic viability. With the increasing role of pharmacists in the healthcare sector, it can increase positive health outcomes. (Wang, Yeo and Ko, 2018) The RCT study in Jordan recommends that from a cost analysis point of view, home pharmacy care provides significant savings when compared to hospital care (Al-Qudah *et al.*, 2020). Home medication review by community pharmacists (HMR-CP) is a cost-effective intervention that significantly reduces HbA1c among T2DM patients. However, it is associated with a higher average total cost per participant (Rosli *et al.*, 2021).

This use of ABC (Activity Based Costing) analysis method for this cost analysis in this study has the advantage that results of this study are based on the activities carried out. The cost data obtained from respondents (APJ) is data on costs incurred for home pharmacy care services and overall pharmacy operational costs. So, researchers must reprocess the cost data obtained to determine the cost of home pharmacy care services. Further study using experimental techniques is required in order to obtain more accurate data.

Conclusion

Based on the analysis of the home pharmacy care costs from this study, it can be drawn that none of the respondents have set rates for home pharmacy care services. The total expenditure of pharmacies and patient expenses for home pharmacy care services also varies depending on the policy of the pharmacy/ pharmacist and the patient's health. However, it is still within the Rp.17,000 to Rp.31,000 economic range. Therefore, the pharmacy can still make a profit (a pharmacy surplus) by providing this home pharmacy care service. However, the profit made is almost the same as those of pharmacy without home pharmacy services. This is because there is no set rate for home pharmacy care services. Thus, it is necessary to have clear policies related to pharmacy care service rates because the target market for home pharmacy care services was high.

Abbreviations

PHC: Pharmacy Home Care; HMR-CP: Home Medication Review Community Pharmacist; BEP: Break Even Point; ABC: Activity Based Costing; MMAS: The Morisky Medication Adherence Scale; BPJS/ JKN: *Badan Pengelola Jaminan Sosial/Jaminan Kesehatan Nasional*; HMR-CP: Home Medication Review-Clinical Pharmacy; T2DM: Type 2 Diabetes Mellitus

Declarations

Ethics Approval and Consent Participant

The study has been reviewed and approved by Universitas Muhammadiyah Purwokerto No KEPK/UMP/06/XII/2021

Conflict of Interest

All authors declare there is no conflict of interest in this manuscript

Availability of Data and Materials

Not applicable

Authors' Contribution

This study was conceptualized by KNH and DS, DS developed the methodology, KNH, DS, and GSP wrote, reviewed, and edited the manuscript, and KNH and DS also wrote the original draft.

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References

Ahola, A. J. and Groop, P. H. (2018) 'Barriers to self-management of diabetes', *Diabetic Medicine*, 30(4), pp. 413–420. doi: 10.1111/ dme.12115.

Indonesian Journal of Health Administration
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p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.48-56

Al-Qudah, R. A. *et al.* (2020) 'Cost-benefit analysis of clinical pharmacist intervention in preventing adverse drug events in the general chronic diseases outpatients', *Journal of Evaluation in Clinical Practice*, 26(1), pp. 115–124. doi: 10.1111/jep.13209.

Alzubaidi, H., Mc Namara, K. and Versace, V. L. (2018) 'Predictors of effective therapeutic relationships between pharmacists and patients with type 2 diabetes: Comparison between Arabic-speaking and Caucasian English-speaking patients', *Research in Social and Administrative Pharmacy*. Elsevier, 14(11), pp. 1064–1071. doi: 10.1016/j.sapharm.2017.11.013.

Blakely, T. *et al.* (2019) 'Health system costs for individual and comorbid noncommunicable diseases: An analysis of publicly funded health events from New Zealand', *PLoS Medicine*, 16(1), pp. 1–21. doi: 10.1371/journal.pmed.1002716.

Grala, D. T. (2020) 'BEP Break Even Point in practical tasks', (August). doi: 10.13140/RG.2.2.11010.50882.

IDF (2021) *International Diabetes Federation Diabetes Atlas 10th edition*, *International Diabetes Federation*. doi: 10.1016/j.diabres.2013.10.013.

Inzucchi, S. E. *et al.* (2018) 'Management of hyperglycemia in type 2 diabetes: A patient-centered approach', *Diabetes Care*, 35(6), pp. 1364–1379. doi: 10.2337/dc12-0413.

Janati, A. *et al.* (2017) 'Health Economic Evaluation of Home and Hospital-Based Care in T2D Patients on Insulin Therapy', *Ethiopian journal of health sciences*, 27(6), pp. 651–658. doi: 10.4314/ejhs.v27i6.10.

Mulyagustina, M., Wiedyaningsih, C. and Kristina, S. A. (2017) 'Implementation of Pharmaceutical Care Standard in Jambi City's Pharmacies', *JURNAL MANAJEMEN DAN PELAYANAN FARMASI (Journal of Management and Pharmacy Practice)*, 7(2), p. 83. doi: 10.22146/jmpf.30284.

Najiha, M. R. *et al.* (2017) 'Peran Home Pharmacy Care pada Pasien Diabetes Mellitus Tipe II Prolanis terhadap Tingkat Kepatuhan dan Keberhasilan Terapi di BP Sentra Medika Lebaksiu Tegal', *Jornal of Tropical Pharmacy and Chemistry*, 4(2), pp. 60–65.

Nakagawa, S. and Kume, N. (2017) 'Pharmacy practice in Japan', *Canadian Journal of Hospital Pharmacy*, 70(3), pp. 232–242. doi: 10.4212/cjhp.v70i3.1663.

Nurfauzi, Y. *et al.* (2020) 'Penilaian Kebutuhan Home Pharmacy Care Untuk Pasien Diabetes Mellitus Tipe 2 Yang Disertai Hipertensi Pada Usia Lanjut', *Jurnal Farmasi Indonesia*, 17(1), pp. 63–77. doi: 10.31001/jfi.v17i1.768.

Purwonugroho, T. A. *et al.* (2021) 'Community pharmacist home visit-based intervention improved diabetes patients' outcomes: A randomized controlled trial', *Journal of Applied Pharmaceutical Science*, 11(3), pp. 054–059. doi: 10.7324/JAPS.2021.110306.

Rosli, M. R. *et al.* (2021) 'Economic evaluation of home medication review by community pharmacists (HMR-CP) for patients with type 2 diabetes mellitus (T2DM)', *Journal of Medical Economics*. Taylor & Francis, 24(1), pp. 730–740. doi: 10.1080/13696998.2021.1889573.

Saeedi, P. *et al.* (2019) 'Global and regional diabetes prevalence estimates for 2019 and projections for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas, 9th edition', *Diabetes Research and Clinical Practice*. Elsevier Ireland Ltd, 157, p. 107843. doi: 10.1016/j.diabres.2019.107843.

Saibi, Y., Romadhon, R. and Nasir, N. M. (2020) 'The Compliance On Their Medication Of Type 2 Diabetes Mellitus Patients In The Public Health Center In East Jakarta', *Jurnal Farmasi Galenika (Galenika Journal of Pharmacy) (e-Journal)*, 6(1), pp. 94–103. doi: 10.22487/j24428744.2020.v6.i1.15002.

Seston, E. M. *et al.* (2020) 'Supporting patients with long-term conditions in

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.48-56

the community: Evaluation of the Greater Manchester Community Pharmacy Care Plan Service', *Health and Social Care in the Community*, 28(5), pp. 1671–1687. doi: 10.1111/hsc.12992.

Soewondo, P. *et al.* (2017) 'Outcomes on control and complications of type 2 diabetic patients in Indonesia', *Medical Journal of Indonesia*, 19(4), pp. 235–44.

Twigg, M. J. *et al.* (2019) 'The pharmacy care plan service: Evaluation and estimate of cost-effectiveness', *Research in Social and Administrative Pharmacy*. Elsevier Inc., 15(1), pp. 84–92. doi: 10.1016/j.sapharm.2018.03.062.

Venturini, C. D. *et al.* (2017) 'Gender differences, polypharmacy, and potential pharmacological interactions in the elderly', *Clinics*, 66(11), pp. 1867–1872. doi: 10.1590/S1807-59322011001100004.

Wang, Y., Yeo, Q. Q. and Ko, Y. (2018) 'Economic evaluations of pharmacist-managed services in people with diabetes mellitus: A systematic review', *Diabetic Medicine*, 33(4), pp. 421–427. doi: 10.1111/dme.12976.

Original Research

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FACTORS INFLUENCING PATIENTS' REVISIT INTENTION TO PUBLIC HEALTH CENTER DURING COVID-19 PANDEMIC

Faktor yang Memengaruhi Niat Berkunjung Kembali Pasien ke Puskesmas Selama Pandemi COVID-19

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Abstract

Background: COVID-19 was declared a community health emergency, prompting the Indonesian government to implement a large-scale social restriction policy on March 2022. As a result, the number of patients' visits to the Public Health Center (PHC) was decreased.
Aims: This study aimed to analyze the factors affecting the revisit intention of patients at PHC during the COVID-19 pandemic.
Methods: This observational study was conducted at PHC XYZ in West Jakarta in September and October 2022 using a cross-sectional approach. Inclusion and exclusion criteria were employed to select 244 samples. The data collected through a questionnaire with 37 questions were analyzed using PLS-SEM.
Results: Government trust and trust in healthcare facilities positively affect revisit intention, with t-statistics of 4.816 and 0.003 as well as a p-value of 0.000. Meanwhile, perceived crowding and health risk, reputation, self-confidence, familiarity, and brand image did not significantly influence revisit intention at the PHC during the COVID-19 pandemic.
Conclusion: This study showed that trust in government and healthcare facilities affects the revisit intention of patients. Patients' trust that the Government can overcome COVID-19 and that PHC can be trusted during COVID-19 has a positive influence on patient's intention to revisit. It is important to identify the factors influencing revisit intention at PHC during the pandemic, because PHC has a role as a primary healthcare service

Keywords: COVID-19, government trust, Public Health Center, revisit Intention, trust

Abstrak

Latar Belakang: *COVID-19 dinyatakan sebagai kegawatdaruratan kesehatan dan pemerintah Indonesia memberlakukan Pembatasan Sosial Berskala Besar (PSBB) di bulan Maret 2022. Akibatnya, jumlah kunjungan pasien di Pusat Kesehatan Masyarakat (Puskesmas) menurun.*
Tujuan: *Tujuan penelitian ini untuk menganalisa hal-hal yang mempengaruhi niat berkunjung kembali pada pasien di Puskesmas selama pandemi COVID-19*
Metode: *Penelitian ini menggunakan metode obervasional dengan pendekatan cross-sectional. Penelitian dilakukan pada Puskesmas XYZ di Jakarta Barat selama bulan September dan Oktober 2022. Sebanyak 244 sampel memenuhi kriteria inklusi dan eksklusi Data dikumpulkan melalui kuesioner yang berisikan 37 pertanyaan dan dianalisa menggunakan PLS-SEM.*
Hasil*: Government trust (t-statistic 4.816, p-value 0.000) dan trust (t-statistic 2.765, p-value 0.003) memiliki pengaruh yang positif terhadap niat berkunjung kembali. Sedangkan perceived crowding, perceived health risk, reputation, self-confidence, familiarity, brand image tidak memiliki pengaruh yang signifikan terhadap revisit intention di Puskesmas selama pandemi COVID-19.*
Kesimpulan: *Penelitian ini menunjukkan kepercayaan baik kepada pemerintah maupun fasilitas kesehatan mempengaruhi niat berkunjung kembali pada pasien di Puskesmas. Penting untuk mengetahui faktor-faktor yang mempengaruhi niat berkunjung kembali di Puskesmas selama pandemi, karena Puskesmas memilki peran sebagai pelayanan kesehatan primer.*

Kata kunci*: COVID-19, puskesmas, kepercayaan, kepercayaan ke pemerintah, niat berkunjung kembali*

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Introduction

The World Health Organization (WHO) declared the novel coronavirus disease (COVID-19) a global pandemic on 11 March 2022. In Indonesia, the first confirmed case was reported on 2 March, 2022. The number reached 1790 confirmed cases, with 170 deaths as of April 2 (Djalante *et al*., 2020). The virus has a high mortality rate and spreads rapidly between people. Therefore, countries have selected lockdowns, self-isolation, social distancing, and curfews as disease control methods (Hakim, Zanetta and da Cunha, 2021; Untaru and Han, 2021). In response to this, the Indonesian government has declared COVID-19 a community health emergency and implemented a large-scale social restriction policy (Djalante *et al*., 2020).

Previous literature showed that people avoid hospitals during health crises. This behavior was seen during the Human Immunodeficiency Virus (HIV) outbreak, severe acute respiratory syndrome (SARS) in 2003, and the novel influenza virus A (H1N1) pandemic in 2009 (Cho and Kwon, 2021). Similarly, the impact occurred during the COVID-19 pandemic. Studies showed that non-respiratory emergency visits fell by 57% in Chile in mid-March 2022. Outpatient visits in the U.S. decreased by 40% after the first week of March 2022. Furthermore, follow-up clinic visits in Ethiopia were reduced by 40.4% during the first three months of the pandemic (Abebe *et al*., 2021; Cho and Kwon, 2021).

The same pattern is also shown in Indonesia. A study found that the number of overall patients' visits in a Public Health Center (PHC) or *Puskesmas* in Central Java dropped by 46.3%. Registered patients' visits decreased by 49% at the start of the pandemic (Rhatomy and Prasetyo, 2020). Also, a decrease in visits was recorded at PHC XYZ in West Jakarta, DKI Jakarta. In Indonesia, DKI Jakarta is the province with the most cumulative COVID-19 cases (Kemenkes RI, 2022). Total visits by patients at the PHC XYZ have decreased by 35.5% between 2019 and 2020. This number decreased again by 21.8% between 2020 and 2021. Furthermore, a drop in the number of visits was recorded in new and old patients. The number of new patients' visits fell by 28.5% between 2019 and 2020 and by 32.8% from 2020 to 2021. Similarly, the number of visits by old patients dropped by 41.3% between 2019 and 2020 and by 10.8% from 2020 to 2021, respectively. Data at PHC XYZ showed that the number of patients' visits decreased between 2019 and 2021.

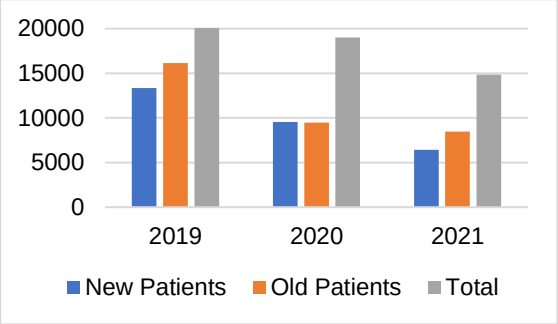

Figure 1. Number of patients' visits at PHC XYZ

Safety became important during the COVID-19 pandemic because it influences attitudes regarding decision-making. According to the Protection Motivation Theory (PMT), the intention to visit in a risky situation relates to the perception of the threat intensity. This theory shows that risky situations such as the COVID-19 pandemic increase protective behavior and reduce patients' revisit intention. Therefore, the intention to visit may be influenced by several factors affecting their threat perception (Castaldo, Penco and Profumo, 2021).

Revisit intention is based on the experience of patients. In this case, patients are willing to return to the same healthcare facility when their expectations are met (Su, Swanson and Chen, 2015). Revisit intention is influenced by government trust (Hakim, Zanetta and da Cunha, 2021), perceived crowding, perceived health risk, trust, reputation, self-confidence, familiarity (Castaldo, Penco and Profumo, 2021), and brand image (Cham *et al*., 2016). The COVID-19 pandemic and the resulting social restrictions have changed people's attitude regarding their intention to revisit a healthcare facility (Castaldo, Penco and Profumo, 2021; Dedeoğlu and Boğan,

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p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.57-66

2021; Kim and Liu, 2022). Indonesia's response to the pandemic has been influenced by the country's health system, with PHC as the primary healthcare facility (Agustina *et al*., 2019; Susanto *et al*., 2020). Therefore, this study aimed to evaluate the influence of government trust, perceived crowding and health risk, trust, reputation, self-confidence, and familiarity on the intention to revisit PHC during the pandemic. PHC is the primary healthcare facility during the pandemic. However, studies on the intention to revisit the facility are limited.

Method

This observational quantitative study was conducted using a cross-sectional approach on patients who visited PHC XYZ in West Jakarta in September and October 2022. The samples were determined using purposive sampling with two criteria, including individuals aged above 17 who have visited the PHC once within the last one year. This study has 244 respondents. Furthermore, respondents filled out a questionnaire containing 37 closed-ended questions using a five-point Likert scale. The scale ranged from (1) to (5) for strongly disagree and strongly agree, respectively.

The indicators developed and used in this study were taken from several previous literature. Figure 1 shows the study model. In this model, Government Trust was measured using four indicators adopted from Hakim, Zanetta and da Cunha (2021). Perceived Crowding and Perceived Health Risk were measured using three and two indicators, respectively. Furthermore, Trust and Familiarity were measured using five indicators each, while Self-Confidence used four indicators adopted from Castaldo, Penco and Profumo (2021). Reputation was measured with five indicators adopted from Su, Swanson and Chen (2015) and Castaldo, Penco and Profumo (2021). Brand Image was also measured with four indicators adopted by (Cham *et al*., 2016).

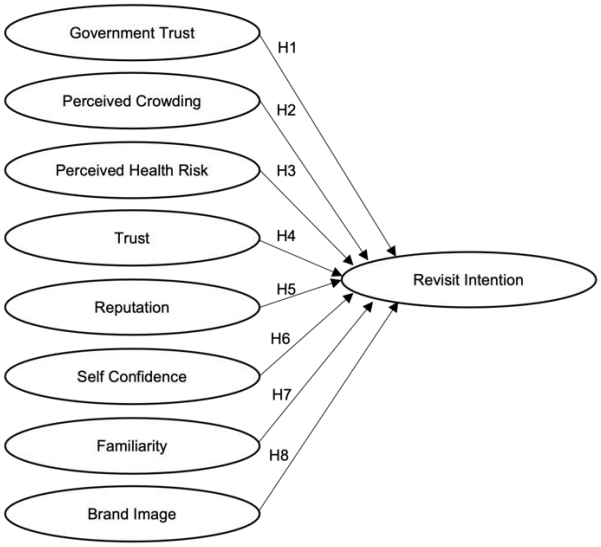

Figure 2. Study Model
(Developed for this study)

The Theory of Planned Behavior (TPB) is an example of predicting individual behavior based on attitudes and beliefs. Attitudes, subjective norms, and perceptions of controlled behavior determine behavioral intentions, which influence behavior based on TPB (Bae and Chang, 2021). In line with this, revisit intention is the willingness to return to the same healthcare facility in the future. This future intention is usually based on patients' experience. Therefore, patients whose expectations are met are more likely to revisit the same healthcare facility (Su, Swanson and Chen, 2015; Isa, Lim and Chin, 2019).

The COVID-19 pandemic makes people anxious due to the resulting uncertainty. In this situation, government authorities are responsible for providing information and guidelines. People with trust in the government are more accepting of risk and uncertainty (Min *et al*., 2020; de Rooij, van Liempt and van Bendegom, 2022). Therefore, the following hypothesis was proposed.

H1: Government Trust positively affects revisit intention

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.57-66

Crowding results from spatial, sociological, and individual interactions (Yin *et al*., 2020; Castaldo, Penco and Profumo, 2021). A study found that patients do not seek medical help fearing that the healthcare facility is overcrowded (Lidin *et al*., 2021). This perceived crowding is a negative feeling in a high-density setting (Kim and Kang, 2021). In line with this, the following hypothesis was formulated.

H2: Perceived Crowding negatively affects revisit intention

The perceived health risk is the judgment of a potential danger to health or well-being. Individuals make decisions intuitively based on their perceived risk of a possible adverse event (Hakim, Zanetta and da Cunha, 2021). In this case, the perceived health risk is a negative perception related to anxiety, insecurity, and fear of the COVID-19 pandemic. This perception influences the intention to visit (Castaldo, Penco and Profumo, 2021). Therefore, the following hypothesis was proposed.

H3: Perceived Health Risk negatively affects revisit intention

A previous study showed that trust is a positive indicator of intention to visit. It reduces risk levels in decision-making, specifically during uncertain situations such as the COVID-19 pandemic (Castaldo, Penco and Profumo, 2021; Dedeoğlu and Boğan, 2021). In healthcare industry, trust is defined as a patient's belief that a doctor's words and actions are credible and reliable. Trust plays an important role in maintaining patients' relationships with service providers within the organization and its members (Isa, Lim and Chin, 2019). Therefore, a hypothesis was proposed as follows.

H4: Trust positively affects revisit intention

Reputation is the overall evaluation of the organization, reflecting on its good and bad qualities (Castaldo, Penco and Profumo, 2021). Customers with a positive reputation of a company are recognized through their loyalty (Su, Swanson and Chen, 2015). Therefore, the following hypothesis was formulated.

H5: Reputation positively affects revisit intention

Self-confidence is the capability to research before making a decision. Therefore, it reflects a subjective evaluation of the ability to make positive decisions. A previous study found that higher self-confidence influences people's visit intention (Castaldo, Penco and Profumo, 2021). Based on this explanation, a hypothesis was proposed as follows.

H6: Self-Confidence positively affects revisit intention

Familiarity is the number of experiences that individuals have accumulated with the product. It influences various aspects of decision-making and is considered a significant factor in explaining consumer choices and behavioral intentions. A previous study showed that familiarity positively influences revisit intention (Kim, Leht and Kandampully, 2019). Therefore, the following hypothesis was formulated.

H7: Familiarity positively affects patients' revisit intention

Brand image is the perception of the organization based on previous experiences (Khoo, 2022). Studies showed that a hospital's brand image significantly impacts future visit decision (Cham *et al*., 2016). Therefore, the following hypothesis was proposed.

H8: Brand Image positively affects revisit intention

This study analyzed data using Partial Least Squares-Structural Equation Modeling (PLS-SEM). The method was used to explore an existing theory development and prediction (Hair, Ringle and Sarstedt, 2011) PLS-SEM has measurement and structural models. The measurement model consists of a

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.57-66

unidirectional predictive relationship between latent constructs, while the structural model shows the path between the latent constructs (Hair, Ringle and Sarstedt, 2011). There are several rules of thumb in the measurement model, such as Internal Consistency Reliability. In this case, the model should have Composite Reliability (CR) value exceeding 0.7, while Indicator Reliability should have an Indicator Loadings value exceeding 0.4. Furthermore, Convergent Validity should have the Average Variance Extracted (AVE) value of more than 0.50, while Discriminant Validity should have the Heterotrait-Heteromethod (HTMT) value of less than 0.95 (Sarstedt *et al*., 2022). The rules of thumb for structural model evaluation are R2 values of 0.75, 0.50, or 0.25 for substantial, moderate, or weak endogenous latent variables, respectively. Bootstrapping is used to assess the path coefficient's significance with a minimum t-statistics value of 1.65 in a one-tail test (Hair, Ringle and Sarstedt, 2011).

A preliminary study was conducted to evaluate the validity and reliability of all indicators. The study used 40 respondents and analyzed the data using PLS-SEM. The results showed that the CR value for all indicators exceeded 0.7. The loading and AVE values also exceeded 0.4 and 0.5, respectively, while the HTMT value was less than 0.95. The results indicated that all items' values are valid and reliable.

Results and Discussion

Demographic profiles from this study displayed in Table 1. The data showed that 67.6% of the respondents are female, 51.2% are aged 26-41, 63.5% completed high school, 42.6% were housewives, 47.5% visited the PHC between 2-5 times within the last year, and 94.7% used BPJS as payment method.

Table 2 shows the measurement model analyzed using PLS-SEM. All the indicators' CR value exceeds 0.7, meaning the internal consistency reliability is verified. Furthermore, all indicators' loading value exceeds 0.4. The convergent reliability is fulfilled because all indicators' AVE values are more than 0.5. Discriminant validity is also adequate because all HTMT values are less than 0.95. Additionally, there is no multicollinearity because each indicator's Variance Inflation Factor (VIF) is less than 5 (Hair, Ringle and Sarstedt, 2011; Sarstedt *et al*., 2022).

Hypotheses were tested using the SEM approach. The structural model results in Table 3 showed that hypotheses H1 and H4 are supported because the t-value is>1.65 and the p-value is <0.05. Meanwhile, H2, H3, H5, H6, H7 and H8 are not supported. The R^2 value for revisit intention is 0.501, meaning that government trust, perceived crowding and health risk, trust, reputation, self-confidence, familiarity, and brand image moderately affect revisit intention.

Table 1. Demographic Profile

Category	n	%
Gender		
Female	165	67.6
Male	79	32.4
Age (years)		
17-25	68	27.9
26-41	125	51.2
42-57	59	20.5
≥58	1	0.4
Education		
Elementary School	22	9.0
Junior High School	28	11.5
High School	155	63.5
Diploma	2	0.8
Bachelor	36	14.8
Magister	1	0.4
Professions		
Government Employee	3	1.2
Private Sector	98	40.2
Employee	15	6.1
Entrepreneur	104	42.6
Housewife	23	9.4
Student	1	0.4
Other		
Number of visits within the last 1 year		
1 time	96	39.3
2-5 times	116	47.5
6-10 times	17	7.0
≥11 times	15	6.1
Payment		
BPJS	231	94.7
Non-BPJS or Private	13	5.3

Source: research output

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(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.57-66

Table 2. Results of the Measurement Model

Indicators	Loading
Government Trust (CR=0.932; AVE=0.775)	
GT1: I trust the government to offer intensive care unit beds to everyone in need due to COVID-19	0.862
GT2: I trust the government to control the risk due to COVID-19	0.907
GT3: I trust the government's information about the COVID-19 pandemic	0.872
GT4: I trust the government's news about the COVID-19 pandemic	0.879
Perceived Crowding (CR=0.861; AVE=0.679)	
PC1: There are too many people in this PHC	0.973
PC2: Overall, the waiting time to use the facilities at this PHC is too long	0.702
PC3: This PHC is too crowded for me	0.773
Perceived Health Risk (CR=0.911; AVE=0.837)	
PHR1: COVID-19 is more dangerous than other pandemics (i.e. N1-H1, SARS)	0.895
PHR2: I am afraid because COVID-19 is a very frightening disease	0.934
Trust (CR=0.941; AVE=0.760)	
T1: I trust this PHC	0.842
T2: Other people can trust this PHC	0.858
T3: This PHC kept its promises	0.872
T4: This PHC has my best interests first	0.877
T5: This PHC is trustworthy	0.909
Reputation (CR=0.939; AVE=0.756)	
R1: The reputation of this PHC is good	0.855
R2: The reputation of this PHC s satisfactory during COVID-19	0.846
R3: This PHC is highly valued by patients in providing services	0.859
R4: This PHC is very successful in providing services	0.908
R5: This PHC is well-established in providing services	0.878
Self Confidence (CR=0.921; AVE=0.745)	
SC1: When I am selecting a PHC, I know where to find the right information	0.835
SC2: When I am selecting a PHC, I am confident about my research abilities	0.888
SC3: When I am selecting a PHC, I know exactly what I need	0.882
SC4: When I am selecting a PHC, I trust my judgment	0.845
Familiarity (CR=0.925; AVE=0.713)	
F1: I am well-informed about this PHC	0.852
F2: My level of expertise about this PHC is higher than my friends	0.893
F3: My level of expertise about this PHC is higher than my acquaintances	0.901
F4: I am familiar with this PHC	0.690
F5: My knowledge about this PHC is high	0.869
Brand Image (CR=0.905; AVE=0.703)	
BI1: This PHC has adequate medical services	0.838
BI2: This PHC has adequate medical facilities	0.824
BI3: This PHC has a positive image	0.850
BI4: I feel that this PHC brand can provide me with a pleasant service experience	0.843
Revisit Intention (CR=0.878; AVE=0.594)	
RI1: I will consider this PHC as my first choice in the future when I need healthcare services	0.625
R2: I will visit this PHC in the future if I need healthcare services	0.720
R3: I intend to revisit this PHC	0.812
R4: This PHC would always be my first choice	0.830
R5: I would like to come back to this PHC in the future	0.844

Source: research output

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.57-66

Table 3. Hypothesis Testing

	t-Statistic	P-value	Conclusion
H1	4.816	0.000	Supported
H2	1.016	0.155	Unsupported
H3	0.809	0.209	Unsupported
H4	2.765	0.003	Supported
H5	0.621	0.267	Unsupported
H6	1.018	0.154	Unsupported
H7	0.363	0.358	Unsupported
H8	1.530	0.063	Unsupported

Source: research output

Government Trust positively affects patients' revisit intention in PHC during the COVID-19 pandemic, supporting H1. This result is consistent with Min *et al*. (2020), Dedeoğlu and Boğan (2021), Hakim, Zanetta and da Cunha (2021), and Hsieh, Chen and Wang (2021). Therefore, it is important for the government to ensure that the availability of intensive care unit beds is sufficient for the community. It is also important for the government to provide information and news regarding the COVID-19 pandemic. The findings showed that trust positively affects patients' revisit intention in PHC during the pandemic, supporting H4. This result is consistent with Castaldo, Penco and Profumo (2021), Dedeoğlu and Boğan (2021), and de Rooij, van Liempt and van Bendegom (2022). These results illustrate that it is important for PHC to gain the trust of patients. Health centers need to maintain patient trust and make the patient's interests the main priority in providing services. It means that patients in PHC trust the healthcare facility and the government. Therefore, their anxiety and risk level toward the COVID-19 pandemic are decreased, positively influencing the revisit intention.

The results showed that Reputation (H5), Self-Confidence (H6), Familiarity (H7), and Brand Image (H8) do not positively affect revisit intention. This finding contradicts Cham *et al*. (2016), Kim, Leht and Kandampully (2019), and Castaldo, Penco and Profumo (2021). Based on descriptive analysis, respondents agreed that PHC has a good reputation. Therefore, the respondents are confident in making decisions and familiar with PHC, which has a good brand image. The respondents have a positive perception of this PHC, though this does not affect their revisit intention. During the COVID-19 pandemic, people with mild conditions were discouraged to visit healthcare facilities to reduce the risk of infection (Rhatomy and Prasetyo, 2020). As a result, this could lead to patients' hesitation to revisit PHC. It is recommended that the PHC maintain all these factors well so that they do not become a problem in the future.

Conclusion

This study found that government trust and confidence in healthcare facilities positively affect the intention to revisit PHC during the COVID-19 pandemic. Perceived Crowding, Perceived Health Risk, Reputation, Self-Confidence, Familiarity, and Brand Image did not significantly influence the revisit intention. Based on the findings, PHC must re-evaluate its role as a primary healthcare service in Indonesia because it is depended upon by most Indonesians. Patients are not willing to revisit PHC, specifically during a health crisis. This could lead to changes in the health status of the community. However, this study had limitations and should be repeated in different pandemic periods.

Abbreviations

COVID-19: Coronavirus Disease of 2019; BPJS: *Badan Penyelenggara Jaminan Sosial*; HIV: Human Immunodeficiency Virus; PHC: Primary Health Center; PLS-SEM: Partial Least Squares-Structural Equation Modeling; PMT: Protection Motivation Theory; SARS: Severe Acute Respiratory Syndrome; TPB: Theory of Planned Behavior; WHO: World Health Organization.

Declarations

Ethics Approval and Consent Participant

The Research Committee Ethics, Faculty of Economics and Business, Universitas Pelita Harapan, granted Ethical Approval for this study. All respondents were informed about the study objectives and

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have provided verbal consent to participate in this study.

Conflict of Interest
The authors declared that there is no conflict of interest for this article.

Availability of Data and Materials
The availability of data and study material could be provided by request.

Authors' Contribution
VVS and MPB conceptualized the study and created the methodology; VVS wrote the manuscript; MPB reviewed and edited the manuscript; VS wrote the original draft.

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References

Abebe, W., Worku, A., Moges, T., Tekle, N., Amogne, W., Haile, T., Mekonen, D., Habtamu and Deressa, W. (2021) Trends of follow-up clinic visits and admissions three-months before and during COVID-19 pandemic at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia: an interrupted time series analysis. BMC Health Services Research, 21(1). https://doi.org/10.1186/s12913-021-06730-8

Agustina, R., Dartanto, T., Sitompul, R., Susiloretni, K.,Suparmi, Achadi, E.L., Taher, A., Wirawan, F., Sungkar, S., Sudarmono, P., Shankar, A.H. and Thabrany, H.,(2019) Universal health coverage in Indonesia: concept, progress, and challenges. The Lancet, 393(10166), pp. 75–102. https://doi.org/10.1016/S0140-6736(18)31647-7

Bae, S.Y. and Chang, P.J. (2021) The effect of coronavirus disease-19 (COVID-19) risk perception on behavioural intention towards "untact" tourism in South Korea during the first wave of the pandemic (March 2020). Current Issues in Tourism, 24(7), pp. 1017–1035. https://doi.org/10.1080/13683500.2020.1798895

Castaldo, S., Penco, L. and Profumo, G. (2021) Cruising in the COVID-19 pandemic era: Does perceived crowding really matter?' International Journal of Contemporary Hospitality Management, 33(8), pp. 2586–2612. https://doi.org/10.1108/IJCHM-07-2020-0688

Cham, T.H. Lim, Y.M., Aik, N.C. and Tay, A.G.M. (2016) Antecedents of hospital brand image and the relationships with medical tourist' behavioral intention. International Journal of Pharmaceutical and Healthcare Marketing, 10(4), pp. 412–431. https://doi.org/10.1108/IJPHM-02-2016-0012

Cho, H. and Kwon, J. (2021) Pandemic and hospital avoidance: Evidence from the 2015 Middle East respiratory syndrome outbreak in South Korea. Economics Letters, 203. https://doi.org/10.1016/j.econlet.2021.109852

Dedeoğlu, B.B. and Boğan, E. (2021) The motivations of visiting upscale restaurants during the COVID-19 pandemic: The role of risk perception and trust in government. International Journal of Hospitality Management, 95. https://doi.org/10.1016/j.ijhm.2021.102905

Djalante, R., Lassa, J., Setiamarga, D., Sudjatma, A., Indrawan, M., Haryanto, B., Mahfud, C., Sinapoy, M. S., Djalante, S., Rafliana, I., Gunawan, L. A., Surtiari, G. A. K. and Warsilah, H. (2020) Review and analysis of current responses to COVID-19 in Indonesia: Period of January to March 2020. Progress in Disaster Science, 6. https://doi.org/10.1016/j.pdisas.2020.100091

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.57-66

Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011) PLS-SEM: Indeed a silver bullet. Journal of Marketing Theory and Practice, 19(2), pp. 139–152. https://doi.org/10.2753/MTP1069-6679190202

Hakim, M.P., Zanetta, L.D.A. and da Cunha, D.T. (2021) Should I stay, or should I go? Consumers' perceived risk and intention to visit restaurants during the COVID-19 pandemic in Brazil. Food Research International, 141. https://doi.org/10.1016/j.foodres.2021.110152

Hsieh, Y. (Jerrie), Chen, Y.L. and Wang, Y.C. (2021) Government and social trust vs. hotel response efficacy: A protection motivation perspective on hotel stay intention during the COVID-19 pandemic. International Journal of Hospitality Management, 97. https://doi.org/10.1016/j.ijhm.2021.102991

Isa, S.M., Lim, G.S.S. and Chin, P.N. (2019) Patients' intent to revisit with trust as the mediating role: lessons from Penang Malaysia. International Journal of Pharmaceutical and Healthcare Marketing, 13(2), pp. 140–159. https://doi.org/10.1108/IJPHM-10-2017-0056

Kemenkes RI (2022) Profil Kesehatan Indonesia Tahun 2021. Jakarta: Kemenkes RI.

Khoo, K.L. (2022) A study of service quality, corporate image, customer satisfaction, revisit intention and word-of-mouth: evidence from the KTV industry. PSU Research Review, 6(2), pp. 105–119. https://doi.org/10.1108/PRR-08-2019-0029

Kim, S., Leht, X. and Kandampully, J. (2019) The role of familiarity in consumer destination image formation. Tourism Review, 74(4), pp. 885–901. Available at: https://doi.org/10.1108/TR-10-2018-0141.

Kim, Y. and Kang, S.-W. (2021) Perceived crowding and risk perception according to leisure activity type during covid-19 using spatial proximity. International Journal of Environmental Research and Public Health, 18(2), pp. 1–12. https://doi.org/10.3390/ijerph18020457

Kim, Y.-R. and Liu, A. (2022) Social distancing, trust and post-COVID-19 recovery. Tourism Management, 88. https://doi.org/10.1016/j.tourman.2021.104416

Lidin, M., Lynga, P., Kinch Westerdahl, A. and Nymark, C. (2021) Crowding at hospitals-the main reason for not seeking medical care when affected by an acute myocardial infarction during the first wave of COVID-19. Available at: https://academic.oup.com/eurheartj/article/42/Supplement_1/ehab724.1275/6393499.

Min, C., Shen, F., Yu, W. and Chu, Y. (2020) The relationship between government trust and preventive behaviors during the COVID-19 pandemic in China: Exploring the roles of knowledge and negative emotion. Preventive Medicine, 141. https://doi.org/10.1016/j.ypmed.2020.106288

Rhatomy, S. and Prasetyo, T.E. (2020) Impact of COVID-19 on primary care visits: lesson learnt from the early pandemic period'. Journal of Community Empowerment for Health, 3(2), p. 102. https://doi.org/10.22146/jcoemph.57918

de Rooij, P., van Liempt, A. and van Bendegom, C. (2022) Should we stay, or should we go? The influence of risk perceptions on revisit intentions to cultural heritage during the COVID-19 pandemic. Journal of Heritage Tourism, 17(4), pp. 431–447. https://doi.org/10.1080/1743873X.2022.2061355

Sarstedt, M., Hair, J., Pick, M., Liengaard, B. and Ringle, C.. (2022) Progress in

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.57-66

partial least squares structural equation modeling use in marketing research in the last decade. Psychology and Marketing, 39(5), pp. 1035–1064. https://doi.org/10.1002/mar.21640

Su, L., Swanson, S. and Chen, X. (2015) Social responsibility and reputation influences on the intentions of Chinese Huitang Village tourists: Mediating effects of satisfaction with lodging providers. International Journal of Contemporary Hospitality Management, 27(8), pp. 1750–1771. https://doi.org/10.1108/IJCHM-06-2014-0305

Susanto, A.P., Findyartini, A., Taher, A., Susilaradeya, D. P., Ariawan, I., Dartanto, T., Takwin, B., Prasodjo, I. B., Yusuf, P. A., Sudarmono, P. P., Syam, A. F. and Wiweko, B. (2020) COVID-19 in Indonesia: Challenges and Multidisciplinary Perspectives for a Safe and Productive New Normal, Acta Medica Indonesia, 52(4), pp. 423–430

Untaru, E.N. and Han, H. (2021) Protective measures against COVID-19 and the business strategies of the retail enterprises: Differences in gender, age, education, and income among shoppers.Journal of Retailing and Consumer Services, 60. https://doi.org/10.1016/j.jretconser.2021.102446

Cheng, Y., Bi, Y. and Ni, Y. (2020). Tourists perceived crowding and destination attractiveness: The moderating effects of perceived risk and experience quality. Journal of Destination Marketing and Management, 18. https://doi.org/10.1016/j.jdmm.2020.100489

Original Research

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ENGAGING PATIENTS FOR PATIENT SAFETY: A QUALITATIVE STUDY ON HEALTHCARE RECIPIENTS' PERSPECTIVES

Pelibatan Pasien untuk Keselamatan Pasien: Studi Kualitatif terhadap Perspektif Penerima Layanan Kesehatan

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Abstract

Background: Patient safety (PS) is a global priority for achieving quality healthcare. Although patient engagement (PE) is a crucial risk-reduction strategy, research on this subject in Indonesia is scarce.
Aim: This study aims to explore healthcare recipients' (HCRs') perspectives and their potential role in PS.
Methods: Exploratory qualitative research was conducted with in-depth interviews (IDIs). This study purposively selected fourteen patients and fifteen caretakers in chronic wards. Content analysis was subjected to the IDIs data that has been transcribed verbatim.
Results: HCRs showed inadequate knowledge, perception, and willingness to engage in patient safety. Four themes were identified from data analysis: (1) complexity barriers to PE Implementation; (2) enabling factors for PE; (3) HCRs' expectations; and (4) existing and potential HCRs' roles in PS. HCRs' roles were still limited to communication, positive attitude and behavior, aided healthcare process, and error prevention.
Conclusion: The limited roles of HCRs resulted from their unreadiness to participate more in PS. For patients to be engaged in safety measures, it was essential to improve the ability of patients and caregivers and eliminate obstacles encountered by healthcare professionals and the broader health system.

Keywords: patient engagement, patient safety, quality healthcare

Abstrak

Latar belakang: *Keselamatan pasien (patient safety/ PS) merupakan prioritas global untuk mencapai pelayanan kesehatan yang berkualitas. Meskipun keterlibatan pasien/ patient engagement (PE) adalah strategi pengurangan risiko yang penting, penelitian tentang hal ini di Indonesia masih terbatas.*
Tujuan: *Penelitian ini bertujuan untuk mengeksplorasi perspektif penerima layanan kesehatan (pasien dan keluarga) dan peran potensial mereka dalam PS.*
Metode: *Penelitian kualitatif eksploratif dilakukan dengan wawancara mendalam. Empat belas pasien dan lima belas keluarga pasien bangsal penyakit kronis dipilih secara purposive. Analisis konten dilakukan terhadap data wawancara yang telah ditranskrip secara verbatim.*
Hasil: *Pasien dan keluarga menunjukkan pengetahuan, persepsi, dan kemauan yang tidak memadai untuk terlibat dalam PS. Empat tema teridentifikasi meliputi: (1) hambatan kompleksitas implementasi PE; (2) faktor pemungkin PE; (3) ekspektasi pasien dan keluarga; dan (4) peran pasien dan keluarga saat dalam PS. Peran penerima layanan kesehatan dalam PS masih terbatas pada komunikasi, sikap dan perilaku positif, membantu proses kesehatan, dan pencegahan kesalahan.*
Kesimpulan: *Terbatasnya peran pasien dan keluarga diakibatkan oleh ketidaksiapan untuk lebih berpartisipasi dalam PS. Agar pasien terlibat dalam upaya PS, penting untuk meningkatkan kemampuan mereka serta mengatasi hambatan yang dihadapi oleh profesional pemberi layanan kesehatan dan sistem kesehatan yang lebih luas.*

Kata kunci: *keterlibatan pasien, kualitas layanan kesehatan, keselamatan pasien*

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Introduction

Patient safety (PS) is a fundamental aspect of healthcare worldwide. This aspect becomes more critical since the evidence for unsafe care is apparent PS incidents are one of the 10 top leading causes of mortality globally (WHO, 2018; Committee on Improving the Quality of Health Care Globally *et al.*, 2018). Every year, 2.6 million deaths occur due to unsafe care in low and middle-income countries (LMICs), including Indonesia. According to a systematic review, drug management incidents (25%, 95% CI 16%-34%) and other treatment-related incidents (24%) caused the most preventable harm to patients, following surgical procedure events (23%), healthcare associated infections (16%) and diagnosis (16%). PS incidents are also higher in advanced specialties (intensive care or surgery) than in general hospitals (from where most data came) (Panagioti *et al*., 2019). It implies that trillions of dollars are spent globally and have significant social consequences (Auraaen, Slawomirski and Klazinga, 2018).

Most PS incidents are preventable (up to 83%) (Committee on Improving the Quality of Health Care Globally *et al.*, 2018). Numerous complex efforts have been undertaken and strongly suggested by international health organizations for lowering these incidences (WHO, 2008; WHO, 2017; Glasper, 2019). In most practices, such efforts are limited to policy, administrative procedures, patients' education, improving healthcare professionals' (HCPs') awareness and capacity, and technology application. Specific initiatives for patient participation in risk reduction remain an unresolved issue, as shown in the majority of research that patient engagement (PE) levels were generally low (Trier *et al*., 2015; Kim *et al*., 2018; Glasper, 2019; Hammoud *et al*., 2020). Hospitals frequently still emphasize their opportunities and HCPs' preferences to formulate a strategy for improving PS without considering the patient's perspective and needs (Newell and Jordan, 2015).

In Indonesia, patient-family-centered care has been introduced as the basis for the involvement of HCRsi in health services and safety (Utarini, 2020; Choi, Kim and Kim, 2021). Although the patient-centered care (PCC) aspect has become a focus of national hospital accreditation, the practice of patient involvement for PS has not been institutionalized (KARS, 2020). Research that supports it is still limited (Kaharuddin, 2014; Darmayanti, Simatupang and Rudito, 2019). Compared to Indonesia, many studies have proven that patient engagement encouragement could improve PS practices in developed countries (Berger *et al*., 2014), (Trier *et al*., 2015), (Sharma *et al*., 2018). The impact of patient involvement includes increasing medication safety (Ritzert, 2015; Khan *et al*., 2018; Kim *et al*., 2018), improving communication (Khan *et al*., 2018); preventing patient falls (Dykes *et al*., 2020); preventing infection (Hart, 2012; Sharma *et al*., 2018); and activating rapid response systems and care transitions (Ray *et al*., 2009; Gerdik *et al*., 2010). Hence, this study aims to explore patients' and caretakers' perspectives and their potential roles as the foundation for developing patient engagement programs for patient safety in Indonesia.

Method

An exploratory qualitative study was conducted in a faith-affiliated private hospital in Sleman District, Yogyakarta Special Region, Indonesia, in June-July 2021. This fully accredited type B hospital has 15 specialist and subspecialist field services and covers 216 beds. The scope of this research was limited to chronic care inpatient services.

Fourteen patients and fifteen family/ caretakers (Table 1) who received inpatient care were selected purposively from the patient registry list. Those who were conscious, communicative, and did not have severe mental illness could be involved as informants of this research. A chronic ward nurse was appointed to approach the patients and caretakers who meet the inclusion criteria above. The nurse explained that an interviewer would ask

Indonesian Journal of Health Administration
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questions for research before the interview began.

We used an interview guide to aid the information exploration. The questions conveyed HCRs' knowledge about PS, their experience in the inpatient ward related to hospital quality and safety, and how to improve PS in hospitals. This guide was previously tested on a patient and a caretaker and revised accordingly. All interviews were conducted in Bahasa Indonesia and audio recorded. The data collection was stopped after saturation was reached. We used criteria of data saturation based on the definition by Sounders *et al.*, (2018).

