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BEHAVIORAL INSIGHT FOR COVID-19 AMONG STAFFS OF A TEACHING HOSPITAL IN KUMAUN REGION, UTTARAKHAND

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ABSTRACT

Introduction: COVID-19 is caused by a novel virus and is known to be an infectious respiratory disease affecting more than 200 countries and union territories of the world**.** 80% of the patients are shown to have mild to moderate disease. Illness prevention is the mainstay of getting away from the condition with the non-availability of vaccines or medicine. **Methods:** The aim & objective of this study is to describe the behavioral insight (knowledge, attitude & practice) regarding preventive measures of COVID-19 among the teaching hospital staff. An institutional-based descriptive study was conducted among 168 staff, including lab technicians, doctors, staff nurses, and other supporting staff of a tertiary hospital using a convenient sampling technique. The data were obtained by interviewing staff with a pre-tested semi-structured schedule. **Result:** The study results showed that most of the respondents were found to have good knowledge, attitude, and practice towards preventive measures such as social distancing, hand hygiene, face mask, and PPE Kit. 88% of participants were using 3 layered medical masks, and most of them (63%) were using a regular wash of face mask. Among most respondents, no gap between knowledge and practice was seen; however, proper use, handling, and disposal of face masks and other PPE was a concern. **Conclusion:** Therefore, there is a need to improve the knowledge of COVID-19 among healthcare workers, which is possible with the availability of good quality Information Education and Communication (IEC) materials.

Keywords: Behavioral insight, COVID-19, Social Distancing, Face mask, Hand Hygiene, PPE

INTRODUCTION

The Coronavirus Disease 2019 (COVID-19) is an infectious respiratory disease that originated in Wuhan, China, in December of 2019, caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) (World Health Organization (WHO), 2020a). Some common signs and symptoms of the disease include fever, dry cough, fatigue, sputum production, shortness of breath, and myalgia or arthralgia (Ministry of Health and Family Welfare, 2020b; World Health Organization (WHO), 2020c). It is reported that 80% of the patients have had mild to moderate disease, and about 14% have severe disease. The route of transmission of the virus is via droplets and fomites when coming in contact between an infector and infected (World Health Organization (WHO), 2020c)

WHO declared the disease a pandemic on the 11th March 2020 (World Health Organization (WHO), 2020a). The pandemic has had a significant impact on the lives of Indians at large. The first case of COVID-19 in India was detected on the 30th January 2020 (Mukesh Rawat, 2020), and the first COVID-19 related death on the 12th March 2020 (Hindustan Times, 2020), which has escalated up to 1,01,139 confirmed cases and 3,163 deaths as of 19th May 2020 (Ministry of Health and Family Welfare, 2020d). Educational institutes were closed down, and classes were conducted online amidst the coronavirus pandemic. Tertiary care hospitals were converted into a dedicated COVID-19 hospital to tackle the rising cases

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of positive cases and those suspected to have come into contact or have visited the hotspot of coronavirus.

To contain the pandemic, India announced a pan-India lockdown on 22nd March 2020 for 21 days to prevent the social gathering, which will allow people to maintain social/personal distancing (United Nations News, 2020). The lockdown exempted essential services like medical, drug stores, primary commodities, postal and public work departments. Even as the economy crumbled owing to the lockdown, the government and various Non-Governmental Organizations, Individuals, etc., came forward with efforts to make available essential commodities for the people who were stranded due to nationwide lockdown. The government sprang into action against the rising prices of necessary items and placed a cap over the costs for these items.

Taking note of the positive effect of lockdown, the government extended the lockdown for 68 days in 4 successive phases to further flatten the epidemic curve (Utpal Bhaskar, 2020; Economic Times (ET) Online, 2020; The Hindu Net Desk, 2020).

Due to no vaccine or medicine against the virus to date, the only way to get around the disease is to administer "social vaccine," which comprises ‘social or personal distancing and lockdown.' It is followed by (Press Trust of India Ltd., 2020) wearing of face mask, hand hygiene, minimizing the movement of people, avoiding social gatherings, coughing etiquette. The messages have been given to the public against the disease. Every individual has to have the proper knowledge, a positive attitude, and good practice of what they know to ensure the win against the virus.

The virus is known to spread easily via droplets. Therefore, the government had made it mandatory for everyone to wear a face mask, so the people must know which type of mask to wear and how to use it (Ministry of Health and Family Welfare, 2020a). Similarly, it is crucial to have the correct knowledge of hand hygiene, including how and when to perform and the duration. For those working near the positive cases in the hospital, it is mandatory to have proper knowledge about the appropriate use of Personal Protective Equipment (PPE) regarding donning and doffing and its disposal (Ministry of Health and Family Welfare, 2020c).

The hospital staff, being the ones with a high risk of coming in contact with patients infected with the virus, their insight and practice regarding prevention of the disease is an integral part against COVID-19. Therefore, this study aimed to describe the behavioral insight (knowledge, attitude & practice) regarding preventive measures of COVID-19 among teaching hospital staff.

METHODS

The study was an institution-based descriptive cross-sectional study conducted in Government Medical College and associated Dr. Sushila Tiwari hospital (STH) with assessing the behavior, knowledge, and practice regarding COVID-19 among the staff of Government Medical College and associated hospital.

This hospital was in Haldwani City of Uttarakhand state, India. STH hospital was the referral hospital of Kumaun Region and a designated COVID-19 hospital**.** The participants for this study were staff of Government Medical College and associated Hospital (STH) (including medical officers, nurses, midwives, pharmacists, laboratory and other hospital technicians, attendants, cleaners, security guards, and other helping staff).

All staff of Government Medical College and associated hospitals (STH) who were available during data collection and interested in participating in the study were included. Staff who were not interested or did

not give consent for participating were excluded.

A total of 168 participants were included by using the convenient sampling technique. After explaining the study's purpose and goal, written informed consent was taken from the participants before the data collection. This study maintained the anonymity and confidentiality of the study participant.

A face-to-face interview was conducted using a pre-tested semi-structured schedule designed to obtain data from participants regarding sociodemographic profile and behavior during COVID-19. It compromised social distancing, using personal protective equipment (PPE) kits, face mask, and hand hygiene. The schedule was made using the web application at five.epicollect.net, where the data collection was done using the android application of the same. The data was collected from different wards, emergency departments, laboratories, outpatient departments, operation rooms, pediatrics, injection and dressing rooms, radiology and radiotherapy, and other hospital departments on the study. Data were analyzed using SPSS software version 16, and the result was presented in the form of frequency tables and percentages.

We looked into their knowledge, attitude, and practice for COVID-19 and showed the behavioral aspect of study participants regarding COVID-19 included the following:

Knowledge was defined as having an adequate understanding of handwashing, social distancing, rational use, and disposal of personal protective equipment. **Whereas attitude** was the behavior developed through cumulative experience regarding COVID-19, and **practice** was defined as an act of performing given procedure(s) according to a set standard. Good practice: Staff who correctly responded ≥50% to the practice questions regarding hand washing, social distancing, rational use, and disposal of various personal protective equipment. Poor practice: study participants who were unable to respond ≥50% to the practice questions regarding hand washing, social distancing, rational use, and disposal of personal protective equipment. This research has passed the ethical assessment from the Institutional Ethics Committee (IEC) of Govt. Medical College, Haldwani, India vides letter no. 565/GMC/IEC/2020/Reg. No.522/IEC/R-12-08-2020 dated 19th October 2020.

RESULT

The total number of participants included in the study was 168, out of which 45.8% were male, and 54.2% were female. The maximum participants were from Nainital (96.4%), and the remaining were from the district Udham Singh Nagar. It was found that most of the participants belong to a nuclear family (76.6%). Less than a quarter of the participants were living in a joint family. The educational status of the participants revealed that 44.3% were graduates and above, 23.4% had their schooling till intermediate, and 21% were professionals and that below high school level of education was seen among 11.4% of the subjects. The various occupations of the individuals are as follows: 29.8% were nursing staff, 16.1% were doctors, 7.1% lab tech, and 47% were other staff of various capacities (attendants, sweeper, storekeepers, guards, ambulance drivers, pharmacist, receptionist, clerk/office staff). [Table 1]