Table 1. Informants' Characteristics

Informant Code	Age (year)	Gender*	Education	Employment	Inpatient frequency
Patients					
P1	43	F	Undergraduate	Unemployed	2–4x
P2	48	M	Senior high school	Unemployed	>4x
P3	43	F	Elementary school	Household assistant	>4x
P4	57	M	Undergraduate	Merchant	2-4x
P5	50	F	Elementary school	Unemployed	>4x
P6	57	M	Undergraduate	Entrepreneur	2-4x
P7	59	F	Senior high school	Merchant	>4x
P8	23	M	Senior high school	Unemployed	2–4x
P9	61	F	Senior high school	Unemployed	<2x
P10	45	F	Senior high school	Merchant	2-4x
P11	59	M	Elementary school	Driver	<2x
P12	37	F	Senior high school	Merchant	2-4x
P13	56	M	Undergraduate	Retired	2-4x
P14	44	M	Junior high school	Unemployed	2-4x
Caretakers					
K1	17	F	Junior high school	Student	2-4x
K2	40	M	Undergraduate	Private sector employee	2-4x
K3	20	F	Senior high school	Private sector employee	<2x
K4	57	F	Diploma	Merchant	2-4x
K5	48	F	Undergraduate	Unemployed	2-4 x
K6	20	F	Senior high school	Student	<2x
K7	43	F	Senior high school	Unemployed	2-4x
K8	52	M	Senior high school	Private sector employee	2-4x
K9	29	F	Senior high school	Entrepreneur	<2x
K10	21	F	Senior high school	Private sector employee	>4x
K11	27	F	Postgraduate	Private sector employee	<2x
K12	34	M	Senior high school	Entrepreneur	>4x
K13	37	F	Junior high school	Entrepreneur	<2x
K14	39	F	Diploma	Private sector employee	2-4x
K15	32	M	Undergraduate	Private sector employee	>4x

* F = Female,
M = Male

Indonesian Journal of Health Administration
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p-ISSN 2303-3592, e-ISSN 2540-9301
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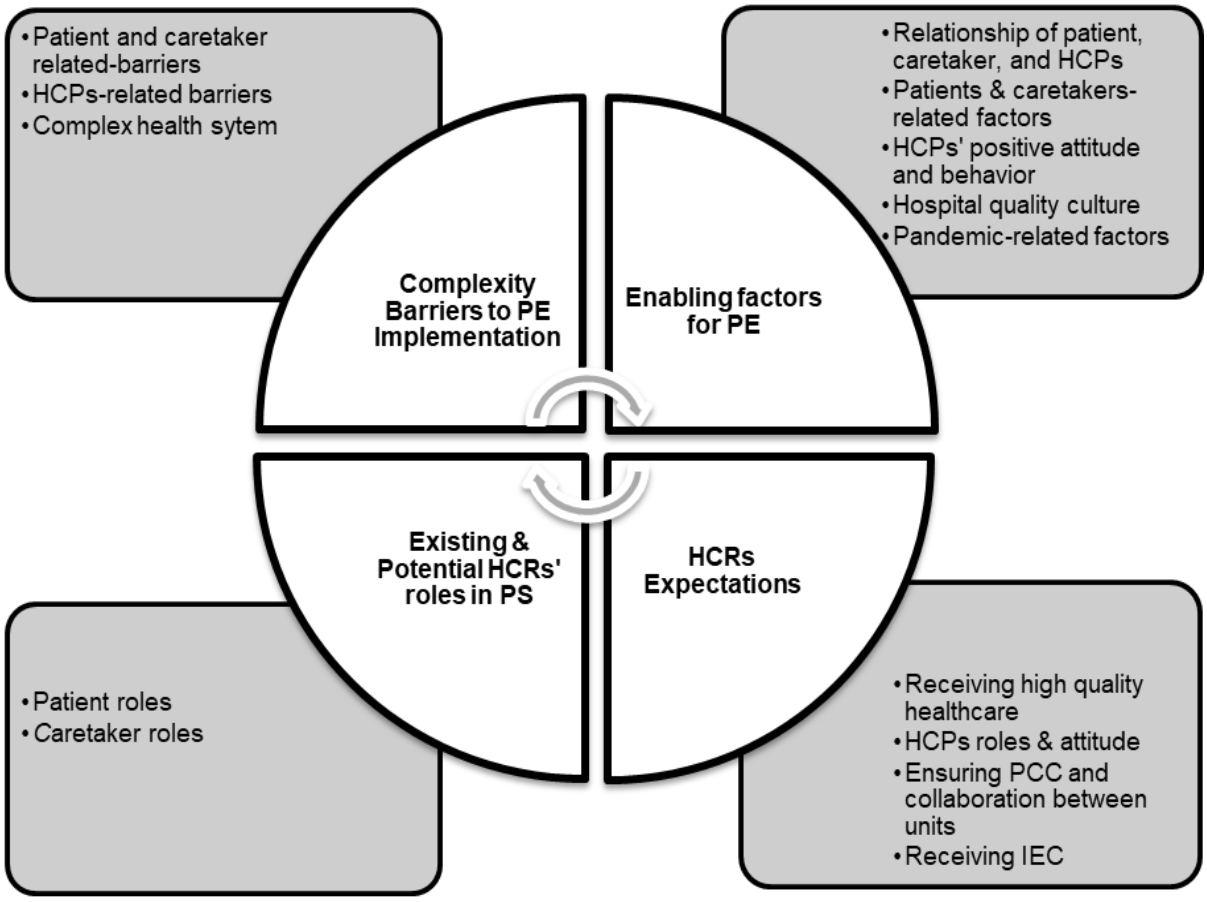

Figure 1. Themes and Categories from In-depth Interviews

A series of processes were meticulously carried out in the analysis of data. Interview recordings were transcribed verbatim by two research assistants. EL and MA then analyze the data under the supervision of ACS, AA, and AB using a content analysis approach.

Trustworthiness

We maintained research rigor by applying four dimensions of criteria: credibility, transferability, dependability, and confirmability (Forero *et al*., 2018). In terms of data credibility, data sources triangulation was conducted among HCPs informant groups in the different steps of this research. Before and during coding, data credibility was double-checked. We also conducted peer debriefing from the preparation of data collection until the research report writing. We provided a thick description of the study to improve transferability, including detailed descriptions of the participants, setting, and methods. Throughout the study, we prepared detailed drafts of the study protocol and tested the interview guide to ensure dependability. We also kept a detailed record of the data collection process by taking field notes and keeping a daily journal. To perform confirmability, we implemented weekly researcher team meetings. NVivo 12+ for data management and field notes also contributed to the study's dependability and confirmability.

Result and Discussion

This research included 14 patients and 15 caregivers (Table 1). These caregivers were not necessarily the patient's partner or family members. Most respondents worked in the informal sector

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

and were female. The majority of HCRs have been hospitalized more than twice.

Four themes emerged from in-depth interviews with patient and caretaker informants (Figure 1). The themes include (1) complexity barriers to PE Implementation, (2) enabling factors for PE, (3) HCRs' expectations, and (4) existing and potential HCRs' roles in PS.

Theme 1: Complex barriers to PE implementation

Obstacles to PE implementation were identified as healthcare recipient-related barriers, HCPs-related barriers, and complex health systems. Patient and caretaker informants showed low health literacy, a lack of knowledge about PS and how to get involved. Low health literacy is evidenced by the statements of informants that they have inadequate self-care abilities, lack of knowledge about health in general and about the illness they are suffering from, and the inability to be involved in making decisions regarding themselves or their family's health condition. Moreover, the changing shift of caretakers without adequate information transfer also worsened this condition due to unequal knowledge. These conditions also described in the following interview excerpts from the HCRs informant:

> *"… the family plays a big role but when it comes to safety, what kind of family should be I don't know... because usually the family just takes care for example don't let the patient fall. At least that's as far as I know. The rest, I don't really understand."* (K2).
> *"… it was decided by the doctor, not me. The doctor decided for catheterization and I just agreed."* (P13)

On the other hand, HCRs mentioned varying levels of willingness to participate in PS efforts. Fear, shyness, worry about offending, resignation, thinking that the HCPs were smarter than them, fear of being considered stupid/nagging, and the presumption of being disappointed with the HCPs' answer were among the submissive attitudes and behaviors mentioned by informants who were hesitant to participate in PS. The quote below represents an example of disappointment that caused informants to be reluctant to ask HCPs.

> *"We never ask. Yes, it has to be the same. We are not going to be satisfied. We will not get a clear answer. You will be labeled as chatty if you ask too many questions."* (K1)

Aside from the factors mentioned earlier, the HCRs' characteristics and the patient's burden appeared to have influenced them to participate in PS efforts during hospitalization. The informants highlighted characteristics of patients such as passivity, cooperation, communicativeness, activeness, and elderly companions. The severity of the patient's clinical condition, including change of the level of consciousness, emergencies, complicated procedures, psychological burden, polypharmacy, experience with safety incidents, and drug side effects, were all crucial issues in how they can participate in PS. These quotes might illustrate these situations.

> *"My old mother sought advice from the officers, but she was unable to comprehend."* (K12)
> *"This depends on the patient, as he is the one who is ill. There are those who are uninterested in conversing, some people do not speak much, but I am a talker." (P1)*
> *"Yes, because this is an emergency condition. At that time, I fainted and was intubated. So, okay, I immediately signed the medical procedures agreement."* (K2)

Our study found that HCRs often experience physical and psych burdens that hinder them in PE. The previous study also showed PE barriers related to the patient (illness severity, extended hospitalization, invasive procedures) and family burden (socio-economic problems, depressive symptoms) (Burns *et al.*,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

2018). The patient burden could impede them from getting the health services they need (Arini, Ahmad and Utarini, 2020).

In our study, HCRs' unwillingness to be involved was influenced by factors of inadequate health literacy, which contributed to varying perceptions and indisposition. The submissive attitude might closely relate to Javanese culture, in which the research setting was conducted, and also appeared as a barrier that hindered the proactive roles of HCRs in healthcare procedures. This finding is also consistent with previous studies on health literacy and how specific ethnic and cultural backgrounds could affect patients' willingness to speak up or be involved in general healthcare (Nurjanah and Mubarokah, 2019; Chegini *et al*., 2020).

HCPs-related barriers

Furthermore, our research findings in the category of HCPs-related barriers included information delivery barriers, communication styles, and working conditions. The HCPs' assumption that the patient already knew about the limited knowledge of nurses and HCPs only providing explanations when asked were all barriers to communicating information to patients. The HCPs' explanation style was quite varied. The informants highlighted that some HCPs were less communicative, less friendly, and had inadequate responses. The work conditions such as night shift, tiredness, or negligence affected how HCPs communicated with HCRs.

> *"I asked (to the nurse). Their ability to respond may be limited due to the doctor's decision."* (K2)
> *"The nurse is not always in a good situation. As a result, they are not always friendly."* (P2)

In the HCPs' barriers aspects, our exploration results were also in line with the findings of another study about the negative attitudes HCPs towards PE, ineffective communication, and the reluctance of physicians (Chegini *et al*., 2020). These HCPs related-barriers are generally thought to be caused by the inadequate curriculum for HCPs and ineffective retraining programs. Hence, it requires HCPs to be prepared during their formal education. Hospital management should ensure continuing education while working (Ruben, Blanch-Hartigan and Hall, 2020).

Complex health system

Informants shared their experiences while being treated in the hospital, which indicated barriers to PE implementation from health system aspects. Time constraints, complicated health procedures, a lack of information disclosure, difficulty in identifying HCPs' identities, and the COVID-19 pandemic were all service delivery barriers that impacted patient involvement in safety initiatives. The limited number of HCPs implies that HCRs had less time and fewer opportunities to ask questions. On the other hand, the limited service at night, the performance of other units, and the fact that families might not accompany the patients during the intervention also contributed to these barriers.

> *"We, the patients, are dissatisfied with our conversations with physicians."* (P13)
> *"I am not sure how good services are. The medical community is not exactly transparent."* (K6)

Our findings in health organization management showed existing problems on the inadequate resources, in terms of HCPs workload and ineffective procedures execution. These conditions were in line with research in some Low-Middle Income Countries such as Iran (Chegini *et al*., 2020) and China (Wong *et al*., 2017). On the contrary, a study in Boston showed that patient partnership intervention did not change HCPs' workload (Weingart *et al*., 2004). Hence, to respond to the complex barriers of PE, high-level commitment and multifaceted improvement programs require the roles of the government, community,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

healthcare facilities, HCPs, and HCRs simultaneously (Burns *et al*., 2018).

Theme 2: Enabling factors of PE

A good relationship between HCPs and HCRs is one of the supporting factors for involving patients in PS. Based on interviews, this relationship was built by patients being frequently hospitalized, having the same affiliation with religious organizations, and mutual respect in a family-like atmosphere. HCRs with good prior knowledge and perception might facilitate their involvement in safety.

> "… *but in my second hospitalization, they already knew me. So, they tend to communicate with me"* (laugh). (P1)

Meanwhile, positive attitudes and behaviors among HCRs, on the other hand, also supported this implementation. HCRs' positive attitudes appeared in their cooperativeness, independence, curiosity, communicativeness, and gratitude.

> *"(Patient safety is) shared responsibility. The nurses and doctors are also responsible, so they must inform the patients' families (what to do) because they are the ones who are caring for patients." (K3)*

The HCP's positive attitude and behavior also aided in developing interactions with the patient. Caring, patience, friendliness, and communication are some of these characteristics. HCPs also kept patients calm, motivated them, responded to their needs, and respected their privacy, as shown below.

> *"'You have to be passionate and healthy,' they said."* (P2)
> *"Oh yea, they knock the door first, then ask permission"* (K8)

As per our study, HCRs' communication ability and willingness were also essential to improving PS. Without ignoring other equally important roles, HCPs and healthcare facilities must encourage HCRs willingness to communicate. HCRs highlighted the need for attempts to promote PS and patient rights and obligations, availability of official channels for submitting complaints, effective handling of complaint mechanisms, respect for HCRs' privacy and confidentiality, and shared decision-making procedures in general and informed consent. SDM is known as a prerequisite for achieving PCC to be able to implement PE for PS (Elwyn *et al*., 2012; Danis and Solomon, 2013; Miller *et al*., 2014; Trier *et al*., 2015; Lee *et al*., 2017; Duhn, Godfrey, and Medves, 2020). A study by Rainey *et al*. proposed that the ability of HCRs to speak up or communicate their need was influenced by the ability to recognize the critical clinical condition, self-monitoring ability, confidence and trust, health care system, and culture (Rainey *et al*., 2015). Furthermore, the responsibility to make HCRs willing to communicate could not ignore the need for the community's role and general formal education to improve the public's health literacy (Danis and Solomon, 2013; McCormack *et al*., 2017; Nutbeam, McGill, and Premkumar, 2018; Chegini *et al*., 2020).

The hospital quality culture mentioned by the informants regarding implementing PE included the opportunity to submit complaints and the availability of educational media. In general, informants expressed trust and satisfaction with the services they received. They stated about feeling safe and comfortable during treatment, receiving prompt service, experiencing a clean environment, and having a simple service flow. As an external factor, although the pandemic resulted in barriers, the informant stated that it also increased HCPs' and HCRs' behavior in safety efforts, particularly infection prevention programs.

> "*Their kindness is... they said that if anything happens, I am supposed to report it."* (P3)
> *"Given the current pandemic situation, there are many*

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

explanations (about washing hands).” (K5)
“I feel safer here. I feel more comfortable also. Cleanliness is also maintained, such as routinely changing bed linen.” (K6)

Our significant finding was the close relationship between HCRs and HCPs and hospital quality culture as an enabler of PE implementation. This relationship was strengthened by frequent interactions and a family atmosphere of mutual respect. However, these results were inconsistent with some previous research that the relationship between patients and staff was treated to become ineffective due to healthcare delivery systems issues such as HCPs' workload and complicated service flow. Furthermore, cultural background and communication barriers were identified as threatening factors in previous research (Rainey *et al*., 2015; Schildmeijer *et al*., 2018; Chegini *et al*., 2020). Although a positive relationship was found to be an enabler for PE implementation, patients' fear that their active role would negatively impact their care and relationship with HCPs, similar to Doherty and Stavropoulou (2012). Moreover, future research is recommended to develop specific instruments that help HCPs engage HCRs in healthcare activities.

Theme 3: HCRs’ expectations

The informants expressed some expectations related to the health services they got. Informants expected that the HCPs especially nurses and physicians would improve interaction with patients, routinely monitor, and be more thorough in carrying out their duties. Existing expectations occur due to the gap between practice and what they desire. As per the informant, they received IEC (information, education, and communication) from HCPs. However, the informants pointed out the lack of PS orientation at the beginning of the hospitalization. There was still a scarcity of information about the role of caregivers and patients in aspects of patient medication, treatment plans, diet, and general care. The following is what the informants stated.

"There was no mention about safety. We only get a brochure about the patient's rights and obligations, as well as a brochure about prayer." (K1)
"Yes, nurses should be forthcoming with patients' families. They have to inform if the patient has to do something. They also could inform the family for anticipating and reminding the patients." (K7)

Our study found that HCRs' perceptions of PS cannot be separated from their views on the quality of health services in general. Although the informants were generally satisfied with the hospital service, their experiences with delayed and unclear administrative services, service flow, issues of equity, continuity of care and collaboration between units, and patient-centered care raised concerns. Since patients experienced variation in how HCPs applied PS, their competencies and attitudes were also highlighted. These excerpts inform about these situations.

“The services provided in class 1 ward are quite extensive. Except for that, nurse explanations are thorough. However, this has not happened here (class 3).*”* (K1)
"I have never seen they check this (identity bracelet)." (K3)

It is interesting to note that communication becomes an essential issue in engaging patients for PS. Previous research revealed that clear, encouraging, multimodal communication has the most significant potential to increase patients' engagement in their safety (Walters and Duthie, 2017), (Burns *et al*, 2018). As IEC is required in almost all healthcare activities, the need for good HCPs’ communication skills goes in hand with the competencies or general skills requirements they have (Elwyn *et al*., 2012; Hashim, 2017). These findings

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.67-80

imply the need for HCPs' to assess patients' ability to engage and adapt to some communication skills in allowing them to be involved without putting undue strain on them (Hashim, 2017; Walters and Duthie, 2017; Ruben, Blanch-Hartigan, and Hall, 2020).

Theme 4: Existing & Potential HCRs' roles in PS

The fourth theme is informants' reflections on their roles in healthcare process to achieve PS. Patient roles identified included effective communication, preventive efforts, and aspects of patient attitudes and behavior. The communication aspect included their role in initiating communication, communicate complaints or problems, providing accurate information, and actively asking questions. Their potential role in injury prevention was identified in preventing falls and checking medicine accuracy. Aspects of the patient's attitude and behavior included awareness of their rights and obligations, compliance to hospital rules, cooperativeness, and obedience on the advice of health workers.

> *"The one who can feel short of breath until I faint is me. So, I think the patient himself should be able to communicate to the nurse."* (P1)
> *"As a patient, you have to follow the hospital's regulations. If not, it is the patient's fault* (laughs)." (P9)

The caretakers' roles were similar to the patient in caretaker-HCPs communication, preventive efforts, and patient assistance. They played significant roles in communication by reporting the patient's condition or complaints, calling nurses, and actively asking questions. Caretakers are responsible for assisting patients in all activities, reminding them, and managing diet according to the doctor's advice. In prevention action for safety, the patients' guardian's identified functions included assuring patient hygiene, fall prevention, and medication management. The following interview excerpts describe these roles.

> *"We administered the medication on time and continued to feed her with the hospital-supplied food. Then, I ask my mother when she gets bathed at the ICCU. I also enquired about patient care with the doctor." (K3)*
> *"We reminded them that the bedside rail needed to be raised again." (Informant K1)*

The study results revealed a predominance of the patient's apparent inability to participate in achieving safe care. Although we are still in the early stage of "patient for patient safety" initiation in Indonesia, hospitals need HCRs roles in broad aspects. Their roles are critical from administrative aspects until a more specific healthcare process and error prevention. It is desired that HCRs would play a more optimal role in clinical decision-making and be willing to empower themselves to improve their knowledge. HCRs should be able to communicate more assertively to ensure that their needs, expectations, and safety are fulfilled. These results are in accordance with previous study revealing that patients and their relatives should be able to speaking-up about their own safety (Rainey *et al*., 2015). A scoping review identified more advanced roles of HCRs that empowered patients and caretakers to involve by giving feedback on quality and safety aspects. They also could participate as quality committee in quality improvement projects, providing education to other patients, and partnership in shared leadership and policymaking (Liang *et al*., 2018).

Even though our study had a strength in the diverse variety of HCRs informants' characteristics, it has several limitations. First, this research was only conducted in one hospital in Indonesia and might not reflect a broader Indonesian perspective. Hence, generalization and transferability must be approached with caution. Second, all HCRs who participated in this study had

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.67-80

received chronic inpatient care. As a result, their experiences might differ from other patient populations.

Conclusion

The findings indicated that patients and caretakers had varying levels of knowledge, perception, and willingness to engage in PS. HCRs' comprehension and attitude about PS and what they must do to involve in PS are still lacking. Our health system had complicated barriers to PE implementation due to HCRs, HCPs, and health organization-related factors. These factors contributed to HCRs' unreadiness to engage and their existing roles in safety that were limited to administrative roles, communication, injury prevention, and assisting the healthcare process.

Although some enabling factors regarding the HCRs' and HCPs' attitudes, behavior, relationship, pandemic situation, and quality culture of the hospitals, there is still a long way to go to implement PE in healthcare services. Since safety could not be separated from quality as patients expected, both of them should go in hand to be improved with multifaceted and continuing programs, especially in improving HCRs' and HCPs' capacities. Our study implies that high-level commitment and multiparty roles are crucial for ensuring that PE implementation runs effectively in healthcare facilities. Empowerment is needed since educational institutions, community roles, and supportive health policies are prerequisites for HCRs' ability to engage.

Abbreviations

HCP: healthcare professional; HCR: healthcare recipients, ICCU: intensive cardiology care unit; PCC: patient-centered care; PE: patient engagement; PS: patient safety. IEC: information, education, communication;

Declarations

Ethics Approval and Consent Participant

Ethical approval for this study was obtained from the Health Research Committee of the Faculty of Medicine and Health Sciences, Universitas Indonesia (No: Ket-584/UN2.F10.D11/PPM.00.02/2020). Before data collection, written consent was obtained. The confidentiality of the informants was ensured by replacing all personal identifiers.

Conflict of Interest

The authors declared no conflict of interest to be disclosed.

Availability of Data and Materials

The availability of data and materials were based on demand from journals and readers

Authors' Contribution

EL conceived the study. EL and MA were involved in developing the research manuscript, preparing interview guidelines, obtaining ethical approval, recruiting informants, and analyzing data. ACS, AA, and AB, contributed to critically revised articles for important intellectual content. All authors reviewed and approved the final version of the manuscript.

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References

Arini, M., Ahmad, R.A. and Utarini, A. (2020) 'Tuberculosis and type 2 Diabetes Mellitus (TB-DM) comorbidity care: Barriers from the patients' perspective', Enfermería Clínica, 30, pp. 174–178. Available at: https://doi.org/10.1016/j.enfcli.2020.06.040.

Auraaen, A., Slawomirski, L. and Klazinga, N. (2018) The economics of patient safety in primary and ambulatory care: Flying blind. OECD Health Working Papers 106.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

Available at: https://www.oecd-ilibrary.org/social-issues-migration-health/the-economics-of-patient-safety-in-primary-and-ambulatory-care_baf425ad-en (Accessed: 12 July 2023).

Berger, Z. et al. (2014) 'Promoting engagement by patients and families to reduce adverse events in acute care settings: a systematic review', BMJ Quality & Safety, 23(7), pp. 548–555. Available at: https://doi.org/10.1136/bmjqs-2012-001769.

Burns, K.E.A. et al. (2018) 'Patient and Family Engagement in the ICU. Untapped Opportunities and Underrecognized Challenges', American Journal of Respiratory and Critical Care Medicine, 198(3), pp. 310–319. Available at: https://doi.org/10.1164/rccm.201710-2032CI.

Chegini, Z. et al. (2020) 'Exploring the barriers to patient engagement in the delivery of safe care in Iranian hospitals: A qualitative study', Nursing Open, 7(1), pp. 457–465. Available at: https://doi.org/10.1002/nop2.411.

Choi, N., Kim, J. and Kim, H. (2021) 'The influence of patient-centeredness on patient safety perception among inpatients', PLOS ONE. Edited by H. Seale, 16(2), p. e0246928. Available at: https://doi.org/10.1371/journal.pone.0246928.

Committee on Improving the Quality of Health Care Globally et al. (2018) Crossing the Global Quality Chasm: Improving Health Care Worldwide. Washington, D.C.: National Academies Press, p. 25152. Available at: https://doi.org/10.17226/25152.

Danis, M. and Solomon, M. (2013) 'Providers, Payers, The Community, And Patients Are All Obliged To Get Patient Activation And Engagement Ethically Right', Health Affairs, 32(2), pp. 401–407. Available at: https://doi.org/10.1377/hlthaff.2012.1081.

Darmayanti, D., Simatupang, T.M. and Rudito, P. (2019) 'Patient engagement activities with health care professionals in continuous ambulatory peritoneal dialysis therapy: an exploratory pilot study', International Journal of Nephrology and Renovascular Disease, Volume 12, pp. 103–112. Available at: https://doi.org/10.2147/IJNRD.S185691.

Doherty, C. and Stavropoulou, C. (2012) 'Patients' willingness and ability to participate actively in the reduction of clinical errors: A systematic literature review', Social Science & Medicine, 75(2), pp. 257–263. Available at: https://doi.org/10.1016/j.socscimed.2012.02.056.

Duhn, L., Godfrey, C. and Medves, J. (2020) 'Scoping review of patients' attitudes about their role and behaviours to ensure safe care at the direct care level', Health Expectations, 23(5), pp. 979–991. Available at: https://doi.org/10.1111/hex.13117.

Dykes, P.C. et al. (2020) 'Evaluation of a Patient-Centered Fall-Prevention Tool Kit to Reduce Falls and Injuries: A Nonrandomized Controlled Trial', JAMA Network Open, 3(11), p. e2025889. Available at: https://doi.org/10.1001/jamanetworkopen.2020.25889.

Elwyn, G. et al. (2012) 'Shared decision making: a model for clinical practice', Journal of general internal medicine, 27, pp. 1361–1367.

Forero, R. et al. (2018) 'Application of four-dimension criteria to assess rigour of qualitative research in emergency medicine', BMC health services research, 18(1), pp. 1–11.

Gerdik, C. et al. (2010) 'Successful implementation of a family and patient activated rapid response team in an adult level 1 trauma center', Resuscitation, 81(12), pp. 1676–1681.

Glasper, A. (2019) 'Implementing the NHS Patient Safety Strategy',

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

British Journal of Nursing, 28(15), pp. 1030–1031. Available at: https://doi.org/10.12968/bjon.2019.28.15.1030.

Hammoud, S. et al. (2020) 'Patient education on infection control: A systematic review', American Journal of Infection Control, 48(12), pp. 1506–1515.

Hart, R. (2012) 'The effects of a poster in informing and empowering patients in infection prevention and control', Journal of Infection Prevention, 13(5), pp. 146–153.

Hashim, M.J. (2017) 'Patient-centered communication: basic skills', American family physician, 95(1), pp. 29–34.

Kaharuddin, A.T. (2014) 'Perbandingan Kualitas Patient Engagement Pada Empat Pelayanan Spesialis Dasar Di Rsud Haji Provinsi Sulawesi Selatan', Jurnal Al Hikmah, 15(1), pp. 43–53.

KARS (2020) 'Bimbingan Akreditasi dengan Standar Nasional Akreditasi Rumah Sakit'. Komisi Akreditasi Rumah Skit. Available at: https://kars.or.id/wp-content/uploads/2020/07/Proposal-Bimbingan-SNARS-edisi-1.1-rev-18-Des-19.pdf.

Khan, A. et al. (2018) 'Patient safety after implementation of a coproduced family centered communication programme: multicenter before and after intervention study', BMJ, p. k4764. Available at: https://doi.org/10.1136/bmj.k4764.

Kim, J.M. et al. (2018) 'Evaluation of Patient and Family Engagement Strategies to Improve Medication Safety', The Patient - Patient-Centered Outcomes Research, 11(2), pp. 193–206. Available at: https://doi.org/10.1007/s40271-017-0270-8.

Lee, D.J. et al. (2017) 'Patient engagement in the design and execution of urologic oncology research', Urologic Oncology: Seminars and Original Investigations, 35(9), pp. 552–558. Available at: https://doi.org/10.1016/j.urolonc.2017.07.002.

Liang, L. et al. (2018) 'Patient engagement in hospital health service planning and improvement: a scoping review', BMJ Open, 8(1), p. e018263. Available at: https://doi.org/10.1136/bmjopen-2017-018263.

McCormack, L. et al. (2017) 'Improving low health literacy and patient engagement: A social ecological approach', Patient Education and Counseling, 100(1), pp. 8–13. Available at: https://doi.org/10.1016/j.pec.2016.07.007.

Miller, M.J. et al. (2014) 'A group-randomized trial of shared decision making for non-steroidal anti-inflammatory drug risk awareness: primary results and lessons learned: Intervention for NSAID risk awareness', Journal of Evaluation in Clinical Practice, 20(5), pp. 638–648. Available at: https://doi.org/10.1111/jep.12193.

Newell, S. and Jordan, Z. (2015) 'The patient experience of patient-centered communication with nurses in the hospital setting: a qualitative systematic review protocol':, JBI Database of Systematic Reviews and Implementation Reports, 13(1), pp. 76–87. Available at: https://doi.org/10.11124/jbisrir-2015-1072.

Nurjanah and Mubarokah, K. (2019) 'Health Literacy and Health Behavior in the Rural Areas', KnE Life Sciences, 4(10), p. 8. Available at: https://doi.org/10.18502/kls.v4i10.3702.

Nutbeam, D., McGill, B. and Premkumar, P. (2018) 'Improving health literacy in community populations: a review of progress', Health Promotion International, 33(5), pp. 901–911. Available at: https://doi.org/10.1093/heapro/dax015.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

Panagioti, M. et al. (2019) 'Prevalence, severity, and nature of preventable patient harm across medical care settings: systematic review and meta-analysis', BMJ, p. l4185. Available at: https://doi.org/10.1136/bmj.l4185.

Rainey, H. et al. (2015) 'The role of patients and their relatives in 'speaking up'about their own safety--a qualitative study of acute illness', Health Expectations, 18(3), pp. 392–405.

Ray, E.M. et al. (2009) 'Family Alert: Implementing Direct Family Activation of a Pediatric Rapid Response Team', The Joint Commission Journal on Quality and Patient Safety, 35(11), pp. 575-AP6. Available at: https://doi.org/10.1016/S1553-7250(09)35078-3.

Ritzert, B. (2015) 'Multimedia Educational Interventions for Consumers about Prescribed and Over-the-Counter Medications', Public Health Nursing, 32(2), pp. 186–188. Available at: https://doi.org/10.1111/phn.12102.

Ruben, M.A., Blanch-Hartigan, D. and Hall, J.A. (2020) 'Communication Skills to Engage Patients in Treatment', in A. Hadler, S. Sutton, and L. Osterberg (eds) The Wiley Handbook of Healthcare Treatment Engagement. 1st edn. Wiley, pp. 274–296. Available at: https://doi.org/10.1002/9781119129530.ch15.

Saunders, B. et al. (2018) 'Saturation in qualitative research: exploring its conceptualization and operationalization', Quality & Quantity, 52(4), pp. 1893–1907. Available at: https://doi.org/10.1007/s11135-017-0574-8.

Schildmeijer, K. et al. (2018) 'Determinants of patient participation for safer care: A qualitative study of physicians' experiences and perceptions', Health Science Reports, 1(10), p. e87. Available at: https://doi.org/10.1002/hsr2.87.

Sharma, A.E. et al. (2018) 'Patient Engagement In Health Care Safety: An Overview Of Mixed-Quality Evidence', Health Affairs, 37(11), pp. 1813–1820. Available at: https://doi.org/10.1377/hlthaff.2018.0716.

Trier, H. et al. (2015) 'Involving patients in patient safety programmes: A scoping review and consensus procedure by the LINNEAUS collaboration on patient safety in primary care', European Journal of General Practice, 21(sup1), pp. 56–61. Available at: https://doi.org/10.3109/13814788.2015.1043729.

Utarini, A. (2020) 'Person-Patient-Family-Community Centered Care Semakin Penting', The Journal of Hospital Accreditation, 2(02), pp. 30–31. Available at: https://doi.org/10.35727/jha.v2i02.72.

Walters, C.B. and Duthie, E.A. (2017) 'Patients' Perspectives of Engagement as a Safety Strategy', Oncology Nursing Forum, 44(6), pp. 712–718. Available at: https://doi.org/10.1188/17.ONF.712-718.

Weingart, S.N. et al. (2004) 'Lessons from a patient partnership intervention to prevent adverse drug events', International Journal for Quality in Health Care, 16(6), pp. 499–507. Available at: https://doi.org/10.1093/intqhc/mzh083.

WHO (2008) WHO Patient Safety Curriculum Guide for Medical Schools Quality & Safety in Health Care, World Health Organization, p. https://doi.org/10.1136/qshc.2009.036970.- https://doi.org/10.1136/qshc.2009.036970.

WHO (2017) Patient safety: making health care safer. Geneva: World Health Organization. Available at: https://apps.who.int/iris/handle/10665/255507.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.67-80

WHO (2018) The Top 10 Causes of Death, World Health Organization, p. https://www.who.int/en/news-room/fact-sheets/detai.

Wong, E.L.Y. et al. (2017) 'Views and Experience on Patient Engagement in Healthcare Professionals and Patients—How Are They Different?', Open Journal of Nursing, 07(06), pp. 615–629. Available at: https://doi.org/10.4236/ojn.2017.76046.

Original Research

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POLICIES TO REDUCE HOME DELIVERY IN INDONESIA: WHO SHOULD BE THE TARGET?

Kebijakan Mengurangi Persalinan di Rumah di Indonesia: Siapa yang Seharusnya Menjadi Target?

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Abstract

Introduction: Home delivery increases the chance of maternal death.
Aims: The study examines suitable targets for developing policies to reduce home births.
Methods: This cross-sectional study analyzed 15,357 mothers through stratification and multistage random sampling, including 13 independent variables: age, education, employment, marital, parity, insurance, knowledge of pregnancy danger signs, antenatal care (ANC), residence, the autonomy of health and family finance, household head sex, and wealth. We examined the data using binary logistic regression.
Results: About 23.8% of mothers deliver at home. Older age, higher education, primiparous, insured, knowing the pregnancy danger signs, living in an urban area, and doing ANC ≥4 times were protective factors to not home delivery. Being employed, married, having a male household head, and being poor were risk factors for home delivery. Mothers without health autonomy are less likely to deliver at home than those with health autonomy. Mothers with family finance autonomy are 1.239 times more likely than those without to give home birth.
Conclusion: The target to reduce home deliveries: young, low education, employed, married or divorced/widowed, having many children, uninsured, do not know pregnancy danger signs, doing ANC <4 times, living in a rural area, have no health autonomy, have no family finance autonomy, having a male household head, and poor.

Keywords: big data, home delivery, maternal health, maternity care, population health, public health.

Abstrak

Latar Belakang: *Persalinan di rumah meningkatkan kemungkinan kematian ibu.*
Tujuan: *Studi menganalisis target yang tepat untuk mengembangkan kebijakan mengurangi kelahiran di rumah.*
Metode: *Studi cross-sectional ini menganalisis 15.357 ibu melalui stratification dan multistage random sampling. Penelitian ini menggunakan 13 variabel bebas: usia, pendidikan, pekerjaan, perkawinan, paritas, asuransi, pengetahuan tentang tanda bahaya kehamilan, ANC, tempat tinggal, otonomi kesehatan dan keuangan keluarga, jenis kelamin kepala rumah tangga, dan kekayaan. Analisis menggunakan regresi logistik biner.*
Hasil: *Sekitar 23,8% ibu melahirkan di rumah. Usia yang lebih tua, pendidikan tinggi, primipara, asuransi, mengetahui tanda bahaya kehamilan, tinggal di perkotaan, dan melakukan ANC ≥4 kali merupakan faktor protektif untuk tidak melahirkan di rumah. Bekerja, menikah atau janda, memiliki kepala rumah tangga laki-laki, dan miskin merupakan faktor risiko untuk melahirkan di rumah. Wanita tanpa otonomi kesehatan lebih kecil kemungkinannya dibandingkan mereka yang memiliki otonomi kesehatan untuk melahirkan di rumah. Wanita dengan otonomi keuangan keluarga 1,239 kali lebih mungkin dibandingkan wanita tanpa otonomi keuangan keluarga untuk melahirkan di rumah.*
Kesimpulan: *Target kebijakan untuk mengurangi persalinan di rumah adalah ibu yang berumur muda, berpendidikan rendah, bekerja, menikah atau janda, memiliki banyak anak, tidak memiliki asuransi kesehatan, tidak mengetahui tanda bahaya kehamilan, ANC kurang dari empat kali, tinggal di pedesaan, tidak memiliki otonomi kesehatan, memiliki otonomi keuangan, memiliki kepala rumah tangga laki-laki, dan miskin.*

Kata kunci: *persalinan di rumah, asuhan persalinan, big data, kesehatan ibu, kesehatan masyarakat, kesehatan penduduk.*

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Introduction

Maternal Mortality Rate (MMR) indicates women's health efforts (the Minister of Health of the Republic of Indonesia, 2018). Based on World Bank data, the MMR in Indonesia in 2017 was 117 maternal mortality per 100,000 were caused by pregnancy and childbirth up to 42 days after giving birth (World Health Organization, 2019). Maternal mortality is a serious health issue that impacts the growth of children and families.

MMR in Indonesia in this decade has decreased. It has, however, yet to meet the 2030 Sustainable Development Goals (SDGs) objective of 70 per 100,000 live births (Susiana, 2019; Laksono and Wulandari, 2022).

At the ASEAN regional level, Indonesia has the third-highest MMR. Myanmar is the first-highest country, with 250 deaths, while Laos is the second-highest country, with 185 deaths per 100,000 live births. Indonesia still has a higher MMR than other emerging countries. In 2017, MMR in Uzbekistan was 29 deaths; in China, 29 deaths; in Mongolia, 45 deaths; in Iran, 16 deaths; in the Maldives, 53 deaths; and Jordan, 46 deaths per 100,000 live births. MMR is substantially lower in wealthy nations than it is in Indonesia. In 2017 MMR in Japan, five deaths; in the Republic of Korea, eleven deaths; in the United Kingdom, seven deaths; in Canada, ten deaths; in the Netherlands, five deaths; in France, eight deaths; and in Germany, seven deaths per 100,000 live births (World Health Organization, 2019). MMR at the global level shows that many countries have achieved the SDGs 2030 target.

All maternal deaths are caused by severe bleeding after delivery, infection after delivery, pre-eclampsia, eclampsia throughout pregnancy, and complications from childbirth. These maternal complications are increasingly at risk, with delays in referring to health facilities and poor quality of care (Mahmood *et al.*, 2018; Sageer *et al.*, 2019). The factor that supports the hesitation in referring to a health facility is the place of delivery at home. Several studies have found that home delivery is preferred for women and families compared to delivery in health facilities because of the understanding that childbirth is a natural process. Furthermore, delivery in health facilities is considered necessary only for complicated deliveries. Other factors related to delivery place choice are sociocultural issues, economic problems, health facilities (Konje *et al.*, 2020), preference for home as a place of delivery (Delibo *et al.*, 2020), inability to meet the minimum requirements for WHO ANC services (Tsegay *et al.*, 2017), limited means and costs of transportation, distance, delivery costs (Moindi *et al.*, 2016; Scott *et al.*, 2018; Ou *et al.*, 2021), poverty, low ANC, no formal education (Ahinkorah *et al.*, 2021), and not getting permission from the family (Ou *et al.*, 2021).

In some places in Indonesia, home delivery is still relatively standard (Nurrachmawati *et al.*, 2018). However, the coverage of delivery in health facilities varies greatly. Maluku has the lowest percentage of delivery in health facilities (45.18%), whereas Jakarta has the highest rate (100%) (Putri and Laksono, 2022). Based on data from the 2017 IDHS states that of 17.401 births five years before the survey, 44.8% still occurred in non-health facilities (Efendi *et al.*, 2019). The National Strategic Plan targets deliveries in healthcare facilities at 82% in 2018. A study in the Riau region of Indonesia stated that 45.6% of deliveries occurred in non-health facilities. Midwives helped nearly two-thirds of non-health deliveries at home (Sukirman, Wahyono and Shivalli, 2020). Home delivery assistance has a disadvantage, namely the risk of experiencing delays in handling in the event of childbirth complications. This delay has the potential to increase maternal mortality during childbirth.

Minister of Health Regulation Number 97 of 2014 Article 14, paragraph 1 states that mothers in Indonesia must carry out childbirth in a health facility (The Ministry of Health of The Republic of Indonesia, 2014). This measure is part of the government's policy to improve maternal health and minimize maternal mortality. Therefore, policymakers in Indonesia must formulate policies to reduce the incidence of delivery

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.81-92

at home or encourage deliveries by health workers in health facilities. This condition requires that policymakers understand the policy targets and who specifically has a higher risk of delivering at home. For this reason, the study analyzes the right policy target to reduce maternal deliveries at home in Indonesia.

Method

A cross-sectional study was used in this investigation. Secondary data from the 2017 Indonesian Demographic and Health Survey (IDHS) were used by the author. The IDHS was a component of the Inner City Fund's global survey as part of the Demographic and Health Survey (DHS) program. To select the required samples, the IDHS used stratification and multistage random sampling. The analytic unit of the study consisted of reproductive-age women (15-49 years) who delivered birth in Indonesia in the five years prior to the survey. The total number of respondents that took part in the survey was 15,357.

Maternal delivery at home mentioned respondents' recognition of maternity sites throughout the previous five years. The site of maternal delivery at home consists of two categories: no and yes.

The study involved two groups of independent variables in the analysis. The first, individual characteristics, consist of eight variables: age groups, education level, employment status, marital status, parity, health insurance, the knowledge of pregnancy danger signs, and antenatal care (ANC). The second family characteristics consist of five variables: the type of residence, the autonomy of health, the autonomy of family finance, the sex of the household head, and wealth status.

The study divided the age into 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, and 45-49. Meanwhile, education comprises no education, primary, secondary, and higher education. Regarding employment status, we split into unemployed and employed. The three marital groups are never married, married, and divorced/widowed. There are three forms of parity: primiparous (one), multiparous (two to four), and grand multiparous (more than four). There are two health insurance forms: uninsured and insured.

The study characterized respondents' pregnancy knowledge as danger signs from problems such as extended labor, vaginal bleeding, fever, seizures, incorrect fetal position, swollen limbs, faintness, breathlessness, weariness, and so on (Wulandari and Laksono, 2020). The respondents' knowledge consists of not knowing and knowing. The study used the frequency of visits to antenatal care (ANC) in a healthcare institution during pregnancy to calculate ANC. There are two types of ANC visits: < four and ≥ four.

Even though the latest policy of Minister of Health Regulation 21/2021 states that ANC examinations are carried out at least six times, this study still uses the old rules. We take this step because the ICF carried out the 2017 IDHS before enacting the new regulations.

The residence type comprises urban and rural. Meanwhile, the autonomy of health referred to respondents' independence in determining required health services. The autonomy of health consists of two types; no and yes. Moreover, the autonomy of family finance describes respondents' independence to allocate money to family financial resources, consisting of no and yes.

The 2017 IDHS assessed the wealth status based on the affluent quintiles of the family. The poll measured the amount and kind of ordinary things, such as TVs, bicycles, and vehicles, as well as housing amenities such as drinking water, sanitary facilities, and home floors. Critical factor analysis is used in the study to assess the outcomes of these factors. National wealth quintiles were ordered for each family member based on household scores and then split by distribution into the same five categories. It split the population into 20 percent quintiles: poorest, poorer, middle, richer, and richest (Wulandari *et al.*, 2019, 2022).

We used chi-square to examine differences in mother delivery at home proportions. Meanwhile, The author examined all variables to verify that there was no evidence of collinearity between independent variables. The study used

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

binary logistic regression for multivariate analysis.

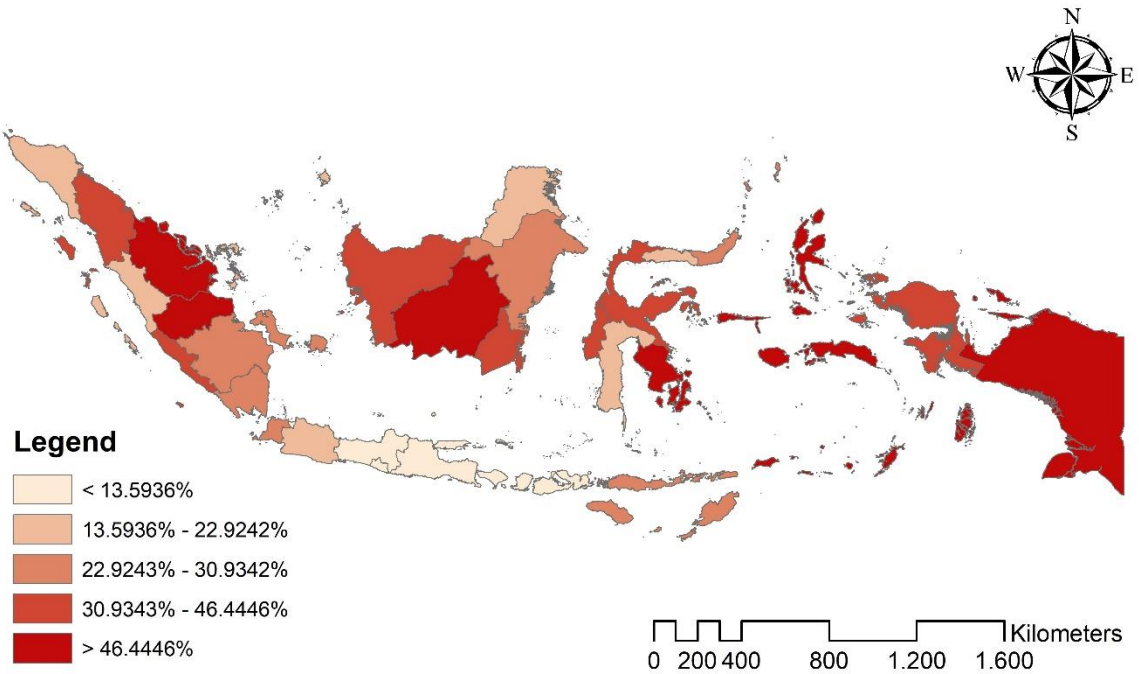
In addition, the author used the SPSS 26 program for every statistical examination. The study also utilized ArcGIS 10.3 to map maternal deliveries at home in Indonesia by the province in 2017 (ESRI Inc., Redlands, CA, USA). For this work, we got a shapefile of administrative border polygons from the Indonesian Bureau of Statistics.

The study used secondary data from the 2017 IDHS as a materials analysis. The 2017 IDHS did not seek ethical certification from Indonesia's Ethics Commission. In 2017, the Inner City Fund (ICF) International Institutional Review Board approved the Standard DHS survey procedure under The Demographic and Health Surveys (DHS) Program (DHS-7), which the ORC Macro IRB first assessed and approved the DHS in 2002. DHS surveys that correspond to the Standard are approved by the DHS-7 Program; the approval form is provided. The Institutional Review Board of ICF International follows the regulations for "Protection of Human Subjects" established by the US Department of Health and Human Services. (45 CFR 46).