All the participants understood that ‘social distancing’ meant ‘maintaining a distance of at least 1 meter’, 92% had proper knowledge about steps of appropriate hand hygiene. The appropriate method of wearing a face mask and its adequate disposal was known to 96% and 90% of the participants. Coming to the Personal Protective

Equipment, 73% of them knew the appropriate method of donning and doffing of PPEs and correct methods of disposal of PPEs. The participants' overall knowledge was good for the various parameters considered. They also found this knowledge to be the practical way to prevent the disease at large. The knowledge about the different types of face masks available was varied and ranged from 21% to over 90%. The face masks they know of and have used include Cloth masks, 3-layer medical masks, N95 masks, and FFP2 masks, respectively, 70%, 96%, 83%, and 21%. [Table 2]

Table 3 depicted the participants' attitude, which on the overall view, was seen to be 'positive.' All the participants have a positive attitude towards prevention of COVID-19 by practicing social distancing when in the public space, performing proper hand hygiene, and wearing face masks whenever they were. A similar positive response was also obtained regarding wearing PPE against COVID-19 among 93% of the individuals. On the other hand, 63% thought that face masks could be reused by washing them after every use.

All the participants (100%) reported practicing social distancing when in the market by maintaining a safe distance of a minimum of 1 meter between themselves and the others. Almost all the participants (96%) also reported performing proper hand hygiene while at work and off work. It was found that 92% of the study subject used both alcohol hand rub and soap and water. 66.7% reported using liquid soap among those who used soap and water. Although the majority practiced hand hygiene (96%), over half of them (56%) were seen to perform the procedure properly by maintaining more than 20 seconds for proper hand hygiene. Most of the study participants (92.8%) wash their hands after touching items in public places, before touching eyes, nose, and mouth, after sneezing or coughing, before and after the meal, after using the toilet, before preparing the meal. [Table 4]

From among the different types of face masks, the participants wore a 3-layered medical mask (88%), N95 mask (72%), cloth mask (40%), and FFP2 mask (6.5%), which most of them obtained from hospital supply (90%), 53% bought it from stores/vendors, 5.4% made the mask themselves at home, and 4% bought it online. More than half (63%) of the participants reported washing the mask to reuse them. Of the 63% who passed the mask, 41% washed 1-3 times, and 22% washed the mask more than 3 times before discarding. More than half of them used detergent to wash the mask, a quarter of them used plain water, 18% used disinfectant, and 2% used alcohol. More than half (60%) disposed of the mask inside the yellow biomedical waste bin, 34% tossed it inside normal waste bins, and a mere 2% burned the mask at home. Proper disposal of the doffed PPE is important for the staff in the hospital to prevent the spread of the disease, and it was found that 73% of the participants disposed of the used PPE in the yellow bin. [Table 4]

Table 1. Demographic profile of the participants

Characteristics	Responses	Frequency	Percentage
Sex	Male	77	45.8
	Female	91	54.2
Present address (district)	Nainital	163	96.4
	Udham Singh Nagar	5	3.0
Type of family	Nuclear	129	76.6

Characteristics	Responses	Frequency	Percentage
	Joint family	39	23.4
Education	Primary school	2	1.2
	Middle school	3	1.8
	High school	14	8.4
	Intermediate	39	23.4
	Graduation and above	75	44.3
	Professional	35	21.0
Occupations	Lab technician	12	7.1
	Doctor	27	16.1
	Staff nurse	50	29.8
	Others	79	47

Table 2. Knowledge of the participants

Characteristics	Responses	Frequency	Percentage
What do you understand by 'social distancing'?	Maintaining at least a 1-meter distance	168	100
Do you know the steps for proper hand hygiene?	Yes	155	92
What are the types of hand hygiene	Alcohol hand rub	2	1.2
	Water and soap wash	11	6.5
	Both	155	92.3
Do you know the proper method of wearing a face mask?	Yes	162	96
What are the types of face masks you know about?	Cloth mask	117	70
	3-layered medical mask	162	96
	N95 mask	140	83
	FFP2 mask	35	21
Do you know how to dispose face mask properly?	Yes	151	90
Do you know the proper method of donning and doffing PPE?	Yes	125	73
Do you know where to discard the used/soiled PPE?	Yes	125	73

Table 3: Attitude of the participants

Characteristics	Responses	Frequency	Percentage
Do you think maintaining 'social distancing' is an effective way of preventing COVID-19	Yes	168	100
Do you think performing proper hand hygiene is an effective way of preventing COVID-19	Yes	168	100

Characteristics	Responses	Frequency	Percentage
Is wearing a face mask an effective measure to prevent COVID-19	Yes	168	100
Do you agree with the washing of masks to reuse them?	Yes	106	63
Do you think wearing PPE is an effective measure to prevent COVID-19	Yes	163	93

Table 4. Practices of the participants

Characteristics	Responses	Frequency	Percentage
Do you practice social distancing when you are in the marketplace	Yes	168	100
Do you perform proper hand hygiene?	Yes	162	96
What are the types of hand hygiene you practice?	Alcohol hand rub	2	1.2
	Water and soap wash	11	6.5
	Both	155	92.3
What type of soap do you use for hand washing?	Liquid soap	112	66.7
	Bar soap	56	33.3
How long do you perform hand hygiene?	>20 sec	95	56
How often do you perform hand hygiene?	After touching items, before touching eye, nose, and mouth, after sneezing or coughing, before and after the meal, after using the toilet, before preparing the meal	156	92.8
What type of mask are you using?	Cloth mask	67	40
	3-layered medical mask	148	88
	N95 mask	121	72
	FFP2 mask	11	6.5
Do you wash your facemask?	Yes	106	63
What do you use to wash the mask? (n = 106)	Detergent	57	53.8
	Water	27	25.5
	Disinfectant	20	18.9
	Alcohol	2	1.8
How many times do you wash before discarding the mask	1-3 times	69	41
	>3 times	37	22
Where do you discard disposable face masks?	Yellow BMW Bin	101	60
	Waste bin	58	34.5
	Burn	4	2.5
From where do you procure face masks?	Hospital supply	152	90.5
	Stores/vendors	89	53
	Home-made	9	5.4

Characteristics	Responses	Frequency	Percentage
	Online	7	4.2
Where do you dispose of used/soiled PPE?	Yellow bin	125	73

DISCUSSION

Our study in Uttarakhand observed the behavior regarding COVID-19 among medical personnel that included doctors, staff nurses, lab technicians, ward attendants, pharmacists, and others during the COVID-19 pandemic. A flood of true and untrue information regarding COVID-19 was seen spreading during the pandemic via social media, news channels, newspapers, government websites, and various other Information Education and Communication (IEC) materials. These may lead to changes in perception on how people look at COVID-19 and may indirectly affect individuals' behavior towards COVID-19 infection. This information is a double-edged sword. It may help individuals accept the preventive measures laid down by the scientific committee for them and their families. It may have a devastating effect due to the wrong information they would have assimilated.

In our study, most of the participants were from the Nainital district, and gender distribution among the participants was more or less the same. We found that the participants had adequate knowledge regarding social distancing, i.e., maintaining at least 1 (one) meter distance from another person, use of face mask which are the recommendations made by the *World Health Organization (WHO* (World Health Organization (WHO), 2020b)*)* are seen to be one of the effective ways known to prevent the transmission of COVID-19 infection (Bahl et al., 2020; Chu et al., 2020; Ueki et al., 2020)

Knowledge regarding steps of proper handwashing was found among 92% of the students. It was found to be similar to a study conducted by *Wong T W et al.* (Wong and Tam, 2005) among Hong Kong's medical students after the SARS epidemic. Another similar to our study conducted by Paudel IS et al. (2016) (Paudel, Ghosh and Adhikari, 2017) on nursing students regarding hand hygiene in the Western region of Nepal shows that around 84% of participants know about hand hygiene. At the same time, knowledge regarding the minimum time needed for alcohol-based hand rub (20 sec) was known correctly by only 24 % of the participants. Another study conducted by Goyal A et al. (Goyal A et al. 2020) on health care workers in a Tertiary care center in Uttarakhand found a similar result, i.e.,71.6% of participants have good knowledge regarding hand hygiene. Comparatively lesser prevalence was seen in a study from Karnataka, India (*Nair S. S. et al*.) (Nair et al., 2014), where the proper knowledge on hand hygiene among study participants was 74%. Another study conducted by Satyajeet K. Pawar et al. (2018) (Pawar et al., 2018) found the lesser prevalence of only 62 % among nursing staff in Western India. A study conducted in Nigeria in 2018 also showed insufficient knowledge regarding handwashing (53.8%) among health care workers. A much lesser prevalence of knowledge among the Interns (House Officers) and Post Graduate trainee physicians of a tertiary care teaching hospital was found in Anwar MA et al. (2009), which is only 17%. Still, the overall compliance was found to be 38.8% though it mainly depends on the procedure performed on a particular patient. We also found that maximum of the staff was aware of handwashing techniques ('soap and water' and 'alcohol contain hand rub'). It was similar to the survey conducted by *Wong T W et al.* (Wong and Tam, 2005), also in a study conducted by Deepak, *et al.*