Result and Discussion

The result informs about 23.8% of pregnant women in Indonesia deliver at home. Figure 1 reports that apart from the Java-Bali region, almost all areas have relatively high coverage of maternal deliveries at home spatially.

Table 1 informs the 30-34 age group dominated in both groups for maternal delivery categories, either at home or not (25.7% and 24.9%). Based on education level, women with secondary education dominated both groups for maternal delivery, either at home or not (61.4% and 48.4%). Moreover, unemployed women were also ruled in both groups for maternal delivery, either at home or not (54.3% and 54.7%).



Source: Mapped from data from the 2017 Indonesian Demographic and Health Survey

Figure 1. Map of home delivery distribution by the province in Indonesia in 2017

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

Table 1. Descriptive statistics of respondents individual factors

Characteristics	Home Delivery		p-value
	No (n=10,975)	Yes (n=4,382)	
Age			*<0.001
- 15-19	2.2%	3.3%	
- 20-24	16.3%	17.3%	
- 25-29	25.5%	24.5%	
- 30-34	25.7%	24.9%	
- 35-39	20.3%	19.2%	
- 40-44	8.3%	8.5%	
- 45-49	1.8%	2.2%	
Education			*<0.001
- No Education	0.5%	2.6%	
- Primary	22.2%	38.5%	
- Secondary	61.4%	48.4%	
- Higher	16.0%	10.5%	
Employment			*<0.001
- Unemployed	54.3%	54.7%	
- Employed	45.7%	45.3%	
Marital			*<0.001
- Never married	0.1%	0.1%	
- Married	97.1%	96.8%	
- Divorced/Widowed	2.9%	3.2%	
Parity			<0.001
- Primiparous	34.7%	28.9%	
- Multiparous	61.3%	61.2%	
- Grandemultiparous	4.0%	10.0%	
Health insurance			<0.001
- Uninsured	39.2%	48.4%	
- Insured	60.8%	51.6%	
Know the danger signs of pregnancy			<0.001
- No	27.6%	44.0%	
- Yes	72.4%	56.0%	
ANC visits			<0.001
- < four times	6.1%	20.2%	
- ≥ four times	93.9%	79.8%	

Table 2. Descriptive statistics of family factors of respondents in Indonesia

Characteristics	Home Delivery		p-value
	No (n=10,975)	Yes (n=4,382)	
Residence			*<0.001
- Urban	54.6%	29.1%	
- Rural	45.4%	70.9%	
The autonomy of health			<0.001
- No	56.1%	59.2%	
- Yes	43.9%	40.8%	
The autonomy of family finances			<0.001
- No	86.7%	85.0%	
- Yes	13.3%	15.0%	
Sex of household head			<0.001
- Male	90.4%	92.0%	
- Female	9.6%	8.0%	
Wealth			<0.001
- Poorest	14.1%	38.1%	
- Poorer	19.7%	21.7%	
- Middle	21.6%	17.4%	
- Richer	22.7%	13.5%	
- Richest	21.9%	9.4%	

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

Married women ruled both groups for maternal delivery—multiparous women led both groups for maternal delivery, either at home or not (97.1% and 96.8%). Meanwhile, the insured occupied both types of maternal delivery (60.8% and 51.6%). On the other hand, women who profess to be aware of pregnancy danger signs prevalent in both categories of maternal delivery (72.4% and 56.0%). Moreover, women who claim ≥4 times during pregnancy occupied both groups for maternal delivery (93.9% and 79.8%).

Table 2 shows women who lived in rural areas ruled the home delivery group. Women with no autonomy are prevalent in both categories of maternal delivery. Meanwhile, based on the sex of the household head, males occupied both groups for maternal delivery. Moreover, regarding wealth status, the poorest women dominate maternal delivery at home.

Table 3 shows that women in all age groups are likelier to do home delivery than the 45-49. Older age is synonymous with broader knowledge, making them prefer to minimize risks by not giving birth at home (Putri and Laksono, 2022).

Based on education, no education and primary have a likelier of home delivery than higher education. Education is very influential on a person's decision-making behavior in determining attitudes. Higher education is related to women's autonomy to increase self-confidence and ability to make decisions regarding efforts to maintain health compared to women with lower levels of education (Ou *et al.*, 2021). This condition is similar to the study in India, which explains that women without education tend to give birth at home rather than in health services (Das, Chaplot and Azamathulla, 2021). Other studies in Ghana and Ethiopia also explain that women's education influences the decision to give birth in a specific location (Bedilu and Niguse, 2017; Novignon *et al.*, 2019).

The result informs that the employed are 1.077 times more likely than the unemployed to do home delivery (95% CI 1.077-1.078). Regarding marital status, married women are 2.323 times more likely than those who were never in the union to do home delivery (95% CI 2.319-2.326). This condition is contrary to the situation that should be. Women who work should have a better financial ability to access good-quality health services than women with lower economic skills. In addition, women with better economic independence can support or encourage other women to choose private health services (Ndugga, Namiyonga and Sebuwufu, 2020).

Meanwhile, based on marital status, divorced/widowed have a 2.265 times higher probability than married or living with a partner of doing home delivery (95% CI 2.262-2.268). This condition is also considered contrary to what it should be, and the husband's presence should be a support for choosing better facilities for childbirth. This situation is not in line with previous studies (Moindi *et al.*, 2016; Megatsari *et al.*, 2021; Laksono *et al.*, 2022).

Regarding parity, Table 3 indicates that the more a woman gives birth to a live child, the higher the chances for maternal delivery at home. The situation means that women prefer to access maternal health services in their first pregnancy than in subsequent pregnancies. This condition is associated with the perceived risk of home delivery from women with more than one pregnancy. They feel comfortable giving birth at home because they think they have experienced it (Rosmala *et al.*, 2020). Women who have given birth more than twice and do not experience complications during and after childbirth most women give delivery at home. rather than in health services (Moindi *et al.*, 2016; Ou *et al.*, 2021).

Meanwhile, based on health insurance ownership, uninsured women are 1.334 times more likely than insured women to make home deliveries (95% CI 1.334-1.335). Moreover, women who didn't know the pregnancy danger signs are 1.410 times more chance than women who know it to do home delivery (95% CI 1.409-1.410). This information shows that health insurance and knowing the pregnancy danger signs were protective factors for a woman not to deliver at home. The condition means that a good understanding of the pregnancy danger signs can prevent

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

a pregnant woman from giving birth at home (Andayani *et al.*, 2021; Laksono, Wulandari and Rukmini, 2021; Putri, Laksono and Rohmah, 2023). A study in India shows that respondents who do not have health insurance tend to give birth at home compared to respondents with health insurance (Ou *et al.*, 2021).

Table 3. Binary logistic regression of home delivery in Indonesia

Predictor	Home Delivery			
	p-value	95% confidence interval		
		AOR	Lower Bound	Upper Bound
Age: 15-19	*<0.001	1.776	1.775	1.776
Age: 20-24	*<0.001	1.511	1.510	1.511
Age: 25-29	*<0.001	1.336	1.335	1.336
Age: 30-34	*<0.001	1.241	1.240	1.241
Age: 35-39	*<0.001	1.063	1.062	1.063
Age: 40-44	**0.013	1.000	1.000	1.001
Age: 45-49 (ref.)	-	-	-	-
Education: No education	*<0.001	1.641	1.641	1.642
Education: Primary	*<0.001	1.008	1.007	1.008
Education: Secondary	*<0.001	0.736	0.736	0.737
Education: Higher (ref.)	-	-	-	-
Employment: Unemployed (ref.)	-	-	-	-
Employment: Employed	*<0.001	1.077	1.077	1.078
Marital: Never married (ref.)	-	-	-	-
Marital: Married/ Living with a partner	*<0.001	2.323	2.319	2.326
Marital: Divorced/ Widowed	*<0.001	2.265	2.262	2.268
Parity: Primiparous (ref.)	-	-	-	-
Parity: Multiparous	*<0.001	1.341	1.341	1.342
Parity: Grande multiparous	*<0.001	2.295	2.294	2.295
Health insurance: Uninsured	*<0.001	1.334	1.334	1.335
Health insurance: Insured	-	-	-	-
Know the danger signs of pregnancy: No	*<0.001	1.410	1.409	1.410
Know the danger signs of pregnancy: Yes (ref.)	-	-	-	-
ANC: <4 times	*<0.001	2.375	2.375	2.376
ANC: ≥4 times (ref.)	-	-	-	-
Residence: Urban (ref.)	-	-	-	-
Residence: Rural	*<0.001	1.904	1.904	1.905
The autonomy of health: No	*<0.001	1.057	1.057	1.058
The autonomy of health: Yes (ref.)	-	-	-	-
The autonomy of family finances: No (ref.)	-	-	-	-
The autonomy of family finances: Yes	*<0.001	1.239	1.239	1.240
Sex of household: Male	*<0.001	1.250	1.250	1.251
Sex of household: Female (ref.)	-	-	-	-
Wealth: Poorest	*<0.001	2.939	2.938	2.939
Wealth: Poorer	*<0.001	1.548	1.548	1.549
Wealth: Middle	*<0.001	1.364	1.364	1.365
Wealth: Richer	*<0.001	1.185	1.185	1.186
Wealth: Richest (ref.)	-	-	-	-

Note: *p < 0.001; **p<0.050

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

Besides, women with ANC less than four times visits during pregnancy are 2.375 times more chance than women who do ANC four times visits or more to do maternal delivery at home (95% CI 2.375-2.376). Women in rural areas are 1.904 times more chance than urban women to do maternal home deliveries (95% CI 1.904-1.905). This result indicates that doing ANC four times or more during pregnancy and living in an urban area is a protective factor for a woman not to give birth at home in Indonesia. We can assume that maternal health services in urban areas are more accessible than in rural ones. The situation is similar to previous studies in several countries. The study showed that the distance of residence far from health facilities caused a woman to be reluctant and unable to give birth to health services due to limited access to transportation, including expensive transportation costs (Chungu *et al.*, 2018; Seran *et al.*, 2020; Wulandari, Laksono and Rohmah, 2021; Denny *et al.*, 2022).

Table 3 indicates that mothers without health autonomy are 1.057 times more likely than those with health independence to perform home delivery (95% CI 1.057-1.058). Contrary, mothers with the autonomy of family finance have a probability of 1.239 times higher than those without family finance independence to deliver at home (95% CI 1.239-1.239). These findings align with previous research that have informed the association of women's freedom with the choice of place of delivery (Xu *et al.*, 2022).

A male household head is 1.250 times more likely than a female to do home delivery (95% CI 1.250-1.251). This situation is possible due to the man's support making the choice of a place to give birth to a better place more likely. Several studies also reported that the man's presence positively affected the utilization of reproductive health services for women (Megatsari *et al.*, 2021; Laksono *et al.*, 2022).

Moreover, all wealth statuses have a higher possibility of home delivery than the richest. The condition means that a good economic situation will prevent a woman from giving birth at home. Women with good financial status can meet maternity care costs in public and private health facilities (San, 2018; Novignon *et al.*, 2019).

Study Strengths and Limitations

The study's strength was the use of big data in the study. Meanwhile, the study's limitation was the use of secondary data. We analyzed the variables that were limited to data from the ICF. Several factors informed in previous studies also influence the incidence of maternal delivery at home to be unanalyzed, including the value of pregnancy, child, childbirth, and family (Kurniawan *et al.*, 2012; Wahyudi, Intiasari and Laksono, 2016; Kusrini, Ipa and Laksono, 2019; Pratiwi *et al.*, 2019).

Conclusion

Regarding the results, the research concluded thirteen mothers' characteristics became the right policy target to reduce maternal deliveries at home. The parts were young, low education, employed, married or divorced/widowed, having many children, and uninsured. Other factors included not knowing the danger signs of pregnancy, doing ANC less than four times, living in a rural area, having no health autonomy, having family finance autonomy, having a male household head, and being poor.

Abbreviations

MMR: Maternal Mortality Rate; ANC: Antenatal Care; IDHS: Indonesia Demographic and Health Survey; ICF: Inner City Fund.

Declarations

Ethics Approval and Consent Participant

The 2017 IDHS did not seek ethical approval from the Indonesian Ethics Commission. The Inner City Fund (ICF) International Institutional Review Board authorized the Standard DHS survey methodology under The Demographic and Health Surveys (DHS) Program (DHS-7) in 2017, after the DHS was initially examined and approved by the ORC Macro IRB in 2002. DHS surveys that correspond to the

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

Standard are approved by the DHS-7 Program; the approval form is provided. The Institutional Review Board of ICF International follows the regulations for "Protection of Human Subjects" established by the US Department of Health and Human Services (45 CFR 46).

Conflict of Interest

We declare that we have no conflict of interest.

Availability of Data and Materials

The writers are unable to disclose the data publicly because a third party and the authors do not have authorization to do so. Researchers who match the criteria for access to secret data can obtain the 2017 IDHS data at https://dhsprogram.com/data/new-userregistration.cfm.

Authors' Contribution

RDW conceptualized the study; ADL created the methodology; NR and RM wrote, reviewed, and edited the manuscript; RDW wrote the original draft.

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References

Ahinkorah, B.O. *et al.* (2021) 'What influences home delivery among women who live in urban areas? Analysis of 2014 Ghana Demographic and Health Survey data', *PLoS ONE*, 16(1 January 2021), pp. 1–14. Available at: https://doi.org/10.1371/journal.pone.0244811.

Andayani, Q. *et al.* (2021) 'The Barrier to Access Health Insurance for Maternity Care: Case Study of Female Workers in Indonesia', *Medico-Legal Update*, 21(2), pp. 926–932. Available at: https://doi.org/10.37506/mlu.v21i2.2802.

Bedilu, K. and Niguse, M. (2017) 'Delivery at home and associated factors among women in child bearing age, who gave birth in the preceding two years in Zala Woreda, southern Ethiopia', *Journal of Public Health and Epidemiology*, 9(6), pp. 177–188. Available at: https://doi.org/10.5897/jphe2017.0921.

Chungu, C. *et al.* (2018) 'Place of Delivery Associated With Postnatal Care Utilization Among Childbearing Women in Zambia', *Frontiers in Public Health*, 6(April), pp. 1–7. Available at: https://doi.org/10.3389/fpubh.2018.00094.

Das, U., Chaplot, B. and Azamathulla, H.M. (2021) 'The Role of Place of Delivery in Preventing Neonatal and Infant Mortality Rate in India', *Geographies*, 1(1), pp. 47–62. Available at: https://doi.org/10.3390/geographies1010004.

Delibo, D. *et al.* (2020) 'Status of Home Delivery and Its Associated Factors among Women Who Gave Birth within the Last 12 Months in East Badawacho District, Hadiya Zone, Southern Ethiopia', *BioMed Research International*, 2020, p. 8. Available at: https://doi.org/10.1155/2020/4916421.

Denny, H.M. *et al.* (2022) 'The Determinants of Four or More Antenatal Care Visits Among Working Women in Indonesia', *Asia-Pacific Journal of Public Health*, 34(1), pp. 51–56. Available at: https://doi.org/10.1177/10105395211051237.

Efendi, F. *et al.* (2019) 'Determinants of facility-based childbirth in Indonesia', *Scientific World Journal*, 2019. Available at: https://doi.org/10.1155/2019/9694602.

Konje, E.T. *et al.* (2020) 'Is it home delivery or health facility? Community perceptions on place of childbirth in

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

rural Northwest Tanzania using a qualitative approach', *BMC Pregnancy and Childbirth*, 20(1), p. 270. Available at: https://doi.org/10.1186/s12884-020-02967-z.

Kurniawan, A. *et al.* (2012) *The 2012 Ethnographic Series of Maternal and Child Health Books, Ngalum Ethnic, Oksibil District, Pegunungan Bintang Regency, Papua Province (Buku Seri Etnografi Kesehatan Ibu dan Anak 2012 Etnik Ngalum, Distrik Oksibil Kabupaten Pegunungan Bintang, Provi*. Surabaya: Pusat Humaniora, Kebijakan Kesehatan dan Pemberdayaan Masyarakat. Available at: https://www.scribd.com/doc/142715053/Buku-Seri-Etnografi-Kesehatan-Ibu-dan-Anak-2012-Etnik-Ngalum-Distrik-Oksibil-Kabupaten-Pegunungan-Bintang-Provinsi-Papua.

Kusrini, I., Ipa, M. and Laksono, A.D. (2019) '"Is It true that the child is king?": Qualitative Study of Factors Related to Nutritional Status of Children in West Lombok, Indonesia', *Indian Journal of Public Health Research and Development*, 10(12), pp. 1729–1733. Available at: https://doi.org/10.37506/v10/i12/2019/ijphrd/192113.

Laksono, A.D. *et al.* (2022) 'Husband's involvement in wife's antenatal care visits in Indonesia: What factors are related?', *Journal of Public Health Research*, 11(2), pp. 1–8. Available at: https://doi.org/10.1177/22799036221104156.

Laksono, A.D. and Wulandari, R.D. (2022) 'The Barrier to Maternity Care in Rural Indonesia', *J Public Health (Berl.)*, 30(1), pp. 135–140. Available at: https://doi.org/10.1007/s10389-020-01274-3.

Laksono, A.D., Wulandari, R.D. and Rukmini, R. (2021) 'The determinant of healthcare childbirth among young people in Indonesia', *Journal of Public Health Research*, 10(1), pp. 28–34. Available at: https://doi.org/10.4081/jphr.2021.1890.

Mahmood, M.A. *et al.* (2018) 'Root-Cause Analysis of Persistently High Maternal Mortality in a Rural District of Indonesia: Role of Clinical Care Quality and Health Services Organizational Factors', *BioMed Research International*, 2018, p. 11. Available at: https://doi.org/10.1155/2018/3673265.

Megatsari, H. *et al.* (2021) 'Does husband/partner matter in reduce women's risk of worries?: Study of psychosocial burden of covid-19 in indonesia', *Indian Journal of Forensic Medicine and Toxicology*, 15(1), pp. 1101–1106. Available at: https://doi.org/10.37506/ijfmt.v15i1.13564.

Moindi, R.O. *et al.* (2016) 'Why mothers still deliver at home: Understanding factors associated with home deliveries and cultural practices in rural coastal Kenya, a cross-section study Global health', *BMC Public Health*, 16(1), pp. 1–8. Available at: https://doi.org/10.1186/s12889-016-2780-z.

Ndugga, P., Namiyonga, N.K. and Sebuwufu, D. ogratious (2020) 'Determinants of early postnatal care attendance: analysis of the 2016 Uganda demographic and health survey', *BMC Pregnancy and Childbirth*, 20(1), pp. 1–14. Available at: https://doi.org/10.1186/s12884-020-02866-3.

Novignon, J. *et al.* (2019) 'Socioeconomic inequalities in maternal health care utilization in Ghana', *International journal for equity in health*, 18(1), p. 141. Available at: https://doi.org/10.1186/s12939-019-1043-x.

Nurrachmawati, A. *et al.* (2018) 'Otonomi Perempuan dan Tradisi dalam Pengambilan Keputusan Pemilihan Tempat dan Penolong Persalinan', *Jurnal Kesehatan Masyarakat Andalas*, 12(2), pp. 3–12.

Ou, CY *et al.* (2021) 'Maternal Delivery at Home: Issues in India', *Advances in*

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

Therapy, 38(1), pp. 386–398. Available at: https://doi.org/10.1007/s12325-020-01551-3.

Pratiwi, N.L. *et al.* (2019) 'Concealed Pregnant Women or Kemel of Gayo Ethnic in Blang Pegayon District, Gayo Lues District, Aceh', *Bulletin of Health System Research*, 22(2), pp. 81–90. Available at: https://doi.org/10.22435/hsr.v22i2.1693.

Putri, N.K. and Laksono, A.D. (2022) 'Predictors of childbirth services in Indonesia', *International Journal of Public Health Science*, 11(2), pp. 566–573. Available at: https://doi.org/10.11591/ijphs.v11i2.21324.

Putri, N.K., Laksono, A.D. and Rohmah, N. (2023) 'Predictors of national health insurance membership among the poor with different education levels in Indonesia', *BMC Public Health*, 23(1), p. Article number 373. Available at: https://doi.org/10.1186/s12889-023-15292-9.

Rosmala, D. *et al.* (2020) 'Postpartum Maternal Care Tradition in Manunggang Jae Village Padangsidimpuan City Indonesia', *Britain International of Exact Sciences (BIoEx) Journal*, 2(1), pp. 231–239. Available at: https://doi.org/10.33258/bioex.v2i1.131.

Sageer, R. *et al.* (2019) 'Causes and contributory factors of maternal mortality: Evidence from maternal and perinatal death surveillance and response in Ogun state, Southwest Nigeria', *BMC Pregnancy and Childbirth*, 19(1), pp. 1–8. Available at: https://doi.org/10.1186/s12884-019-2202-1.

San, M.T. (2018) *Determinants of the Utilization of Maternal Health Services in Myanmar*.

Scott, N.A. *et al.* (2018) 'Factors affecting home delivery among women living in remote areas of rural zambia: A cross-sectional, mixed-methods analysis', *International Journal of Women's Health*, 10, pp. 589–601. Available at: https://doi.org/10.2147/IJWH.S169067.

Seran, A.A. *et al.* (2020) 'Disparities of the use of hormonal and non-hormonal contraceptive drugs in urban and rural areas in Indonesia and the world', *Systematic Reviews in Pharmacy*, 11(9), pp. 66–73. Available at: https://doi.org/10.31838/srp.2020.9.12.

Sukirman, R., Wahyono, T.Y.M. and Shivalli, S. (2020) 'Determinants of healthcare facility utilization for childbirth in Kuantan Singingi regency, Riau province, Indonesia 2017', *BMC Public Health*, 20(1), pp. 1–10. Available at: https://doi.org/10.1186/s12889-020-09035-3.

Susiana, S. (2019) 'Angka Kematian Ibu : Faktor Penyebab Dan Upaya Penanganannya (Angka Kematian Ibu: Faktor Penyebab Dan Upaya Penanganannya)', *Pusat Penelitian Badan Keahlian DPR RI*, XI(24), p. II.

the Minister of Health of the Republic of Indonesia (2018) *The 2018 Indonesia Health Profile*. Jakarta.

The Ministry of Health of The Republic of Indonesia (2014) *Regulation of the Minister of Health of the Republic of Indonesia Number 97 of 2014*.

Tsegay, R. *et al.* (2017) 'Determinant factors of home delivery among women in Northern Ethiopia: a case control study', *BMC Public Health*, 17(1), pp. 1–8. Available at: https://doi.org/10.1186/s12889-017-4159-1.

Wahyudi, A., Intiasari, A.D. and Laksono, A.D. (2016) *Portrait of the 'Noken Child' Pattern in Lani Culture (Potret Pola Asuh 'Anak Noken' dalam Budaya Lani)*. Surabaya: Unesa University Press. Available at: https://www.scribd.com/document/333839273/Potret-Pola-Asuh-Anak-Noken-Dalam-Budaya-Lani-Etnik-Lani-Kabupaten-Tolikara.

World Health Organization (2019) *Maternal mortality ratio (modeled estimate, per 100,000 live births) - Indonesia*, *The*

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.81-92

World Bank,.

Wulandari, R.D. *et al.* (2019) 'Socioeconomic Disparities in Hospital Utilization among Elderly People in Indonesia', *Indian Journal of Public Health Research and Development*, 10(11), pp. 1800–1804. Available at: https://doi.org/10.5958/0976-5506.2019.03885.3.

Wulandari, R.D. *et al.* (2022) 'Socioeconomic Disparities in Hospital Utilization Among Female Workers in Indonesia: A Cross-Sectional Study', *Journal of Primary Care & Community Health*, I3(2), pp. 1–7. Available at: https://doi.org/10.1177/21501319211072679.

Wulandari, R.D. and Laksono, A.D. (2020) 'Determinants of knowledge of pregnancy danger signs in Indonesia', *PLoS ONE*, 15(5), p. Article number e0232550. Available at: https://doi.org/10.1371/journal.pone.0232550.

Wulandari, R.D., Laksono, A.D. and Rohmah, N. (2021) 'Urban-rural disparities of antenatal care in South East Asia: a case study in the Philippines and Indonesia', *BMC Public Health*, 21(1), p. 1221. Available at: https://doi.org/10.1186/s12889-021-11318-2.

Xu, Y. *et al.* (2022) 'Individual and community-level factors associated with non-institutional delivery of women of childbearing-age in Nigeria', *Humanities and Social Sciences Communications*, 9(1), p. 197. Available at: https://doi.org/10.1057/s41599-022-01168-7.

Original Research

Indonesian Journal of Health Administration
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SERVANT HEARTS : VILLAGE CADRES' PUBLIC SERVICE MOTIVATION IN INDONESIA'S MENTAL HEALTH CARE

Hati Pelayan : Kader Desa dalam Motivasi Pelayanan Publik Kesehatan Mental di Indonesia

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Abstract

Background: Despite the growing interest in public service motivation (PSM) research, there is a lack of studies that specifically examine the PSM of individuals in nontraditional roles, such as village cadres, in the context of mental health care in low-resource settings.
Aims: This study aimed to fill this knowledge gap by exploring how PSM influences the actions and choices of village cadres in providing care for people with mental illness in Indonesia.
Methods: An instrumental case study approach was employed to gather data through in-depth interviews with 14 village actors across five regencies in East Java Province, Indonesia.
Results: The study's findings reveal the crucial role of PSM in inspiring village cadres to provide mental health care by showcasing their sense of duty toward the community, program dedication, and compassion for patients, highlighting the correlation between PSM and callings that focuses on serving others.
Conclusion: This study provides empirical insights into the intricate ways PSM influences the behavior of village cadres toward people with mental illness in Indonesia, offering valuable knowledge about the motivations of this particular group of public service providers and informing policy decisions and future research in the field of public administration.

Keywords: callings, Indonesia, mental health care, public service motivation, village cadres

Abstrak

Latar Belakang: *Meskipun minat terhadap penelitian motivasi pelayanan publik (PSM) semakin meningkat, namun masih kurang penelitian yang secara khusus meneliti PSM individu yang berada pada posisi non-tradisional, seperti kader desa, dalam konteks perawatan kesehatan mental di daerah dengan sumber daya yang terbatas.*
Tujuan: *Penelitian ini bertujuan untuk mengisi kesenjangan pengetahuan tersebut dengan mengeksplorasi cara PSM memengaruhi tindakan dan pilihan kader desa dalam memberikan perawatan untuk orang dengan gangguan mental di Indonesia.*
Metode: *Pendekatan studi kasus instrumental digunakan untuk mengumpulkan data melalui wawancara mendalam dengan 14 aktor desa di 5 kabupaten di Provinsi Jawa Timur, Indonesia.*
Hasil: *Temuan dari penelitian ini menunjukkan bahwa PSM memainkan peran penting dalam motivasi kader desa untuk melayani masyarakat dan membantu orang dengan gangguan mental. Peserta menunjukkan rasa tanggung jawab terhadap masyarakat, dedikasi terhadap program, dan belas kasihan terhadap pasien. Ditemukan korelasi yang kuat antara PSM dan panggilan, terutama dalam hal fokus pada orang lain dan layanan yang diberikan dalam merawat pasien.*
Kesimpulan: *Penelitian ini menawarkan wawasan empiris tentang cara PSM yang rumit mempengaruhi perilaku kader desa terhadap orang dengan gangguan jiwa di Indonesia. Ini memberikan pengetahuan berharga tentang motivasi dari kelompok penyedia layanan publik khusus ini, terutama dalam perawatan kesehatan mental, yang dapat menginformasikan keputusan kebijakan dan penelitian masa depan di bidang administrasi publik.*

Kata kunci*: Indonesia, kader desa, motivasi layanan publik, panggilan, perawatan kesehatan mental*

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Introduction

The prevalence of mental illness has become a global public health concern. An estimated 970 million individuals are affected worldwide, representing a quarter of the global population (GBD 2019 Mental Disorders Collaborators, 2022). Indonesia is grappling with a sharp rise in mental health conditions, with approximately 400,000 individuals diagnosed with mental illness, significantly escalating the 1,700 documented cases in 2013 (National Riskesdas Team, 2019).

East Java Province has been particularly hard hit, with the highest rate of mental health problems in Indonesia, including severe mental disease such as schizophrenia (East Java Province Riskesdas Team, 2019). The stigma associated with mental illness (Widodo *et al*., 2019; Windarwati *et al*., 2021; Baklien *et al*., 2022), compounded by the harsh conditions of institutionalization and shackling, leads to many individuals with mental illness being subjected to these circumstances. Such practices are often attributed to familial shame or fear of their mentally ill family members' violent outbursts.

The Indonesian government is obligated to uphold the rights of people with mental illness through Law No. 19 of 2011. In fulfilling this responsibility, grassroots healthcare units, including mental health posts, must address the social welfare problems faced by these individuals. While mental health posts provide care for those with mental illness, their effectiveness is limited by jurisdictional constraints. Public health centers can only provide medication and medical personnel, whereas village governments are responsible for other resources, including staffing.

Integrating the mental health care provided by public health centers and local government by training community members as village cadres offers a practical solution to address the limited funding for mental health care. These specialized individuals can increase public awareness, facilitate early detection of mental illness, and create a community-wide support network for patients, providing critical assistance during recovery and home visits for patients capable of self-care. In addition to aiding the delivery of health services to those with mental health problems, village cadres are responsible for advocating for family members seeking mental health counseling and assisting throughout the recovery process. This community-based approach is effective in supporting the care of patients with mental health issues at public health centers (Mpembeni *et al*., 2015; Pálsdóttir *et al*., 2016).

The theory of public service motivation (PSM) (Perry and Wise, 1990) has played a critical role in shaping the delivery of public services and the behavior of public servants. According to PSM, individuals are influenced by incentives that characterize public institutions and organizations in terms of psychological needs, such as the desire to help others or contribute to society. In addition, serving the public is viewed as a spiritual calling (Potipiroon and Ford, 2017; Jensen and Bro, 2018), with intrinsic motivation identified as a crucial factor in the administration of public services (see also Vandenabeele, Brewer and Ritz, 2014; Ritz, Brewer and Neumann, 2016).

This study addresses the dearth of research on the influence of PSM on the behavior of public service workers, particularly village cadres who provide vital mental health care services at the local level in Indonesia. By analyzing the impact of PSM on the decision-making and actions of village cadres when caring for individuals with mental illness, this study aims to advance knowledge on mental health care in Indonesia and improve the delivery of mental health care by promoting greater grassroots equity and effectiveness.

Method

This study utilizes a qualitative approach and a case study methodology to fully understand the complex interactions within a social unit. These methods align with the constructivist paradigm: "reality is not absolute but is defined through

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community consensus" (Mertens, 2007, p. 231). By employing an instrumental case study approach (Stake, 2008), this study investigates how PSM influences village cadres in providing care for individuals with mental illness.

Village cadres hold a distinctive position within the public sector, serving as intermediaries between the community and local government. Despite being trained and employed by the government to serve the public, they are also members of the community and are near those they serve. Yet, despite the importance of their work and the high standards expected of them, village cadres are often undervalued and inadequately compensated. Examining the motivators that inspire these individuals to provide care for community members with mental illness under arduous conditions is critical to grasping the full spectrum of factors that compel individuals to serve the public.

Measuring mental health services provided by village cadres requires a qualitative approach that captures this type of service's nuanced and subjective aspects. This study conducted in-depth interviews of participants who had experience working in mental health posts to understand their perceptions, attitudes, and behaviors related to providing service with the heart of a servant. The interview questions were designed to elicit rich and detailed responses, and the interviews were conducted in a narrative, interpretive mode to allow participants to share their experiences in their own words. The researchers utilized advanced methodologies, such as audio recording, to guarantee comprehensive and efficacious data collection. Despite being cognizant of the significance of piloting the interview guides, they chose not to do so, demonstrating confidence in the guide's construction and avoiding potential adverse effects on data integrity.

To ensure rigor and reliability, the study employed a rigorous sampling method that provided a diverse sample of participants and utilized a peer debriefing process to verify the accuracy and reliability of the data collected. In addition, the data were analyzed using thematic analysis to identify patterns and themes in the participants' responses. The resulting themes provided a comprehensive understanding of the factors that contribute to village cadres' providing service with the heart of a servant and how they can be measured.

Through purposeful sampling and the snowball technique, 14 participants were recruited from across five regencies in East Java Province. All provided care to individuals with mental illness in their communities (Table 1). While eight village cadres were the primary focus of the study, interviews were also conducted with four healthcare professionals and two community cadres to obtain comprehensive insights into the workings of these groups.

Implementing the purposive sampling technique in qualitative research entails an extensive assessment of multiple inclusion criteria for selecting participants for the study. The selection criteria include diversity in gender across a range of age groups, a cross section of village cadres with diverse positions, including healthcare professionals and community leaders, and participants from distinct geographic regions, including Jombang, Nganjuk, Kediri, Bangkalan, and Lamongan. In addition, the study places importance on selecting individuals with varying service durations to ensure a thorough understanding of the research topic. The study also prioritizes the selection of "information-rich" participants, defined as those who possess a wealth of knowledge and information relevant to the study, to enhance the validity and reliability of the research.

To identify potential participants, the researchers contacted the East Java Provincial Government to determine which provincial regencies had established community mental health posts. The administrative officials in the hamlets then provided contact information, and the researchers obtained permission to reach out to potential participants. While only 14 individuals agreed to participate in the study, the researchers were able to collect

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.93-106

sufficient data from the nine informants they interviewed and used the remaining five interviews to validate their initial findings.

The researchers employed evidentiary triangulation to ensure a comprehensive understanding of village cadres' motivations and experiences in providing mental health care in East Java Province. This involved analyzing interviews, field notes, and institutional papers using in-depth analyses and content analysis techniques to extract recurrent themes, concepts, and terms. Axial coding was used to categorize emerging ideas, which were then interpreted in the context of the study's objectives and research questions, as well as the theoretical and conceptual framework. This methodology permitted reaching a nuanced understanding of village cadres' commitment to public service and their perspectives on caring for individuals with mental illness.

In this study, selecting the interviewers was a critical aspect in ensuring that rigorous and high-quality data collection was carried out. ES, the main interviewer, was chosen due to his/her extensive experience developed during a decade of conducting qualitative research with both key and supporting informants. ES's expertise in exploring public policies and services in marginalized communities made him/her the ideal candidate to lead the interviews. To further guarantee the validity and reliability of the data collected, ES received intensive training in qualitative research methods and had an in-depth understanding of the study's research questions and objectives. This extensive preparation allowed ES to approach the interviews with a nuanced and detailed perspective, ensuring the data collected was rich and informative. Furthermore, MBG, an expert in public service management, provided valuable assistance to ES during the interviews by supporting the informants. MBG's expertise in public service management was instrumental in exploring its impact on marginalized communities, an important topic of inquiry for this study. MBG had also received training in qualitative research methods, further contributing to the quality and rigor of the interviews. Additionally, LP played a critical role in providing administrative support during data collection, comprising accurate recording, organization, and storage of the data collected. LP's attention to detail and meticulousness was essential to guarantee the smooth functioning of the data collection process. Notably, all interviewers approached the study with a neutral and objective perspective, with no personal assumptions, reasons, or interests in the research topic. Their combined expertise and experience in qualitative research, together with their objectivity and neutrality, ensured that the data collected were both reliable and valid, meeting the study's objectives with the utmost rigor and excellence.

In line with the principles of qualitative research, face-to-face interviews were conducted between the interviewer and each participant. This permitted a deeper level of engagement between the interviewer and research participant, facilitating the emergence of rich and insightful data. Moreover, it ensured that the participants felt at ease and relaxed during the interview, which is essential for creating an atmosphere conducive to sharing personal experiences. The researchers recognized that a positive and welcoming interview environment was fundamental to eliciting comprehensive and detailed responses from the participants. Furthermore, the decision to conduct the interviews with only the interviewer and participant present was intended to protect the participants' privacy and the confidentiality of the information, critical aspects of research involving sensitive and personal topics. By maintaining a one-on-one setting, the participants were assured of the confidentiality of their responses and could share their experiences freely without fear of being judged or misunderstood.

Indonesian Journal of Health Administration
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Table 1. Sociodemographic details of the key informants

Participant	Sex	Age (year)	Position	Place of Service (Regency)	Duration of Service (year)
1	Female	25	Village cadre	Jombang	3
2	Female	42	Village cadre	Nganjuk	11
3	Male	53	Village cadre	Kediri	6
4	Male	40	Village cadre	Jombang	Less than 1
5	Male	41	Village cadre	Nganjuk	Less than 1
6	Female	42	Village cadre	Jombang	2
7	Female	39	Village cadre	Nganjuk	1
8	Female	34	Village cadre	Jombang	3
9	Male	47	Healthcare professional	Jombang	10
10	Male	55	Healthcare professional	Bangkalan	7
11	Male	52	Healthcare professional	Lamongan	9
12	Female	45	Healthcare professional	Nganjuk	9
13	Male	17	Community cadre	Bangkalan	4
14	Male	33	Community Cadre	Bangkalan	2

In an effort to ensure that the study participants felt valued and respected, the researchers dedicated substantial effort to establishing meaningful relationships before the start of the study. The researchers implemented a multifaceted approach that involved developing rapport, cultivating trust, and fostering a positive reputation with the participants. The researchers invested significant time and resources into building a connection with the participants, understanding their concerns, and earning their trust. Their longstanding reputation and credibility in the community proved to be decisive in forging these bonds. The researchers were widely recognized within the community for their unwavering commitment to advocating for and promoting the welfare and interests of marginalized peoples. This recognition helped shape the participants' perception of the study, creating an optimal environment for establishing solid and meaningful relationships.

The interviews comprised several pivotal stages in the analysis process, which was fundamental to the study. The first stage involved data familiarization, whereby the researchers reviewed the audio recordings and transcripts of the interviews to gain a deeper understanding of the data. This stage was vital to developing an in-depth comprehension of the interview data, which in turn paved the way for the subsequent stages of analysis. The second stage entailed the painstaking process of transcribing the interviews. This required the conversion of the audio recordings into a written text format, enabling the researchers to conduct a detailed and nuanced examination of the data. Through the transcription process, the researchers captured specific words, phrases, and subtleties that may have been overlooked during the initial interview, facilitating a more thorough analysis. The transcripts then underwent a meticulous verification process, ensuring the accuracy and authenticity of the data analyzed. This involved cross-referencing the transcripts with the original audio recordings to guarantee that the data analyzed accurately represented the interviewees' responses. This process was key to enhancing the reliability and validity of the study's findings. The final and most critical stage was the thematic analysis, using analytical approaches such as content analysis, discourse analysis, or grounded theory. The researchers applied a rigorous

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.93-106

and systematic approach to identify and analyze patterns and themes within the data. The researchers could extract meaning and draw conclusions from the interview data through this process.

The data analysis for this study was conducted solely by the authors ES, MBG, and LP, all of whom possess expertise in qualitative research methods and analysis. This decision was made to guarantee the consistency of the data analysis and interpretation and to avoid any potential biases that might have arisen from involving multiple analysts. It is worth noting that while the researchers did not use any specialized software such as NVivo for data management and analysis, their thorough and meticulous approach ensured the reliability and validity of their findings. Their methodology involved several key steps: data familiarization, transcription, verification, and thematic analysis. Despite not using software to assist in the analysis, the researchers' attention to detail and thoroughness allowed them to extract meaning and draw conclusions from the interview data, contributing to the quality and validity of the study. It is important to note that the research design did not include a provision for participants to provide feedback on the transcripts or findings. Nevertheless, the study adhered to ethical standards by providing participants with a debriefing statement on the research goals, data collection and analysis procedures, and their right to withdraw from the study at any time. To protect the confidentiality of participants, all identities were maintained anonymous, and pseudonyms were used throughout the study.

Result and Discussion

Serve with compassion: experiences of PSM

Participants, particularly the village cadres, have encountered demanding situations while striving to provide care and assistance to those in mental health posts. These challenges include dealing with aggressive and violent patients who are prone to causing harm and provoking physical attacks. In contrast to more conventional methods, such as restraining patients with cloth or chains, most cadres prefer to adopt less aggressive approaches, such as reassuring patients and engaging in conversation before administering sedative injections. While on-site medical staff may have suggested the use of shackling in extreme cases, all cadres reported abstaining from this practice out of concern for patients' dignity. One participant who has served as a cadre for 11 years shared her perspective on the matter:

> *It is necessary to have local police present whenever a patient exhibits violent behavior; even if they are violent and angry, we cannot return that anger with violence. Instead, we try to communicate with them by making jokes, and once we see that they have calmed down a bit, or in my case, I say I caught them off guard [proceeds to chuckle], I ask if I can give them a present in the form of an injection. For some reason, the formula never fails me.*

It is evident that there is a marked disparity in the approaches adopted by the village cadres and medical professionals in dealing with violent patients. However, one participant who has served as a nurse for 10 years provided a thoughtful response to the matter:

> *Personally, the thought of using such shackling techniques makes me feel horrible and sad, but after many years in this line of work, I have learned to prioritize my duties accordingly. Most people who come here [to the mental health post] are rather stable and can converse well enough to avoid being referred to hospitals. If the patients do not comply and are unable to communicate with us, such as by hitting us or otherwise disobeying us, we will resort to more extreme measures such as using violence ourselves to instill fear and ultimately chain them. That is just how things*

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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have to be done, and there is not much we can do about it.

After another healthcare worker related a similar incident involving an escaped mental health inpatient who caused chaos in the community, she reflected on the consequences of her experience, supporting the disparity between how village cadres and medical professionals deal with violent patients.

A schizophrenic who was experiencing hallucinations once escaped from our mental health post. Our entire village was in a state of dread and fear because of him. We had a lot of trouble retrieving him, and by the time we did, a lot of damage had been done. To be clear, I am not in favor of shackling, but I recognize that there are circumstances in which it may be necessary.

During the discussion, two community cadres who had minimal patient contact shared their impressions of the use of shackling. While most participants acknowledged that shackling might be useful in certain situations, they also agreed that it added stress to village cadres, healthcare professionals, and patients. At least one community cadre expressed gratitude for not having to make the difficult decision of whether to shackle a mentally ill person, comparing it to deciding whether to save the life of an individual or the entire village. However, another community cadre provided the following insightful commentary on the topic:

As a typical citizen, I am limited in what I can say, but I want to express my admiration for one of my seniors [village cadres]. One time I went with her since they were short of personnel, and a violent patient almost attacked her when she was talking to that patient, but she just laughed it off and did not ask the local police to shackle the patient. In spite of my concern, she reassured me that everything would be fine. She goes above and beyond for her people, and I like that so much.

Compassionate service has emerged as a prevailing paradigm in the management of patients with mental disorders, superseding the conventional use of force or restraints. Empirical investigations have consistently demonstrated that compassionate care, characterized by interpersonal relationships, empathetic understanding, and emotional support, holds significant potential for improving patient outcomes and mitigating the likelihood of violent behavior (Cook *et al*., 2012; Staniszewska *et al*., 2019). A study by Fogarty *et al*. (1999) confirmed that healthcare providers who adopt compassionate care report reduced levels of job-related stress and burnout, suggesting that the approach may bolster the mental well-being not only of patients but also of caregivers.

In managing violent patients, research has found that nonviolent measures, such as verbal reassurance and empathetic communication, can effectively de-escalate conflict and obviate the need for restraint or coercion (Richmond *et al*., 2012; Rampling *et al*., 2016). By contrast, shackling or the deployment of physical restraint is associated with detrimental psychological sequelae for patients, engendering heightened levels of anxiety, aggression, and feelings of helplessness (Bigwood and Crowe, 2008; Huckshorn, 2014). Furthermore, such measures raise legitimate ethical concerns regarding patient dignity and human rights.

The conversation among the participants in this study illuminates the difficult moral and practical quandaries that healthcare professionals face in managing violent patients with mental disorders. Despite the divergent perspectives of village cadres and medical practitioners on the issue, the consensus favored nonviolent techniques and compassionate care, underscoring their commitment to safeguarding patients' well-being while navigating complex emotional terrain. Moreover, the unwavering dedication of the participants to compassionate care in the

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
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face of formidable challenges serves as a poignant testament to their professional integrity and sense of duty.

Blessings in disguise: PSM as hope

The consensus among participants was that witnessing a patient's condition improve as a result of care received in the mental health post, particularly when patients found new hobbies through activities at the post, was an *"indescribably happy moment."* Although participants had varying responses to the "sad truth" that mental illness cannot be cured and can only be managed, all agreed on the importance of enabling patients to care for themselves, achieve financial independence from their families, and ultimately find fulfilling employment. One village cadre who joined with less than a year of experience due to his daughter's bipolar disorder, shared poignant reflections on his time in the field:

> *I participated because I wanted to learn more about this so I can better communicate with my daughter. I do not have a lot of experience, but I assisted this one patient for several months, and I felt like I was simply… well, just doing it, like it was a typical thing, so normal. The patient was then discharged, and I resumed my normal daily activities. And one day, the patient unexpectedly thanked me, and I will never forget what the patient said: "If you had not helped me, I do not think I would still be alive."." And to be honest, that struck me hard.*

Many participants worried about the widespread prejudice against those who suffer from mental illness and believed that proper treatment and instruction were more important than what was required to help those who acted violently or irrationally as a result of their condition (see, for example, Power *et al*., 2006; Corrigan *et al*., 2012; Castle and Buckley, 2015). An interesting point was made by a village cadre, contradicting a healthcare professional: *"They [mental patients] are not insane, they are just like normal people, but we cannot be violent with them because if we are, they are going to be aggressive with us."* An especially compelling story was the journey of a village cadre to win over his community and create a mental health post in the village, despite widespread opposition from locals who mistakenly assumed that such a facility was just for "mad people."

> *Even this post about mental health was met with skepticism at first; many even asked why we would host events for "mad people" when we could instead host events that would be more beneficial to the community as a whole. Although our primary goal in holding the mental health post was to better serve the community, we also wanted to provide those who live with mental illness a voice. But now, thank God, our community has accepted it, and some people even help us, both financially and otherwise, so the present stigma is positive toward those who suffer from mental illness and the mental health post as well.*

The account of the village cadre's journey illustrates the importance of providing careful instructions and education regarding mental illness. Despite encountering uphill battles against widespread opposition, the cadre was astute in discerning the necessity for a mental health post in the village and undertook the responsibility of cultivating awareness about mental illness among community members. This approach reduced the stigmatization of mental illness and enhanced the standard of care given to patients. Disseminating accurate information and precise instructions concerning mental illness management is crucial to lessen the stigma and augment the quality of care for individuals afflicted with mental illnesses. This can be accomplished through community awareness programs, educational campaigns, and training initiatives for healthcare professionals geared toward providing incisive instructions regarding mental illness management.

The discussion on mental health care yielded a wealth of insights into caring for

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.93-106

those with mental illness. Participants emphasized the importance of empowering patients to achieve self-care, financial independence, and fulfilling employment. Personal stories of challenges and journeys highlighted the need to destigmatize mental illness and provide support. The discussion also stressed the need for nonviolent and humane care and an increased understanding of and education about mental illness.

Being called: PSM as a calling

Within the collective of participants, a pervasive moral imperative prevails in their work, offering aid and assistance to individuals grappling with mental illness, be it borne out of a religious or humanitarian ethos. A salient and recurring theme among the cohort was the sincerity and authenticity of their intentions to extend their support, often underscored by an unambiguous expression of a deep-seated conviction, which they identified as *"a call from the heart."* One participant advanced a compelling proposition, positing that any propensity to harbor prejudice against individuals coping with mental illness was entirely untenable and incongruent with the inherent nobility of humanity. Another participant poignantly articulated the magnificence of this phenomenon through the following vivid and touching narration:

> *It is a simple yearning from the depths of my heart to lend a hand because I know that doing so will bring me closer to God and earn me God's favor. If I see a homeless person or someone who might be labeled as people with mental illness by the side of the road, I will approach them without fear of reprisal, and they will gratefully accept any food I offer. I always stop when I see individuals like that on the road, even if I do not have any food with me, and I give them whatever money I have, whether it is Rp.5,000 or Rp.10,000. I do this not just in this area, but everywhere I go because I truly believe that God will bless me if I do so.*

As elucidated by the participants in this study, the provision of mental illness services is deeply rooted in a fundamental respect for human dignity, be it inspired by humanitarian or religious beliefs. However, it is critical to distinguish between mental health services and violence services, which professionals administer per established protocols. Scholarship has shown that the proper execution of violence services, such as those utilized in forensic settings, can forestall the escalation of violent conduct and foster safety for all stakeholders involved (Bartol and Bartol, 2018). Conversely, mental health services necessitate a more nuanced and customized approach, as each patient's needs may vary considerably (Anderson *et al*., 2017). Therefore, while the heartfelt call to serve is laudable and indispensable, it must be supplemented by evidence-based and clinically sound methodologies that ensure optimal patient outcomes. Notwithstanding good intentions, it is essential to prevent emotions and presumptions from overshadowing the importance of professional practices in mental illness services. As such, practitioners must remain abreast of the relevant latest research and best practices to offer the highest quality of care for those in need.

Fighting for the basic rights of those struggling with mental illness is more successful in achieving positive outcomes. Research has demonstrated that when individuals with mental illness are treated as equals and with dignity, they are more likely to engage in treatment and achieve better outcomes. Furthermore, providing individuals with access to legal aid, housing, and employment has improved their mental health and well-being (Davidson *et al*., 2018).

The approach of most of the participants of championing the fundamental rights of those wrestling with mental illness was met with widespread acceptance among its constituents, including a female member of the village cadre who was initially reluctant to be involved due to her own bias against individuals with mental illness. However,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.93-106

when a close familial member was afflicted with mental illness, she wholeheartedly dedicated herself to the task at hand. A notable proportion of participants even went so far as to champion the fundamental rights of those with mental illness, asserting that they possess an inherent right to a cure. This approach is promising for improving the treatment and care of individuals with mental illness, promoting their well-being and overall quality of life.

> *One of them stayed with us for two days, and I was overjoyed to hear that she was feeling better at the end of her stay. Initially, she was so violent that the local police had to shackle her, but after some counseling and reassurance, she reported feeling much better. Moreover, I can see that she has grown tremendously since she initially arrived when her rage was so extreme that she was taken to us. It made me really happy, and that is why I have decided to remain a village cadre.*

While the program's success can be attributed to various factors, the tenacity and longstanding commitment of one village cadre in particular deserve special recognition. Despite his advanced age and limited compensation of only Rp.25,000 per month, which was often further depleted due to the village's financial constraints, this participant dedicated six years of his retirement to providing care for those community members with mental illness. His unwavering devotion and impassioned anecdotes serve as a poignant reminder of the profound impact achieved through steadfast dedication to one's duty. Underscoring the value of such commitment, numerous studies have found that a supportive and compassionate approach to mental health care can lead to more favorable treatment outcomes and greater overall patient satisfaction (see, for example, Spandler and Stickley, 2011; Inwood and Ferrari, 2018). Thus, the program's investment in individuals such as this village cadre is a wise and effective strategy for fostering the physical and emotional well-being of those with mental illness.

> *I am far past the half-century mark, and my children are all grown up and starting their own families. Although I am in good health and capable of working, I would rather spend my time doing what brings me joy: assisting others in need. They [mental patients] need me, I know I am needed, and I am happy that I am needed. I am happy, and my heart is happy.*

The inspiring accounts of the program's participants illustrate the deep-seated conviction that drives them to offer support and care for those struggling with mental illness, even in the face of financial constraints and personal biases. Their steadfast commitment and selfless service underscore the fundamental truth that acts of kindness, empathy, and compassion can transform lives and infuse hope into seemingly hopeless situations. As society wrestles with the mental health crisis, the lessons from these accounts serve as a reminder of the potential of human goodness and the power of collective action to address the challenges of mental illness.

A call to service, a path to progress

This study makes a crucial contribution to filling the epistemic void in the literature through novel insights into the nature and extent of PSM's impact on the choices and actions of village cadres in caring for individuals with mental illness.

Despite its modest nature, this study makes manifold contributions. First, it sheds empirical light on how PSM shapes the behavior of village cadres in mental health care, operating in a complex and nuanced setting. The findings indicate that the participants, particularly the village cadres, serve those with mental health issues out of a sense of duty to the community, program dedication, and patient compassion. These findings align with Perry and Wise's (1990) seminal work, categorizing PSM into rational, norm-based, and affective motivations. Moreover, the study represents one of the

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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earliest explorations of PSM and its motivational aspects among a gray area actor group, namely, village cadres in Indonesia.

Notably, the study validates the idea that PSM is closely linked to the concept of callings, regardless of whether these callings are religious, humanitarian, or otherwise. The findings support Vogel's (2022) argument that PSM and calling are complementary notions in interpreting the work experiences of public officials. They also provide new insights into the various dimensions of callings that shape PSM and its underlying motivations. The calling literature, as noted by Thompson and Christensen (2018), provides an excellent framework for understanding the opposing views on what motivates individuals to enter public service and their PSM.

The study is consistent with the PSM research, echoing the efforts of Denhardt and Denhardt (2015) to "serve" to further the public good. Despite being underpaid, working in a difficult environment, and possibly experiencing burnout, village cadres continue to serve mental patients with genuine concern for their well-being and welfare. The study adds to the existing knowledge by focusing on how PSM influences and affects village cadres, causing them to go above and beyond their service to the public in helping people with mental illness.

Conclusion

Finally, the study's empirical evidence reveals that PSM among village cadres provides renewed optimism, bolstering their capacity to aid and care for people with mental illness through their institutions. Concrete examples of PSM activities include organizing community outreach programs to increase awareness of mental health issues, facilitating support groups for individuals with mental illness and their families, and advocating for improved mental health policies at the local and national levels. The study also shows that PSM can be categorized into rational, norm-based, and affective motivations. Rational motivation refers to PSM activities driven by a desire to achieve tangible outcomes and measurable results, such as improving mental health outcomes or reducing the stigma associated with mental illness. Norm-based motivation refers to PSM activities driven by social norms and cultural values, such as the belief that caring for people with mental illness is a moral obligation. Affective motivation refers to PSM activities driven by an emotional attachment to the cause, such as personal experiences with mental illness or a strong sense of empathy for those who are affected by it. This finding has significant implications, especially in countries such as Indonesia, where mental health care is underfunded and understaffed, and shackling is still practiced. The study underscores the effectiveness of PSM in mobilizing human resources and improving the quality of care for mental health patients in underserved areas. Based on the study's findings, policymakers and governments should consider PSM in designing and implementing public policies and programs to improve mental health care delivery in low-resource settings.

Abbreviations

PSM: Public service motivation

Declarations

Ethics Approval and Consent Participant

The study was conducted in compliance with established ethical standards and with the approval of the Faculty of Social and Political Sciences at Universitas Airlangga. (Approval Number 9634/UN.3.1.7/PJ/2022), with participants providing verbal consent.

Conflicts of Interest

The authors declare that there are no conflicts of interest that could affect the integrity of the study's findings.

Availability of Data and Materials

All data and materials used in this research were available upon request.

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Authors' Contribution

ES conceptualized and designed the study, conducted a literature review, and collected and analyzed the data. *MBG* conducted the formal analysis, interpreted data, and critically revised the manuscript. *LP* implemented interview collection and supported manuscript drafting. All authors approved the final manuscript and ensured their integrity and accuracy.

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References

American Psychiatric Association, D. (2013) Diagnostic and statistical manual of mental disorders: DSM-5. American psychiatric association Washington, DC (5).

Anderson, E. et al. (2017) 'American Association for Emergency Psychiatry Task Force on Medical Clearance of Adults Part I: Introduction, Review and Evidence-Based Guidelines', Western Journal of Emergency Medicine, 18(2), pp. 235–242. Available at: https://doi.org/10.5811/westjem.2016.10.32258.

Baklien, B. et al. (2022) 'Pasung: A qualitative study of shackling family members with mental illness in Indonesia', Transcultural Psychiatry, p. 13634615221135254.

Bartol, C.R. and Bartol, A.M. (2022) Introduction to forensic psychology: research and application. Sixth edition. Los Angeles: SAGE Publications, Inc.

Bigwood, S. and Crowe, M. (2008) ''It's part of the job, but it spoils the job': A phenomenological study of physical restraint', International journal of mental health nursing, 17(3), pp. 215–222.

Castle, D.J. and Buckley, P.F. (2015) Schizophrenia. Second edition. Oxford: Oxford University Press (Oxford psychiatry library).

Cook, J.A. et al. (2012) 'Randomized controlled trial of peer-led recovery education using Building Recovery of Individual Dreams and Goals through Education and Support (BRIDGES)', Schizophrenia Research, 136(1–3), pp. 36–42.

Corrigan, P.W. et al. (2012) 'Challenging the public stigma of mental illness: a meta-analysis of outcome studies', Psychiatric services, 63(10), pp. 963–973.

Davidson, S. et al. (2018) 'Psychological distress and unmet mental health needs among urban taxi drivers: A cross-sectional survey', Australian & New Zealand Journal of Psychiatry, 52(5), pp. 473–482. Available at: https://doi.org/10.1177/0004867417741556.

Denhardt, J.V. and Denhardt, R.B. (2015) 'The New Public Service Revisited', Public Administration Review, 75(5), pp. 664–672. Available at: https://doi.org/10.1111/puar.12347.

East Java Province Riskesdas Team (ed.) (2019) Laporan Provinsi Jawa Timur Riskesdas 2018. Jakarta: Kementerian Kesehatan, Republik Indonesia, Badan Penelitian dan Pengembangan Kesehatan.

Fogarty, L.A. et al. (1999) 'Can 40 seconds of compassion reduce patient anxiety?', Journal of clinical oncology, 17(1), pp. 371–379.

GBD 2019 Mental Disorders Collaborators (2022) 'Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019', The Lancet Psychiatry, 9(2), pp. 137–150. Available at: https://doi.org/10.1016/S2215-0366(21)00395-3.

Huckshorn, K.A. (2014) 'Reducing seclusion and restraint use in

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.93-106

inpatient settings: a phenomenological study of state psychiatric hospital leader and staff experiences', Journal of Psychosocial Nursing and Mental Health Services, 52(11), pp. 40–47.

Inwood, E. and Ferrari, M. (2018) 'Mechanisms of change in the relationship between self-compassion, emotion regulation, and mental health: A systematic review', Applied Psychology: Health and Well-Being, 10(2), pp. 215–235.

Jensen, U.T. and Bro, L.L. (2018) 'How transformational leadership supports intrinsic motivation and public service motivation: The mediating role of basic need satisfaction', The American Review of Public Administration, 48(6), pp. 535–549.

Mertens, D.M. (2007) 'Transformative paradigm: Mixed methods and social justice', Journal of mixed methods research, 1(3), pp. 212–225.

Mpembeni, R.N.M. et al. (2015) 'Motivation and satisfaction among community health workers in Morogoro Region, Tanzania: nuanced needs and varied ambitions', Human Resources for Health, 13(1), p. 44. Available at: https://doi.org/10.1186/s12960-015-0035-1.

National Riskesdas Team (ed.) (2019) Laporan Nasional Riskesdas 2018. Jakarta: Kementerian Kesehatan, Republik Indonesia, Badan Penelitian dan Pengembangan Kesehatan.

Pálsdóttir, B. et al. (2016) 'Training for impact: the socio-economic impact of a fit for purpose health workforce on communities', Human Resources for Health, 14, pp. 1–9.

Perry, J.L. and Wise, L.R. (1990) 'The motivational bases of public service', Public administration review, pp. 367–373.

Potipiroon, W. and Ford, M.T. (2017) 'Does public service motivation always lead to organizational commitment? Examining the moderating roles of intrinsic motivation and ethical leadership', Public Personnel Management, 46(3), pp. 211–238.

Power, P. et al. (2006) 'Early intervention in first-episode psychosis and its relevance to rehabilitation psychiatry', Enabling recovery. The principles and practice of rehabilitation psychiatry. London: Gaskell, pp. 127–145.

Rampling, J. et al. (2016) 'Non-pharmacological interventions for reducing aggression and violence in serious mental illness: A systematic review and narrative synthesis', European Psychiatry, 34, pp. 17–28.

Richmond, J.S. et al. (2012) 'Verbal de-escalation of the agitated patient: consensus statement of the American Association for Emergency Psychiatry Project BETA De-escalation Workgroup', Western Journal of Emergency Medicine, 13(1), p. 17.

Ritz, A., Brewer, G.A. and Neumann, O. (2016) 'Public service motivation: A systematic literature review and outlook', Public Administration Review, 76(3), pp. 414–426.

Spandler, H. and Stickley, T. (2011) 'No hope without compassion: the importance of compassion in recovery-focused mental health services', Journal of Mental Health, 20(6), pp. 555–566.

Stake, R.E. (2008) 'Qualitative case studies.', in Strategies of qualitative inquiry, 3rd ed. Thousand Oaks, CA, US: Sage Publications, Inc, pp. 119–149.

Staniszewska, S. et al. (2019) 'Experiences of in-patient mental health services: systematic review', The British Journal of Psychiatry, 214(06), pp. 329–338. Available at: https://doi.org/10.1192/bjp.2019.22.

Thompson, J.A. and Christensen, R.K. (2018) 'Bridging the public service motivation and calling literatures', Public Administration Review, 78(3), pp. 444–456.

Vandenabeele, W., Brewer, G.A. and Ritz, A. (2014) 'Past, Present, and Future of Public Service Motivation Research', Public Administration,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.93-106

92(4), pp. 779–789. Available at: https://doi.org/10.1111/padm.12136.

Vogel, M.D. (2022) 'When service calls: Public service motivation and calling as complementary concepts for public service', International Public Management Journal, 25(4), pp. 620–638. Available at: https://doi.org/10.1080/10967494.2020.1838014.

Widodo, A. et al. (2019) 'Increasing the quality of life of post-shackling patients through multilevel Health promotion of shackling prevention', Bali Medical Journal, 8(2), pp. 678–688.

Windarwati, H.D. et al. (2021) 'A Journey of Hidden Outburst of Anger Shackling a Person with Schizophrenia: The Indonesian Context.', Qualitative Report, 26(8).

Original Research

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SOCIAL EXCLUSION IN INDONESIA MILITARY HOSPITAL

Eksklusi Sosial di Rumah Sakit Militer Indonesia

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Abstract

Background: In the era of the COVID-19 pandemic, one of the social protections in Indonesia that still requires special attention is the protection of public health.
Aims: This study aims to analyze the principles of social protection in the Social Security Agency for Health *(BPJS Kesehatan)* and the implementation of inclusive health services in Indonesia Military Hospital.
Methods: This study used a qualitative approach by conducting in-depth interviews and made direct observations for one month by observing the processes and phenomena that occurred at the dr. Esnawan Antariksa Air Force Hospital as a case study.
Results: The root cause of social exclusion in health services in military institutions was an aspect of the inherent hierarchy that caused exclusion in the income dimension triggered by socioeconomic level, status, and background of patients so that patients did not get the same rights in obtaining health services.
Conclusion: Implementing social protection through *BPJS Kesehatan* in military-based hospitals caused patients with specific groups to experience layered exclusion. Patients who wanted to receive healthcare at military hospitals had differences in the stages of receiving them. However, the quality of medical services doctors and other health workers provided were not discriminatory.

Keywords: BPJS *Kesehatan*, health services, military hospital, social exclusion, social protection

Abstrak

Latar Belakang: *Di era pandemi COVID-19, salah satu perlindungan sosial di Indonesia yang masih memerlukan perhatian khusus adalah perlindungan kesehatan masyarakat.*
Tujuan: *Penelitian ini bertujuan untuk menganalisis prinsip perlindungan sosial dalam BPJS Kesehatan dan pelaksanaan pelayanan kesehatan yang inklusif pada rumah sakit militer.*
Metode: *Penelitian ini menggunakan pendekatan kualitatif dengan melakukan wawancara mendalam dan melakukan observasi langsung selama satu bulan dengan mengamati proses dan fenomena yang terjadi di Rumah Sakit Angkatan Udara Dr. Esnawan Antariksa sebagai studi kasus.*
Hasil: *Akar penyebab terjadinya eksklusi sosial pada pelayanan kesehatan di institusi militer adalah aspek dari hierarki yang melekat sehingga menyebabkan eksklusi pada dimensi pendapatan yang dipicu oleh tingkat, status, dan latar belakang pada pasien. Hal ini membuat pasien tidak mendapatkan hak yang sama dalam memperoleh pelayanan kesehatan.*
Kesimpulan: *Penerapan perlindungan sosial melalui BPJS Kesehatan di rumah sakit berbasis militer menyebabkan pasien dengan kelompok tertentu mengalami eksklusi berlapis. Pasien yang ingin mendapatkan pelayanan kesehatan di rumah sakit militer memiliki perbedaan dalam tahapan penerimaannya. Namun, kualitas pelayanan medis yang diberikan dokter dan tenaga kesehatan lainnya tidak diskriminatif.*

Kata kunci*:* BPJS Kesehatan, eksklusi sosial, pelayanan kesehatan, perlindungan social, rumah sakit militer

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Introduction

In the era of the COVID-19 pandemic, one of the social protections in Indonesia that still requires special attention is the protection of public health. The National Health Insurance (*JKN*) regulates health protection in Indonesia through Social Security Agency for Health *(BPJS Kesehatan)*. *BPJS Kesehatan* has a task mandated by the government to administer the National Health Insurance program for all levels of Indonesian society under the mandate of the 1945 constitution. *BPJS Kesehatan* has been operating since January 1st, 2014. *BPJS Kesehatan* is a form of the state's effort to ensure the health of its people by providing social protection forms of healthcare. In addition, *BPJS Kesehatan* aims to protect communities having difficulties accessing healthcare and reduce social inequality. Theoretically, *BPJS Kesehatan* guarantees equal access and healthcare to the entire community. However, in actual practice, it is closely related to social inequality, especially among certain social groups such as the poor society.

All qualified government hospitals in Indonesia must cooperate with *BPJS Kesehatan* to provide healthcare to the community. In accordance with the Regulation of the President of the Republic of Indonesia Number 12, 2013, Government hospitals that refuse to cooperate with *BPJS Kesehatan* in healthcare for *BPJS Kesehatan* participants are violating the obligations specified in the Presidential Regulation of Health Insurance and will be sanctioned. Studies on Health Insurance related to the *BPJS Kesehatan* Program have been done widely (see: Arpey, Gaglioti, and Rosenbaum, 2017; Garza, 2019; Putri and Murdi, 2019; Boro, 2020; Purwalaksana *et al.*, 2021). The present study aimed to discuss the phenomenon from the sociological perspective focusing on healthcare in military hospitals managed by the Ministry of Defense. Military patients, civil servants from the Ministry of Defense, and their families were more satisfied with healthcare before the existence of BPJS Kesehatan (Ernawati, 2016). In addition, other studies explained that members of the Indonesian national armed forces, civil servants of the Ministry of Defense, and their families who wished to seek treatment could not go directly to their selected hospital (Purwalaksana *et al.*, 2021). They had to go through the First-Level Health Facilities, known as FKTP, to get the treatment. Before the implementation of *BPJS Kesehatan*, Indonesian national armed forces, civil servants of the Ministry of Defense, and their families could seek treatment directly at their selected hospital using health insurance from the military institution (Purwalaksana *et al.*, 2021).

Currently, hospitals managed by the Ministry of Defense not only focus on military patients, civil servants of the Ministry of Defense, and their families but must also be inclusive by providing services to the general public or civilians. This policy shift is certainly not easy and has become a challenge. The government's implementation of the *BPJS Kesehatan* program still needs to be strengthened, including strengthening the leadership role in the various institutions and agencies involved, improving accountability, and increasing collaboration between stakeholders (Pusat Kebijakan dan Manajemen Kesehatan, 2020). The Ministry of Defense, one of the stakeholders in this program, should have been involved. Unfortunately, as a civilian institution, they are also dominated by the military. The form of military presence in the post-reform government in Indonesia could be seen by the military domination within the Ministry of Defense. Although the Ministry of Defense is a civilian institution, the intervention carried out by the military is too strong that it significantly impacts the functions of the Ministry of Defense itself (Djuyandi and Ghazian, 2019). This condition aligns with regulations regarding healthcare made by the Ministry of Defense at military hospitals.

On the contrary, the culture within the military, such as the inherent hierarchy and chain of command, makes achieving inclusiveness in healthcare in military hospitals challenging. This situation makes *BPJS Kesehatan*'s effort to include non-military patients not run optimally because

Indonesian Journal of Health Administration
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10.20473/jaki.v11i1.2023.107-119

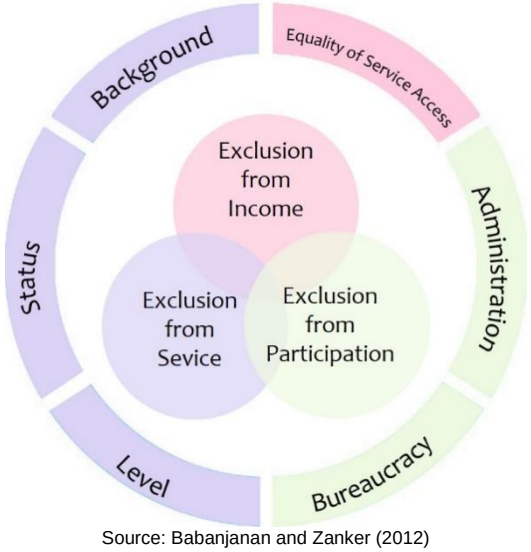
social inclusion is not well-implemented. Fundamentally, social inclusion is an effort to achieve an ideal quality of life for the dignity and independence of individuals or groups. Social inclusion includes social relations and respect for individuals or groups, so those marginalized and people who experience prejudice can fully participate in decision-making, economic, social, political, and cultural life and also have equal access and control over resources to meet their needs according to welfare standards that are considered appropriate within the community group concerned (Hart, 2020). Babajanian and Hagen-Zanker (2012) stated that the social exclusion framework could help the author to analyze social protection interventions. Therefore, the author decided to use this framework to identify the extent of the intervention regarding the factors which restricted individuals' access to healthcare in military hospitals.

Method

This study used a qualitative approach with a case study. The author analyzed the healthcare at dr. Esnawan Antariksa Air Force Hospital, located in Jakarta, under the supervision of the Ministry of Defense, as a case study. The data collection process was carried out by interviewing six informants and determining the informants by using purposive sampling. The selected informants were considered based on their military rank, background, and type of *BPJS Kesehatan* they had so each informant could represent their respective classes. The author made direct observations for one month by observing the processes and phenomena that occurred at the hospital. The author afterward utilized other supporting data from the Ministry of Defense Regulation, the Regulation of the Commander of the Indonesian National Armed Forces, *BPJS Kesehatan* Regulation, dr. Esnawan Antariksa Air Force Hospital regulation and other government regulations, as well as articles and online news portals regarding health insurance through *BPJS Kesehatan* in military-based hospitals. Furthermore, the data obtained were analyzed using three dimensions of social exclusion belonging to Babajanan and Hagen-Zanker (2012). The three dimensions were the income exclusion, participation exclusion, and service exclusion dimensions, using the descriptive analysis method.

Conceptual Framework of Social Exclusion for Analysis Tools

The author used the social exclusion theoretical framework of Babajanian and Hagen-Zanker (2012) to analyze existing interventions in healthcare at military hospitals. The social exclusion framework emphasized the relationship between welfare and more extensive factors, including policies, social relations, norms, and values that shape and change various types of social deprivatization. Social exclusion ultimately helped to capture the natural deprivatization phenomenon that occurred with various interrelated and mutually reinforcing dimensions.



Source: Babanjanan and Zanker (2012)

Figure 1. Dimensions and Factors of Social Exclusion

Figure 1 showed the three main dimensions of exclusion in social deprivation: service, income, and participation. In connection with this study, the author focused on seeing indications of social exclusion in healthcare provided by *BPJS Kesehatan* in dr. Esnawan Antariksa Air Force Hospital. Forms of exclusion in the services were socioeconomic level,

Indonesian Journal of Health Administration
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p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

status, and background of the patients. The author associated the dimension of exclusion from income with equality of service accessed from dr. Esnawan Antariksa Air Force Hospital. The last dimension was the exclusion from participation which the author interpreted as bureaucracy and administration from dr. Esnawan Antariksa Air Force Hospital. The author used these three dimensions to analyze social protection in the form of *BPJS Kesehatan* in healthcare at dr. Esnawan Antariksa Air Force Hospital, managed by the Ministry of Defense.

Result and Discussion

Health Services in the Era of *BPJS Kesehatan*

The result from previous research related to the *BPJS Kesehatan* outpatient registration service procedure at a hospital belonging to the Air Force had gone quite well. However, the result showed that as many as 63.43% belonged to a reasonably good qualification but not ideal. The dimension that had the lowest percentage was the empathy dimension, with a percentage of 58.93%. Obstacles to outpatient services for BPJS patients include (1) low level of discipline and communication, (2) insufficient implementation of *3S* (smile, greet, peace) to patients, (3) Problems with the digital-based registration system (Rahayu and Antika, 2022).

Ernawati (2016) explained that the satisfaction level of military patients in the *BPJS Kesehatan* era was entirely satisfactory, but compared to health services before the *BPJS Kesehatan* era, military patients' satisfaction level was higher. This is caused by the complexity of the registration process, sub-optimal supporting examinations, and the allocation of different drugs. Likewise, Purwalaksana *et al*. (2021) research explained that implementing *BPJS Kesehatan* in military institutions did not show effective results and tended to decline. This was explained in Purwalaksana's research, which focused on analyzing Law Number 24 of 2011 concerning Health services for the Indonesian National Armed Forces and their families used in a qualitative descriptive method.

Furthermore, Firdaus and Dewi (2015) explained that many patients were still confused about the referral system established by *BPJS Kesehatan*. Things that became obstacles to patient satisfaction using *BPJS Kesehatan* at Panembahan Senopati Hospital Bantul were the registration staff tended to be late and slow, waiting times for treatment tended to be long, staff voices tended to be high, officers were not friendly, rooms were not spacious, waiting rooms were lacking and no loudspeaker. Moreover, Hasrillah *et al*. (2021), Suprianto and Mutiarin (2016), and Gusnita (2017) explained that the implementation of programs organized by *BPJS Kesehatan* had yet to be effective.

In a study on social security through the *Sistem Jaminan Sosial Nasional* Law, Zain *et al*. (2017) explained that the law was inconsistent in manifesting the concept of the Indonesian welfare state. However, the government was responsible for ensuring the presence of qualified access for every citizen to get ideal and proper health services in fulfilling the fundamental rights of the community, especially in the health sector. The implementation of health based on the International Covenant on Economic, Social, and Cultural Rights in Indonesia was considered to have not materialized in a tangible way (Ardinata, 2020). *BPJS Kesehatan* is a legal entity that carries out social security programs to ensure that all people, without exception, are met with proper living needs (Solechan, 2019).

Implementation of Health Service Policy

BPJS Kesehatan cooperates with all hospitals managed by the Ministry of Defense, which means that the provision of health services to hospitals under the auspices of the Ministry of Defense follows the rules made by *BPJS Kesehatan.* However, hospitals within the Ministry of Defense and the Indonesian National Armed Forces can arrange further according to hospital policies. The policy made by *BPJS Kesehatan* at the Indonesian National Armed Forces Hospital is now wide open to the general

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

public who need health services. It is hoped that the state's responsibility to provide services and basic needs for the Indonesian people can be adequately implemented. The system provided by *BPJS Kesehatan* is a tiered referral system where patients who wish to seek treatment at health services must go through *the First-Level Health Facilities, known as FKTP.* The hierarchical system in the military in Indonesia is in the form of ranks for military members who are in it. This also applies to military agencies in the health service.

Category	Level	Indonesian Army	Indonesian Navy	Indonesian Air Force
Officer	Flag Officer	General	Admiral	Air Chief Marshal
		Lieutenant General	Vice Admiral	Air Marshal
		Major General	Rear Admiral	Air Vice Marshal
		Brigadier General	Commodore, lit. means First Admiral	Air Commodore, lit. means First Marshal
	Middle-ranked Officer	Colonel		
		Lieutenant Colonel		
		Major		
	Lower-ranked Officer	Captain		
		First Lieutenant		
		Second Lieutenant		
Non-Commissioned Officer	Warrant Officer	Chief Warrant Officer		
		Warrant Officer		
	Non-Commissioned Officer	Sergeant Major		
		Chief Sergeant		
		First Sergeant		
		Second Sergeant		
Enlisted	Higher rank enlisted	Chief Corporal		
		First Corporal		
		Second Corporal		
	Lower rank Enlisted	Chief Private	Chief Seaman	Chief Private
		First Private	First Seaman	First Private
		Second Private	Second Seaman	Second Private

Figure 2. Ranks in the Armed Forces Based on Government Regulation Number 32 of 1997

Health services at the dr. Esnawan Antariksa Air Force Hospital, a hierarchy in the form of rank was also implemented. This was contained in regulations made by the Ministry of Defense and other informal regulations in the chain of command in military organizations, which were then applied to health services at the dr. Esnawan Antariksa Air Force Hospital. The application of a hierarchy in the form of rank created differences in the health services received by patients, which resulted in the exclusion of working in the service dimension.

Analysis of the Social Exclusion Framework for Healthcare

Income Exclusion Dimension

From the interview, the Indonesian National Armed Forces hierarchy greatly influenced the healthcare at the dr. Esnawan Antariksa Air Force Hospital. Military patients with lower ranks felt that their superiors were prioritized in getting services compared to them. In addition, patients with military backgrounds perceived they had service priority and prioritized receiving treatment from healthcare workers.

> *"I once had an experience where I went to the dentist. While waiting in line, someone with a higher rank bypassed the queue and went straight in. Actually, if my condition were more severe, I could have protested. However, since it was in the clinic and we were accustomed to such situations, we understood and accepted it, because individuals with higher ranks have priority."* - (YDK, interview with the author, May 11, 2022)

In the interview, YDK explained to the author about her experience during a dental visit, where they were cut in line by a patient with a higher rank. However, YDK understood and accepted this situation due to their lower rank. Nevertheless, YDK expressed that despite having to yield in the queue due to her lower rank, she felt prioritized and given certain conveniences compared to non-military patients.

Similar views were also expressed by WAP and S during their interviews. WAP holds a position as a lower-ranked officer in the Indonesian National Armed Forces, while S is a non-military patient. According to both informants, the ease of healthcare services they receive when seeking treatment at the dr. Esnawan Antariksa Air Force Hospital is attributed to their respective occupational backgrounds. Patients with a military background are given priority and are prioritized when receiving medical treatment from healthcare professionals. As stated by WAP and S during the interviews:

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

"I do have regular annual medical check-ups for work purposes. In terms of the service, when I visit, there is usually a possibility of enlisted personnel, non-commissioned officer, flag officer, and others seeking treatment. Based on my experience, when I visit and flag officer are present, they are prioritized. However, as a lower-ranked officer, I respect and honor them based on their ranks when they seek treatment simultaneously. As a junior, I adjust my schedule. This is because flag officer has many commitments and responsibilities, especially since we are all there together. As lower-ranked officer, I respectfully give them priority. This attitude is not only observed at dr. Esnawan Air Force Hospital. Nonetheless, for me, it reflects my conscious decision as a First Officer to provide flexibility in terms of time for our commandant" - (WAP, Interview with the author, May 10, 2022)

"Nowadays, the process for non-military patients takes longer, and the conveniences have reduced. Currently, it is combined with the all BPJS Kesehatan patients and the government-provided free healthcare services (BPJS Kesehatan PBI Patient). The difference now is that only military patients and flag officers and their families are given priority. Even retired flag officers have the same counter as active-duty officers. It is much more advantageous during active duty (military patient). Everything is now merged into one system, and referrals from primary health centers are limited to one per day. If there are additional health concerns in different departments, one would have to return the next day. However, being on active duty (military patients) still offers significant advantages in terms of service quality." - (S, Interview with the author, April 28, 2022)

The presence of priority in healthcare services for military patients is also experienced by RS, a military patient who is a contribution assistance recipient (PBI) from BPJS Kesehatan. In an interview conducted with RS, she mentioned that it is not uncommon for her to have to wait longer in line due to the prioritization of military patients in receiving healthcare services at the dr. Esnawan Antariksa Air Force Hospital. RS is fully aware of the existence of priority services for military patients when seeking outpatient care at the dr. Esnawan Antariksa Air Force Hospital. In the interview conducted with the author, RS stated:

"That's what I said, the doctors are good. I am okay with the long queue because of the free health services. But, I acknowledge that the military patient will be prioritized because this hospital belong to them..."- (RS, Interview with the author, April 28, 2022).

From the interviews, it can be concluded that the background of patients has an influence on the healthcare service process at dr. Esnawan Antariksa Air Force Hospital. Patients with military background are prioritized in the treatment process compared to non-military patients. Moreover, the healthcare service system based on the administrative rank system also applies among military patients. This is evidenced by flag officer patients being given priority over patients with lower ranks in the healthcare service at the dr. Esnawan Antariksa Air Force Hospital. This statement is supported by the interview results with SH, who is the spouse of a flag officer in the military:

"The intended meaning is as follows: Let me explain. We never have to queue, but even when we do, our queue is not as long as theirs. You know. However, for flag officers and colonels, there is a separate room exclusively for them. Have you ever heard of the room below? That one is specifically for colonels and flag officers. In that case, the nurse accompanies us. If there are many patients, we usually wait for our turn

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

instead of going in immediately. We sit and wait for one person to finish before the next person goes in. However, the waiting time is not long. There is still a difference in terms of priority, but in my experience, it's the same for lower-ranked officers and middle-ranked officers, except when we reach the rank of colonel and flag officers. That's when the difference might come into colonel and flag officers. - (SH, interview with the author, May 12, 2022).

Privileges for military patients were not only observable from the priority of healthcare obtained. It was also from the facilities provided by the hospital. In terms of services, the hospital provided an exclusive waiting room for patients with high military ranks and was acknowledged by non-military patients. The difference in waiting room conditions between high-ranking military patients and other patients was considered exclusive by one of the informants classified as a non-military patient with *BPJS Kesehatan* Contribution Assistance Recipient, known as PBI. *BPJS Kesehatan PBI* patients are people classified as poor and underprivileged if according to data from the Social Service, and the funding is funded by the government.

The military hierarchy operating in healthcare institutions means that patients do not have equal rights to access healthcare. The author concluded that the primary factor that triggered social exclusion in healthcare at the hospital was the patient's different rank and background. Therefore, *BPJS Kesehatan,* as social protection, could not properly function when interacting with military-based healthcare. Hence, the military hospitals, as healthcare institutions and one of the facilitators to improve the welfare of its citizens in obtaining equal healthcare, had not run optimally. It was because the hospital could not provide universal and comprehensive healthcare.

Participation Exclusion Dimension

The exclusionary dimension of participation at dr. Esnawan Antariksa Air Force Hospital could be seen in the different access to healthcare that patients receive, which was between military and non-military patients. Inequality in access to healthcare reflected the limitations on patients to fully participate in receiving primary social services in the health sector. Restrictions on patient participation in healthcare at the hospital could lead to social exclusion. According to United Nations Development Program (2019), Social exclusion is the systematic process of marginalizing individuals or groups by denying them access to resources, opportunities, and services that are available to others in society. In the concept of the welfare state, equality of opportunity, equitable distribution of wealth, and public responsibility are the basic principles used when dealing with people who cannot provide for their personal needs for a decent life (Alfitri, 2012). From the concept, the principle of equality in opportunity related to access to healthcare in hospitals must be optimally realized and implemented. However, the difference in access to healthcare between military and non-military patients in the hospital reflected the fulfillment of the principle of equal opportunity that had not been fully implemented. It could trigger social exclusion in the participation dimension, which caused the concept of a welfare state not to run optimally.

Based on the interview results, informants with military backgrounds explained that the hospital prioritized patients with higher ranks if they were to seek treatment simultaneously with military patients with lower rankings.

"In my experience, when I seek treatment and there are flag officers and colonels present, they are always prioritized." - (WAP, interview with the author, April 10, 2022)

"It does have a difference, sis. There is a difference. Like, there were many queues, but we were prioritized. Well, not exactly prioritized, but they were more helpful to us, you know. But if there are higher-ranking officers than us, they will be prioritized" - (YDK,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

interview with the author, May 11, 2022)

Meanwhile, a widow whose husband retired as a non-commissioned officer explained that she could not get the same hospitalization services when compared to when her husband was still serving in the military.

"Nowadays, the process becomes longer for non-military patients, and the conveniences are reduced. Regardless, being in the military still provides a much more pleasant experience, especially for military personnel. The healthcare service is significantly different." - (S, interview with the author, April 28, 2022)

On the contrary, retired colonels, flag officers, and their family members still had the same hospitalization services as when they were still in the service. Moreover, flag officer patients received health service priority. There were priority queues and exclusive waiting rooms for flag officer patients. Priority queues for flag officer patients resulted in relatively shorter waiting times, which was inversely proportional to non-military patients who experienced longer waiting times for treatment. As stated by the informants:

"Indeed, it is considerable, depending on the patients. If there are numerous patients, it may take hours, consuming an entire day to visit the hospital. Currently, they are prioritizing those wearing camouflage uniforms and blue uniforms." - (RS, interview with the author, April 28, 2022)

"Indeed, there is a difference. You know, sis, it's written on the wall, read it. It says that the military is prioritized because they have to go back to work..." - (RS, interview with the author, April 28, 2022)

"In general, when going to the hospital, we have to be there from early morning until the whole day. As non-military patients, we understand that we receive free healthcare here, so we can't complain or get angry about it. We just have to accept and follow the rules." - (RS, interview with the author, April 28, 2022)

"Yes, there's definitely a difference. We don't use the regular waiting area, there's a separate place for us. And the regular waiting area is managed by the staff there. So, everything is arranged, and we wait in the VIP waiting room. The doctors are not always available on standby, so we wait there. But the waiting time is not usually long unless there's a surgery going on. We will be informed when the doctor arrives, and then we can go to the examination room." - (SH, interview with the author, May 12, 2022)

"Hmm, but don't say it's easier, otherwise, those who are not flag officers will say they are not served, hahaha. So, since flag officers receive more attention, that's the point. Basically, flag officers receive better service. The bottom line is, colonels and above are definitely different, but in terms of healthcare service, the doctors are the same." - (SH, interview with the author, May 12, 2022)

In light of this explanation, the exclusion dimension of participation worked in the healthcare process. Social exclusion occurred in the healthcare provided and the process of obtaining healthcare from healthcare workers provided by the hospital. This condition leaves patients with specific backgrounds unable to receive quality healthcare services. Therefore, these patients did not have equal opportunities to participate in the process of fulfilling basic needs in the form of healthcare.

Service Exclusion Dimensions

In practice, the healthcare provided by military hospitals was regulated through various policies and regulations issued by the government and health institutions. In a regulation issued by the Commander of the

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

Indonesian National Armed Forces, through Regulation of the Commander of the Indonesian National Armed Forces Number 45 of 2017, the healthcare recipients in the military members consist of the military, civil servant members, family members of military/government employees, and pensioners. The healthcare provided by military health facilities serves not only patients with a military background but also patients from the general public. Healthcare by military-based health facilities to the general public is also regulated in the Regulation of the Ministry of Defense of the Republic of Indonesia Number 15 of 2014, which states that health facilities owned by the military and the Ministry of Defense participate in cooperating with *BPJS Kesehatan* in the implementation of healthcare. Through these laws and policies, military hospitals differentiate patients based on the type of jobs (military or non-military) in their healthcare practice.

If viewed from the service dimension, the differentiation in patients legalized through various policies and regulations would trigger social exclusion. The division in the administrative system, the division of service space between military and non-military patients, and the priority of healthcare for military members showed the dimensions of service in military hospitals. Referring to the concept of a welfare state, the Republic of Indonesia must provide universal social protection. Providing social protection that is particularistic and selective makes the state deny the philosophy, function, and identity agreed upon by the founding fathers (Sukmana *et al.*, 2015).

The intersection between Dimensions of Social Exclusion

The dimensions of social exclusion in healthcare in the military were interrelated and had intersections between dimensions. The main factors causing social exclusion in the income dimension were socioeconomic background, status, and level. Furthermore, this was supported by bureaucracy and administration and also legalized through existing regulations in military hospitals. The impact of intersections between dimensions of social exclusion was most felt by patients with non-military status and *BPJS Kesehatan PBI* patients. In these circumstances, those patients experienced layered social exclusion. The first layer of social exclusion could be seen from the implication of *BPJS Kesehatan*. The regulations within *BPJS Kesehatan* restrained *BPJS Kesehatan PBI* patients from only getting Class 3 healthcare. The patients also could not apply to transfer or upgrade the membership classes. The second layer of social exclusion was the patient's background, resulting in limitations in the health service process. This limitation was supported by regulations made by the government and the dr. Esnawan Antariksa Air Force Hospital.

In addition, other patients with non-military status also encountered social exclusion triggered by their background and status. The non-military backgrounds of these patients had limited access to healthcare, leading to the participation exclusion dimension to work. Furthermore, for non-military patients, social exclusion was from the income and participation dimensions worked because it was supported by the bureaucracy and administration legalized by military hospital institutions and regulations made by the Ministry of Defense. In summary, the three dimensions of exclusion worked were the income exclusion dimension, the participation exclusion dimension, and the service exclusion dimension for non-military patients. Thus, retired military officers and their families with ranks below colonel received the same hospitalization services as non-military patients.

The dr. Esnawan Antariksa Air Force Hospital executed the Ministry of Defense's regulations. The regulations passed by the Ministry of Defense stated that colonels, flag officers, and high-ranking civil servants of the Ministry of Defense received preferential treatment, including VIP rooms. There were also several privileges for these patients, such as having different registration areas, special waiting rooms, and treatment prioritization. Although military patients with ranks below colonel felt more prioritized than non-military

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

Table 1. Class Treatment Criteria at dr. Esnawan Antariksa Air Force Hospital, based on *BPJS Kesehatan* regulations.

Participant criteria	Hospitalisation services		
	Class-I	Class-II	Class-III
Officer	✓	-	-
Non-commissioned officer	-	✓	-
Enlisted	-	✓	-
Pensioner	✓	✓	-
Non-military patient	✓	✓	✓
PBI	-	-	✓

Source: *BPJS Kesehatan* regulations (2014)

patients, they still faced limitations in inpatient services and room classes as well as facilities provided compared to facilities for colonels, flag officer patients, and high-ranking civil servants of the Ministry of Defense.

Multi-layered social exclusion occurred in military hospitals because the state could not properly regulate the law passed by the President. The social security ratified by the President should be implemented as a form of social protection to ensure that all Indonesian citizens can fulfill their basic health needs properly with the principle of equity and to meet equality in obtaining healthcare according to their medical needs and not be influenced by the number of contributions paid. However, in military hospitals, equity aspects and universal healthcare could not be fulfilled because military institutions did not comply with the highest regulations in the government. It could be seen from the overlapping regulations made by the Ministry of Defense regarding the privileges received by certain patients. In addition, the membership class made by *BPJS Kesehatan* through the Presidential Regulation on Health Insurance also created inequality for patients to get classified rooms. It was also one of the causes of the emergence of layered social exclusion when social protection in the form of *BPJS Kesehatan* intersected. The implementation of *BPJS Kesehatan* in military-based hospitals caused three dimensions of social exclusion, namely income, participation, and service exclusions. The concept of a welfare state adopted by Indonesia might not function well in dr. Esnawan Antariksa Air Force Hospital, where social exclusion occurred due to poor governance. The social exclusion in dr. Esnawan Antariksa Air Force Hospital happened in the process of receiving treatment from medical personnel. However, the services and care provided by medical personnel to all patients were equal and well-received by patients from all backgrounds.

Conclusion

Social protection in the form of healthcare through *BPJS Kesehatan* is one of the efforts of the Republic of Indonesia so that all citizens have the same opportunity to access healthcare. Military hospitals participate in realizing a welfare state by providing inclusive healthcare for them. However, in practice, they provide healthcare by incorporating hierarchical aspects. This does not align with the concept of a welfare state in the health sector, where all people should have the right to have equal opportunities to obtain healthcare regardless of their status. Unequal opportunities to get healthcare in

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

military hospitals were caused by the hierarchy inherent in these health institutions.

Implementing social protection through *BPJS Kesehatan* in military-based hospitals caused patients with specific groups to experience layered exclusion. The first layer was caused by the existence of classes in *BPJS Kesehatan.* Meanwhile, the second layer of social exclusion in military hospitals was rooted in the inherent hierarchy of the healthcare institution itself. This was contrary to the Indonesian government's guarantee to provide fair and non-discriminatory healthcare to its people. Layered social exclusion in military hospitals resulted from the interaction between *BPJS Kesehatan* as the embodiment of social protection and hierarchical military-based healthcare institutions. Patients who wanted to receive healthcare at military hospitals had differences in the stages of receiving them. However, the quality of medical services doctors and other health workers which are provided was not discriminatory.

Abbreviations

BPJS Kesehatan: *Badan Penyelenggara Jaminan Sosial Kesehatan* (Social Security Agency for Health*) ;* JKN: *Jaminan Kesehatan Nasional* (The National Health Insurance) ; *PBI: Penerima Bantuan Iuran* (Contribution Assistance Recipient); VIP: Very Important Person. FKTP: *Fasilitas kesehatan tingkat pertama* (First Level Health Facilities).

Declarations

Ethics Approval and Consent Participant

This study has obtained an ethical clearance approved by the Health Research Ethics Committee, Faculty of Public Health University of Jember (No.176/KEPK/FKM-UNEJ/IV/2022), Research Ethics Committee dr. Esnawan Antariksa Air Force Hospital (Nomor Sket/52/IX/2022/KEPK), Education Coordinating Committee dr. Esnawan Antariksa Air Force Hospital (Nomor Sket/55/IX/2022/Komkordik).

Conflict of Interest

The author state that there is no conflict of interest for this study.

Availability of Data and Materials

Data can be provided by request to the corresponding author.

Authors' Contribution

This study was developed and designed by HPNS.