(2020) shows that 84% of the staff knew about the importance of handwashing with antiseptic soap and Almost every staff member (99%) were aware of 7 steps of handwashing. Maximum participants (96%) have heard about 3 layered medical face masks, while 83% and 21% have listened to about N-95 and FFP2 masks, respectively. Our study recorded 96% of our participants had the proper knowledge of wearing the face mask method. In contrast, a study conducted in 2020 by Tadesse et al. (2020) in Ethiopia showed that health providers' knowledge towards proper face mask utilization was only (33.5%). *Modi, P D, et al.* (Modi et al., 2020) found the prevalence lower at 45.4%. *Kumar et al.* (2020) found a similar lesser majority of around 43.6% of participants knew the correct method of wearing the masks. Only 68.9% knew that there are three layers, 53% said that the middle layer act as a filter media barrier and about 75.5% had previous knowledge about the recommended maximum duration of wearing it.

The attitude of all our participants on how effective the various preventive measures (social distancing, hand hygiene, and facemask) are and their willingness to apply practically to fight against the disease was found to be positive (100%) in our study. We also found that 63% agree with washing face masks to reuse them. This became an issue due to the inadequate availability of facemask in the stores (both offline and online). It happened during the early stages of complete lockdown. Even if masks were available, it was sold for exorbitant prices. However, in a study conducted by *Al-Hazmi, A et al*. (Al-Hazmi et al., 2018), *Nair S. S. et* (Nair et al., 2014) *al* only about half of their participants were reported to show a positive attitude towards the same.

Similarly, Paudel IS et al. (2016) (Paudel, Ghosh, and Adhikari, 2017) show that about 90%of the participants had a positive attitude towards hand hygiene. *Kumar et al.* (2020) found only 64.7% of participants obtained a moderate-to-poor score regarding the correct usage of a surgical face mask that is also supposed to be less. Similar to our study Deepak, et al. (Deepak, et al. 2020), *86 % of* the staff had a positive response

The entire study participants practiced social distancing when in the market place and the maximum of them (96%) was seen to perform proper hand hygiene. Hence our study showed no gap between knowledge and practice regarding social distancing and hand hygiene. Thus, these findings were much more satisfactory than the study conducted in South Korea regarding Middle East Respiratory Syndrome (MERS) by *Kim, J S et al.* (Kim and Choi, 2016), which showed only 54.7% of students maintained social distancing and 85.5% were reported to practice handwashing.

We have found that 92% of our participants wash their hands with soap and water. They also used alcohol-based hand rub, which is slightly higher (84.7%) than the study by *Wong T W et al.* (Wong and Tam, 2005), but regarding the use of surgical mask, the similarity was seen between the present study and *Wong T W et al.* (Wong and Tam, 2005). In contrast, Paudel IS et al. (2016) (Paudel, Ghosh, and Adhikari, 2017) showed that only 56% of the participants exhibited good practice regarding hand hygiene. Another study by *Satyajeet K. Pawar et al. (* 2018*)* (Pawar et al., 2018) found 46 %, 22 out of 48 participants, had an average grade score in ideal practicing of hand hygiene that is also less than our study. Another study conducted in Ethiopia in 2020 by *Tadesse et al*. showed that only 45.3% of health workers have a positive attitude regarding facemask use, and only 33.3% were in good practice of the same. Another study by Kumar J et al. (2020) conducted on health care workers found that 56.4% knew the correct way of wearing a surgical mask, 68.9% knew that there are three layers in a surgical mask.