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References

Alfitri, A. (2012) 'Ideologi Welfare State Dalam Dasar Negara Indonesia: Analisis Putusan Mahkamah Konstitusi Terkait Sistem Jaminan Sosial Nasional', Jurnal Konstitusi, 9(3), pp. 449–472.

Ardinata, M. (2020) 'Tanggung Jawab Negara Terhadap Jaminan Kesehatan Dalam Perspektif Hak Asasi Manusia', pp. 5–6.

Arpey, N. C., Gaglioti, A. H. and Rosenbaum, M. E. (2017) 'How socioeconomic status affects patient perceptions of healthcare: A qualitative study', Journal of Primary Care and Community Health, 8(3), pp. 169–175. doi: 10.1177/2150131917697439.

Babajanian, B. and Hagen-Zanker, J. (2012) 'Social protection and social exclusion: an analytical framework to assess the links - ODI Background Notes - Discussion papers', (October).

Boro, Y. K. (2020) Implementasi Program Jaminan Kesehatan Nasional Di Kota Yogyakarta. Sekolah Tinggi Pembangunan Masyarakat Desa "APMD". Sekolah Tinggi Pembangunan Masyarakat Desa Yogyakarta. Available at:

Indonesian Journal of Health Administration
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10.20473/jaki.v11i1.2023.107-119

http://repo.apmd.ac.id/1354/.

Djuyandi, Y. and Ghazian, M. G. (2019) 'Kementerian pertahanan: birokrasi sipil dan hierarki militer', Wacana Publik, 13(1).

Ernawati, E. (2016) 'Analisis Kepuasan Pasien TNI Sebelum dan Sesudah Penerapan JKN di Ruang Rawat Inap Kelas II RS Dik Pusdikkes Kodiklat TNI AD', Jurnal Administrasi Rumah Sakit Indonesia, 3(1), pp. 1–10. Available at: http://journal.fkm.ui.ac.id/arsi/article/view/2207/0.

Firdaus, F. F. and Dewi, A. (2015) 'Evaluasi Kualitas Pelayanan Terhadap Kepuasan Pasien Rawat Jalan Peserta BPJS di RSUD Panembahan Senopati Bantul', Jurnal Medicoeticolegal dan Manajemen Rumah Sakit, 4(2). Available at: https://journal.umy.ac.id/index.php/mrs/article/view/690.

Garza, R. G. (2019) Patient Perception in Quality Of Healthcare In Civilian And Military Hospitals. University of Texas at El Paso. Available at: https://scholarworks.utep.edu/cgi/viewcontent.cgi?article=2988&context=open_etd.

Gusnita, A. (2017) 'Analisis Implementasi Jaminan Sosial Nasional pada Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS) Kota Metro', Prosiding SNaPP2017 Sosial, Ekonomi, dan Humaniora, pp. 692–698.

Hart, E. (2020) Inklusi Sosial. Australian Government. The Asia Foundation, Kemitraan Partnership, Program Peduli. Available at: https://www.kemitraan.or.id/publikasi/inklusi-sosial-sepuluh-kisah-peduli-masyarakat-adat-dan-lokal-terpencil-nusantara-2.

Hasrillah, Cikusin, Y. and Hayat (2021) 'Implementasi Pelayanan Kesehatan Masyarakat Melalui Program BPJS Kesehatan (Studi pada Puskesmas Kedungkandang Kota Malang)', Jurnal Inovasi Penelitian, 1(12), pp. 2869–2882. Available at: https://stp-mataram.e-journal.id/JIP/article/view/594.

Purwalaksana, I. B. *et al*. (2021) 'Implications of Social Inequality for Soldiers in Health Services of The Indonesian National Armed Forces Managed by The Social Security Agency', Comparative and General Pharmacology, 49(March), pp. 46–60.

Pusat Kebijakan dan Manajemen Kesehatan (2020) Laporan Hasil Penelitian Evaluasi Kebijakan JKN di 13 Provinsi Indonesia. Yogyakarta. Available at: https://chpm.fk.ugm.ac.id/laporan-hasil-penelitian-evaluasi-kebijakan-jkn-di-13-provinsi-indonesia-2019-2020/.

Putri, P. M. and Murdi, P. B. (2019) 'Pelayanan Kesehatan di Era Jaminan Kesehatan Nasional Sebagai Program Badan Penyelenggara Jaminan Sosial Kesehatan', Jurnal Wacana Hukum, 25(1), p. 80. doi: 10.33061/1.jwh.2019.25.1.3046.

Rahayu, A. H. and Antika, W. T. (2022) 'Tinjauan Tingkat Kepuasan Pasien BPJS di Bagian Pelayanan Pendaftaran Rawat Jalan Rumah Sakit TNI AU Dr. M. Salamun Bandung', Jurnal TEDC, 16(1). Available at: http://ejournal.poltektedc.ac.id/index.php/tedc/article/view/554.

Setiyono, B. (2018) 'Perlunya Revitalisasi Kebijakan Jaminan Kesehatan di Indonesia', Jurnal Ilmu Politik, Volume 9 Nomor 2, Oktober 2018 Perlunya, 14(2), PP. 2651–2656.

Solechan (2019) 'Badan Penyelenggara Jaminan Sosial (BPJS) Kesehatan Sebagai Pelayanan Publik', 2(4), pp. 686–696.

Sukmana, O. *et al*. (2015) Negara Kesejahteraan dan Pelayanan Sosial: Perspektif Kebijakan Sosial yang Memberikan Jaminan Perlindungan Warga Negara. Malang: Intrans Publishing, 2015 Sumber.

Suprianto, A. and Mutiarin, D. (2017) 'Evaluasi pelaksanaan jaminan kesehatan nasional', Jurnal of Governance and Public Policy, 4(1).

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.107-119

Available at: https://mip.umy.ac.id/wp-content/uploads/2018/09/Evaluasi-Pelaksanaan-Jaminan-Kesehatan-Nasional-Studi-Tentang-Hubungan-Stakeholder-Model-Pembiayaan-dan-Outcome-JKN-di-Kabupaten-Bantul-Provinsi-Daerah-Istimewa-Yogyakarta.pdf.

United Nations Development Programme. (2019). Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century. New York: UNDP.

Zain, M. A., Yurista, A. P. and Yuniza, M. E. (2017) 'Konsistensi pengaturan jaminan sosial terhadap konsep negara kesejahteraan indonesia *', Jurnal Penelitian Hukum, 1(2), pp. 63–76. Available at: https://jurnal.ugm.ac.id/jph/article/view/19100.

Original Research

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ANALYSIS OF HIV AND SYPHILIS TRANSMISSION PREVENTION PROGRAMS FOR ADOLESCENTS

Analisis Program Pencegahan Penularan HIV dan Sifilis Pada Remaja

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Abstract

Background: Adolescents tend to want to try things they have never experienced, and the main contributing factor is curiosity and imitating what adults do, including sexuality.
Aims: This study aimed to analyze the transmission prevention program of HIV and Syphilis for adolescents in North Sumatra.
Methods: This study used an analytic survey approach with a cross-sectional design by taking 729 people as a sample, selected using quota sampling, from the total adolescent population (19.4% of the population of North Sumatra). Questionnaires produced using an online platform and adapted from The Prospero Network. The results were then transferred into a statistics-based application for descriptive data analysis, bivariate, and multi-level tests.
Results: The study showed that >50% of the respondents took a quick, free laboratory test for HIV and syphilis and a reactive confirmation test through a health facility in both cases. Moreover, the results of multi-level statistical tests show models 1 and 2, namely the availability of syphilis screening referrals, have a 1-17 times higher risk of implementing HIV and syphilis programs in adolescents.
Conclusion: Everything is interrelated with the implementation of HIV and Syphilis transmission prevention programs in adolescents. However, there is still a significant chance that it will not work. Therefore, the government and the community must work together to implement this program properly and consistently.

Keywords: adolescents, health program, HIV, Syphilis

Abstrak

Latar Belakang: *Remaja cenderung ingin mencoba hal yang belum pernah dialaminya, faktor utama penyebabnya adalah rasa ingin tahu dan melakukan apa yang dilakukan orang dewasa termasuk seksualitas.*
Tujuan: *Tujuan dari penelitian ini ialah untuk menganalisis program pencegahan penularan HIV dan Sifilis pada remaja di Sumatera Utara.*
Metode: *Penelitian ini menggunakan pendekatan survei analitik dengan desain* cross sectional *dengan mengambil 729 orang sebagai sampel dari total populasi remaja (19,4% penduduk Sumatera Utara), diambil secara quota sampling. Kuesioner yang dibuat menggunakan platform online dan diadaptasi dari The Prospero Network. Hasilnya kemudian ditransfer ke aplikasi berbasis statistik untuk analisis data deskriptif, bivariat, dan uji multi-level.*
Hasil: *Penelitian menunjukkan bahwa >50% responden melakukan tes laboratorium cepat dan gratis untuk HIV dan sifilis serta tes konfirmasi reaktif melalui fasilitas kesehatan pada kedua kasus. Selain itu, hasil uji statistik multi-level menunjukkan model 1 dan 2 yaitu ketersediaan rujukan skrining sifilis memiliki risiko 1-17 kali lebih tinggi untuk melaksanakan program HIV dan sifilis pada remaja.*
Kesimpulan: *Semuanya saling terkait dengan pelaksanaan program pencegahan penularan HIV dan Sifilis pada remaja. Namun, masih ada resiko tinggi untuk tidak berhasil. Oleh karena itu, pemerintah dan masyarakat harus bekerja sama untuk implementasi program ini dengan baik dan konsisten.*

Kata kunci*:* HIV*, program kesehatan, remaja, Sifilis*

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Introduction

Venereal disease has long been known to occur in Indonesia. With the advancement of science, the term is no longer used and has been changed to Sexually Transmitted Disease (STD) (Purnama, Sriati and Maulana, 2020). The term STD has been changed to Sexually Transmitted Infection (STI) in order to reach asymptomatic sufferers since 1998. Sexually transmitted infections (STIs) are infections that are sexually transmitted between people during sexual intercourse (Asiah, Sitohang and Suza, 2020).

Currently, the productive age group, because free sex behavior among adolescents still often occurs in young men and young women, is trying to control and prevent STI's in general; in particular, the adolescent group is an age that is very vulnerable to STI transmission, where risky behavior can easily occur due to promiscuity and is exacerbated by the lack of information, especially about reproductive and sexual health, including STIs. As a result, deviant sexual behavior, such as sexual activity that approaches sexual intercourse, is quite high (Hasibuan, 2021). This can lead to several consequences, including infection with sexually transmitted diseases such as HIV/AIDS. (Parida, Indriani and Kartika, 2020).

The results of another survey also stated that one in four teenagers in Indonesia had premarital sex and proved that 62.7% of adolescents lost their virginity while still in Junior High School, some of whom had even gone to the extreme, namely, having an abortion. In Indonesia, approximately 4.5% of men and 0.7% of women aged 15–19 years reported having sexual relations before marriage. Among adolescents aged 15–19 years, the highest proportion of first-time encounters occurred between the ages of 15 and 17 years. Approximately 33.3% of girls and 34.5% of boys aged 15-19 years began dating at the age of 15. At this age, there is concern that they do not have the appropriate life skills, so they are at risk of unhealthy dating behavior, including having sex prior to marriage. (Sari, Darmana and Muhammad, 2018).

While it tends to fluctuate, data on HIV-AIDS cases in Indonesia continues to increase annually. As shown in the figure below, during the last 11 years, the number of HIV cases in Indonesia reached its peak in 2019, which was 50,282 cases (Aryani and Riyandry, 2022). The five provinces with the highest HIV cases were East Java, DKI Jakarta, West Java, Central Java, and Papua. In 2017, most HIV cases were also owned by these five provinces. The provinces with the highest number of AIDS cases are the center of Java, Papua, eastern Java, DKI Jakarta, and the Riau Islands. AIDS cases in Central Java represent approximately 22% of all cases in Indonesia. The highest number of HIV and AIDS cases in 2017-2019 remained unchanged, mostly on the island of Java (Kemenkes RI, 2020).

According to North Sumatra Provincial Health Office data, in 2019, the number of new HIV-positive cases was reported as 1,709 and occupied the 6th position out of 34 provinces in Indonesia, with the highest HIV-positive cases in adolescents, an increase compared to the number of new cases found in 2018 (1,498 cases). However, the number of AIDS cases has tended to fluctuate. The number of AIDS cases in 2019 was 788, a decrease compared to 2018, which was 881 (Dinkes Sumut, 2019). According to data from the WHO, more than 1 million people suffer from STDs, with the four most common types of disease including Chlamydiasis, Gonorrhea, Syphilis, and Trichomoniasis. (Simorangkir, 2022).

According to Indonesian Ministry of Health (2029) data reported from April to June 2019, the total number of PIMS cases diagnosed using a syndrome-based approach and laboratory examination for the high-risk group. Namely, high-risk couples (4,741), Female Sex Workers (3,660), MSM (3,600), Sex Worker Customers (1,274), ladyboys (399), injecting drug users (84), and Male Sex Workers. The number of cases of Urethra Body Duh (DTU) was reported to be as high as 1,968, and as many as 270 cases of genital ulcers/genital ulcers. DTU cases

Indonesian Journal of Health Administration
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reported decreased from the first quarter of 2019 (2,134 cases to 1,968 cases), and Genital Ulcers increased compared to those reported in the first quarter of 2019 (242 cases to 270 cases) (Indonesian Ministry of Health, 2019).

Syphilis is a sexually transmitted infection (STI) that remains a global issue. Many adults are also affected by this disease. Syphilis not only causes morbidity but also has the potential to cause death. Pregnant women with syphilis may transmit Congenital Syphilis, which may cause birth defects and death. (Lubis, Abdillah and Lubis, 2020). Based on the above background, researchers are interested in conducting a study that aims to analyze a program to prevent HIV and Syphilis transmission among adolescents in North Sumatra Province.

Method

This study employed an analytical survey approach with a *cross sectional*. The population of this study is still teenagers who are vulnerable to HIV and Syphilis infection and domiciled in North Sumatra Province. Geographically, North Sumatra Province is located in the northern part of Sumatra Island, which has the largest population in Indonesia, which is around 14.9 million people in 2021, and 19.4% are teenagers (15-24 years old). From the total population, the sample taken was 729 people, namely representatives of the adolescent population aged 13-25 years and currently studying at least junior high school to university and domiciled in Medan City and Percut Sei Tuan District which are still within the territory of North Sumatra Province was taken by non-random using quota sampling technique. The independent variables in this study were laboratory tests in the category of fast or slow, time, counseling results, referral requests for follow-up, and whether or not they were accompanied by referral requests by health workers. The dependent variable in this study was whether or not the prevention program of HIV and syphilis transmission in adolescents in North Sumatra Province. Respondents were interviewed using online questionnaires with several questions in the form of characteristics and indicators of HIV and Syphilis prevention programs adopted through instruments sourced from The Prospero Network (The Prospero Network, 2022). After the interview, the results were transferred to statistical software and went through several stages in the form of coding, cleaning, editing, and processing. After passing through that stage, the data were analyzed and descriptively used to obtain a summary of the statistical results and characteristics of the respondents. The statistical test applied in this study was the chi-square test to obtain the crude goods ratio value and multiple logistic regression tests to obtain the adjusted goods ratio value with a multi-level analysis model that had been adjusted in the first and second stages of analysis with a significance level at alpha in the overall analysis with a precision of 5% ($p<0.05$).

Result and Discussion

Demographic Characteristics

Results reported that more than 60% of the respondents were male, aged 13–18 years. Furthermore, it is known that half of the respondents' parents are married. However, only >20% of people are Batak Muslims, and their parents' last education is tertiary (Table 1).

Factors Associated with HIV and Syphilis Prevention Program

The results of the study showed that >50% of respondents had free HIV and laboratory tests, although with the same number, there were still differences in examinations in syphilis cases in patients through paid laboratories; the same difference also occurred in patients who carry out an HIV confirmation test directly to a health facility; there are also those who check syphilis confirmation tests at health facilities assisted by referral letters, the time required for HIV examination visits is relatively slow, the results of post-test counseling and are found to be HIV positive come out in a slow period of time, do not receive information related to syphilis treatment, were not willing to be referred for further testing for HIV and Syphilis in health

Indonesian Journal of Health Administration
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facilities and HIV-positive cases, and were willing to request a referral to a health facility for further examination (Table 1).

Meanwhile, <50% of people whose counseling results after the post-test and were found to be HIV negative came out in a slow period of time, took HIV reactive confirmation tests through direct examinations to health facilities, and were not accompanied by health workers before being referred for HIV and syphilis treatment to health facilities. and further reexamination was performed (Table 1).

The results of the study conducted by Ahmed, *et al*, namely based on test results in the stratified category of sex laboratory-based risk scores with lipids, the majority of the HIV population was classified at low risk (83%) with 12% at medium risk and 5% at high risk (Ahmed *et al.*, 2022).

In this study, the authors found that overall, the variables had a significant relationship (p<0.05) or a sig precision of 5% with risks ranging from 1.1 times to 160.7 times. However, the statistical results showed that there were several variables that were not significant, namely, the time required for HIV examination visits in the slow period, the test results that were positive for HIV in the late category, unwilling to do referrals for further HIV and Syphilis examinations at health facilities, received and did not receive information related to HIV and syphilis care in patients, and rapid testing of syphilis cases through a laboratory and for a fee (Table 2).

This finding is related to the results of a study by Nabakwe *et al*. According to them, health workers do not spend time on other aspects of feeding young infants in the context of maternal HIV infection, according to the counseling flowchart derived from HIV and infant feeding counseling tools based on policies and regulations. A guide from the United Nations. The average score for nutritional counseling was 23,7% (range 6•7–40), which was low. Quantitative data indicated that a small proportion of 22-year-old mothers (4,1%) received counseling at PMTCT clinics. (Nabakwe, Egesah and Kiverenge-Ettyang, 2022).

Table 1. Characteristics of Respondents and Implementation of HIV and Syphilis Prevention (n=729)

Variable	Frequency (%)
Gender	
Male	485 (66.5)
Female	244 (33.5)
Age	
13-18 years	641 (87.9)
19-25 years	88 (12.1)
Ethnic	
Aceh	125 (16,5)
Batak	192 (30.7)
Buton	163 (20,3)
Javanese	130 (18.8)
Malay	119 (13.7)
Parents	
Married	373 (51.2)
Divorced	356 (48.8)
Parents' education level	
Elementary	184 (25.2)
Junior	167 (22.9)
High School/ Vocational	178 (24.4)
Bachelor/Master/ Doctoral	200 (27.5)

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.120-130

Variable	Frequency (%)
Religion	
Islam	178 (24.4)
Christian	144 (19.8)
Catholic	123 (16.9)
Hindu	94 (12.9)
Buddha	108 (14.8)
Confucian	82 (11.2)
Laboratory HIV test	
Free	428 (58,7)
Paid	301 (41,3)
Time required for HIV screening visits	
Fast	334 (45,8)
Slow	395 (54,2)
Post-test counseling Results are negative HIV	
Fast	394 (54,0)
Slow	335 (46,0)
Post-test counseling results declared HIV positive	
Fast	279 (38,3)
Slow	450 (61,7)
Conducting HIV reactive confirmation test	
Direct	190 (26,1)
Indirect	539 (73,9)
Requesting referral for HIV screening at health facilities	
Yes	112 (15,4)
No	617 (84,6)
Received information related to HIV care	
Yes	127 (17,4)
No	602 (82,6)
Accompanied to facilities health prior to referral for HIV treatment	
Yes	365 (50,1)
No	364 (49,9)
Laboratory syphillis test	
Free	276 (37,9)
Paid	453 (62,1)
Willing for referral for syphilis examination at health facilities	
Yes	308 (42,2)
No	421 (57,8)
Receiving information related to syphilis treatment	
Yes	269 (36,9)
No	460 (63,1)
Accompanied by healthcare professional before referral to a health facility to get-further treatment	
Yes	379 (52,0)
No	350 (48,0)

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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Table 2. Bivariate Analysis of Factors Associated with Adolescent HIV and Syphilis (n=729)

Variables	HIV and Syphilis Prevention Program (%)		COR (95% CI)**	P-Value
	Implemented	Not Implemented		
Laboratory HIV test				0.036*
Free	226 (60.4)	148 (39.6)	1.15	
Paid	202 (56,9)	153 (43,1)	(0.86-1.55)	
Time required for HIV screening visits				0.001*
Fast	188 (53,0)	167 (47,0)	0, 56	
Slow	146 (39.0)	228 (61.0)	(0.42-0.76)	
Post-test counseling Results are negative HIV				0.001
Fast	164 (46,2)	191 (53,8)	1.86	
Slow	230 (61.5)	144 (38.5)	(1.38-2.49)	
Post-test counseling results declared HIV positive				0.001
Fast	108 (28.9)	266 (71.1)	0.43	
Slow	171 (48,2)	184 (51,8)	(0.32-0.59)	
Conducting HIV reactive confirmation test				0.001*
Direct	145 (38.8)	229 (61.2)	4.36	
Indirect	45 (12,7)	310 (87,3)	(2.99-6.35)	
Requesting referral for HIV screening at health facilities				0.001
Yes	100 (28,2)	255 (71,8)	0.85	
No	12 (3.2)	362 (96.8)	(0.04-0,15)	
Received information related to HIV care				0.001
Yes	27 (7.2)	347 (92.8)	0.19	
No	100 (28,2)	255 (71,2)	(0.12-0.31)	
Accompanied to facilities health prior to referral for HIV treatment				0.001
Yes	7 (2,0)	348 (98,0)	112.35	
No	358 (95.7)	16 (4.3)	(45.20-273.69)	
Laboratory syphilis test				0.001
Free	274 (50,3)	271 (49,7)	0.11	
Paid	2 (1.1)	182 (98.9)	(0.03-0.44)	
Willing for referral for syphilis examination at health facilities				0.001*
Yes	302 (55,4)	243 (44,6)	0.27	
No	6 (3.3)	178 (96.7)	(0.12- 0.62)	
Receiving information related to syphilis treatment				0.001
Yes	264 (48,4)	281 (51,6)	0.30	
No	5 (2.7)	179 (97.3)	(0.12-0.73)	

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Variables	HIV and Syphilis Prevention Program (%)		COR (95% CI)**	P-Value
	Implemented	Not Implemented		
Accompanied by healthcare professional before referral to a health facility to get-further treatment				0.001*
Yes	197 (36,1)	348 (63,9)	160.75	
No	182 (98.9)	2 (1,1)	(39.46-654.76)	

**Crude Oods Ratio*
**Precision 5% Significant*

Table 3. Multivariate Analysis of Multi-Level Model Against Factors Associated with HIV and Syphilis Transmission Prevention Programs for Adolescents (n=729)

Variable	Model 1		Model 2	
	AOR	95%CI	AOR	95%CI
Laboratory HIV test				
Free	3,11	1,28-7,57	0,63	0,42-0,94
Paid	Ref	Ref	Ref	Ref
Time required for HIV screening visits				
Fast	Ref	Ref	Ref	Ref
Slow	0,14	0,04-0,47	0,98	0,71-1,35
Conducting HIV reactive confirmation				
Direct	0,67	0,19-0,23	0,73	0,46-1,17
Indirect	Ref	Ref	Ref	Ref
Availability of syphilis screening referrals at health facilities				
Yes	Ref	Ref	Ref	Ref
No	17,36	28,7-108,0	1,81	1,05-3,14
Accompanied by health workers before being referred to health facilities For Further Treatment				
Yes	Ref	Ref	Ref	Ref
No	4,61	1,81-11,71	1,67	0,94-2,96
Random Variance				
Log-likelihood	149,212		921,806	
Intraclass correlation	0,892		0,014	

adjusted oods ratio
precision 5% significant (<0,05)

Based on multi-level statistical tests, it is known that the time required for HIV screening visits has a significant influence on the implementation of HIV and Syphilis transmission prevention programs in adolescents from all variables analyzed. In Model 2, the availability of syphilis screening referrals at health facilities can have a significant influence on the implementation of HIV and syphilis prevention programs in adolescents, and most dominantly have a 1-17 times greater risk of HIV, and syphilis prevention programs cannot be implemented. Accompanied by health workers before being referred to health facilities For Further Treatment also has a major influence on the implementation of HIV and Syphilis transmission prevention programs in adolescents after the availability of syphilis screening with a 1-4 times higher risk of affecting the implementation of HIV

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10.20473/jaki.v11i1.2023.120-130

and Syphilis prevention programs for adolescents. The category of not conducting screening and not being accompanied by health workers binds 14% of the results of the existing multi-level analysis so that the contribution made by intervening risk factors at the level of HIV and Syphilis screening and mentoring health workers will encourage the implementation of HIV and Syphilis transmission prevention programs in adolescents by 14% (Table 3).

According to the results of research conducted by Kinnman *et al*. Among all respondents, 436 (65.8%) reported an interest in using HIVST, and among those who were interested, 205 (47.0%) expressed willingness to pay for HIVST. Rectal Chlamydia, Rectal Gonorrhea, or Syphilis during the previous 12 months were reported by 81 respondents (12.3%). In addition, 44 respondents (6.7%) reported that they had never been tested for HIV before, and 33 (5.0%) reported using self-sampling kits for Chlamydia and Gonorrhea. Being single was negatively associated with willingness to pay (AOR 0.56, CI 0.36-0.88) (Kinnman *et al.*, 2022).

According to Unicef in the Guidelines for the Management of the Program for the Prevention of maternal-child transmission of HIV and Syphilis, namely the PPIA Program policies and strategies basically refer to the National Health System, policies of the National Program for Control of HIV-AIDS and Sexually Transmitted Infections, Program policies Maternal Health and other related national policies. PPIA is part of the National Program for Control of HIV-AIDS and STIs and efforts for maternal and child health; Implementation of PPIA activities is integrated into MCH services, Family Planning (KB), and Adolescent Counseling at every level of health services with gradual expansion and involving the role of non-governmental organizations, NGOs and communities, and sexually transmitted infections (STIs) are a public health problem that poses a burden of morbidity and even mortality in developing countries. The prevention and treatment of STIs can reduce the risk of HIV transmission through sexual intercourse. The presence of STIs in the form of inflammation or ulceration increases the risk of HIV infection when having unprotected sexual intercourse between someone who has been infected with an STI and a healthy partner. In people with HIV-AIDS (PLWHA), syphilis increases the transmission power of HIV (Unicef, 2019).

A solution to this problem was reported through a survey conducted by Rummel *et al*. They explained that, although there are many sources of information, such as school lessons, public education campaigns, preventive health checks, and the Internet, many young people still lack information about STIs. Unlike the high prevalence of HPV in Germany and the rest of the world, adolescents had the lowest level of awareness of the STIs evaluated. Information gaps and lack of knowledge are reflected in this study and underscore the need for intensive and thorough educational work. (Rummel *et al.*, 2022).

Other research conducted by Nurjanah and Wahyono using a systematic study found that challenges that can be overcome occur in patients, including a lack of information about prevention programs for mother-to-child transmission of HIV from purpose, benefits, side effects, and in-depth information about ART, other than partner and family involvement, have an influence on the running of the PMTCT program, including participation in the treatment process, such as the activity of checking the amount of *viral load* and commitment to accompanying treatment. Patient engagement in ART is also a challenge because it lasts for a lifetime. In addition, the patient's reluctance to reveal their HIV status also becomes a challenge in implementing PMTCT; other challenges in running the PMTCT program that occurs in health workers (health workers, health cadres) include unbalanced workload with wages that can be obtained. In addition, there are difficulties in ensuring the right PMTCT service for patients, and ensuring patient engagement in therapy by removing community-related stigma, and the availability of drugs and HIV testing kits is also a challenge in the implementation agenda. In the absence of medication or

Indonesian Journal of Health Administration
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the patient's test package, faith was lost in the programme. (Nurjanah and Wahyono, 2019).

The weakness of this study is the limitation of very minimal funding from researchers and the long time taken to obtain respondents who are in many categories. This study can be generalized because the problem of HIV and Syphilis in adolescents is still a global problem because there are still many adolescents who practice free sex and prevention programs for HIV and Syphilis in adolescents must still be implemented so that HIV problems do not spread and can become endemic and even become a pandemic in the future.

Conclusion

This study concludes that HIV testing through the laboratory is fast and free, there is no willingness to do referrals, and is not accompanied by health workers when making referrals related to each other with the implementation of the HIV and Syphilis transmission prevention programs for adolescents in North Sumatra Province. However, there remains a high risk of not running the program. Therefore, the government, especially program makers, must always evaluate every activity to carry out this and involve human resources and the community in program implementation.

Abbreviations

WHO: World Health Organization; UNICEF: United Nations International Children's Emergency Fund; SD: standard deviation; AOR: adjusted odds ratio; COR: crude odds ratio; PHC: primary health care; HIV: human immunomodulator virus; STIs: sexually transmitted infections.

Ethics Approval and Consent Participant

This study was approved by the Research Ethics Committee of the Faculty of Medicine of the Islamic University of North Sumatra. (No. 330/ EC. UISU/ XII/ 2022. Respondents were informed of the goals and objectives of the study, and provided oral consent to participate in the study.

Conflict of Interest

The authors state that there are no significant competing financial, professional, or personal interests that might have influenced the study.

Availability of Data and Materials

The data and materials for this study can be made available to the journal upon request.

Authors' Contribution

YHL and SS conceptualized the study; YHL created the methodology; YHL and SS wrote, reviewed, and edited the manuscript; and SS wrote the original draft.

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References

Ahmed, H.A. *et al.* (2022) 'Cardiovascular risk factors and markers of myocardial injury and inflammation in people living with HIV in Nairobi, Kenya: a pilot cross-sectional study', *BMJ Open*, 12(6), pp. 1–11. Available at: https://doi.org/10.1136/bmjopen-2022-062352.

Aryani, L.D. and Riyandry, M.A. (2022) 'Analisis Faktor Yang Berhubungan Dengan Kejadian HIV/AIDS Pada Wanita', *Jurnal Penelitian Perawat Profesional*, 4(2), pp. 61–70.

Asiah, N., Sitohang, N.A. and Suza, D.E. (2020) 'Pengetahuan Remaja Anak Jalanan Tentang Bahaya Seks Bebas dan Penyakit Menular Seksual di Komunitas Peduli Anak Kelurahan Medan Maimun', *Jurnal Riset Hesti Medan Akper Kesdam I/BB Medan*, 5(2), pp. 170–170. Available at: https://doi.org/10.34008/jurhesti.v5i2.209.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.120-130

Dinkes Sumut (2019) *Profil Kesehatan Provinsi Sumatera Utara Tahun 2019*.

Hasibuan, A.S. (2021) *Pandangan MUI Kota Medan Tentang Perlindungan Anak Terinfeksi HIV/AIDS (Studi Kasus Lembaga Medan Plus)*, *Universitas Islam Negeri Sumatera Utara*.

Indonesian Ministry of Health (2019) *Laporan Perkembangan HIV AIDS & Penyakit Infeksi Menular Seksual (PIMS) Triwulan II Tahun 2019*, pp. 138–139.

Kemenkes RI (2020) 'Infodatin HIV AIDS', *Kementerian Kesehatan Republik Indonesia*, pp. 1–8.

Kinnman, E. *et al.* (2022) 'HIV self-testing for men who have sex with men in Sweden. A cross-sectional study concerning interest to use HIV self-tests', *Global Health Action*, 15(1). Available at: https://doi.org/10.1080/16549716.2021.2021631.

Lubis, L., Abdillah, A. and Lubis, H.K. (2020) 'The Influenced Factors On The Syphilis Disease Infection Matter On The Man Productive Age In The Teladan Public Health Center Medan Period Of January-September 2019', *International Journal on Language, Research and Education Studies*, 4(2), pp. 209–222. Available at: https://doi.org/10.30575/2017/IJLRES-2020050804.

Nabakwe, E.C., Egesah, O. and Kiverenge-Ettyang, G.A. (2022) 'Maternal and health care workers' perspectives on exclusive breastfeeding in the context of maternal HIV infection, in Busia county, western Kenya: a mixed methods cross-sectional survey', *International Breastfeeding Journal*, 17(1), pp. 1–13. Available at: https://doi.org/10.1186/s13006-022-00454-z.

Nurjanah, N.A.L. and Wahyono, T.Y.M. (2019) 'Tantangan Pelaksanaan Program Prevention Of Mother To Child Transmission (PMTCT): Systematic Review', *Jurnal Kesehatan Vokasional*, 4(1), pp. 55–55. Available at: https://doi.org/10.22146/jkesvo.41998.

Parida, D., Indriani, I. and Kartika, S. (2020) 'Analisis Faktor Yang Berhubungan Dengan Perilaku Pencegahan Ims Pada Kelompok Usia Produktif 15-24 Tahun Di Wilayah Kerja Puskesmas Menteng Palangka Raya', *Dinamika Kesehatan: Jurnal Kebidanan Dan Keperawatan*, 11(1), pp. 49–60. Available at: https://doi.org/10.33859/dksm.v11i1.612.

Purnama, L.C., Sriati, A. and Maulana, I. (2020) 'Gambaran perilaku seksual pada remaja', *Holistik Jurnal Kesehatan*, 14(2), pp. 301–309. Available at: https://doi.org/10.33024/hjk.v14i2.2761.

Rummel, M. *et al.* (2022) 'Evaluation of the knowledge of students concerning sexually transmitted infections in Bavaria/Germany (a cross-sectional study)', *JDDG - Journal of the German Society of Dermatology*, 20(2), pp. 169–176. Available at: https://doi.org/10.1111/ddg.14653.

Sari, D.N., Darmana, A. and Muhammad, I. (2018) 'Pengaruh Faktor Predisposisi, Pemungkin, dan Pendorong Terhadap Perilaku Seksual di SMA Asuhan Daya Medan', *Jurnal Kesehatan Global*, 1(2), pp. 53–53. Available at: https://doi.org/10.33085/jkg.v1i2.3943.

Simorangkir, S.J.V. (2022) 'Penyuluhan Cara Mengenali Tanda dan Gejala Penyakit Menular Seksual Serta Pencegahannya Kepada Para Pelajar Di SMAN 1 Silima Pungga Pungga', *Jurnal Ilmiah Pengabdian Kepada Masyarakat*, 3(1), pp. 62–73. Available at: https://doi.org/10.51622/pengabdian.v3i1.376.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.120-130

The Prospero Network (2022) 'Standardised protocol for a prospective cross-sectional multicentre clinical utility evaluation of two dual point-of-care tests in non-clinical settings for the screening of HIV and syphilis in men who have sex with men', *BMJ Open*, 12(6), p. e055275. Available at: https://doi.org/10.1136/bmjopen-2021-055275.

Unicef (2019) *Pedoman Manajemen Program Pencegahan Penularan HIV dan Sifilis dari Ibu ke Anak*, *Kementerian Kesehatan Republik Indonesia*, p. 27.

Original Research

Indonesian Journal of Health Administration
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DEVELOPMENT OF SUSTAINABLE HEALTHCARE MODEL FOR THE HOSPITALS IN NORTHERN INDIA

Pengembangan Model Perawatan Kesehatan Berkelanjutan untuk Rumah Sakit di India Utara

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Abstract

Background: Healthcare organizations incorporate products and services at economical prices to deliver healthcare services of good quality. All the operations performed in the organizations aimed to achieve higher level of environmental sustainability which is governed by the Sustainable Developmental Goals of 2030.
Aims: This study aims to develop a sustainable healthcare model using Analytical Hierarchy Process (AHP).
Methods: First and foremost, the authors have identified the factors associated with the sustainable healthcare system through a literature review. Based on these factors, a questionnaire was developed and administered to 25 healthcare organizations from December 2020 to March 2021. An Analytical Hierarchy Process is utilized to rank the factors and a conceptual model is developed. The Felix Hospitals substantiate this model. The authors have also applied sensitivity analysis to validate the results achieved via AHP.
Results: The AHP model demonstrates, the focus is to be on the environment first, followed by the economic and social dimensions sustainably. The validated model was substantiated by the hospital (Felix) results and sensitivity analysis too.
Conclusion: It can be concluded that sustainability in hospitals is highly depends on the environment in the first stage, and economic and social sustainability comes in the second and third stages. The same result was achieved through AHP.

Keywords: analytical hierarchy process, hospital, sustainable healthcare.

Abstrak

Latar belakang: *Organisasi pelayanan kesehatan menggabungkan produk dan layanan dengan harga ekonomis untuk memberikan layanan perawatan kesehatan dengan kualitas yang baik. Semua operasi yang dilakukan dalam organisasi bertujuan untuk mencapai tingkat kelestarian lingkungan yang lebih tinggi yang diatur SDGs 2030*
Tujuan: *Penelitian ini bertujuan untuk mengembangkan model perawatan kesehatan berkelanjutan dengan menggunakan* Analytical Hierarchy Process *(AHP).*
Metode: *Pertama dan terpenting, penulis telah mengidentifikasi faktor-faktor yang terkait dengan sistem perawatan kesehatan berkelanjutan melalui tinjauan literatur. Berdasarkan faktor-faktor ini, kuesioner dikembangkan dan diberikan kepada 25 organisasi layanan kesehatan dari Desember 2020 hingga Maret 2021. AHP digunakan untuk menentukan peringkat faktor-faktor dan model konseptual yang dikembangkan. Rumah Sakit Felix mendukung model ini. Para penulis juga telah menerapkan analisis sensitivitas untuk mevalidasi hasil yang dicapai melalui AHP.*
Hasil: *Model AHP menunjukkan bahwa fokus pada lingkungan terlebih dahulu, diikuti oleh dimensi ekonomi dan sosial secara berkelanjutan. Model yang dikembangkan divalidasi dengan hasil dari penerapan di rumah sakit* (Felix Hospital) *dan juga dari analisis sensitivitas.*
Kesimpulan: *Dapat disimpulkan bahwa model keberlanjutan di rumah sakit sangat tergantung pada lingkungan pada tahap pertama, dan keberlanjutan ekonomi dan sosial yang datang pada tahap kedua dan ketiga. Hasil yang sama dicapai melalui AHP.*

Kata kunci*: AHP, rumah sakit, perawatan kesehatan berkelanjutan.*

Indonesian Journal of Health Administration (*Jurnal Administrasi Kesehatan Indonesia*)
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10.20473/jaki.v11i1.2023.131-144

Introduction

There is an exponential demand for quality healthcare systems both at present and in the future times as well. There is an enormous consumption of food and an unhealthy lifestyle, which leads to more healthcare interventions at one end and expenditure on healthcare is decreasing worldwide at the other end. However, healthcare systems face multiple challenges. Accessibility to quality healthcare services, less financial support, and a trained workforce are the few challenges faced by the healthcare system in public and private organizations. Private organizations overcome these challenges through innovation and scaling up their operations.

The sustainable healthcare model develops, upholds, or reinstates health, while curtailing destructive effects on the environment and controlling opportunities to restore and improve it, so that the health and well-being of current and future generations would benefit from it (World Health Organization). The primary aim of this study was to conduct a literature review of sustainability in the healthcare system. The second aim was to identify factors used by healthcare service providers. The research questions for this study included awareness of sustainability and the implementation of sustainability practices by healthcare providers. Economic, social, and environmental factors are given their highest priority. The public health community has warned that climate change is the greatest threat to the public health system of this century. Natural Resources Défense Council Report 2021 highlighted that climate change and pollution are going to cost US$820 billion (Alwis and Limaye, 2021). The upcoming climate change issues and the demand for sustainable infrastructure in such organizations have forced us to think that sustainability not only brings a better place to live for all stakeholders in society. Risk jeopardizing organizations should be taken care of by various risk-mitigation strategies.

The author has described the risks associated with hospitals and healthcare systems as processes, clinical and administrative systems, and records engaged in the identification, assessment, mitigation, and monitoring of various risks. The risk management process ensures patient safety and protects the organization's assets, accreditation, brand value, market share, and community interests (Bolnick *et al.*, 2020). This study indicates that the enterprise risk management process comprises eight domains: operational, clinical, patient safety, strategic, financial, human capital, legal and regulatory, technological, environmental, and infrastructure–based hazards. Uncertainty and risk impose adverse circumstances on all health care entities. Every healthcare organization uses a systematic and ongoing process to curtail the intensity of the risks in the healthcare system, which leads to quality healthcare for patients and financial strength for the organizations to face uncontrolled periods of change.

Hospitals–Government infrastructure comprising healthcare centers, district and general hospitals, and private hospitals containing nursing homes; mid-tier, top-tier, and super-specialized institutions are the healthcare market in India, split into five key segments. The manufacturing of drugs and extraction, processing, purification, and packaging of chemicals are included in pharmaceuticals. Laboratories offer diagnostic services based on which practitioners prescribe medicine and lines of treatment. Manufactured medical equipment and supplies used in surgical, dental, ophthalmic, and laboratory settings Another sector, Medical Insurance, is increasing rapidly and is projected to be more than 40 billion US dollars in the near future. This covers hospitalization expenses and reimbursements to hospitals trailed narrowly by pharmaceuticals and medical instruments.

Definition of Sustainable Healthcare

Sustainable healthcare is not new, but nowadays much is talked about just for a few reasons, which can be sustainable development goals, aspiring to achieve by 2030. Maintaining the quality of care delivered by healthcare systems incorporates products, services, and

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.131-144

healthcare operations with higher environmental performance to make it sustainable. To maintain sustainability in the healthcare system, it is important to consider the well-being of society and the survival of businesses.

The question arises as to how a healthcare system can become more sustainable. The waste management and procurement system should be updated, and the usage of durable goods should be examined. Therefore, the option of clean energy was explored to make the system more sustainable, and new regulatory compliance should be incorporated. This would make the hospitals more environmentally friendly.

The healthcare Industry has encountered critical challenges, including the availability of raw materials, qualified human and economic resources, changing demographics, and healthcare accessibility. These challenges have intensified owing to unmanageable progress. The rising costs, insufficient healthcare insurance fees, and population aging have largely affected healthcare services. The social and political environments and electoral success are directly interlinked with the healthcare sector. The health care sector plays an important role in the economies of developed countries. To have a better quality of life and affordable and acceptable social well-being, ethical principles need to be followed, which leads to sustainable progress and development in healthcare. The World Commission on Environment and Development (Yadav, Gupta and Bandyopadhayay, 2015), recognizes issues such as unnecessary deforestation, intense population growth, species extermination, the greenhouse effect, and ozone depletion, and stresses economic growth and resource overconsumption by socioeconomic aspects. In 2015, the UN member states adopted 20 global sustainable development goals (SDGs), targeted to achieve by 2030. The actions should drive sustainability if all the financial systems, banks, corporate bodies, and politics come forward to make nations sustainable. Many challenges to healthcare sustainability prevail in most countries. Changes in demographic patterns, rising healthcare costs and lack of resources, shortage of qualified personnel, non-linear healthcare threats, and increased administrative processes are some of the predominant challenges in the healthcare sector. Handling these challenges is a commitment to ensure the quality of healthcare and contentment for all involved participants (Momete, 2016).

As per the existing literature and studies carried out on sustainability related to the triple bottom line concept, this study introduced a comprehensive framework to measure sustainability, which is outside the triple bottom line concept. Although sustainability has been studied in most service companies, very few have highlighted it in the healthcare sector. Researchers have aimed to identify these factors and their hierarchical framework to assess sustainability in the healthcare sector (Ferdosi, Rezayatmand and Molavi Taleghani, 2020).

As per the definition of WHO, “A system is sustainable that recovers, preserves the health and wellbeing of current and future generations, by curtailing the adverse effects on the environment.” (WHO-Europe, 2017). Harmful and conventional waste, wastewater and greenhouse gas emissions, and water and energy overconsumption are the few healthcare activities that require immediate attention from owners and other responsible entities. Healthcare providers can thus become more profitable by adopting these four methods.

Chemical safety practice

Healthcare providers must make mindful purchasing decisions while buying products for the system. They use many hazardous chemicals in products, such as fluorescent lamps, LCDs, CRT Monitors, flame-retardant mattresses, wheelchair cushions, and even baby bottles. The purchase manager should try to avoid ordering these items and, if bought, toxic products must be recycled periodically.

Waste disposal process: disinfecting medical wastes releases noxious fumes, and auto cleaning, chemical treatment, and

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.131-144

microwaving are the methods that should be adopted by healthcare providers.

Save energy: although reduction of carbon output and energy saving is a difficult task if the healthcare system reprograms its internal part regarding heating and cooling plants, upgradation of air, and lighting systems.

Preserve water: an ample amount of water can be saved with water-efficient alternatives by replacing washroom toilets, faucets, showers, and purchasing high-efficiency dishwashers.

In recent years, the healthcare industry has become increasingly involved in damaging and degrading the natural environment. The quality of our environment disturbs public health, as sustainability and healthcare are complexly related. It threatens health and human society because of the scarcity of natural resources and patterns of economic and social development. India receives the highest revenue and employment from the healthcare sector. Economic growth in India is largely driven by the healthcare sector. The healthcare industry is increasing at a quick pace, estimated to reach US $ 372 billion by 2022 from the present US $ 193.83 billion (Trivitron, 2020). Circular practices, integrated design of healthcare facilities, reduction and efficient management of medical waste, and sustainable procurement are a few practices; by adopting these, sustainability can be achieved in the healthcare industry (Pekar, 2019).

The three features of sustainability vary according to the dimensions, drivers, and practices included. Lee considered four broad sustainability dimensions in their study. The environment, customers, employees, and community orientation were the dimensions described in this study. The driving forces for the implementation of healthcare sustainability are climate change, high resource costs, lifestyle issues, and a high level of public (Catalyst, 2018).

All national/ regional and international organizations prioritize sustainable healthcare. The expenditure on healthcare providers is increasing rapidly, which is more than the increase in GDP. The impact, in the form of better sustainability, was realized after 20 years. Two contradictory requirements are visible: increased demand for a sustainable environment and the lowest cost of healthcare services (Kruk *et al.*, 2018).

Sustainable healthcare organizations improve and provide welfare to all individuals without bias. Technological intervention in the form of telemedicine helps society, the government, and healthcare providers, because telemedicine renders patient satisfaction to the patients (Chauhan, Jakhar and Jabbour, 2022). Another study by Akinleye, *et al.* showed that sustainable-oriented practices lead to better organizational performance and satisfaction for all stakeholders (Akinleye *et al.*, 2019).

The outcome of this study shows that a “reuse activity project” helps spread awareness about sustainability (Mehra and Sharma, 2021). The authors stated that a better and more affordable health system is necessary to increase the confidence level of an actual health system. This type of health system provides equal health care services to all people. In a controlled society structure, high-quality healthcare renders less risk to lives as well (Goossens, Vemer and Rutten-van Mölken, 2020). Jones *et al.* indicated that patients should not be transferred to NHS trust and undergo phage therapy, which is considered unethical, impractical, and illegal (Adibi *et al.*, 2012).

Executive healthcare organizations have developed a framework ISO31000. This framework comprises five phases: context development, risk assessment, risk treatment, risk planning, and monitoring. All of these phases must be executed in sequence so that proper consultation can be provided to patients in a timely (Marimuthu and Paulose, 2016). Healthcare organizations face both clinical and nonclinical risks that need to be dealt with differently. High-quality services are provided to patients with the help of risk-mitigation strategies deployed by healthcare organizations. Risk mitigation strategies include risk transfer, sharing, avoiding, or accepting the risk applicable for the purpose of usage. Abidi's study

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.131-144

indicates that all health organizations focus on the identification of risks and better patient care (Gupta, 2017). All healthcare organizations need to concentrate on the quality services and safety of patients and should be built into the healthcare system.

This study highlights obstacles to the implementation of an effective risk management process. These hurdles include improper training of the hospital staff, underreporting and not disclosing the facts and figures, human and financial resources crisis, corrective directions, gathered data and extraction of useful information, and management trials and solutions, which could affect the efficacy of the system (Gupta, 2017)

The authors concluded that hospital at home resulted in substantial cost savings compared to inpatient hospital care, which may be due to the overestimation of inpatient hospital costs (Jones, Ferguson and Suleman, 2022). This study shows that financially sound hospitals are in a position to provide high-quality healthcare and patient safety. High-quality health services and patient safety are important aspects of economic sustainability because they lead to economic costs in health services. This study concluded that a robust financial situation is directly related to better patient care experience and improved quality and safety measures for patients (Singh, 2012). This study indicates the need to prevent and control risk acquaintances, and that healthcare systems should spend a large amount of money on identifying healthcare risk factors. The authors have also reported that there is a time lag between the identification of risks and the implementation of the policy to overcome the threat encountered due to health risks.

Healthcare organizations should also invest in promoting risk-mitigation strategies and preventing the negative consequences of ongoing risk. The authors show that India is not as litigious with regard to malpractices in healthcare that do not come in public as developed countries such as the USA. Very few incidents occur in public forums that have violated protocols. Risk Management is the process that highlights the practices and does not follow the consistency of hospitals. The accreditation agency needs to consider this matter seriously while clearing the license under the quality assurance head. Every hospital should form a risk-steering committee to oversee the hazards and negative impacts on patients in due course of time (Trivitron, 2020).

Method

Sustainable healthcare depends on environmental, social, and economic sustainability, as revealed through an extensive literature review. The sub-criteria of the three main criteria were identified using the Analytical Hierarchy Process (AHP), and the developed model was substantiated by the Felix Hospital. The model developed in this study is applicable in the Indian context.

The authors aimed to achieve several objectives in this study. The first objective was to identify factors associated with healthcare sustainability. The second objective was to apply AHP to prioritize all factors into ranks. Third, the healthcare sustainability model is developed with the factors that have the highest weighting and substantiated with Felix Hospital data.

The responses were gathered from employees of Felix Hospital's administrative staff, nursing staff, and housekeeping staff, as they are responsible for framing and implementing healthcare practices of sustainability in the hospital (Table 1). 70% were male, and 30% were female, as total respondents. The other major profiling characteristic was that 50% were at middle level and the remaining 50% were from junior and senior levels. Middle-level employees are those who participate at the maximum in implementing sustainability in healthcare organizations.
The tools used in this study are an analytical hierarchy process that ranks the three criteria and sub-criteria of sustainability. Subsequently, environmental sustainability received the highest priority. Environmental sustainability is substantiated by the waste collected and indicates that Felix Hospital put efforts to recycle the red and yellow waste, just to maintain environmental sustainability as a high priority.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.131-144

Thereafter, the authors applied a sensitivity analysis to validate the results achieved through the AHP and Felix Hospital.

Table 1. Demographic profile of the respondents

Variable	n	%
Gender		
Male	162	69.83
Female	70	30.17
Age (in years)		
21-30	54	23.28
31-40	85	36.64
41-50	66	28.45
51-60	22	9.48
Above 60	5	2.16
Education		
Graduation	68	29.31
Master's Degree	118	50.86
PhD	3	1.29
Others	43	18.53
Position in the Organization		
Junior Level	60	25.86
Middle Level	115	49.57
Senior Level	57	24.57

Source: Authors Computation

Under environmental sustainability, recycling programs (RP), healthcare waste (HW), and eco-friendly facilities (EFF) are subdimensions. Felix Hospital is working steadily, and efforts are being made to reduce the generation of waste. The Felix Hospital, which has a capacity of 122 beds, is considered here to show the total waste generated per bed. Table 2 shows that yellow (39.12% of total waste) and red waste (35.62% of total waste) can't be recycled, and efforts should be toward the reduction of these wastes to improve the environment still manageable because hospitals send them for recycling.

Conceptual Model of Sustainable healthcare

Sustainable healthcare practices are an essential part of the healthcare industry and are derived through strategic plans. The conceptual model presented in this study is based on the literature review. It has three crucial dimensions: environment, social, and economic, as well as the same mentioned in the triple bottom line concept. These three dimensions are further categorized into four subcategories (Figure 1).

The AHP method was used in this study is AHP and the weightage of the three factors was computed. The final validated model is further substantiated by a case study of the Felix Hospital in Delhi NCR. AHP helped in identifying the weight of the sub-criteria, and accordingly, the priorities were fixed.

Table 2. Felix Hospital data (December 2021 – November 2022)

Month	Yellow[1]	Red[2]	Blue[3]	White[4]	Total Waste	Total waste per bed
Dec-21	301	276	170	27.5	774.5	6.35
Jan-22	465	347	125	81.5	1018.5	8.35
Feb-22	471.2	365	65	30	931.2	7.63
Mar-22	304	198	65	32	599	4.91
Apr-22	383	348	437	63.5	1231.5	10.09
May-22	270	315	210	41	836	6.85
Jun-22	285	390	234	40	949	7.78
Jul-22	301	338	269	28.6	936.6	7.68
Aug-22	728	542	336	21.95	1627.95	13.34
Sep-22	801.73	679.47	515.72	28.5	2025.42	16.60
Oct-22	410.26	592.12	243.58	40.26	1286.22	10.54
Nov-22	502.05	365.263	196.453	70.643	1134.409	9.30
TOTAL	**5222.24**	**4755.85**	**2866.75**	**505.45**	**13350.3**	
% of Total Waste	**39.12**	**35.62**	**21.47**	**3.79**		

Source: Felix Hospital
Note : [1]Anatomical waste, [2]Infected plastic waste, [3]Discarded waste, [4]Sharp Items like needles.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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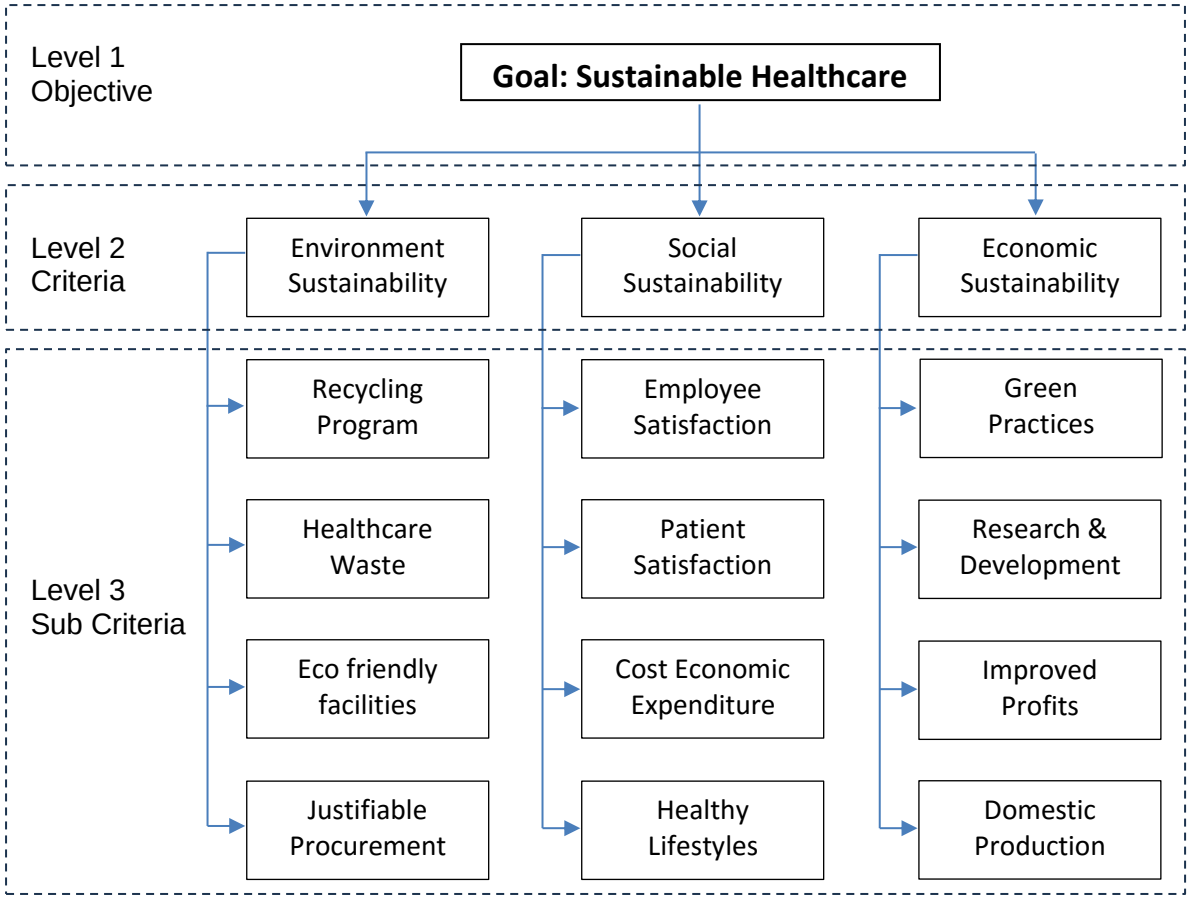

Figure 1. AHP Model of Sustainable Healthcare

Table 3. Measures of Sustainability–Local and Global Weights

Sub-Criteria (Measures)	Criteria (Dimensions)			CI	CR	Global Weight	Rank
	Environmental	Social	Economic				
	0.3638	0.2530	0.3832	0.0011	0.0024		
RP	0.2973			0.0002	0.00012	0.115	2
HW	0.1835					0.081	7
EFF	0.2239					0.085	6
JP	0.2953					0.113	3
ES		0.2757		0.0023	0.0026	0.044	11
PS		0.1747				0.070	9
CEE		0.2996				0.071	8
HL		0.2500				0.069	10
GP			0.0954	0.0040	0.0054	0.014	12
RD			0.3893			0.141	1
IP			0.2264			0.086	5
DP			0.2889			0.107	4

Source: Author's Computation

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Result and Discussion

First, the authors identified the factors associated with a sustainable healthcare system through a literature review. Based on these factors, a questionnaire was developed and administered to 25 healthcare organizations from December 2020 to March 2021. An Analytical Hierarchy Process was used to rank the factors, and a conceptual model was developed. Felix Hospitals substantiated this model. The authors also applied a sensitivity analysis to validate the results achieved via the AHP.

The respondents and hospitals were in the major parts of the Delhi NCR. Twelve respondents were doctors, and three were senior managers. Thus, all respondents were noticeable stakeholders in the healthcare system. The experts contacted in the study had over 15 years of experience and were familiar with their field. The judgments and responses captured had the highest credibility and reliability. They have all been involved in sustainability practices in healthcare delivery systems for many years.

Analytical Hierarchy Process

Using the proposed theoretical model, a three-level hierarchical structure for sustainability in healthcare was developed (Figure 1). The vital measures of sustainability lie in the first level, as given by the specific goal. Environmental, social, and economic factors were considered as criteria. Four sub-criteria were considered under three dimensions. The standard Saaty scale, with a value of 1 to 9, was used to describe pairwise comparisons. The researchers combined the judgment of 15 experts using the geometric mean against the individual pairwise comparison. Table 3 lists the assigned and normalized weights of each sustainability measure.

The results depicted in table 3 highlight that the environmental dimension is getting the highest priority (36%), followed by economic (38%) and social (25%) dimensions. A thorough literature review also supports this finding. At the sub-criteria level, the recycling program and justifiable procurement stand at the second and third ranks, substantiated by the UN SDG goals, and help in reducing the negative impact on the environment and emphasizing the sustainable practices to be adopted to have a sustainable healthcare system. The recycling program concentrates on less usage of primary resources and is more dependent on renewable energy resources and optimum utilization of materials and products, without wastage. It related justifiable procurement to making the purchasing decision accrued through a less negative impact on the environment. The next important criteria are economics, and the measures associated with it are research and development (rank 1) and domestic production (rank 4). Innovation and manufacturing are predominant in India and researchers knew India as the “pharmacy of the world”. Thus, if sustained investments are diverted toward research and innovation, they may provide a solution to healthcare challenges. The healthcare industry is known for its expensive medical technology, such as the maximum items and equipment imported. Therefore, efforts and initiatives are required to make medical and equipment manufacturing self-sufficient and less import-dependent. The social dimension has come out to be the least important because it ranks lowest among all three dimensions. Healthy lifestyles have occupied rank 10 out of the 12 ranks associated with sustainability in the healthcare system. Sensitivity analysis shows that the economy captures the maximum focus of the healthcare system. Research and development along with domestic production are key sub-criteria that require healthcare providers to deal with a high level of seriousness. Researchers see the validity of the outcome of AHP through the consistency ratio, which is less than 0.1, as per the procedure; therefore, one can rely on the results of AHP.

Felix Hospital & Sustainability Practices followed in the system

The Felix Hospital is engaged in providing policies for energy-efficient and environmentally friendly hospitals with the

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.131-144

help of the efficient use of natural resources.

Facility Design: Unique semi-circular and rectangular hospital designs have resulted in excellent availability of sunlight in all areas of the hospital. Windows in all rooms helped reduce energy consumption during the day, apart from ensuring day/night orientation for the patients. Double-layered glass with an appropriate refractive index ensures that the heat effect from sun rays is minimal, thus reducing energy consumption.

Designed for natural sunlight and every bed in the ward, intensive care unit (ICU)/OTs (operation theatre (OT)), and other areas. The OPDs and landing space of the fire exit stairs have a glass facade to ensure natural light.

Optimum usage and conservation of energy resources

The hospital has a strategy for optimizing energy savings and usage. The Building Management System manages all Air Handling Units (AHUs), thereby ensuring their effective regulation through a central control point. It also enables efficient time scheduling of AHUs. The schedule for heating, ventilation, and air conditioning (HVAC) operation is based on this requirement. Schedule, control, and recording of the entire HVAC system managed by the Building Management System. Laundry waste condensate steam is used to heat water for patient room service using a heat exchanger. To conserve energy, they follow the schedule for switching ON and OFF lights, auto and parallel operation of chillers and DG Sets, and scheduled operation of the exhaust fans. All split AC were installed in the hospital with 3-to-5-star ratings. Motion sensors were installed in toilets and corridors. Rationalization of parking area light after 8 PM. The hospital has a policy for using energy-efficient equipment. The LED lights in the entire hospital resulted in a monthly saving of 60,600 KW of energy. Variable refrigerant flow A/C units for laboratories, OTs, and ICUs. A steam-water recovery storage tank was installed in the hospital. The Variable Frequency Drive installed in the secondary chilled water system, which regulates the frequency of the chilled water pump as per the requirement of the chilled water AHU, saves energy automatically. The chiller Pump automatically controls the energy as per the water requirement/ shutdown AHUs. They installed a heat recovery wheel for the OT, AHU, and Treated Fresh Air. The hospital has developed a plan for the use of renewable energy to reduce its impact on the environment and solar water heating system. All high-efficiency particulate air (HEPA) filters are changed every year in all areas that are validated with the dispersed oil particulate (DOP) test. Ventilation systems were designed and maintained according to the infection control standards. Electricity consumption is monitored every month, corrective action is taken accordingly, and electricity consumption is optimal in the Felix Hospital.

Recycling of used items

Use of recyclable/reusable items as far as possible, such as paper and printer cartridges The hospital follows a “No Mercury Use Policy.” Diesel consumption has increased each year as the number of beds has increased, which h is why consumption on a per-bed basis is justified.

Optimum usage and conservation of water resources

The Felix Hospital rationalizes water usage for the entire facility, which includes measurement, reduction, and verification. Separate water lines for RO, soft water, and domestic water based on the purpose of use. Pressure tuning of water-supply pipes at different levels. Strict Automation operation control of air conditioning, lighting, lifts, hot water, and generators. Flow restrictors for water taps and showers. Sensor-based urinals for water-flushing systems. STP-treated water was used for flushing in the IPD (Inpatient department) rooms. All water supply systems were metered, and consumption was analyzed on a day-to-day basis. Monthly meetings on energy and water consumption, and budgetary control of consumption.

In Felix Hospital, water consumption decreased from the year 2013 to 2017 by

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.131-144

27%. The hospital has a rainwater harvesting pit for capturing rainwater, recycling water, and so on. Sewerage wastewater was recycled. The hospital used STP Water for gardening, Flushing & HVAC Cooling towers. Surveillance of drinking water was performed on a six-month basis. The Felix Hospital sensitizes staff during the induction of energy and water conservation, and periodic training is organized for staff awareness.

Corporate Social Responsibility

The hospital maintains government parks (two parks) in the surrounding community, covering a total area of 450 square meters. The hospital has an ongoing educational program for the efficient use and conservation of water for all stakeholders (Staff, Patients, and Hospital users). Felix is a hospital that thinks about a society that implements the learning and norms of sustainability with the help of parks and educational initiatives.

Housekeeping Chemicals and Cleaning Agents

Housekeeping Chemicals and Consumables- Felix purchases housekeeping chemicals and consumables only from established and allowed agents. The infection control team approved cleaning and disinfection agents using a proper material safety data sheet (MSDS). All housekeeping cleaning chemicals and agents were stored under lock and key. They used samples of cleaning chemicals taken from approved vendors and were used over a period to see the effectiveness to reduce the repeated changes of vendors. They maintained the cleaning and disinfection of rooms according to the SOP.

From the data from Felix Hospital, it is evident that Felix implements sustainability in its true sense. The Felix Hospital is an example of a sustainable healthcare system in the present scenario. It is adopting clean energy and environmentally friendly policies and tracking the regulatory compliance needed to make the system much more sustainable.

Due to climate change, every healthcare unit is at risk of global temperature rise and increasing greenhouse gas emissions. Adaptation, mitigation, and innovation are three interventions for climate change risk.

Sensitivity Analysis

The authors conducted a sensitivity analysis of the data gathered from the Felix Hospital. The base data gathered from the Felix Hospital for the sensitivity analysis are given here.

For the base case in the sensitivity analysis, the authors took the patient load as Rs. 3,000 per month. The cost incurred for inpatients and outpatients is INR 5,000 per month. As each hospital pays fees for regulatory compliance, Rs. 20,000 per month. Finally, the cost of procuring equipment and material is Rs. 150,000 per month taken under the cost head. Based on the above costs, Felix Hospital is charging Rs. 6,250 per patient, after maintaining a 25% profit margin. Finally, the net profit obtained in the sensitivity analysis was Rs. 1,193 per patient. The authors ran the sensitivity analysis on the data collected against the different scenarios, given here as follows:

In the first scenario, the costs for inpatients and outpatients increased by 10%, which led to a net profit decrease of 42% from the base case i.e., Rs. 693 per patient). In the second scenario, the cost of compliance increased by 50% and the patient load was reduced by 50%, leading to a 53% decrease in net profit (Rs. 562 per patient). the third scenario, the cost of procuring material increased by 10% and the patient load reduced to 2000 patients per month, resulting 35% decrease in net profit (Rs. 772 per patient).

These three scenarios created a clear picture of sustainability in the healthcare system. This indicates that the highest loss in net profit is due to deviance from environmental sustainability (53%), followed by shortcomings under economic sustainability (42%), and finally, a flaw in social sustainability (35%). Deviance in environmental sustainability is observed because of non-compliance with regulatory norms. Economic sustainability results from high inpatient and outpatient costs. Social sustainability is the impact of high procurement costs and low patient load. The results of the sensitivity analysis are shown in Figure 2.

Indonesian Journal of Health Administration
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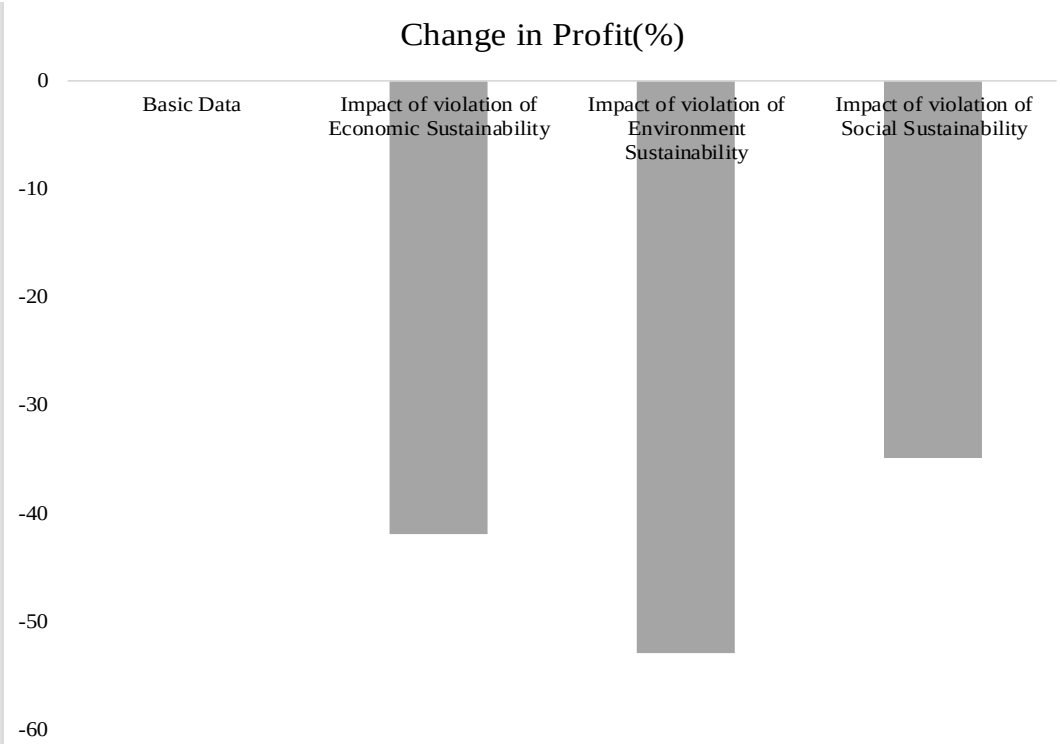

Figure 2. Sensitivity Analysis – Profitability Fluctuation in Three Scenario

Therefore, it can be concluded that sustainability in hospitals is highly dependent on the environment in the first stage, and economic and social sustainability occur in the second and third stages. The same result was achieved using AHP.

Conclusion

Through a literature review, researchers found a gap in healthcare sustainability. As per the objectives of this study, the authors determined the factors associated with healthcare sustainability. These factors are organized in the form of a sustainable healthcare model based on three main criteria (environmental, social, and economic) and sub-criteria for each main criterion. The ranks are determined using AHP. The findings obtained through AHP were validated with the findings of the actual hospital, Felix Hospital, in Delhi NCR. As per the quantitative analysis, the focus is on the environment first, followed by the economic and social dimensions of sustainability, captured through the weighting computed here. The hospital also provides services that are cost-economical to patients and validated with the help of a sensitivity analysis. Environmental sustainability is another important dimension considered by Felix Hospital, as they have already installed a waste treatment plant to recycle the waste generated at its end. The discharges were checked in a timely manner for all quality parameters. The healthcare system deployed in Felix Hospital is ready to undertake the challenges posed by various risk factors, including the environment, safety, quality services, and economic cost. They have a full-proof team of people dedicated to the procurement of medicines, drugs, equipment, diesel, gas, and other items needed occasionally to run the hospital.

It is very difficult to implement sustainability in the service sector, whether it is healthcare, logistics, the food chain, and so on. However, the key decision makers of the healthcare sector must frame the strategies and policies around the dimensions of sustainability and focus on research and development, recycling programs, justifiable procurement, and domestic production, which has achieved the highest ranks in the AHP computations.

The Felix Hospital uses all natural resources optimally, as indicated by the

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10.20473/jaki.v11i1.2023.131-144

data, because the consumption of water, electricity, and diesel reduced drastically over a period. In addition, they follow sustainability in their procurement processes and waste disposal. Apart from this, corporate social responsibility is also in place to sensitize society, employees, and patients toward sustainability goals.

The recommendations of this study indicate that a similar study can be conducted in other parts of India and overseas in the future. This will add interesting facts to the implementation of sustainability in healthcare organizations, which will be worth considering by policymakers.

Abbreviations

WHO: World Health Organization; NCR: North Capital Region; IPD (Inpatient department); Sustainable Development Goals (SDG); Analytical Hierarchy Process (AHP); United Nations (UN); Liquified Crystal Display (LCD); Cathode Ray Triode (CRT); AHU's (Air handling Units); HVAC (heating, ventilation, and air conditioning); Standard Operating Procedure (SOP), RP: Recycling Program, HW: Healthcare waste, EFF: Eco-friendly facilities, JP: Justifiable Procurement, ES: Employee Satisfaction, PS: Patient Satisfaction, CEE: Cost Economic Expenditure, HL: Healthy Lifestyles, GP: Green Practices, RD: Research & Development, IP: Improved Profits, DP: Domestic Production.

Declarations

Ethics Approval and Consent Participant

Respondents were informed before the survey about the survey's objectives and purposes, and verbal consent to participate in the study was obtained from them.

Conflict of Interest

The authors declare that there are no competing financial, professional, or personal interests that might have affected their performance.

Availability of Data and Materials

Data Sharing does not apply to this article, as no new data were created or analyzed in this study.

Authors' Contribution

HG and SG conceptualized the study; UG created the methodology; HG, SG, and UG wrote, reviewed, and edited the manuscript; and HG and SG wrote the original draft.

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References

Adibi, H. *et al.* (2012) 'Development of an effective risk management system in a teaching hospital', *Journal of Diabetes and Metabolic Disorders*, 11, p. 15. Available at: https://doi.org/10.1186/2251-6581-11-15.

Alwis, D.D. and Limaye, V.S. (2021) *The Costs of Inaction: The Economic Burden of Fossil Fuels and Climate Change on Health in the United States*. Medical Society Consortium on Climate & Health. Available at: https://www.nrdc.org/press-releases/report-health-costs-climate-change-and-fossil-fuel-pollution-tops-820-billion-year (Accessed: 24 June 2023).

Bolnick, H.J. *et al.* (2020) 'Health-care spending attributable to modifiable risk factors in the USA: an economic attribution analysis', *The Lancet. Public Health*, 5(10), pp. e525–e535. Available at: https://doi.org/10.1016/S2468-2667(20)30203-6.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.131-144

Catalyst, N. (2018) 'What Is Risk Management in Healthcare', in. Available at: https://www.semanticscholar.org/paper/What-Is-Risk-Management-in-Healthcare-Catalyst/033be3262d1e3c8af071884f2b075daa7615572f (Accessed: 24 June 2023).

Chauhan, A., Jakhar, S.K. and Jabbour, C.J.C. (2022) 'Implications for sustainable healthcare operations in embracing telemedicine services during a pandemic', *Technological Forecasting and Social Change*, 176, p. 121462. Available at: https://doi.org/10.1016/j.techfore.2021.121462.

Ferdosi, M., Rezayatmand, R. and Molavi Taleghani, Y. (2020) 'Risk Management in Executive Levels of Healthcare Organizations: Insights from a Scoping Review (2018)', *Risk Management and Healthcare Policy*, 13, pp. 215–243. Available at: https://doi.org/10.2147/RMHP.S231712.

Goossens, L.M.A., Vemer, P. and Rutten-van Mölken, M.P.M.H. (2020) 'The risk of overestimating cost savings from hospital-at-home schemes: A literature review', *International Journal of Nursing Studies*, 109, p. 103652. Available at: https://doi.org/10.1016/j.ijnurstu.2020.103652.

Gupta, H. (2017) 'Integration of Quality and Innovation Practices for Global Sustainability: An Empirical Study of Indian SMEs', *Global Business Review*, 18(1), pp. 210–225. Available at: https://doi.org/10.1177/0972150916666969.

Jones, J.D., Ferguson, P.R. and Suleman, M. (2022) 'The practical, ethical and legal reasons why patients should not be transferred between NHS trusts for phage therapy', *Journal of Patient Safety and Risk Management*, 27(6), pp. 263–267. Available at: https://doi.org/10.1177/25160435221120300.

Kruk, M.E. *et al.* (2018) 'High-quality health systems in the Sustainable Development Goals era: time for a revolution', *The Lancet. Global Health*, 6(11), pp. e1196–e1252. Available at: https://doi.org/10.1016/S2214-109X(18)30386-3.

Marimuthu, M. and Paulose, H. (2016) 'Emergence of Sustainability Based Approaches in Healthcare: Expanding Research and Practice', *Procedia - Social and Behavioral Sciences*, 224, pp. 554–561. Available at: https://doi.org/10.1016/j.sbspro.2016.05.437.

Mehra, R. and Sharma, M.K. (2021) 'Measures of Sustainability in Healthcare', *Sustainability Analytics and Modeling*, 1, p. 100001. Available at: https://doi.org/10.1016/j.samod.2021.100001.

Momete, D.C. (2016) 'Building a Sustainable Healthcare Model: A Cross-Country Analysis', *Sustainability*, 8(9), p. 836. Available at: https://doi.org/10.3390/su8090836.

Pekar, F. (2019) 'Future Challenges Towards Sustainable Healthcare', *Scientific Papers of Silesian University of Technology. Organization and Management Series*, 2019(141), pp. 303–317. Available at: https://doi.org/10.29119/1641-3466.2019.141.23.

Singh, B. (2012) 'Risk Management in Hospitals', *International Journal of Innovation, Management and Technology*, 3(4). Available at: https://doi.org/10.7763/IJIMT.2012.V3.266.

Trivitron (2020) 'The Importance of a Sustainable Healthcare System', *Blog | Trivitron Healthcare Solutions | Medical Device Company*, 7 August. Available at: https://www.trivitron.com/blog/the-importance-of-a-sustainable-healthcare-system/ (Accessed: 24 June 2023).

Indonesian Journal of Health Administration
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10.20473/jaki.v11i1.2023.131-144

WHO-Europe (2017) *Environmentally sustainable health systems: a strategic document*. Copenhagen: World Health Organization. Regional Office for Europe. Available at: https://apps.who.int/iris/handle/10665/340375.

Yadav, S.S.K., Gupta, H. and Bandyopadhayay, A. (2015) 'Selection of a sustainability awareness project in an academic institution using the Analytic Hierarchy Process (AHP)', *International Journal of Technology Management & Sustainable Development*, 14(3), pp. 205–225. Available at: https://doi.org/10.1386/tmsd.14.3.205_1.

Literature Review

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OVERVIEW OF MEDICATION ERROR INCIDENCE IN HOSPITALS IN VARIOUS COUNTRIES: LITERATURE REVIEW

Gambaran Kejadian Kesalahan Pengobatan pada Rumah Sakit di Berbagai Negara: Tinjauan Pustaka

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Abstract

Background: Medication error is one of the most common types of errors contributing to patient safety incidents in hospitals. In addition to their numerous cases and high costs, medication errors also contribute to deaths in various countries.
Aims: This study describes the incidence of medication errors in hospitals in various countries, determines the phase of errors that occurred the most, and describes preventive strategies for medication errors in hospitals.
Methods: This study was conducted between April 2021-July 2021 using the literature review method. Data were retrieved from ProQuest, ScienceDirect, PubMed, GoogleScholar and Garuda RistekBRIN. The data are generalized and extracted in a table based on the incidence of medication errors and preventive strategies.
Results: Of the eleven included studies, the incidence of medication errors in one study conducted in Nigeria was the highest (80%). Four of the eleven studies were conducted in India with varying incidence rates. Most errors occurred during the prescribing stage. The number of reports and the number of events actually have no relevance. It can be said that countries with a high number of reporting have good reporting indicators. Strategies for preventing medication errors include the implementation of an information system in the CPOE (Computerized Physician Order Entry) form and providing training for staff.
Conclusion: The difference in the incidence of medication errors in developing and developed economies can be attributed to factors in the healthcare system and the lower prescribing ratio and nurse ratio in developing countries.

Keywords: literature review, medication errors, patient safety

Abstrak

Latar Belakang: *Kesalahan pengobatan merupakan salah satu jenis kesalahan yang paling sering terjadi yang merupakan faktor pemicu terjadinya insiden keselamatan pasien di rumah sakit. Selain jumlah kasus dan biaya yang tinggi, kesalahan pengobatan juga berkontribusi terhadap kematian di berbagai negara.*
Tujuan: *Penelitian ini menggambarkan kejadian kesalahan pengobatan pada rumah sakit di berbagai negara, menentukan fase kesalahan yang paling banyak terjadi dan mendeskripsikan strategi pencegahan untuk mencegah kesalahan pengobatan di rumah sakit.*
Metode: *Penelitian ini dilakukan pada bulan April 2021-Juli 2021 dengan menggunakan metode literature review dan menggunakan data dari ProQuest, ScienceDirect, PubMed, GoogleScholar dan Garuda RistekBRIN. Data digeneralisasi dan diekstraksi dalam tabel berdasarkan kejadian kesalahan pengobatan dan strategi pencegahan untuk mencegahnya.*
Hasil: *Berdasarkan sebelas studi terinklusi, kejadian kesalahan pengobatan dalam satu studi yang dilakukan di Nigeria adalah yang tertinggi (80%), empat dari sebelas studi adalah studi yang dilakukan di India dengan angka kejadian yang bervariasi. Kesalahan yang paling sering terjadi yaitu pada tahap peresepan. Pelaporan kesalahan pengobatan oleh suatu negara merupakan pelaporan sukarela. Sebagian besar kesalahan terjadi selama proses peresepan. Jumlah laporan dan jumlah kejadian sebenarnya tidak ada relevansinya. Strategi pencegahan yang dapat dilakukan untuk mencegah kesalahan pengobatan adalah dengan menerapkan sistem informasi berupa Computerized Physician Order Entry (CPOE) dan memberikan pelatihan kepada staf.*
Kesimpulan: *Perbedaan angka kejadian kesalahan pengobatan di negara dengan ekonomi berkembang dan ekonomi maju dapat disebabkan faktor sistem pelayanan kesehatan serta rasio peresepan dan rasio perawat yang lebih rendah di negara dengan ekonomi berkembang.*

Kata kunci*: kesalahan pengobatan, keselamatan pasien, tinjauan pustaka*

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Introduction

Hospitals are among the health facilities with strategic roles in improving the health status of the community; therefore, hospitals are required to prioritize patient safety. Patient safety is one of the dimensions of quality in the hospital's minimum service standards. Patient safety is implemented in a system that makes patient care safer through risk assessment, identification, patient risk management, and implementation of solutions to minimize risk and injury to patients.

In the 10 facts regarding patient safety from the World Health Organization (WHO), it is stated that, in developing countries, one in ten patients treated in hospitals are at risk of medication errors and adverse events (WHO, 2019). Medication error is a universal problem that occurs in many countries, and is one of the most common types of medical errors (Alsulami, Conroy and Choonara, 2013). This is also the single most common preventable cause of adverse drug events (Fleming, 2009). The National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) defines medication errors as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer. Such events may be related to professional practice, healthcare products, procedures, and systems, including prescribing, order communication, product labelling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use (Gallagher and Melnyk, 2020). Medication error is divided into four categories: prescribing error, administration error, transcribing error and dispensing error.

About 0.1 million people die each year from medical errors that occur in hospitals and the mortality rate from medication errors is higher than injuries in the workplace (Gallagher and Melnyk, 2020). Studies in the United States estimate that medication errors can cause as many as 251,000 deaths each year, making medication errors the third leading cause of death (Anderson and Abrahamson, 2017). Further research in England found that there were 237 million medication errors resulting in 1,708 deaths and an increase in length of stay (Elliott *et al.*, 2019). Johns Hopkins Medicine researchers estimated that, from 2013, based on a total of 35,416,020 hospitalizations, 251,454 deaths from medication errors occurred, which translates to 9.5% of all deaths each year in the United States (Johns Hopkins Medicine, 2016).

Globally, the costs associated with medication errors are estimated at USD 42 billion per year (Aitken and Gorokhovich, 2012). The financial costs associated with this error include length of stay, readmissions, patient death, post discharge disability, and patient emotional distress. A study conducted by (Elliott *et al.*, 2019) in England found that the incidence of medication errors costs 98.5 million euros annually.

Regulations by the Indonesian Ministry of Health regarding the standard of pharmaceutical services in hospitals state that medication errors are events that harm patients which can actually be prevented. Hard work is needed to prevent and reduce the occurrence of these medication errors.

Method

This study utilized a research design with a literature review method. The systematic process carried out in this study refers to (Snyder, 2019) and is divided into four stages. Data were collected from several online databases such as ProQuest, ScienceDirect, PubMed, Google Scholar, and Garuda RistekBRIN with publications between 2011 and 2021. This study was conducted based on the inclusion and exclusion criteria that were set, with the first identification based on the relevance of the title, abstract, and research objectives. In the analysis, the data were extracted in the form of a table that generalizes each study reviewed. The table includes the author's name, year of publication, country, research methods,

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and study results. The last step was compiling, analyzing, and writing the results of the literature review.

Results and Discussion

Figure 1 shows 315,9998 articles were collected and identified, but only 54 of them were full text. Finally, 11 relevant articles that met the criteria and research focus were included for review. All these included articles identified the prevalence of medication errors at hospitals and described preventive strategies for medication errors in hospitals.

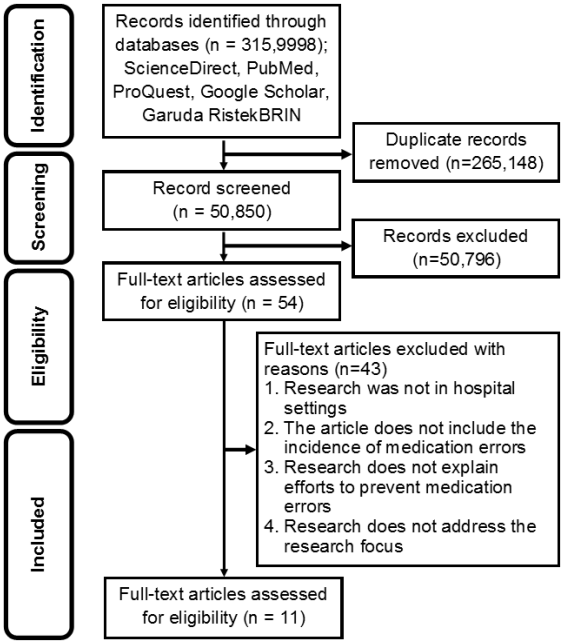

Figure 1. Study search and selection flow

Study search results were grouped into several characteristics. Based on regional characteristics, it was found that the most studies were conducted in Asia with nine studies, and four studies were conducted in hospitals in India. Grouping was also carried out by dividing studies into those in developed and developing countries based on the Guidelines for The World Economic Situation and Prospect As Of Mid-2020 (United Nations, 2020), with most studies conducted in developing economies (n=10). Based on the year of publication, it was found that most studies were in the last five years (2016 to 2021), with a total of eight studies. Meanwhile, based on the characteristics of the type of study, it was found that qualitative type studies were the most common (n=7).

The percentage medication errors incidence in hospitals for eleven countries included studies was identified (Table 1). Each incident rate is a percentage of the number of different admissions or prescription in each hospital. The largest percentage was code A4, which represents hospitals in Nigeria (87.3%) with 89 medication errors of 102 prescriptions. The next largest percentage of medication error was found in A11 or Iran (74%) from 688 prescriptions. This was followed by A2, Uganda (71%) with 78 medication errors of 110 examined prescriptions. The next percentages came from A3 (65.6%), A9 (56%), and A5 (47.3%) in India with different total number of medication errors. Article A10 in Indonesia followed the result, and 1,563 out of 7,662 medication errors (20.4%) were found in A6 or Japan (514 out of 3.459 medication errors) (14.9%), and finally A1 or India (6.1%).

From several studies conducted in developing and developed economies, developing countries were found to have the most studies. India made up the largest portion of these with four of the eleven studies on the incidence of medication errors in hospitals. A total of four studies had backgrounds in different types of hospitals, including private hospitals and government hospitals. There were differences in incidence rates due to the characteristics of different types of hospitals and their workloads. This finding is in line with that published by Mailman School of Public Health (2021) that the healthcare system in India is universal. There is huge variety in the quality and coverage of medical care in India. Health services between states and rural areas can be very different.

In a smaller area, compared to rural residents, urban residents are more likely to experience medication errors in developing countries. A study based on the results of research conducted by Dorothy (2021) in Uganda found that this was because city residents preferred to take outpatient treatment, thereby reducing patient monitoring compared to inpatients. The

Indonesian Journal of Health Administration
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10.20473/jaki.v11i1.2023.145-153

education factor of the population in developing countries is also said to have an effect on the incidence of medication errors. In the same study, it was explained that patients with secondary education were more likely to experience medication errors due to the inability to understand treatment instructions and health education.

Prescribing Errors

The prescribing error phase is a common cause of morbidity and mortality both in community practice and in hospitals. A total of 11 included studies found that the incidence of medication errors in several countries showed that all studies found errors in the prescribing phase. Although the incidence varied, in the treatment process, patients were always found to have errors before prescribing. The percentages of events in the prescribing error phase were found to be 6.5% (Ernawati, Lee and Hughes, 2014), 13% (Dake and Ramana, 2020), 16% (Salmasi *et al.*, 2015), 26.5% (Umoh and Opue, 2021), 32.6% (Kandasamy *et al.*, 2021), 42.3% (Dorothy, 2021), 52.8% (Moudgil *et al.*, 2021), 56.8% (Eslami *et al.*, 2019), 61.8% (Alsulami, Conroy and Choonara, 2013), 64.1% (Noguchi *et al.*, 2016), and 82.8% (Yadhukrishnan *et al.*, 2020).

The types of errors that most often occurred in the prescribing process were errors related to dose/ strength (wrong dose), wrong drug, and omission error. Two of the eleven studies found that drugs belonging to the look alike sound alike (LASA) category were most prone to medication errors (Moudgil *et al.*, 2021; Kandasamy *et al.*, 2021). Drugs that fall into the LASA category include drugs that are visually similar in physical appearance or packaging and drug names that have similar spelling and/ or phonetics (Bryan *et al.*, 2021).

Table 1. Percentage of Medication Errors Occurrence

	Prescribing Error (%)	Transcribing Error (%)	Dispensing Error (%)	Administration Error (%)	Others (%)
A1: India (Dake and Ramana, 2020)	13	54	-	33	-
A2: Uganda (Dorothy, 2021)	42.3	11.5	9	37.2	-
A3: India (Kandasamy *et al.*, 2021)	32.6	-	37.8	-	-
A4: Nigeria (Umoh and Opue, 2021)	26.5	-	32.5	37.8	3.2
A5: India (Yadhukrishnan *et al.*, 2020)	82.8	-	17.2	-	-
A6: Japan (Noguchi *et al.*, 2016)	64.1	0.7	2.4	14.1	18.7
A7: Southeast Asia (Salmasi *et al.*, 2015)	16	11	11	43	19
A8: Middle East Countries (Alsulami, Conroy and Choonara, 2013)	61.8	5.8	-	32.4	-
A9: India (Moudgil *et al.*, 2021)	52.8	7.7	-	20.75	20.75
A10: Indonesia (Ernawati, Lee and Hughes, 2014)	6.5	14.7	14.4	59.3	5.1
A11: Iran (Eslami *et al.*, 2019)	56.8	-	-	43.2	-

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.145-153

Errors in the prescribing process can be related to the competence of officers in writing prescriptions. This competency is related to the process of writing a drug name or dose and whether it can be read by the officer who will then copy the prescription. Poor handwriting or illegible handwriting is also the cause of prescribing errors. Five out of eleven articles found that handwritten prescriptions were at risk of being illegible and/or incomplete in prescribing causing medication errors in the prescribing phase (Eslami *et al.*, 2019; Yadhukrishnan *et al.*, 2020; Moudgil *et al.*, 2021; Dorothy, 2021; Kandasamy *et al.*, 2021).

Administration Errors

Administration error is defined as any discrepancy between the drug given to the patient and the drug order from the doctor's prescription. Nine of the eleven articles found that medication errors occurred in the administration phase with varying percentages. The most common types of errors are omission of dose, wrong drug, and wrong dose. One of the studies that discusses the types of events in the administration phase found that administration errors occurred mostly during the night shift (Alsulami, Conroy and Choonara, 2013). This finding is in line with the results of two other studies regarding errors at the administrative stage caused by high workloads due to the limited number of staff (Ernawati, Lee and Hughes, 2014; Salmasi *et al.*, 2015). In general, the incidence of medication errors at the administrative stage tended to be higher during the night shift when compared to the incidence of medication errors during the day.

Transcribing Errors

Seven of the eleven articles found transcription errors in the treatment of patients in various hospitals with varying percentages of incidence. A transcription error is defined as any deviation in the process of copying a drug order from the previous step. A transcribing error is a specific type of medication error caused by data entry errors commonly performed by human operators (Salmasi *et al.*, 2015). Errors in the transcription process were caused by staff negligence (omission) such as entering drugs that were not actually necessary and not entering the required drugs. Such incidents may result from staff multitasking and/or due to the inexperience of new staff (Ernawati, Lee and Hughes, 2014; Noguchi *et al.*, 2016; Dake and Ramana, 2020; Moudgil *et al.*, 2021; Dorothy, 2021).

Dispensing Errors

Dispensing error or drug dispensing error occurs when the drug issued by the pharmacy does not match the order written in the doctor's prescription. Dispensing error was the rarest type of error found in this literature review. This finding is in line with the results of Dorothy (2021) study which also found that drug dispensing errors had the smallest prevalence. The lack of errors in the drug dispensing process is due to the fact that most of the medicines were distributed by trained pharmacists who often double checked before giving the medicine in order to reduce the risk of errors.

Types of errors related to drug strength or dose errors were the most common types of errors. Two of the seven studies that found this error were of the opinion that dispensing errors were caused by a large number of prescriptions, storage problems, limited number of pharmacists, and insufficient staff (Yadhukrishnan *et al.*, 2020; Kandasamy *et al.*, 2021). Pharmacists have an important role in the patient's treatment process, especially in the process of dispensing drugs. Several studies have found that the involvement of clinical pharmacists is proven to be able to improve prescribing practices, improve patient medication monitoring, and be able to reduce medication errors risking adverse drug events by up to 78% (Ernawati, Lee and Hughes, 2014; Salmasi *et al.*, 2015; Yadhukrishnan *et al.*, 2020; Moudgil *et al.*, 2021).

Preventive Strategies
Implementing Information Systems

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(Jurnal Administrasi Kesehatan Indonesia)
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10.20473/jaki.v11i1.2023.145-153

Based on the findings in the eleven included articles, efforts or strategies to prevent medication errors in hospitals were grouped into six categories (n=35). Implementing information systems in the patient's treatment process was the most recommended strategy. One of the commonly used information systems is electronic prescribing known as CPOE (Computerized Physician Order Entry). CPOE is defined as a computerized system that provides various common features to automatically record the process of entering instructions regarding patient-handling by doctors electronically, and ensures orders are standardized, legible, and complete (Khanna and Yen, 2014).