The use of the N-95 mask was extremely high in our study (72%), unlike the

study from Hong Kong[3] (0.8%). This difference may be due to the different perceptions of participants regarding COVID-19 and SARS. Among 63% of participants who favored washing face masks, 53.8% used detergent, 25% washed with plain water, and about 19% used disinfectant over their masks. This behavior may be due to participants' perception that washing may remove possible viruses from the mask. Our study also showed that our study participants' knowledge regarding proper disposal of masks and PPE was inadequate, and similar findings were observed by *Kapoor, D et al*. (Kapoor et al., 2014).

CONCLUSION

The huge epidemic of infodemic was seen everywhere, with varying contents such as; how COVID-19 spreads, how to be safe from COVID-19, treatment for COVID-19, etc. Participants of this study were hospital staff, which showed no gap in their knowledge and practice regarding the prevention of COVID-19. The pandemic has opened up the area of deficit in our health system, especially manufacturing and procurement of essential items like surgical masks, N95, sanitizers, etc. This has to be taken as a wake-up call for us on what we can do and how we can prepare for any future outbreak of disease(s). Another area of concern was the Proper disposal of used facemasks as it may contaminate the environment and increase the risk of disease transmission.

We recommend that proper knowledge be imparted to every citizen by using suitable measures in the form of IEC. Besides that, the legislation should exist along with a routine update of knowledge for health workers to increase their knowledge and the community so that people view the different preventive measures positively, which will help change their behavior towards the pandemic.

The major limitation of the present study is that the findings may not be generalizable as the study participants were employees of a teaching hospital. Secondly, the temporality of the findings cannot be ascertained as it was a cross-sectional study.

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THE RISK PERCEPTION OF TUBERCULOSIS INFECTED DIABETES MELLITUS PATIENTS

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ABSTRACT

Introduction: The number of people with Diabetes Mellitus (DM) increases from year to year. Indonesia is in the sixth highest rank globally for the number of people with DM. Moreover, the level of risk of DM suffering TB is higher. The consequences can be prolonged if not treated immediately. However, the dangers of DM should be the concern of everyone. A non-healthy lifestyle such as high consumption of fast food and a sedentary lifestyle has a negative impact. DM will be worsened and can even lead to various diseases, including blindness, heart disease, kidney failure, stroke, or even amputation. **Methods:** This research was conducted in East Java and assessed the correlation between behavior, perception, perceived behavior control, and social support so that people can be motivated to seek information about the risk of TB in DM patients. This comprehensive community-based research combines quantitative and qualitative using a cross-sectional method on people who had been diagnosed with diabetes mellitus for at least one year. Information gathered concerning things to know for prevention and the desire to do the prevention. **Result:** The result of this research is the establishment of a brief video animation explaining the risk of TB in DM patients. Based upon data processing, DM patients diagnosed under five years are more active in seeking information about diabetes mellitus and its complications, including tuberculosis, as seen in table 3. **Conclusion:** The information is at their most plentiful access from social media (Facebook, Instagram), followed by radio, newspapers, television, and WhatsApp/ Line. Even more surprising, from the result of this research, it was found that the role of doctors or nurses was in the bottom two in providing information related to the risk of DM and TB. Similarly, health facilities (public health services, hospitals, clinics) are the third bottom after doctors and nurses. Of course, this is very unfortunate because the transfer of information from the primary source, in this case, health workers, did not occur properly.

Keywords: Diabetes Mellitus; Tuberculosis; Perception; Risk of TB in DM Patients

INTRODUCTION

Infection control practice, including TB infections, is one of the development goals, which requires many strategies and steps. In 2010, the world experienced an increasing number of patients diagnosed with TB by 50%, until the World Health Organization (WHO) declared TB infection as a "global health emergency" (Erkens et al., 2010; Welin, 2011; WHO & World Health Organization, 2011; Zahr et al., 2016). Therefore in 2014, the WHO declared to end the global TB epidemic by 2035 (Falzon et al., 2016). The increasing number of TB patients is in line with the increasing number of patients at risk of developing TB, such as immuno-compromised patients dealing with HIV, diabetes mellitus (DM), cancer, and autoimmune disease (Stevenson et al., 2007; Zahr et al., 2016).

Diabetes mellitus patients have a threefold increased risk of being infected

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with tuberculosis, and the risk of failure therapy increases up to two times (6–8). International Diabetes Federation estimated more than 9 million people in Indonesia living with diabetes mellitus, but only around 30% have been diagnosed and received treatment to control blood glucose levels (Asia et al., 2013; Ministry of Health, 2015).

Diabetes mellitus is one of the noncommunicable diseases (NCD) that leads to high mortality due to its complication (Sørensen et al., 2012; Van Crevel & Dockrell, 2014). On the other hand, TB as a chronic infection is also one of the NCDs that may also lead high mortality rate. Therefore, in this research, the concern was in the risk of DM patients getting infected by Mycobacterium tuberculosis (Niazi & Kalra, 2012; Van Crevel & Dockrell, 2014). Since both DM and TB are double threats of NCD, it is necessary to address this situation meaningfully by providing high-quality health care services. Efforts will need to be sustained, flexible, yet carefully designed in local contexts to overcome the many barriers to care (Nicholson et al., 2017).

In 2016, there were 21.606 new TB cases diagnosed in East Java (Didik Budijanto et al., 2016), and it is estimated that 1,8% were DM patients infected with TB with a conversion rate of BTA ± 60% (East Java Provincial Health Office 2013, 2012). TB cases in East Java are the second-highest in Indonesia(Didik Budijanto et al., 2016; Dinas Kesehatan Provinsi Jawa Timur 2013, 2012). Even though the number of DM and TB were relatively high in this province, there remains no health program for screening and information services for DM patients against TB infection, both from government and non-government organizations, reflected by the separated data for DM patients and TB patients Provincial Health Office of East Jawa and Ministry of Health of Republic of Indonesia's report (Health Research and Development Agency, 2013; Didik Budijanto et al., 2016; East Java Provincial Health Office 2013, 2012; Ministry of Health, 2017).

Health literacy has gained considerable attention across the world in recent years due to optimizing it would help people improve health and well-being and reduce health inequities (Raynor, Zorn, Ratzan, & Parker, 2012). Good health literacy influences people's ability to access health information. The development of digital-based integrated health information services to educate DM patients regarding the risk of TB infection is expected to increase public awareness, especially people at risk of DM, to increase awareness, willingness, and prevention of TB infections (Falzon et al., 2016). ealth status could be improved by focusing on three main areas: supporting people with lower health literacy, improving health literacy capacity, and improving the organizational, government, policy, and system practice (Baskin, 2017).

Nowadays, Digital health, which consists of electronic health (eHealth) and mobile health (mHealth), occupies an increasingly important space in preventive and curative interventions in affluent and resource-constrained settings. Digital health is destined to play a pivotal role in the implementation of critical activities to achieve several Sustainable Development Goals (SDGs) and to end the global TB epidemic, be they old or new, or directed at patient care, surveillance, program management, advocacy, staff development or the engagement of civil society. Video consists of health information are part of digital health (Falzon et al., 2016).

In this research, an animated model was created as part of the development of an integrated digital-based health literacy module conducted to identify the level of knowledge, attitude, and behavior of DM patients and their families towards early detection of TB related DM disease, prevention of infectious disease transmission, regulation of anti-diabetic and anti-tuberculosis drugs usage through

empowering medication-taking supervisors, blood sugar levels monitoring, DM-TB complications detection, and development of adaptive coping behavior through effective stress management (Riza et al., 2016; Stevenson et al., 2007). The expected result at this period is a concept map of characteristics of knowledge, attitudes, and behavior with the aim a health literacy model can be developed regarding the risk of TB infection in DM patients to address the community's needs (Beer-Borst et al., 2018; Lauder, 2001; Okan et al., 2018; Sørensen et al., 2012), which show the patient and community intention using social media for health information. The relationship between these factors was well-explained in The Theory of Planned Behavior (Ajzen, 1991). In this theory, adoption in behavior was influenced by attitude, subjective norm, and perceived behavior control, that people could do something (Ajzen, 1991). Self-motivation might also influence a person is seeking information.