Six of the eleven included studies argue that CPOE or electronic prescribing can substantially reduce the frequency of medication errors in healthcare settings and has the potential to prevent other technical errors (Alsulami, Conroy and Choonara, 2013; Ernawati, Lee and Hughes, 2014; Noguchi *et al.*, 2016; Eslami *et al.*, 2019; Dorothy, 2021; Kandasamy *et al.*, 2021). Research conducted in hospitals in India found a reduction in hospital medication errors by up to 48% through the use of CPOE (Kandasamy *et al.*, 2021). Another study conducted at a hospital in Japan resulted in a reduction in the number of medication errors by 81% using CPOE (Noguchi *et al.*, 2016).

The implementation of CPOE in developing countries with poor healthcare systems still seems to be undervalued (Dorothy, 2021). This is further explained by Ernawati, Lee and Hughes (2014) who stated that CPOE requires expensive information, technology maintenance, and healthcare providers with adequate computer-operating skills to be able to utilize the system effectively. The need for maintenance with a large nominal can be an obstacle for hospitals in adopting this system in their health services.

In the *ABC of Patient Safety,* Sandars and Cook (2007) state that latent failures that can lead to errors include inadequate training, existing procedures not working properly, low standard quality, poor or inadequate technology, unrealistic time pressure, and staff shortages. The application of CPOE as an information and technology system may be able to prevent latent errors that can be caused by inadequate technology. CPOE is the prevention of active failure on sharp edges. Active failures caused by human negligence factors such as illegal handwriting and drug errors categorized as LASA may be prevented by the presence of CPOE in the barrier layer. It is an advantage that the computer will not feel bored or tired of repetitive tasks, which is the ideal condition for humans to make mistakes.

Staff Training

Seven of the eleven articles included were of the opinion that medication errors could occur due to staff's lack of knowledge regarding medication safety. This knowledge is not only limited to knowledge related to the patient's treatment process, but also knowledge about how to communicate as well as skills and experiences. In terms of training, clinical pharmacists can play a role in leading the training program because they have been shown to have a significant effect on reducing the occurrence of medication errors (Ernawati, Lee and Hughes, 2014; Salmasi *et al.*, 2015). Clinical pharmacists are considered to have extensive knowledge about patient treatment and are specially trained in the therapeutic process and are in the best position to detect and make improvements related to medication errors.

In the Swiss Cheese Model approach, training efforts on staff is a strategy against latent conditions of 'inadequate training'. Providing quality training and refresher knowledge for staff will prevent the emergence of latent failure holes. This effort is certainly in order to prevent the occurrence of active failure at the sharp end and improve patient safety. Staff training can be provided by the hospital management for staff to enhance their knowledge and skills, which are key determinants for effective and efficient professional practice.

The resource that plays the biggest role in the patient's treatment process is

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human resources. Efforts to prevent the occurrence of medication errors that are considered efficient can be implemented in hospitals in Indonesia, one of which is by training staff. Training is considered capable of improving skills, attitudes, and knowledge about safe prescribing practices. These three things can also shape the staff to be competent. Adequate numbers of competent staff will be able to reduce the possibility of medication errors related to correcting each other's work and verifying before the medication is given to the patient.

Conclusion

The literature review was carried out through search of studies sourced from five databases with publication years ranging from 2011 to 2021. A total of 11 included articles were collected from India, Uganda, Nigeria, Japan, Southeast Asia, the Middle East, Indonesia, and Iran.

Medication errors with the largest percentage occurred in hospitals in Nigeria (87.25%), Iran (73.98%), Uganda (70.90%), India (65.60%; 56.03%; 47.32%), Indonesia (20.40%), Japan (14.90%), and India (6.10%). The difference in the incidence of medication errors in developing and developed economies could be due to factors in the healthcare system and the lower prescribing and nurse ratio in developing countries. Indicators reporting of medication errors by a country is voluntarily reported. The number of reports and the number of events actually have no relevance. It can be said that countries with a high number of reporting have good reporting indicators. The phases with the highest number of errors occurred in the order of prescribing, administration, transcribing, and dispensing. The preventive strategy most widely recommended was implementing an information system in the form of CPOE and staff training.

Abbreviations

CPOE: Computerized Physician Order Entry; LASA: Look Alike Sound Alike; NCC MERP: National Coordinating Council for Medication Error Reporting and Prevention; WHO: World Health Organization

Declarations

Ethics Approval and Consent Participant

Not applicable.

Conflict of Interest

The authors declare that there was no significant competing financial, professional, or personal interests that might have affected the study.

Availability of Data and Materials

Data and material research can be accessed at open data repositories (ProQuest, ScienceDirect, PubMed, GoogleScholar, and Garuda RistekBRIN) or upon request.

Authors' Contribution

Developed study's concept and methodology (AEA, MB); review and evaluate (MB); wrote and created original manuscript draft (AEA).

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References

Aitken, M. and Gorokhovich, L. (2012) *Advancing the responsible use of medicines. Applying levers for change.* IMS Institute for Healthcare Informatics, p. 220. Available at: http://pharmanalyses.fr/wp-content/uploads/2012/10/Advancing-Responsible-Use-of-Meds-Report-01-10-12.pdf.

Alsulami, Z., Conroy, S. and Choonara, I. (2013) 'Medication errors in the Middle East countries : A systematic review of the literature', *European Journal of Clinical Pharmacology*,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.145-153

69(4), pp. 995–1008. Available at: https://doi.org/10.1007/s00228-012-1435-y.

Anderson, J.G. and Abrahamson, K. (2017) 'Your health care may kill you: Medical errors', *Studies in Health Technology and Informatics*, 234, pp. 13–17. Available at: https://doi.org/10.3233/978-1-61499-742-9-13.

Bryan, R. *et al.* (2021) 'The problem of look-alike, sound-alike name errors: Drivers and solutions', *British Journal of Clinical Pharmacology*, 87(2), pp. 386–394. Available at: https://doi.org/10.1111/bcp.14285.

Dake, R. and Ramana, I.V. (2020) 'A study on patient safety with reference to medication errors at a tertiary care hospital', (June), pp. 3–8. Available at: https://doi.org/10.18203/2319-2003.ijbcp20202948.

Dorothy, A. (2021) 'Prevalence of Medication Errors and the Associated Factors : A Prospective Observational Study Among Cancer Patients at Mbarara Regional Referral Hospital', pp. 3739–3748.

Elliott, R.A. *et al.* (2019) 'Economic analysis of the prevalence and clinical and economic burden of medication error in England', *BMJ Quality and Safety*, 30(2), pp. 96–105. Available at: https://doi.org/10.1136/bmjqs-2019-010206.

Ernawati, D.K., Lee, Y.P. and Hughes, J.D. (2014) 'Nature and frequency of medication errors in a geriatric ward: An Indonesian experience', *Therapeutics and Clinical Risk Management*, 10(1), pp. 413–421. Available at: https://doi.org/10.2147/TCRM.S61687.

Eslami, K. *et al.* (2019) 'Identifying medication errors in neonatal intensive care units : a two-center study', pp. 6–8.

Fleming, S. (2009) 'A literature review of the individual and systems factors that contribute to medication errors in nursing practice', *Journal of Nursing Management*, 17(679–697).

Gallagher, R.M. and Melnyk, D. (2020) *The National Coordinating Council for Medication Error Reporting and Prevention: 25 Years of Building Medication Safety*. The National Coordinating Council for Medication Error Reporting and Prevention. Available at: https://www.nccmerp.org/sites/default/files/nccmerp-25-year-report.pdf.

Johns Hopkins Medicine (2016) 'Study Suggests Medical Errors Now Third Leading Cause of Death in the U.S.', *Johns Hopkins Medicine*, 3 May. Available at: https://www.hopkinsmedicine.org/news/media/releases/study_suggests_medical_errors_now_third_leading_cause_of_death_in_the_us.

Kandasamy, G. *et al.* (2021) 'A cross-sectional study on prescribing and dispensing errors at a corporate hospital in South India', *International Journal of Clinical Practice*, 75(9). Available at: https://doi.org/10.1111/ijcp.14489.

Khanna, R. and Yen, T. (2014) 'Computerized Physician Order Entry: Promise, Perils, and Experience', *The Neurohospitalist*, 4(1), pp. 26–33. Available at: https://doi.org/10.1177/1941874413495701.

Mailman School of Public Health (2021) 'India, Summary', *Comparative Health Policy Library*. Available at: https://www.publichealth.columbia.edu/research/others/comparative-health-policy-library/india-summary#OVERVIEW.

Moudgil, K. *et al.* (2021) 'A Prospective Study on Medication Errors in an Intensive Care Unit', *Turkish Journal of Pharmaceutical Sciences*, 18(2), pp. 228–232. Available at: https://doi.org/10.4274/tjps.galenos.2020.95825.

Noguchi, C. *et al.* (2016) 'Prevention of Medication Errors in Hospitalized Patients : The Japan Adverse Drug Events Study', *Drug Safety*, 39(11), pp. 1129–1137. Available at:

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.145-153

https://doi.org/10.1007/s40264-016-0458-1.

Salmasi, S. *et al.* (2015) 'Medication Errors in the Southeast Asian Countries : A Systematic Review', *PLoS ONE*, 10(9), pp. 1–19. Available at: https://doi.org/10.1371/journal.pone.0136545.

Sandars, J. and Cook, G. (2007) *ABC of Patient Safety*, *Blackwell Publishing: BMJI Books*.

Snyder, H. (2019) 'Literature review as a research methodology: An overview and guidelines', *Journal of Business Research. Elsevier, 104(July)*, pp. 333–339.

Umoh, E.O. and Opue, B.O. (2021) 'Knowledge and Attitude of Medication Error Among Nurses in Federal Neuro-Psychiatric Hospital, Calabar', *Cognizance Journal of Multidisciplinary Studies*, 1(6), pp. 20–44. Available at: https://doi.org/10.47760/cognizance.2021.v01i06.003.

United Nations (2020) *World Economic Situation and Prospects 2020*. Available at: https://doi.org/10.18356/ee1a3197-en.

WHO (2019) *Patient safety*. World Health Organization. Available at: https://www.who.int/news-room/facts-in-pictures/detail/patient-safety.

Yadhukrishnan, P.U. *et al.* (2020) 'Monitoring and Evaluation of Medication Error in a Tertiary Care Hospital Abstract ':, 4142(2), pp. 16–20. Available at: https://doi.org/10.36346/sarjps.2020.v02i02.002.

Literature Review

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REDUCING HOSPITAL OUTPATIENT WAITING TIME USING LEAN SIX SIGMA: A SYSTEMATIC REVIEW

Reduksi Waktu Tunggu Rawat Jalan di Rumah Sakit dengan Lean Six Sigma: Systematic Review

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Abstract

Background: Lean Six Sigma (LSS) is a beneficial data-driven tool for quality improvement. Literature regarding the use of LSS to reduce hospital outpatient waiting time is scarce despite numerous problems encountered in many countries.
Aims: This systematic review aims to evaluate the causes of long outpatient waiting time, demonstrate the effectiveness of LSS and the improvement strategies applied to reduce outpatient waiting time.
Methods: Literature search was performed on eight databases: Proquest, Wiley, Science Direct, Taylor and Francis, Oxford Journal, Sage Publication, Scopus, and Pubmed. Inclusion criteria were peer-reviewed English articles published from January 1, 2003, to May 25, 2021, and studies conducted in hospital settings.
Results: Nine relevant articles were included. Inefficient clinic processes, inappropriate scheduling, human resources problems, workplace factors, patient communication problems, and patient characteristics are root causes found for long outpatient waiting time. All studies revealed a reduction in outpatient waiting time (5.2% to 97%) after implementation of LSS. Process redesign, improvement in appointment scheduling, patient communication, and improvement in workplace design, were strategies used to reduce outpatient waiting time. These strategies increase the number of patients seen and hospital gross revenue, as well as patient satisfaction.
Conclusion: LSS is beneficial to reduce outpatient waiting time. Process redesign provide advantageous results.

Keywords: hospital, lean six sigma, outpatient waiting time, process redesign

Abstrak

Latar Belakang: *Lean Six Sigma (LSS) merupakan tool berbasis data yang bermanfaat untuk meningkatkan mutu layanan. Literatur tentang manfaat LSS dalam mereduksi waktu tunggu rawat jalan rumah sakit masih sedikit meskipun permasalahan ini sering dijumpai.*
Tujuan: *Penelitian ini bertujuan untuk mengevaluasi penyebab waktu tunggu rawat jalan yang lama, memperlihatkan efektivitas LSS dan strategi perbaikan untuk mereduksi waktu tunggu.*
Metode: *Penelusuran literatur dilakukan pada delapan database: Proquest, Wiley, Science Direct, Taylor and Francis, Oxford Journal, Sage Publication, Scopus, dan Pubmed. Kriteria inklusi meliputi artikel berbahasa Inggris yang dilakukan peer-review, dipublikasikan antara 1 Januari 2003 sampai 25 Mei 2021, dan studi yang dilakukan di rumah sakit.*
Hasil: *Sejumlah sembilan artikel memenuhi kriteria. Proses yang tidak efisien, penjadwalan yang tidak tepat, permasalahan sumber daya manusia, faktor tempat kerja, permasalahan komunikasi pasien, dan karakteristik pasien merupakan penyebab waktu tunggu yang lama. Semua penelitian menunjukkan penurunan waktu tunggu rawat jalan (5,2 sampai 97%) setelah implementasi LSS. Redesain proses melalui perbaikan penjadwalan perjanjian, komunikasi pasien, dan perbaikan desain tempat kerja merupakan strategi untuk mereduksi waktu tunggu rawat jalan yang akhirnya meningkatkan jumlah pasien dan pendapatan rumah sakit, serta kepuasan pasien.*
Kesimpulan: *LSS bermanfaat dalam mengurangi waktu tunggu pasien. Redesain proses memberikan manfaat yang menguntungkan.*

Kata kunci*: rumah sakit, lean six sigma, waktu tunggu rawat jalan, redesain proses*

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Introduction

Lean Six Sigma (LSS) methodology has been widely used for quality improvement processes. This methodology was initially used in manufacturing and supply chain processes, but in practice, it can be used in many aspects of the business (Bhaskar, 2020). The use of LSS methodology in healthcare was pioneered by Stanford Hospital and Clinics in 2003 (Verver *et al.*, 2006). In LSS, the lean thinking concept focusing on value stream and waste elimination is combined with that of Six Sigma, focusing on variation reduction and customer satisfaction, resulting in a powerful data-driven tool to solve problems and eventually reduce costs (Bevan *et al.*, 2005; Ninerola, Sánchez-Rebull and Hernández-Lara, 2020).

Adoption of the LSS methodology in healthcare is beneficial for improving clinical indicators and waiting time, reducing errors, cutting costs, increasing productivity, and optimizing human resources (Honda *et al.*, 2018; Zimmermann, Siqueira and Bohomol, 2020). LSS has been implemented in numerous healthcare settings, such as surgery, general health, imaging and radiology, administrative and operations, obstetrics and gynecology, and emergency and traumatology (Honda *et al.*, 2018), but the literature regarding the use of waiting time reduction strategies in an outpatient clinic setting remains limited. This is contradictory to the problem of long waiting times in hospital outpatient departments, which to this day still presents a challenge in most countries (Naiker *et al.*, 2018). Until recently, no systematic review had been performed to demonstrate the effectiveness of the LSS methodology i.e. reducing waiting time in hospital outpatient settings. This study aims to fill this gap and demonstrate strategies for improvement using the LSS methodology.

Method

Search Strategy

The search strategy for this review is in line with The PRISMA flow diagram from the PRISMA 2020 statement (Page *et al.*, 2021). The eight databases used for the literature search were Proquest, Wiley, Science Direct, Taylor and Francis, Oxford Journal, Sage Publication, Scopus, and PubMed, with May 25, 2021, being the date last searched. The search terms included “lean six sigma,” “outpatient waiting time,” and “hospital.” The research question was “How effective was the LSS methodology in reducing hospital outpatient waiting time and what improvement strategies were implemented to obtain waiting time reduction?” The research question was formulated on the basis of the PICOS strategy (Table 1).

Table 1. PICOS Formulation

Population (P)	Outpatient
Intervention(I)	Lean Six Sigma (LSS) methodology
Comparison (C)	(-)
Outcome (O)	1. Waiting time reduction due to implementation of LSS methodology 2. Improvement strategies implemented to obtain waiting time reduction
Study (S)	All types of hospital-based study

Study Selection

Studies were eligible for inclusion if they were peer-reviewed English articles, with no limitation on countries, a primary research studies, published from January 1, 2003, to May 25, 2021, and were conducted in hospital settings. Quantitative and mixed method studies were included as long as waiting time before and after the intervention was measured. Studies were excluded if they were opting for lean methodology or Six Sigma methodology exclusively, and not the integration of lean and Six Sigma. Studies based on simulations or models with no actual implementation studies regarding referral waiting times and qualitatives studies were also excluded.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

Article Screening and Data Extraction

A literature search was performed on eight databases using the specified search terms and uploaded to the Mendeley Reference Manager to check for duplicates. Duplicates were removed, and articles were screened for titles and abstracts. Abstracts that fulfilled the criteria were then screened for full text. References of the literature retrieved were also screened to capture relevant articles, which were then classified as studies via other methods in the PRISMA Flow Diagram. Literature search, titles, abstract screening, data extraction, as well as quality assessment were conducted by EW and RA, with guidance from AA. The differences between the authors were resolved by discussion.

Risk of Bias

The risk of bias was assessed using The Risk of Bias in Non-randomized Studies – Interventions (ROBINS-I) assessment tool from the Cochrane Library (Sterne *et al.*, 2016). Studies were based on seven domains of bias and judged into five criteria, i.e. low risk of bias, moderate risk of bias, serious risk of bias, critical risk of bias, and no information. Only one study (Kam *et al.*, 2021) showed a low risk of bias, while three other studies (Bhat and Jnanesh, 2014; Gijo and Antony, 2014; Al-Zain *et al.*, 2019) had a moderate risk of bias, and the other five studies (Lin *et al.*, 2013; Dubey *et al.*, 2016; Jayasinha, 2016; Gavriloff, Ostrowski-Delahanty and Oldfield, 2017; Ciulla *et al.*, 2018) had a serious risk of bias (Table 2). Most studies had a serious risk of confounding bias owing to the nature of non-randomized studies.

Result and Discussion

As many as 367 articles were identified via a database search, with 27 duplicates removed. Identification using other methods resulted in six articles. After screening titles, abstracts, and full-text articles, nine articles were included in this review (Figure 1).

Table 2. Risk of bias of included studies

No.	Study	Types of Bias							Overall Risk of Bias
		D1	D2	D3	D4	D5	D6	D7	
1.	Kam, et al.	1	1	1	1	1	1	1	1
2.	Al-Zain, et al.	1	2	2	2	1	2	1	2
3.	Ciulla, et al.	3	1	1	1	2	1	1	3
4.	Gavriloff, et al.	3	1	1	1	0	1	1	3
5.	Dubey, et al.	3	0	1	1	1	1	0	3
6.	Jayasinha Y	3	0	1	1	1	1	0	3
7.	Bhat, et al.	2	1	1	1	1	2	1	2
8.	Gijo, et al.	2	1	1	1	1	0	1	2
9.	Lin, et al.	3	2	1	1	1	1	1	3

*D: Domain; D1, confounding; D2, selection of participants; D3, classification of intervention; D4, deviation from intended interventions; D5, missing outcome data; D6, measurement of outcomes; D7, selection of reported results. Risk of bias assessment:0-No information; 1-Low; 2-Moderate; 3-Serious; 4-Critical.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

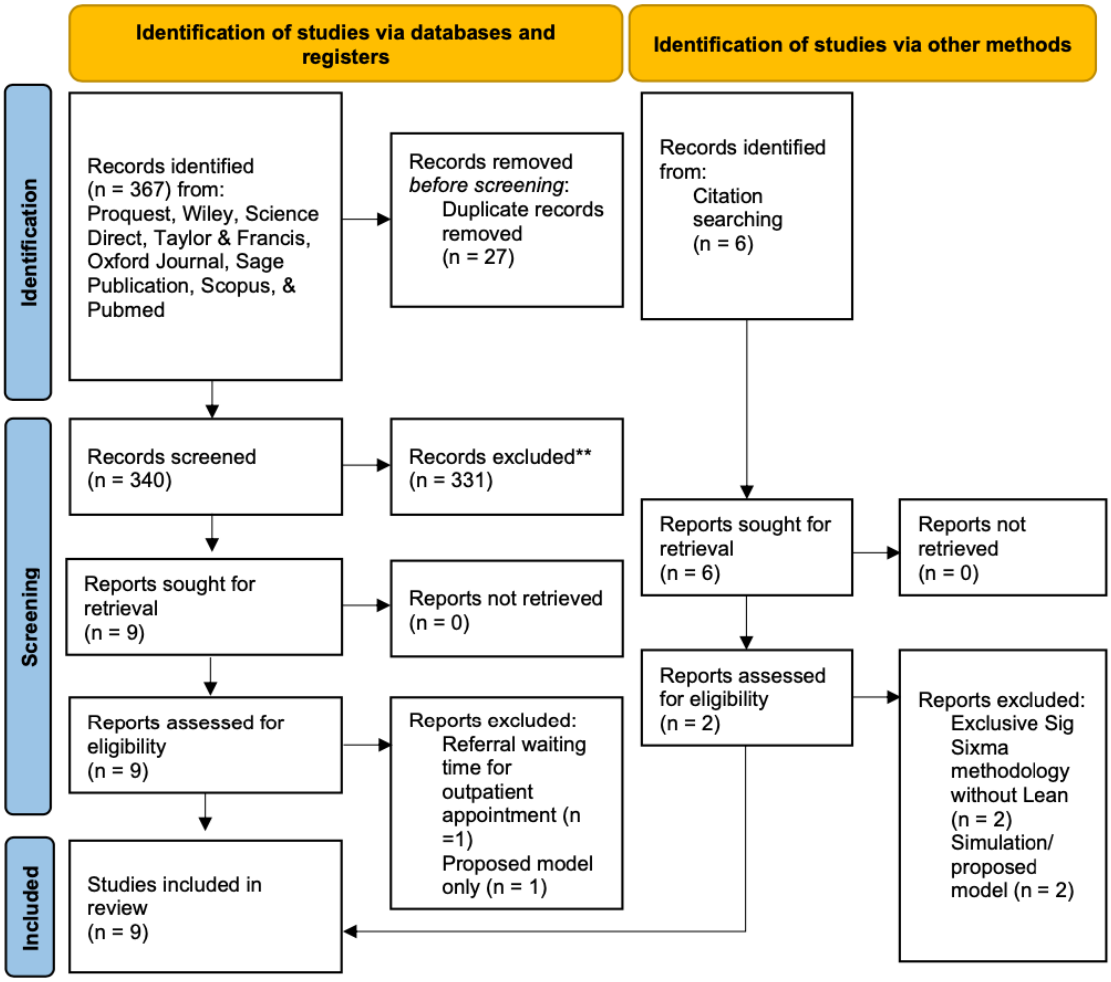

Figure 1. PRISMA flow diagram of included studies

Root Causes for Long Waiting Time

Six domains were identified as the root causes for long outpatient waiting times: inefficiency of clinic processes, inappropriate scheduling, human resource problems, workplace factors, patient communication problems, and patient characteristics. Almost all studies (Lin *et al.*, 2013; Bhat and Jnanesh, 2014; Gijo and Antony, 2014; Dubey *et al.*, 2016; Jayasinha, 2016; Ciulla *et al.*, 2018; Kam *et al.*, 2021) have shown that inefficiency of clinical processes is the root cause of an imbalance between supply and demand. Inappropriate scheduling is the second most frequent root cause, including scheduling patients during peak clinic hours (Lin *et al.*, 2013; Gijo and Antony, 2014; Dubey *et al.*, 2016; Gavriloff, Ostrowski-Delahanty and Oldfield, 2017; Kam *et al.*, 2021) and overbooking appointments (Al-Zain *et al.*, 2019). Human resource problems were the third most frequent root cause of the long outpatient waiting times. Three studies (Lin *et al.*, 2013; Gijo and Antony, 2014; Al-Zain *et al.*, 2019) showed doctors as the main problem, including doctors' unscheduled breaks (Al-Zain *et al.*, 2019), late doctor attendance (Gijo and Antony, 2014; Al-Zain *et al.*, 2019), doctors' addition to a clinic at an already crowded time (Lin *et al.*, 2013), and illegible prescriptions (Gijo and Antony, 2014). Workplace factors were another contributor to long outpatient waiting times. Two studies (Bhat and Jnanesh, 2014; Gijo and Antony, 2014) showed that the unavailability of stationaries, non-ergonomic workplaces, lack of visual management, and misplacement of records were issues related to workplace problems.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

Patient communication problems were encountered as one of the root cause in two studies. Lack of signage (Al-Zain *et al.*, 2019), lack of information regarding the referral system and insurance issues, and lack of information about construction sites within the hospital (Lin *et al.*, 2013) were described as the root causes. Patient characteristics and preferences also played a role in long outpatient waiting times. Three studies demonstrated that patient age (Ciulla *et al.*, 2018), patients who did not provide correct information (Bhat and Jnanesh, 2014), and patients' personal preferences toward certain doctors (Gijo and Antony, 2014) were issues. The characteristics of the included studies are presented in Table 3. The overall reduction in average waiting time of the ninth study in Table 3 is shown in Figure 2.

Table 3. Characteristics of included studies

No	Study Title & Year of Publication	Sample Size (pre & post intervention)	Sampling	Main Outcomes	Improvement Strategies
1	Using Lean Six Sigma Techniques to Improve Efficiency in Outpatient Ophthalmology Clinics (Kam *et al.*, 2021)	2241 & 3490	Total sampling: Two five-months audit	9% increase in number of patients seen per session, significant reduction in duration (median 131 min to 107 minutes) & variability of patient in-clinic time [133 min (84-217 min to 91 min (71-162 min)].	Moving the start time of screening staff & patients appointment, revising appointment slot time lengths, creating dedicated emergency & inpatient appointment placeholders, providing registrar with 'live' scheduling app, dedicating post-operative clinic.
2	Implementing Lean Six Sigma in a Kuwaiti Private Hospital (Al-Zain *et al.*, 2019)	168 & 156	Sampling on patient's visits over 8-working days	Sigma level & waiting time improved for appointments & walk-ins on Saturdays (300% and 67% respectively), as well as for appointments and walk-ins on weekdays (288% and 55% respectively). Cost benefit analysis showed improvement in savings.	Arranging doctors schedules (surgeries, breaktimes, average service time), preparing patient's files before start time of clinic, informing patients if doctor was absent & offering to see different doctor, arranging appointments only by receptionists, dedicating receptionist to accommodate insurance patients, installing clear signage above Q-matic machine, applying checklist & recommendation to monitor system.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

No	Study Title & Year of Publication	Sample Size (pre & post intervention)	Sampling	Main Outcomes	Improvement Strategies
3	Lean Six Sigma Techniques to Improve Ophthalmology Clinic Efficiency (Ciulla *et al.*, 2018)	2078 & 1071	Total sampling: 3 months pre- & 1.5 months post-implementation	Decline in mean patient flow time by 18% & inpatient flow time SD by 4.6%. Patient and employee satisfaction scores improved.	Hiring additional technician, providing dedicated & parallel pathway for patients scheduled to receive injections with additional staff, examination rooms, and optical coherence tomography unit, redesigning scheduling protocol with consideration of patient flow time, room availability, patient's age & appointment time.
4	The Impact of Lean Six Sigma Methodology on Patient Scheduling (Gavriloff, Ostrowski-Delahanty and Oldfield, 2017)	3385 & 3738	Total sampling: 2-month-data for before & after implementation	More patients were treated after implementation of level-loading scheduling, which increase gross revenue. Reduce in average length of time (96 min to 91 min) ($p<0.01$).	Applying level-loading scheduling with no more than 4 patients arrived at the same time
5	Using Lean Six Sigma to Improve Throughput Efficiency at Tertiary Care Eye Hospital (Dubey *et al.*, 2016)	No info	No info	19% reduction in median lead time (118 min to 95 min).	Removing unnecessary & repeated steps, placing file holders in ward & registration area using the first-in-first-out system, dedicating one registration counter for appointment, placing one councilor to reduce patients' motion, providing color maps of key areas in hospital for patients.
6	Decreasing Turnaround Time and Increasing Patient Satisfaction in a Safety Net Hospital-Based Pediatrics Clinic Using Lean Six	94 (pre)	No info	Decreased overall cycle time (113 to 90 min), improved patient's satisfaction (87% to 95%).	Changing the location of patient's financial workers to the front of the clinic, involving clerk during the process, implementing "MD Dispo" system, i.e. patients who did not

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

No	Study Title & Year of Publication	Sample Size (pre & post intervention)	Sampling	Main Outcomes	Improvement Strategies
	Sigma Methodologies (Jayasinha, 2016)				need orders or follow up appointments directly discharged by physician, co-locating patient care teams.
7	Application of Lean Six Sigma Methodology to reduce the cycle time of outpatient department service in a rural hospital (Bhat and Jnanesh, 2014)	56 (post)	Random sampling: 3 consecutive days	Decrease cycle time (4.27 min to 1.5 min), 97% reduction in average waiting time (32 min to 1 min), 91% decrease in queue length (from 11 patients to 1 patient).	Training selected supporting staff, marking location of stationary, arranging stationary closer to staff, placing single card 'kanban system' for misplacement of records, implementing queue maker to provide first-come-first-serve service, submitting patient's identity proof for new registration, using stickers for each rack of medical records shelf, keeping medical records shelf closer to the staff, relocating position of computer to meet ergonomic design.
8	Reducing Patient Waiting Time in Outpatient Department Using Lean Six Sigma Methodology (Gijo and Antony, 2014)	200 & 180	Stratification sampling	Average waiting time reduced from 57 min ± 31.15 min to 24.5 min ± 9.27 min.	Allocating junior doctors when there was huge crowd or requirement of more consulting time, listing the required stationary, re-planning doctor's schedule, providing software for entering all personal details of patients & the linked family, providing software for prescription and real-time update of medicine stock, and printing the prescription

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

No	Study Title & Year of Publication	Sample Size (pre & post intervention)	Sampling	Main Outcomes	Improvement Strategies
9	Use of Lean Sigma Principles in a Tertiary Care Otolaryngology Clinic to Improve Efficiency (Lin *et al.*, 2013)	188 &141	No info: Sampling on patient visits over 5 days	12.2% decrease in lead time, 34% improvement in on-time starts for patients exams, and 34% reduction in motion per visit.	Creating reminder for patient to bring referral, educating staff about insurance verification process, revising appointment letter, improving signage, re-aligning registration staff schedule to accommodate peak times, re-examining all forms, creating centralized clinic calendar to identify times for making up clinics, adding-on patients only at off-peak times of the day, decentralizing vital signs measurement to exam rooms.

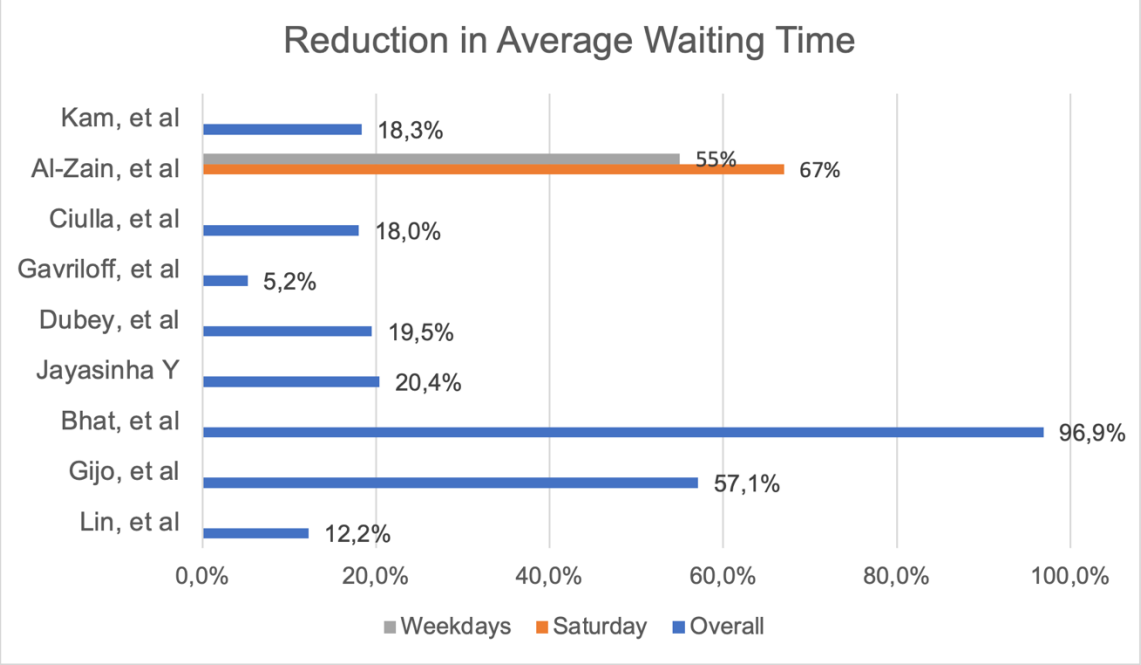

Figure 2. Reduction in average waiting time.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

Waiting Time Reduction

All studies revealed a reduction in outpatient waiting time after implementation of the Lean Six Sigma (LSS) methodology, with a reduction varying from 5.2% to 97%. A reduction was found in the variability of patient in-clinic-time (Kam *et al.*, 2021), clinic cycle time (Bhat and Jnanesh, 2014; Jayasinha, 2016), queue length (Bhat and Jnanesh, 2014), and lead time (Lin *et al.*, 2013; Dubey *et al.*, 2016). A reduction in waiting time occurs not only in appointment patients but also in walk-in patients (Al-Zain *et al.*, 2019). The impact of the reduction in outpatient waiting time was an increase in the number of patients seen per session (Gavriloff, Ostrowski-Delahanty and Oldfield, 2017; Kam *et al.*, 2021) and well as an increase in gross revenue (Gavriloff, Ostrowski-Delahanty and Oldfield, 2017). A cost-benefit analysis showed an improvement in savings after the implementation of the LSS methodology (Al-Zain *et al.*, 2019). An increase in patient satisfaction has also been reported (Jayasinha, 2016; Ciulla *et al.*, 2018).

Improvement Strategies

Several improvement strategies have been proposed to deal with the inefficiency of clinical processes, which result in an imbalance between supply and demand. Those strategies include moving the screening process and appointment time earlier in the day (Kam *et al.*, 2021), providing dedicated clinic dealing with specialized care (for example, post-operative clinic (Kam *et al.*, 2021) and injection clinic (Ciulla *et al.*, 2018)), adding technician staff for dedicated clinic (Ciulla *et al.*, 2018), mobilizing junior doctors for crowded clinics (Gijo and Antony, 2014), decentralizing vital signs assessment (Lin *et al.*, 2013), providing patient's records before the starting time of the clinic (Al-Zain *et al.*, 2019), eliminating unnecessary processes or steps in the clinic, such as rechecking patients after being seen by the physician, and unnecessary forms (Lin *et al.*, 2013), implementing queue marker to provide first-come-first-serve service (Bhat and Jnanesh, 2014), changing the location of the patient financial worker to the front of the clinic (Jayasinha, 2016), assigning one councilor as an informant to reduce patient's motion (Dubey *et al.*, 2016), training of selected supporting staff (Bhat and Jnanesh, 2014), and replanning doctor's schedule (Gijo and Antony, 2014).

Strategies implemented to resolve problems related to inappropriate scheduling include revising appointment slot time lengths (Kam *et al.*, 2021), creating dedicated appointment staff and counters (Dubey *et al.*, 2016; Kam *et al.*, 2021), using technology to provide 'live' scheduling application, arranging registration only by registration staff, dedicating staff to deal with insurance patients, redesigning scheduling protocols to align with patients' flow time, room availability, patient's age, and appointment time (Ciulla *et al.*, 2018), implementing level-loading scheduling (Gavriloff, Ostrowski-Delahanty and Oldfield, 2017), providing a registration area for first-in-first-out system, and limiting adding-on patients to off-peak times of the day (Lin *et al.*, 2013).

Doctors' schedules (surgeries, break times, and service time) (Al-Zain *et al.*, 2019) and providing e-prescribing software to deal with illegible prescriptions, and real-time updates of medicine stock (Gijo and Antony, 2014) were performed to address the issue of human resources factors. Improving patient communication may be beneficial in reducing outpatient waiting times. Installing clear signage for information (Lin *et al.*, 2013; Al-Zain *et al.*, 2019), providing information through reminders before the arrival of patients, and providing hospital color maps to explain key areas in the hospital were helpful measures to reduce outpatient waiting times. Accurate patient information was crucial to ensure this, requiring patients to submit identity proof (Bhat and Jnanesh, 2014) and using software providing linked patients' personal information (Gijo and Antony, 2014) were implemented. The 5S (sort, store, shine, standardize, and sustain) principles of the lean methodology are well-known for improving workplace efficiency. The strategies used were marking the location

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

of stationary, as well as relocating computers and patient records closer to the staff's location to meet the ergonomic position (Bhat and Jnanesh, 2014).

Discussion

Translation of the LSS methodology from the industrial to the healthcare sector is getting more in favor, as evident by a growing body of literature dealing with this issue. Nevertheless, the literature focusing on the integration of the Lean and Six Sigma methodologies remains limited. Only 15% of the entire body of literature, as compared to 66% of the lean methodology and 19% of the six methodologies, addressed the LSS methodology (Peimbert-garcía *et al.*, 2020). This is in line with our search, which resulted in only nine studies regarding waiting time in an outpatient setting over the last 18 years. Although lean literature is enormous in number, research on lean mostly focuses on small issues in the system rather than the system itself as a whole (Henrique and Godinho Filho, 2020), therefore a literature search on the LSS methodology could not include lean literature as well as Six Sigma literature that stood by itself.

The implementation of LSS in healthcare is mostly used for time and efficiency improvements, as these areas are associated with the improvement of processes (Peimbert-garcía *et al.*, 2020). The studies included in this review were also associated with improvements in time and efficiency. All the studies revealed a reduction in outpatient waiting time (from 5.2 to 97%) after implementation of LSS methodology in various kinds of clinics, either in a low risk of bias study or in a serious risk of bias study. A reduction in outpatient waiting time is beneficial for both health care institutions and patients. More patients can be served with the same resources at the same time. Cost-benefit analysis demonstrated an improvement in savings (Gavriloff, Ostrowski-Delahanty and Oldfield, 2017; Al-Zain *et al.*, 2019). For patients, a reduction in outpatient waiting time means faster diagnostic and therapeutic intervention, leading to improved patient safety and satisfaction (Jayasinha, 2016; Ciulla *et al.*, 2018; Hu *et al.*, 2019).

The outpatient department is considered to provide complex ambulatory care. Issues regarding outpatient waiting times still present a challenge in most countries (Osundina and Opeke, 2017; Tlapa *et al.*, 2019). The root cause of the long outpatient waiting time mentioned in all the studies in this review was inefficient clinical processes. It is logical to assume that when demand exceeds supply, increasing supply by adding human resources would be beneficial in resolving the problem. However, studies in this review demonstrated that analyzing, rearranging, and realigning inefficient processes in outpatient systems could yield advantageous results (Lin *et al.*, 2013; Dubey *et al.*, 2016; Gavriloff, Ostrowski-Delahanty and Oldfield, 2017; Ciulla *et al.*, 2018; Al-Zain *et al.*, 2019; Kam *et al.*, 2021). The proposed process redesign is used to disentangle the bottleneck process. The study by Naiker *et al*. (Naiker *et al.*, 2018) which addressed issues of reducing outpatient referral waiting time, also mentioned that resource alignment, operational efficiency, and process improvement were important strategies to reduce referral waiting time. In addition to redesigning the healthcare process itself, patient communication is another factor that needs to be considered. Improving patient knowledge by providing more information would be helpful in reducing outpatient waiting times.

Successful application of the LSS methodology depends on several factors, including focusing project selection on key business priorities, aligning the project with strategic initiatives, sharing vision regarding what the organization will look after the implementation of LSS, and getting top management support through leadership (Furterer, 2014). Despite several studies showing successful LSS implementation in healthcare, some studies also showed the challenges and barriers that hinder the success of LSS initiatives. There have been fewer reports addressing challenges and barriers. Our search did not reveal any literature

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

showing negative findings of LSS implementation in the outpatient department setting. These results demonstrate that LSS is a powerful methodology for reducing waiting time, but might also be due to the bias of journals publishing positive results only (Peimbert-garcía *et al.*, 2020). Challenges in the successful implementation of LSS are categorized into four groups: management, preparation, people, and projects. The strongest preventive factor is resistance to cultural changes, especially by physicians and clinicians (Peimbert-garcía *et al.*, 2020). How to create a culture of continuous improvement and how to sustain the improvements implemented are issues that need further study (Henrique and Godinho Filho, 2020).

This review is limited to English publications only; therefore, unpublished literature or literature published in other languages might not be covered by this review. Most studies included in this review had confounding bias owing to the nature of non-randomized studies, which might have impacted the results.

Conclusion

LSS methodology has been beneficial in reducing outpatient waiting time. Improvement should be based on root cause analysis to yield a significant impact at the organizational level. The root causes found in most of the studies were inefficient clinical processes, in addition to inappropriate scheduling, human resource problems, workplace factors, patient communication problems, and patient characteristics. Process redesign through LSS methodology might provide advantageous results, reducing outpatient waiting time and improving hospital gross revenue.

Abbreviations

LSS: Lean Six Sigma; PICOS: Population, Intervention, Comparison, Outcome, Study; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; ROBIN-I: Risk of Bias in Non-randomized Studies.

Declarations

Ethics Approval and Consent Participant

Not applicable.

Conflict of Interest

The authors declare that there is no conflict of interest in this study.

Availability of Data and Materials

Data and materials can be provided upon request.

Authors' Contribution

Literature search, title and abstract screening, data extraction, and quality assessment were conducted by EW and RA, with guidance from AA. AA reviewed all the manuscript.

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References

Al-Zain, Y. *et al.* (2019) 'Implementing Lean Six Sigma in a Kuwaiti private hospital', *International Journal of Health Care Quality Assurance*, 32(2), pp. 431–446. Available at: http://dx.doi.org/10.1108/IJHCQA-04-2018-0099.

Bevan, H. *et al.* (2005) 'Improvement Lean Six Sigma: some basic concepts Introduction', *Innovation*, pp. 1–15.

Bhaskar, H.L. (2020) 'Lean Six Sigma in Manufacturing: A Comprehensive Review', in Márquez FP (ed.) *Lean Manufacturing and Six Sigma - Behind The Mask*, p. 1093.

Bhat, S. and Jnanesh, N.A. (2014) 'Application of Lean Six Sigma methodology to reduce the cycle time of out-patient department service in a rural hospital', *International Journal of Healthcare Technology and Management*, 14(3), pp. 222–237. Available at: https://doi.org/10.1504/IJHTM.2014.064257.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

Ciulla, T.A. *et al.* (2018) 'Lean six sigma techniques to improve ophthalmology clinic efficiency', *Retina*, 38(9), pp. 1688–1698. Available at: https://doi.org/10.1097/IAE.0000000000001761.

Dubey, S. *et al.* (2016) 'Using lean six sigma to improve throughput efficiency at tertiary care eye hospital', *Current Indian Eye Research Indian Eye Research*, 3(2), pp. 79–83.

Furterer, S.L. (2014) *Lean six sigma case studies in the healthcare enterprise*, *Lean Six Sigma Case Studies in the Healthcare Enterprise*. Available at: https://doi.org/10.1007/978-1-4471-5583-6.

Gavriloff, C., Ostrowski-Delahanty, S. and Oldfield, K. (2017) 'The Impact of Lean Six Sigma Methodology on Patient Scheduling', *Nursing Economics*, 35(4), pp. 189–193.

Gijo, E. V and Antony, J. (2014) 'Reducing Patient Waiting Time in Outpatient Department Using Lean Six Sigma Methodology', *Quality and Reliability Engineering International*, 30(8), pp. 1481–1491. Available at: https://doi.org/10.1002/qre.1552.

Henrique, D.B. and Godinho Filho, M. (2020) 'A systematic literature review of empirical research in Lean and Six Sigma in healthcare', *Total Quality Management and Business Excellence*, 31(3–4), pp. 429–449. Available at: https://doi.org/10.1080/14783363.2018.1429259.

Honda, A.C. *et al.* (2018) 'How Lean Six Sigma Principles Improve Hospital Performance', *The Quality Management Journal*, 25(2), pp. 70–82. Available at: http://dx.doi.org/10.1080/10686967.2018.1436349.

Hu, L. *et al.* (2019) 'How Perceived Quality of Care Affects Outpatient Satisfaction in China: A Cross-Sectional Study of 136 Tertiary Hospitals', *Inquiry (United States)*, 56. Available at: https://doi.org/10.1177/0046958019895397.

Jayasinha, Y. (2016) 'Decreasing Turnaround Time and Increasing Patient Satisfaction in a Safety Net Hospital – Based Pediatrics Clinic Using Lean Six', 25(1), pp. 38–43. Available at: https://doi.org/10.1097/QMH.0000000000000083.

Kam, A.W. *et al.* (2021) 'Using Lean Six Sigma techniques to improve efficiency in outpatient ophthalmology clinics', *BMC Health Services Research*, 21, pp. 1–9. Available at: http://dx.doi.org/10.1186/s12913-020-06034-3.

Lin, S.Y. *et al.* (2013) 'Use of lean sigma principles in a tertiary care otolaryngology clinic to improve efficiency', *Laryngoscope*, 123(11), pp. 2643–2648. Available at: https://doi.org/10.1002/lary.24110.

Naiker, U. *et al.* (2018) 'Time to wait : a systematic review of strategies that affect out-patient waiting times', pp. 286–293.

Ninerola, A., Sánchez-Rebull, M. and Hernández-Lara, A. (2020) 'Quality improvement in healthcare : Six Sigma systematic review', 124, pp. 438–445. Available at: https://doi.org/10.1016/j.healthpol.2020.01.002.

Osundina, K.S. and Opeke, R.O. (2017) 'Patients' Waiting Time: Indices for Measuring Hospital Effectiveness', 3(10), pp. 1–18.

Page, M.J. *et al.* (2021) 'The PRISMA 2020 statement: An updated guideline for reporting systematic reviews', *The BMJ*, 372. Available at: https://doi.org/10.1136/bmj.n71.

Peimbert-garcía, R.E. *et al.* (2020) 'Systematic Review of Literature on Lean and Six Sigma in Healthcare and Directions for Future Research', pp. 80–91.

Sterne, J.A. *et al.* (2016) 'ROBINS-I: A tool for assessing risk of bias in non-randomised studies of interventions', *BMJ (Online)*, 355, pp. 4–10.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.154-166

Available at: https://doi.org/10.1136/bmj.i4919.

Tlapa, D. *et al.* (2019) 'Effects of Lean Healthcare on Patient Flow: A Systematic Review', *Value in Health*, 23(2), pp. 260–273. Available at: https://doi.org/10.1016/j.jval.2019.11.002.

Verver, J.P.S. *et al.* (2006) 'Lean Six Sigma in Healthcare', (October 2017), pp. 3–11. Available at: https://doi.org/10.1111/j.1945-1474.2006.tb00596.x.

Zimmermann, G. dos S., Siqueira, L.D. and Bohomol, E. (2020) 'Lean Six Sigma methodology application in health care settings : an integrative review', 73(Suppl 5), pp. 1–9.

Literature Review

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THE INFLUENCE OF INTERNAL FACTORS ON JOB SATISFACTION IN HEALTHCARE SETTINGS

Pengaruh Faktor Internal Terhadap Kepuasan Kerja di Fasilitas Kesehatan

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Abstract

Background: Job dissatisfaction in healthcare facilities can increase medical errors. In order to reduce the medical errors, hospitals must focus on employee job satisfaction. In this case, both stress and burnout can lower job satisfaction.
Aims: This research was conducted to analyze the internal factors that affect the level of job satisfaction of employees in health facilities.
Methods: *The method applied is the PRISMA framework, which consists of five stages, namely eligibility criteria, information sources, study selection, data collection process, and data items.*
Results: *Systematic review was done on 34 quantitative studies about the factors that influence job satisfaction. Based on the review, the internal factors known are demographic and personal factors. In this case, demographic factors mostly do not affect employee job satisfaction, one of which is salary. Meanwhile, the most researched personal factor and the biggest influence is burnout.*
Conclusion: *Based on the systematic review, it is known that the internal factors affecting employees' job satisfaction include demographic and personal factors. The demographic factor that has a significant effect is salary, while the most researched individual factor is burnout. Working in the health sector requires caution so as not to cause medical errors. Health workers who experience burnout are at risk of causing medical errors. For that we need a strategy to overcome burnout so as to increase job satisfaction.*

Keywords: burnout, healthcare, internal factor, job satisfaction, PRISMA

Abstrak

Latar Belakang: *Tingkat kepuasan kerja pegawai di fasilitas kesehatan yang rendah dapat meningkatkan risiko kesalahan medis. Untuk itu, fasilitas kesehatan perlu memperhatikan tingkat kepuasan kerja pegawainya sehingga dapat mengurangi risiko kesalahan medis. Faktor internal dapat menjadi pemicu rendahnya tingkat kepuasan kerja pegawai seperti stress dan burnout.*
Tujuan: *Menganalisis faktor-faktor internal yang mempengaruhi tingkat kepuasan kerja pegawai di fasilitas kesehatan.*
Metode: *Menggunakan kerangka PRISMA, yang terdiri dari lima tahapan yaitu eligibility criteria, information sources, study selection, data collection process, dan data items.*
Hasil: *Sistematik review berasal dari 34 jur nal kuantitatif tentang faktor yang mempengaruhi kepuasan kerja. Diketahui faktor internal yaitu faktor demografi dan personal. Faktor demografi sebagian besar tidak berpengaruh terhadap kepuasan kerja pegawai, salah satu yang berpengaruh adalah gaji. Faktor personal yang paling banyak diteliti dan pengaruhnya paling besar yaitu burnout.*
Kesimpulan: *Hasil tinjauan sistematik menunjukkan faktor internal meliputi faktor demografis dan personal. Faktor demografi yang berpengaruh signifikan adalah gaji. Faktor individu paling banyak diteliti adalah* burnout*. Bekerja di bidang kesehatan memerlukan kehati-hatian agar tidak menimbulkan kesalahan medis. Tenaga kesehatan yang mengalami burnout berisiko menyebabkan medical eror. Untuk itu diperlukan strategi untuk mengatasi burnout sehingga dapat meningkatkan kepuasan kerja.*

Kata kunci*: burnout, faktor internal, fasilitas kesehatan, kepuasan kerja, PRISMA*

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Introduction

An explanation of employees' response to business, work, and co-working-related psychological factors that produce joy, comfort, confidence, reward, personal progress, and numerous favorable opportunities is referred to as job satisfaction (Robbins, 2017; Elsahoryi *et al*., 2022). Employee happiness can be affected by various factors that differ from one person to another person (Temesgen *et al*., 2018). When employees' needs and expectations are met, their job satisfaction rises. Employee happiness is essential for healthcare personnel (doctors, midwives, nurses, and other medical occupations) since their job requires them to treat patients, and job dissatisfaction can lead to medical mistakes and poor patient outcomes (Aloisio *et al*., 2021). In this case, human resources affect healthcare services (Temesgen *et al*., 2018). Employees report high levels of job satisfaction when they experience positive emotions in response to the many positive aspects of their work, workplace, and coworkers (Robbins, 2017; Elsahoryi *et al*., 2022). As a result, hospitals and other healthcare facilities must prioritize employee satisfaction.

Several factors affecting job satisfaction are individual, psychological, and environmental factors (Tarcan *et al*., 2017). Population characteristics including age, educational status, relationship status, and gender are examples of individual factors. Yet, these demographic variables had no impact on hospital personnel's job satisfaction (Chamberlain *et al*., 2016; Al-Haroon and Al-Qahtani, 2020). Furthermore, one of the psychological factors is burnout. Feeling exhausted is associated with medical errors, malpractice, substance use miscalculation, and suicidal ideation (Shakir *et al*., 2018; Khalafallah *et al*., 2020). In addition, low salaries, limited educational development opportunities, and inadequate facilities and equipment are also the primary reasons for employee dissatisfaction (Temesgen *et al*., 2018), which are the examples of environmental factors. These matters further increase employee stress levels (Klimo *et al*., 2013).

Stress reduces compassion and job satisfaction (Alexandrova-Karamanova *et al*., 2016; Park *et al*., 2016; Karanikola *et al*., 2020). Stressed workers struggle to control their emotions, which leads to that employees may be harmed. Hence, individual, psychological, and environmental factors may affect hospital employee job satisfaction. Since emotional, psychological, and environmental factors combine, stress and tiredness can impair job satisfaction. Nurses, doctors, and other medical personnel's satisfaction depends on many aspects, as explained above. Knowing healthcare worker satisfaction can help medical staff maintain and sustain internal elements. These qualities can help build work ethic and excitement. In addition, it also reduces labor fatigue, job dissatisfaction, and health issues. This disorder is risky for health workers who work closely with patients. Therefore, this systematic study investigated healthcare job satisfaction factors.

Method

PRISMA framework applied for this research, was made up of qualification, data sources, research decision, data gathering, and data items. The eligibility requirements are prestigious international journals published in the last five years and the factors of healthcare personnel job satisfaction. In this case, the articles were first screened using several criteria, regardless of hospital type (private or public), area, or country (both developing and developed countries).

Furthermore, ScienceDirect, Emerald, Growing Science, Sage journals, Taylor & Francis Online, and Wiley were used for the researchers to review healthcare job satisfaction articles. In this case, articles were selected using several terms, including "work satisfaction," "hospital job satisfaction," "determinant of hospital job satisfaction," "internal factor and hospital job satisfaction," "burnout and job satisfaction," and "stress and job satisfaction." This second stage was repeated until the titles, abstracts, and

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10.20473/jaki.v11i1.2023.167-182

keywords fit the criteria. After the articles had been selected, the researchers reviewed the articles' introduction, techniques, and conclusions, which was the third stage of this framework. In addition of this stage, the researcher also scanned the articles to match the bibliographies. These steps were further repeated to complete the article review.

In the fourth stage, data acquisition was carried out. This study collected the author, year of publication, journal name, objectives, theory, instruments, analytical methods, and research results.

Furthermore, the last stage is finalizing the data item. After data acquisition, the data were found heterogeneous. Hence, content analysis categorizes hospital employee job satisfaction aspects based on research findings on work happiness.

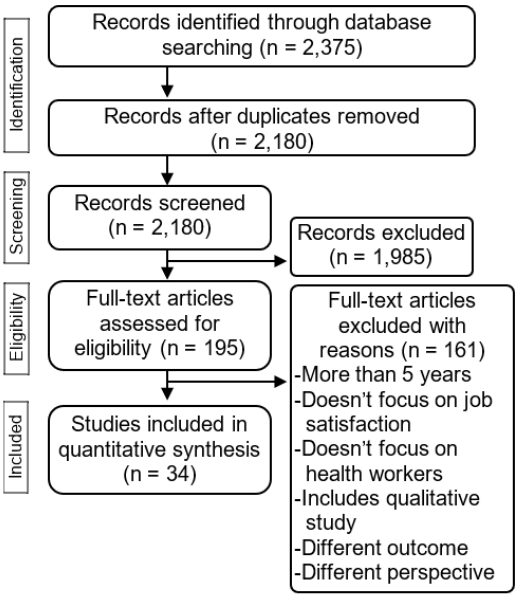

Figure 1. PRISMA Diagram

Result and Discussion

Characteristics of selected studies

Current researchers have studied job satisfaction in healthcare organizations, including its causes, dimensions, and effects. Hence, 2,375 publications have published research on healthcare work satisfaction as independent and dependent variables (Figure 1). Screening was then performed on the various existing publications. This study aimed to identify characteristics that influence job satisfaction in hospital health facilities, so job satisfaction was designated as a dependent variable. In addition to articles that explore issues affecting job satisfaction, 1,985 articles were eliminated from the analysis. In this case, it was obtained that both internal and external factors affect job satisfaction. Background, methods, results, and conclusions show that this study examined internal factors that affect healthcare job satisfaction. After a thorough analysis, 161 publications were excluded from this study, leaving 34 articles.

These 34 studies were conducted between 2015 and 2022. Among them, studies that were conducted in 2019–2020 dominated the research, as many as seven studies. Meanwhile, six studies were published between 2018 and 2021. Furthermore, among the studies reviewed, it was found that job satisfaction in healthcare facilities was also investigated in the US, Ethiopia, India, China, Canada, and South Korea, each with two studies. One study each includes Turkey, Italy, Greece, Israel, Australia, Jordan, Malaysia, Colombia, Ghana, Tajikistan, Saudi Arabia, and Japan. Therefore, several countries have studied healthcare job satisfaction. This employee job satisfaction survey comprised nurses, doctors, pharmacists, nutritionists, laboratory employees, and others. Furthermore, the research sites involved are varied. Public hospitals and long-term healthcare centers dominated most of the research projects. However, private hospitals, clinics, university hospitals, and public hospitals also conducted study on their employee job satisfaction.

Measurement of job satisfaction

As many as 34 papers or articles employed various methodologies to gauge job satisfaction. Some question items refer to other people's research. Others used the American Society of Health-System Pharmacists (ASHP) questionnaire with 32 question items, the NHSS questionnaire created by the China's National Health and Family Planning Commission, the Chinese

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p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.167-182

translation of the Minnesota Satisfaction Questionnaire (MSQ) with 20 questions, and the Michigan Organizational Assessment Questionnaire with three question items (NHFPC). In addition, many job satisfaction surveys include a Likert scale ranging from 1 to 3, 5, 6, 7, and sometimes up to 20 points (Table 1).

Determinants of job satisfaction

Health workers' job satisfaction was influenced by various internal factors of socio- demographic and personal characteristics (Table 2). Based on the demographic factors in Table 2, several factors had a positive, negative, or no effect on job satisfaction. The demographic factors that had no significant impact on job satisfaction include age, education level, gender, and duration of work. It is different from the variable of employees' earning. Previous study conducted by Manan *et al*. (2015), Tarcan *et al*. (2017), and Arkwright, Edgar and Debenham (2018) obtained that salary had a positive effect on job satisfaction. However, it contrasts to research conducted by Abdulloev (2018), Al-Haroon and Al-Qahtani (2020), and Alrawashdeh *et al*. (2021) that salary negatively affects employees' job satisfaction.

Furthermore, personal factors that can affect a person's job satisfaction are further listed in Table 2. Burnout became the factor most studied with seven studies. The other factors, such as compassion, empowerment, emotional labor, goal awareness, mental health status, recognition, and work engagement had two studies, while other variables only had one study. These findings suggest that burnout had a significant impact on healthcare workers' job satisfaction. Moreover, burnout itself had a significant positive and negative effects on employees' job satisfaction (Srivastava, Misra and Madan, 2019; Li and Xie, 2020; Vaillancourt and Wasylkiw, 2020; Alrawashdeh *et al*., 2021; Negri *et al*., 2021).

Internal factor on job satisfaction

According to the studies reviewed, burnout affects healthcare workers' job satisfaction most. This situation has more negative influence than positive influence. Furthermore, according to Chamberlain *et al*. (2016), burnout predicts job satisfaction the highest. Cynicism, depersonalization, efficacy, emotional tiredness, and personal accomplishment are the aspects that cause burnout. In addition, burnout boosts job satisfaction and professional efficacy (Aloisio *et al*., 2018). On the other hand, workers that do not experience burn out can complete tasks. Table 2 indicates not all burnout research affects job satisfaction, since few studies say it had no effect.

Health workers also work more during the COVID-19 pandemic. Mentally distressed healthcare professionals are more likely to contract COVID-19, and overwork exhausts them (Alrawashdeh *et al*., 2021). Workload burnout may increase medical blunders. Medical errors harm patients. In addition, anxiety and grief can sometimes cause medical errors (Srivastava *et al*., 2019).

Workloads and environments vary by job. Both can cause psychological burnout (McCormack *et al*., 2018). Internal and external demands make nursing difficult. Therefore, health workers must reduce burnout to develop systems, create efficient work processes, achieve more reasonable workloads, and set work-life balance boundaries (Waddill-Goad, 2019). In addition, health practitioners must take care of themselves to treat patients without unnecessary errors.

Health workers-doctors, nurses, and others-need workshops to learn about burnout and how to prevent it (Alrawashdeh *et al*., 2021). Burnout survivors learn coping strategies, resilience, and stress management. Training, workshops, and incentives should help healthcare workers overcome burnout and improve workplace satisfaction.

Burnout and other factors affect job happiness. while high salary can boost productivity. Due to personnel turnover, high-earners will hesitate to quit (Iqbal *et al*., 2017). Manan *et al*. (2015), Tarcan (2017), Arkwright, Edgar and Debenham (2018), and Akuffo (2021) supported this statement that salary increases job happiness. Some research projects suggest that high incomes lower job satisfaction (Abdulloev, 2018; Al-Haroon and Al-Qahtani, 2020; Alrawashdeh *et al*., 2021).

Indonesian Journal of Health Administration
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Table 1. Characteristic of Included Studies

No	Author(s), Year	Country	Aim	Theoretical Framework	Participants	Measurement/ Instrument	Analysis
1	Lee and Jang, 2020	Korea	To investigate the links between emotional labor, feelings, and job satisfaction	NA	168 full time nurses	Five-point Likert scale Emotional labor strategies scale Discrete Emotions (Achievement Emotions Questionnaire for Teachers and the Emotions in Teaching Inventory).	Structural Equation Modelling
2	Majima *et al.*, 2019	Japan	To better understand how interprofessional collaborative skill and other relevant criteria connect to work satisfaction	NA	913 nurses	Interprofessional collaborative competency (Chiba Interprofessional Competency of 29 Scale)	Multiple Linear Regression Analysis
3	Manan *et al.*, 2015	Malaysia	To investigate job satisfaction	NA	161 pharmacists	Five-point Likert scale Job Satisfaction (The ASHP survey consisting of 32 question items) The intrinsic elements (employee perceptions of their work)	Logistic Regression
4	Al-Haroon and Al-Qahtani, 2020	Saudi Arabia	To discover how the most important demographic factors affect how happy nurses are with their jobs.	NA	337 nurses	Demographic characteristics	Regression
5	Oh, Kim and Kim, 2019	Korea	To investigate factors affecting satisfaction	NA	6849 respondents	Demographic characteristics Medical environmental characteristic Job Satisfaction	Chi-square ordinal logistic regression
6	Chamberlain *et al.*, 2016	Canada	To investigate the personal and institutional influences on job satisfaction	NA	1224 respondents	Five-point Likert scale Socio-demographic and education information Work-related characteristics Organizational context utilizing the 10 ideas from the Alberta Context Tool. The burnout risk in care aides (The Maslach Burnout Inventory/MBI)	Mixed Effects Ordered Logistic Regression
7	Hwang, Lee and Shin, 2016	US	To understand how IT self-efficacy and goal awareness affect job satisfaction	McClelland's Need for Achievement Theory, Social cognitive theory	352 respondents	Job Satisfaction - 4 items Computer self-efficacy using 5-point Likert scale Goal awareness - 3 items	Partial Least Square

Indonesian Journal of Health Administration
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10.20473/jaki.v11i1.2023.167-182

No	Author(s), Year	Country	Aim	Theoretical Framework	Participants	Measurement/ Instrument	Analysis
8	Aloisio *et al.*, 2019	Canada	To determine the demographic, personal, and organizational factors that influence job satisfaction	Psychological Empowerment Theory and the Structural Empowerment Theory	168 respondents	Three items of Job Satisfaction (The Michigan Organizational Assessment Questionnaire) Demographic factor Individual Level Organizational Level	Regression
9	Li and Xie, 2020	Chinese	To explore the quality of life, personality traits, and job satisfaction	NA	1423 respondents	Personality – 44 items (Big Five Inventory (BFI)), Professional Quality of Life (ProQL) - 30 items (Chinese version of Stamm's) Job Satisfaction - 20 items (Minnesota Satisfaction Questionnaire, adapted from China (MSQ))	Parallel multiple mediator - PROCESS v3.1 macro
10	Kaur and Malodia, 2017	India	To understand how emotional labor affects work satisfaction	NA	586 respondents	Emotional Labour -The Dutch questionnaire Job Satisfaction	Structural Equation Modelling
11	Tarcan *et al.*, 2017	Turkey	To know the association between fatigue and job satisfaction, factors that affect job satisfaction	NA	250 respondents	Basic MBI MSQ questionnaire (10 item) Socio-demographic (22 items) Occupational factors, Five-point Likert scale. Intrinsic satisfaction, extrinsic satisfaction, and two items were general satisfaction questions	Multiple Linear Regression
12	Arkwright, Edgar and Debenham, 2018	Australia	To investigate the internal elements that affect job satisfaction	NA	203 respondents	Demographics, career intentions, job characteristics with 5-point Likert scale	Univariate linear regression model
13	Ayalew *et al.*, 2021	Ethiopia	To identify intrinsic factors that affect job satisfaction	NA	280 nurses	MSQ and motivational factor questionnaire with 5-point Likert scale. Sociodemographic variable on job satisfaction.	Logistic regression
14	Gustafsson *et al.*, 2018	Sweden	To investigate job satisfaction levels and related factors	NA	222 respondents	Questionnaire information from the literature of McCann *et al.* Characteristics of work environment, workload, and tasks, time.	Simple and multiple logistic regression

Indonesian Journal of Health Administration
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No	Author(s), Year	Country	Aim	Theoretical Framework	Participants	Measurement/ Instrument	Analysis
15	Karanikola *et al.*, 2020	Greece	To investigate the intensity of depressive symptoms, satisfaction levels, and empathy levels	Clinical empathy attitude theory	206 nursing personnel	JES-HP to evaluate yourself from a professional empathy attitude with 7-point Likert scale. IWA (evaluates professional satisfaction level. CES-D to evaluate the intensity of depressive symptoms)	Anova Pearson's parametric coefficient
16	Khalafallah *et al.*, 2020	US	To understand the impact of pandemics on fatigue and job satisfaction	NA	531 neurosurgeons	Demographics, workflow changes, stress, satisfaction, and fatigue. Five-point Likert scale. Fatigue rated using MBI with 7-point Likert scale	Multivariate binary logistic regression analysis
17	De Simone, Planta and Cicotto, 2018	Italy	To figure out how employee satisfaction and employee engagement affect plans to leave a hospital	NA	22 wards, 194 nurses	Job satisfaction was measured through the Italian version questionnaire with a 7-point Likert scale.	Pearson correlation Anova
18	Halcomb *et al.*, 2021	Australia	To know the relationship between job satisfaction with the intention of moving	NA	911 nurses	Job satisfaction questionnaire with 20 question items using a 5-point Likert scale	Exploratory and confirmatory factors
19	Meilianti *et al.*, 2022 Pharmacy	London	To identify the factors in determining satisfaction	NA	1014 pharmaceutical	Five-point Likert scale	Multiple linear regression
20	Faramarzpour *et al.*, 2021	Iran	To find out how nurses feel about the ethical climate and how satisfied they are with their jobs	NA	110 nurses	Olson's ethical climate and Luthan's job satisfaction questionnaire	Anova coefficients
21	Elsahoryi *et al.*, 2022	Jordan	To determine the job satisfaction	NA	542 nutritionists	Demographic characteristics, job satisfaction survey (5-point Likert scale)	Pearson test, linear regression
22	Alrawahi *et al.*, 2020	Oman	To know the job satisfaction based on Herzberg theory	Herzberg's two-factor	101 laboratory professionals	FGD	FGD
23	Abdulloev, 2018	Tajikistan	To study the employment-migration's job satisfaction	NA	4860 households	Living Standard Survey A semiparametric Method for estimating binary response models by Blundell and Powell Three-point Likert scale	Parametric ordered probit regression

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No	Author(s), Year	Country	Aim	Theoretical Framework	Participants	Measurement/ Instrument	Analysis
24	Akuffo *et al.*, 2021	Ghana	To know the influence of job satisfaction and its associated factors	NA	304 registered and licensed optometrists	Cross-sectional survey Five-point Likert scale Part A comprising 21 items of sociodemographic characteristics Part B comprising 15 items of 14 factors responsible for participants' satisfaction level.	Linear Regression analyses
25	Aloisio *et al.*, 2018	Canada	To determine the variables that influence work satisfaction	Kanter's Theory of Structural Empowerment Spreitzer's Theory of Psychological Empowerment	334 participants	TREC allied healthcare provider survey Demographics, individual factors, and organizational context variables	General Estimating Equation model
26	Alrawashdeh *et al.*, 2021	Jordan	To find out burnout and levels of job satisfaction	Herzberg's Two-Factor Theory of Motivation and The Job Demands–Resources Model	973 participants for survey, 11 participants for interview	The 10-Item Burnout Measure-Short version The 5-Item Short Index of Job Satisfaction Semi-structured interviews Seven-point Likert scale	Multivariable linear regression
27	Kagan, Hendel and Savitsky, 2021	Israel	To examine the relationships between personal initiative, work environment, and job satisfaction	NA	1040 nurses	A self-administered questionnaire that is structured. Individual initiative, the working environment for nurses, job satisfaction, and responder demographic A six-point Likert scale	ANOVA Association test with chi-square Correlation test with Kendall's Tau coefficient
28	Merga and Fufa, 2019	Ethiopia	To know the impact of the working environment and benefits packages on the level of satisfaction	NA	422 health workers	Cross-sectional study design Five-point Likert scale Job satisfaction (22 question items) Working and living conditions (15 items) Benefits and compensation perception that was evaluated using nine items.	Principal component analysis
29	Negri *et al.*, 2021	Italy	To investigate the interaction of job meaning and positive affectivity in predicting job satisfaction	NA	108 healthcare professionals	The Work Satisfaction Questionnaire and the Eudaimonic and Hedonic Happiness Inquiry measure job satisfaction and job meaning. Cross-sectional study design Seven-point Likert scale	Correlation Hierarchical regression analysis

Indonesian Journal of Health Administration
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No	Author(s), Year	Country	Aim	Theoretical Framework	Participants	Measurement/ Instrument	Analysis
30	Temesgen, Aycheh and Leshargie, 2018	Ethiopia	To assess job satisfaction and associated factors among health professionals working	NA	575 health professionals	Cross-sectional study A pre-tested and structured self - administered questionnaire was used Twenty-point Likert scale Institutional characteristics Behavioral characteristics	Multivariable logistics regression Bivariate and multivariate analysis
31	Stefurak, Morgan and Johnson, 2020	US	To examine public service motivation (PSM)'s relationship to self-reported job satisfaction and job performance	NA		Five-point Likert scale The introductory demographic questions page, the PSM scale, the work happiness scale, and the job performance scale using survey battery.	Multivariate analysis of covariance Exploratory factor analysis
32	Vaillancourt and Wasylkiw, 2020	US	To investigate the connections between self-compassion, burnout, job satisfaction, and restfulness	NA	158 nurses	Neff's index self-compassion with 26 items scale ProQL scale Pittsburgh Sleep Quality Index	Correlations Linear Regression
33	Srivastava, Misra and Madan, 2019	India	To investigate how quality of work life affects job satisfaction and burnout	NA	240 doctors	The job satisfaction survey consisting of 36 items Six-point Likert scale Nine facet scale	Exploratory factor analysis Mediator regression analysis
34	Deng *et al.*, 2018	China	To assess the link between work-family conflict, doctor-patient relationships, and job satisfaction among doctors	A "two-factor theory" of job satisfaction by Herzberg	908 doctors	Using cross-sectional survey The demographics, perceived job satisfaction, perceived work-family conflict, and perceived doctor-patient relationship questions were designed by the National Health and Family Planning Commission of the People's Republic of China. Five-point Likert scale	Structural Equation Modeling

Indonesian Journal of Health Administration
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Table 2. Determinants of Job Satisfaction

Determinants of job satisfaction	Significantly increased	Significantly decreased	Not significant
Demographic			
Age	(Abdulloev, 2018; Gustafsson *et al*., 2018; Merga and Fufa, 2019; Al-Haroon and Al-Qahtani, 2020)	NA	(Chamberlain *et al*., 2016; Tarcan *et al*., 2017; Deng *et al*., 2018; Temesgen, Aycheh and Leshargie, 2018; Akuffo *et al*., 2021)
Education	(Abdulloev, 2018; Temesgen, Aycheh and Leshargie, 2018)	(Deng *et al*., 2018)	(Abdulloev, 2018; Deng *et al*., 2018; Al-Haroon and Al-Qahtani, 2020; Stefurak, Morgan and Johnson, 2020; Kagan, Hendel and Savitsky, 2021)
Gender	(Abdulloev, 2018; Kagan, Hendel and Savitsky, 2021)(Chamberlain *et al*., 2016; Temesgen, Aycheh and Leshargie, 2018; Al-Haroon and Al-Qahtani, 2020; Stefurak, Morgan and Johnson, 2020; Akuffo *et al*., 2021)	NA	(Chamberlain *et al*., 2016; Deng *et al*., 2018; Temesgen, Aycheh and Leshargie, 2018; Al-Haroon and Al-Qahtani, 2020; Stefurak, Morgan and Johnson, 2020; Akuffo *et al*., 2021)
Professional allowance	NA	(Merga and Fufa, 2019)	NA
Salary	(Manan *et al*., 2015; Tarcan *et al*., 2017; Arkwright, Edgar and Debenham, 2018; Akuffo *et al*., 2021)	(Abdulloev, 2018; Al-Haroon and Al-Qahtani, 2020; Alrawashdeh *et al*., 2021)	NA
Work experience	NA	NA	(Abdulloev, 2018; Al-Haroon and Al-Qahtani, 2020; Akuffo *et al*., 2021)
Working hours per week	(Akuffo *et al*., 2021)	NA	NA
Personal Factor			
Attitude: Professional	(Majima *et al*., 2019)	NA	NA
Attitude: Improving team cohesion	(Majima *et al*., 2019)	NA	NA
Burnout	NA	(Aloisio *et al*., 2018; Srivastava, Misra and Madan, 2019; Vaillancourt and Wasylkiw, 2020; Alrawashdeh *et al*., 2021)	NA
Burnout: Cynicism	(Chamberlain *et al*., 2016)	(Aloisio *et al*., 2018)	(Aloisio *et al*., 2019)
Burnout: Efficacy	(Chamberlain *et al*., 2016; Aloisio *et al*., 2019)		(Aloisio *et al*., 2018)
Burnout: Emotional Exhaustion	(Chamberlain *et al*., 2016)	(Tarcan *et al*., 2017)	(Aloisio *et al*., 2018, 2019)
Burnout: Personal accomplishment	NA	NA	(Tarcan *et al*., 2017)

Indonesian Journal of Health Administration
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Determinants of job satisfaction	Significantly increased	Significantly decreased	Not significant
Burnout: Depersonalization	NA	NA	(Tarcan *et al*., 2017)
Career advancement opportunities	(Akuffo *et al*., 2021)	NA	NA
Compassion	(Stefurak, Morgan and Johnson, 2020; Vaillancourt and Wasylkiw, 2020)	NA	NA
Continuing education opportunities	(Akuffo *et al*., 2021)	NA	NA
Contribution	(Manan *et al*., 2015)	NA	NA
Control	(Akuffo *et al*., 2021)	NA	NA
Creativity	(Lee and Jang, 2020)	NA	NA
Emotional labor	(Lee and Jang, 2020)	(Kaur and Malodia, 2017)	NA
Empowerment: Competence	(Aloisio *et al*., 2019)	(Aloisio *et al*., 2018)	NA
Empowerment: Impact	(Aloisio *et al*., 2018, 2019)	NA	NA
Empowerment: Meaning	(Aloisio *et al*., 2018, 2019)	NA	NA
Empowerment: Self-Determination	(Aloisio *et al*., 2018, 2019)	NA	NA
Encouragement	(Akuffo *et al*., 2021)	NA	NA
Formal Interactions	NA	(Aloisio *et al*., 2018)	NA
A general practitioner or a specialist	NA	(Alrawashdeh *et al*., 2021)	NA
High levels of collaboration between nurses and physicians	(Abdulloev, 2018; Kagan, Hendel and Savitsky, 2021)	NA	NA
Goal awareness	(Hwang, Lee and Shin, 2016; Akuffo *et al*., 2021)	NA	NA
Informal interactions	NA	NA	(Aloisio *et al*., 2018)
Job happiness	(Negri *et al*., 2021)	NA	NA
Job is affiliated with a social security scheme	(Abdulloev, 2018)	NA	(Temesgen, Aycheh and Leshargie, 2018)
Job security	(Akuffo *et al*., 2021)	NA	NA
Lower stress in the work	(Abdulloev, 2018)	NA	NA
Mental health status	(Aloisio *et al*., 2019)	NA	(Aloisio *et al*., 2018)
Non-financial incentives	(Akuffo *et al*., 2021)	NA	NA
Nurse's autonomy	(Manan *et al*., 2015; Abdulloev, 2018)	NA	NA
Personality	(Li and Xie, 2020)	NA	NA
Personal initiative	(Aloisio *et al*., 2018)	NA	NA
Primary role	(Abdulloev, 2018)	NA	NA
Private	NA	(Akuffo *et al*., 2021)	NA
Problem solving	(Aloisio *et al*., 2019)	NA	(Aloisio *et al*., 2018)

Indonesian Journal of Health Administration
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10.20473/jaki.v11i1.2023.167-182

Determinants of job satisfaction	Significantly increased	Significantly decreased	Not significant
Quality of work-life	(Srivastava, Misra and Madan, 2019)	NA	NA
Recognition	(Akuffo *et al*., 2021)	NA	(Manan *et al*., 2015)
Responsibility to work	(Akuffo *et al*., 2021)	NA	NA
Seniority in the profession	(Abdulloev, 2018)	NA	NA
Social Capital	(Aloisio *et al*., 2018)	NA	NA
Task variety	(Akuffo *et al*., 2021)	NA	NA
Work engagement: Absorption	(Aloisio *et al*., 2019)	NA	(Aloisio *et al*., 2018)
Work engagement: Dedication	(Aloisio *et al*., 2019)	NA	(Aloisio *et al*., 2018)
Work engagement: Vigor	(Aloisio *et al*., 2019)	NA	(Aloisio *et al*., 2018)
Work environment	(Kagan, Hendel and Savitsky, 2021)	NA	NA
Workload	(Temesgen, Aycheh and Leshargie, 2018; Akuffo *et al*., 2021)	NA	NA

Unfortunately, this study only examined internal factors that affect healthy individuals' job satisfaction. Hence, further study is needed to discover external factors that affect job satisfaction and techniques to improve employee job satisfaction.

Seminars and workshops are needed to raise health workers' understanding of tiredness and its avoidance (Alrawashdeh *et al*., 2021). Stress management, resilience, and coping technique training can help people deal with weariness. Healthcare workers can overcome burnout and improve job satisfaction with training, workshops, and incentives. However, this study only examined internal characteristics that may affect job satisfaction in healthcare personnel. Therefore, future studies should identify external factors that affect job satisfaction and ways to improve it.

Conclusion

This systematic review examines 34 quantitative studies on job satisfaction. The studies reviewed were conducted between 2015 and 2022. The review found several demographic and personal factors affecting job satisfaction. However, job satisfaction is unrelated to many demographic factors. Meanwhile, personal factors are multifaceted. Burnout is the most researched factor. In this case, healthcare who experience burnout are more likely to cause medical errors since it requires considerable caution. Therefore, in order to improve job happiness, a burnout plan is needed.

Abbreviations

WHO: World Health Organization; SD: Standard Deviation; ISP: Integrated Services Pos; Posyandu: *Pos Pelayanan Terpadu*; OR: Odds Ratio; PHC: Primary Health Care.

Declarations

Ethics Approval and Consent Participant

Not applicable.

Conflict of Interest

The authors declare that there is no personal interest influences this study.

Availability of Data and Materials

Data availability based on open repository data or on request.

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Authors' Contribution

MY and RDW conceptualized the study; MY wrote the original draft; RDW reviewed, and edited the manuscript.

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References

Abdulloev, I. (2018) "Job dissatisfaction and migration: evidence from Tajikistan," *IZA Journal of Development and Migration*, 8(1). doi: 10.1186/s40176-018-0132-8

Akuffo, K. O., Agyei-Manu, E., Kumah, D. B., Danso-Appiah, A., Mohammed, A. S., Asare, A. K. andAddo, E. K. (2021) "Job satisfaction and its associated factors among optometrists in Ghana: a cross-sectional study," *Health and Quality of Life Outcomes*, 19(1), pp. 1–10. doi: 10.1186/s12955-020-01650-3

Al-Haroon, H. I. and Al-Qahtani, M. F. (2020) "Assessment of Organizational Commitment Among Nurses in a Major Public Hospital in Saudi Arabia," *Journal of Multidisciplinary Healthcare*, 13, pp. 607–608. doi: 10.2147/JMDH.S268191

Alexandrova-Karamanova, A., Todorova, I., Montgomery, A., Panagopoulou, E., Costa, P., Baban, A., Davas, A., Milosevic, M. and Mijakoski, D. (2016) "Burnout and health behaviors in health professionals from seven European countries," *International Archives of Occupational and Environmental Health*, 89(7), pp. 1059–1075. doi: 10.1007/s00420-016-1143-5

Aloisio, L. D., Gifford, W. A., McGilton, K. S., Lalonde, M., Estabrooks, C. A., and Squires, J. E. (2018) "Individual and organizational predictors of allied healthcare providers' job satisfaction in residential long-term care," *BMC Health Services Research*, 18(1), pp. 1–18. doi: 10.1186/s12913-018-3307-3

Aloisio, L. D., Baumbusch, J., Estabrooks, C. A., Bostrom, A. M., Chamberlain, S., Cummings, G. G., Thompson, G. and Squires, J. E. (2019) "Factors affecting job satisfaction in long-term care unit managers, directors of care and facility administrators: A secondary analysis," *Journal of Nursing Management*, 27(8), pp. 1764–1772. doi: 10.1111/jonm.12871

Aloisio, L. D., Coughlin, M. and Squires, J. E. (2021) "International Journal of Nursing Studies Individual and organizational factors of nurses ' job satisfaction in long-term care : A systematic review," *International Journal of Nursing Studies*, 123, p. 104073. doi: 10.1016/j.ijnurstu.2021.104073

Alrawahi, S., Sellgren, S. F., Altouby, S., Alwahaibi, N. and Brommels, M. (2020) "The application of Herzberg's two-factor theory of motivation to job satisfaction in clinical laboratories in Omani hospitals," *Heliyon*, 6(9), p. e04829. doi: 10.1016/j.heliyon.2020.e04829

Alrawashdeh, H. M., Al-Tammemi, A. B., Alzawahreh, M. K., Al-Tamimi, A., Elkholy, M., Al Sarireh, F., Abusamak, M., Elehamer, N. M. K., Malkawi, A., Al-Dolat, W., Abu-Ismail, L., Al-Far, A.and Ghoul, I (2021) "Occupational burnout and job satisfaction among physicians in times of COVID-19 crisis: a convergent parallel mixed-method study," *BMC Public Health*, 21(1), p. 811. doi: 10.1186/s12889-021-10897-4

Arkwright, L., Edgar, S. and Debenham, J. (2018) "Exploring the job satisfaction and career progression of musculoskeletal physiotherapists working in private practice in Western Australia," *Musculoskeletal Science and Practice*, 35(November 2017), pp. 67–72. doi: 10.1016/j.msksp.2018.03.004.

Ayalew, E., Kibwana, S., Shawula, S.,

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.167-182

Misganaw, E., Abosse, Z., van Roosmalen, J., Stekelenburg, J., Kim, Y.Mi; Teshome, M. and Mariam, D.W (2021) "Intrinsic motivation factors associated with job satisfaction of nurses in three selected public hospitals in Amhara regional state, 2018," *International Journal of Africa Nursing Sciences*, 15, p. 100340. doi: 10.1016/j.ijans.2021.100340

Chamberlain, D. , Williams, A., Stanley, D., Mellor, P., Cross, W. and Siegloff, L. (2016) "Dispositional mindfulness and employment status as predictors of resilience in third year nursing students: a quantitative study," *Nursing Open*, 3(4), pp. 212–221. doi: 10.1002/nop2.56

Deng, S. , Yang, N., Li, S., Wang, W., Yan, H. and Li, H. (2018) "Doctors' job satisfaction and its relationships with doctor-patient relationship and work-family conflict in china: A structural equation modeling," *Inquiry (United States)*, 55(115). doi: 10.1177/0046958018790831

Elsahoryi, N. A., Alathamneh, A. Mahmound, I. and Hammad, F. (2022) "Association of salary and intention to stay with the job satisfaction of the dietitians in Jordan: A cross-sectional study," *Health Policy OPEN*, 3(July 2021), p. 100058. doi: 10.1016/j.hpopen.2021.100058

Faramarzpour, M., Farokhzadian, J.,Tirgari, B., Mangolian Shahrbabaki, P.,Borhani, F. and Rafati, F. (2021) "Nurses' perceptions of hospital ethical climate and their job satisfaction," *Ethics, Medicine and Public Health*, 18. doi: 10.1016/j.jemep.2021.100664

Gustafsson, M. , Mattsson, S., Wallman, A. and Gallego, G. (2018) "Pharmacists' satisfaction with their work: Analysis of an alumni survey," *Research in Social and Administrative Pharmacy*, 14(7), pp. 700–704. doi: 10.1016/j.sapharm.2017.08.006

Halcomb, E. , Bird, S., Mcinnes, S., Ashley, C. and Huckel, K. (2021) "Exploring job satisfaction and turnover intentions among general practice nurses in an Australian Primary Health Network," *Journal of Nursing Management*, 29(5), pp. 943–952. doi: 10.1111/jonm.13230

Hwang, Y., Lee, Y. and Shin, D. H. (2016) "The role of goal awareness and information technology self-efficacy on job satisfaction of healthcare system users," *Behaviour and Information Technology*, 35(7), pp. 548–558. doi: 10.1080/0144929X.2016.1171396

Iqbal, S., Guohao, L., & Akhtar, S. (2017). Effects of job organizational culture, benefits, salary on job satisfaction ultimately affecting employee retention. *Review of Public Administration and Management*, 5(3). https://doi.org/10.4172/2315-7844.1000229

Kagan, I., Hendel, T. and Savitsky, B. (2021) "Personal initiative and work environment as predictors of job satisfaction among nurses: cross-sectional study," *BMC Nursing*, 20(1), pp. 1–10. doi: 10.1186/s12912-021-00615-1

Karanikola, M. N. K. , Zartaloudi, A., Nystazaki, M., Zavrou, R. and Papathanassoglou, E. D. E. (2020) "Is there any association among depressive symptoms, job satisfaction and self-assessed empathy? A correlational study in Greek Psychiatric/Mental Health Nurses," *Archives of Psychiatric Nursing*, 34(4), pp. 230–236. doi: 10.1016/j.apnu.2020.04.006

Kaur, S. and Malodia, L. (2017) "Influence of Emotional Labour on Job Satisfaction among Employees of Private Hospitals: A Structural Equation Modelling Approach," *Journal of Health Management*, 19(3), pp. 456–473. doi: 10.1177/0972063417717899

Khalafallah, A. M., Lam, S., Gami, A., Dornbos, D. L., 3rd, Sivakumar, W., Johnson, J. N. and Mukherjee, D. (2020) "Burnout and career satisfaction among attending neurosurgeons during the COVID-19 pandemic," *Clinical Neurology and*

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.167-182

Neurosurgery, 198(July), p. 106193. doi: 10.1016/j.clineuro.2020.106193

Khalili, A. (2018) "Creativity and innovation through LMX and personal initiative," *Journal of Organizational Change Management*, 31 (2), pp.323-333.

Klimo, P. Jr., DeCuypere, M., Ragel, B. T., McCartney, S., Couldwell, W. T. and Boop, F.A. (2013) "Career satisfaction and burnout among U.S. neurosurgeons: A feasibility and pilot study," *World Neurosurgery*, 80(5), e59–e68. doi: 10.1016/j.wneu.2012.09.009

Lee, M. and Jang, K. S. (2020) "Nurses' emotions, emotional labor, and job satisfaction," *International Journal of Workplace Health Management*, 13(1), pp. 16–31. doi: 10.1108/IJWHM-01-2019-0012

Li, W. W. and Xie, G. (2020) "Personality and job satisfaction among Chinese health practitioners: The mediating role of professional quality of life," *Health Psychology Open*, 7(2). doi: 10.1177/2055102920965053

Majima, T., Yamamoto, T., Sakai, I., Ikezaki, S. and Nagasaka, I. (2019) "Job satisfaction and related factors of nurses in university hospitals: Focusing on collaborative competency factors," *Journal of Nursing Management*, 27(7), pp. 1409–1415. doi: 10.1111/jonm.12822

Manan, M.M., Azmi, Y., Lim, Z., Neoh, C.F., Khan, T.M. and Ming, L. (2015) "Predictors of job satisfaction amongst pharmacists in Malaysian public hospitals and healthcare clinics," *Journal of Pharmacy Practice and Research*, 45(4), pp. 404–411. doi: 10.1002/jppr.1094

McCormack, H. M., MacIntyre, T. E., O'Shea, D., Herring, M. P., & Campbell, M. J. (2018). The prevalence and cause(s) of burnout among applied psychologists: A systematic review. *Frontiers in Psychology*, 9(OCT). https://doi.org/10.3389/fpsyg.2018.01897

Meilianti, S., Matuluko, A., Ibrahim, N., Uzman, N and Bates, I. (2022) "A global study on job and career satisfaction of early-career pharmacists and pharmaceutical scientists," *Exploratory Research in Clinical and Social Pharmacy*, 5, p. 100110. doi: 10.1016/j.rcsop.2022.100110

Merga, H. and Fufa, T. (2019) "Impacts of working environment and benefits packages on the health professionals' job satisfaction in selected public health facilities in eastern Ethiopia: Using principal component analysis," *BMC Health Services Research*, 19(1), pp. 1–8. doi: 10.1186/s12913-019-4317-5

Negri, L., Cilia, S., Falautano, M., Grobberio, M., Niccolai, C., Pattini, M., Pietrolongo, E., Quartuccio, M. E., Viterbo, R. G., Allegri, B., Amato, M. P., Benin, M., De Luca, G., Gasperini, C., Minacapelli, E., Patti, F., Trojano, M. and Bassi, M. (2021) "Job satisfaction among physicians and nurses involved in the management of multiple sclerosis: the role of happiness and meaning at work," *Neurological Sciences*, 43(3), pp.1903–1910. doi: 10.1007/s10072-021-05520-8

Oh, Y.-I., Kim, H. and Kim, K. (2019) "Factors Affecting Korean Physician Job Satisfaction," *International Journal of Environmental Research and Public Health*, 16, pp. 1–12.

Park, C., Lee, Y. J., Hong, M., Jung, C. H., Synn, Y., Kwack, Y. S., Ryu, J. S., Park, T. W., Lee, S. A. and Bahn, G. H. (2016) "A multicenter study investigating empathy and burnout characteristics in medical residents with various specialties," *Journal of Korean Medical Science*, 31(4), pp. 590–597. doi: 10.3346/jkms.2016.31.4.590

Robbins, J. (2017) *Organizational Behavior*. Harlow: Pearson Education.

Shakir, H. J., McPheeters, M. J., Shallwani, H., Pittari, J. E. and Reynolds, R. M. (2018) "The prevalence of burnout among US neurosurgery residents," *Clinical Neurosurgery*, 83(3), pp. 582–590. doi:

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v11i1.2023.167-182

10.1093/neuros/nyx494

De Simone, S., Planta, A. and Cicotto, G. (2018) "The role of job satisfaction, work engagement, self-efficacy and agentic capacities on nurses' turnover intention and patient satisfaction," *Applied Nursing Research*, 39, pp. 130–140.

Srivastava, S., Misra, R. and Madan, P. (2019) "'The Saviors Are Also Humans': Understanding the Role of Quality of Work Life on Job Burnout and Job Satisfaction Relationship of Indian Doctors," *Journal of Health Management*, 21(2), pp. 210–229. doi: 10.1177/0972063419835099

Stefurak, T., Morgan, R. and Johnson, R. B. (2020) "The Relationship of Public Service Motivation to Job Satisfaction and Job Performance of Emergency Medical Services Professionals," *Public Personnel Management*, 49(4), pp. 590–616. doi: 10.1177/0091026020917695

Tarcan, M., Hikmet, N., Schooley, B., Top, M. and Tarcan, G. Y. (2017) "An analysis of the relationship between burnout, socio-demographic and workplace factors and job satisfaction among emergency department health professionals," *Applied Nursing Research*, 34, pp. 40–47. doi: 10.1016/j.apnr.2017.02.011

Temesgen, K., Aycheh, M. W. and Leshargie, C. T. (2018) "Job satisfaction and associated factors among health professionals working at Western Amhara Region, Ethiopia," *Health and Quality of Life Outcomes*, 16(1), pp. 1–7. doi: 10.1186/s12955-018-0898-7

Thomas, T. (2016) "Registered Nurses Leading Innovative Changes," *Online Journal of Issues in Nursing*, 21 (3), p.3.

Vaillancourt, E. S. and Wasylkiw, L. (2020) "The Intermediary Role of Burnout in the Relationship Between Self-Compassion and Job Satisfaction Among Nurses," *The Canadian journal of nursing research = Revue canadienne de recherche en sciences infirmieres*, 52(4), pp. 246–254. doi: 10.1177/0844562119846274

Waddill-Goad, S. M. (2019). Stress, fatigue, and burnout in nursing. *Journal of Radiology Nursing*, *38*(1), pp. 44–46. https://doi.org/10.1016/j.jradnu.2018.10.005