Health promotion presents a change in thinking and acting on health and its determinants, changing the meaning of health, which has traditionally been understood as the "absence of disease" (Ajzen, 1991). Self-motivation might also influence a person in seeking information.

Health promotion presents a change in thinking and acting on health and its determinants, changing the meaning of health, which has traditionally been understood as the "absence of disease" (Oliveira & Lefèvre, 2017). Health promotion is part of health literacy (Bandura, 1998; Oliveira & Lefèvre, 2017).

Health literacy needs to be related to health policy. Health actions and interventions could address social inequities in education. Disparities in education result in differentials in health literacy based on the people's ability to clearly understand the message. The engagement process in learning activities results in willingness and motivation in searching motivation. In this research, our strategy was using animation while delivering a health campaign about TB's risk in DM patients. Since social media can easily access through the internet, we also access the use of social media in delivering health information (Kurniawati, Sabila, Anand, Gupta, & Kwatra, 2020). The animated video model in this research spread information about the risk of tuberculosis among diabetes mellitus through social media. This model was considered as an easy way to make people, with various segments based on age, education, and ability to absorb information, understand (Kurniawati et al., 2020).

How patients act in adopting health information through social media in the form of animated videos needs to be looked at more deeply. Many factors influence patient behavior in seeking health information. In this research, attitude factors, perceived behavior control, social environment, health literacy, and motivation were affected in the patient's intention to seek information through social media about health information, especially about tuberculosis risk in diabetes mellitus.

METHODS

The research combined quantitative and qualitative community-based approaches to develop digital-based health literacy. The design of this research was cross-sectional and conducted on people who had been diagnosed with diabetes mellitus for at least 1 year and never seen any animation video about diabetes mellitus. Respondent’s age was 17-65 years.

Regarding the COVID-19 pandemic, the research was carried out using online methods. The eligible respondents in this research are people who lived in East Java and were diagnosed with diabetes mellitus, were asked to fill out questionnaires distributed by a google

form (https://forms.gle/gTa4k9vZCa4KQsSz8) which was conducted from April to June 2020.

The questionnaire in this research was developed in Indonesian to maintain equivalency between Bahasa Indonesia and English versions. The questionnaire contains such questions: the participant's living environment and epidemiology backgrounds such as sex, age, and length of being diagnostic as DM patients); education background on the part of developing model; reflection on the participant's situation and environment; communication that leads to reflection by the patient; lead the participant to a process of recognizing of DM and TB symptoms, prevention and adequate therapy; lead the participant to recognize their social relationships and support especially in seeking health information; search for an authentic and liberating the media communication for health information. This research used the Likert scale to measure whether the participant agrees or disagrees with the statements for reflection parts.

To attract people to participate in this research, we share the information through various social media. The research obtained 106 participants become our respondents by using the total sampling method.

The research protocol was approved by the Health Research Ethics Committee of Widya Mandala Catholic University Surabaya Faculty of Medicine with reference number 028/ WM12/KEPK/DOSEN/T/2019.

In building this animated video for health education of tuberculosis risk in diabetes mellitus**,** we designed it in three stages. In the first stage, the activity is directed at identifying the level of knowledge, attitudes, and behavior of diabetes mellitus patients through the questionnaire; 2) making a script for the health education video; 3) sharing the video through social media. In this research, Facebook, Whatsapp, Instagram, and Widya Mandala Catholic University Youtube Channel (Video Pembelajaran UKWMS) were used to spread the information and animation video. An animation video titled "Apa itu Diabetes Melitus (DM)" (6 mins 21 secs) delivered in Bahasa, explains what diabetes mellitus is, tuberculosis infection, how is tuberculosis risk in diabetes patients, and what to do to prevent unsuccessful treatment. This video remains in social media around one year. However, the impact of this animated video was not measured.

For analysis of animated video for the health education model, this research used Structural Equation Modeling (SEM). Primary data was obtained from distributing questionnaires either directly or in google form, measured by a Likert scale five scales. The hypothesis analysis techniques were used an inferential statistical approach and statistical program SPSS version 22 and Smart PLS 3.0.

RESULTS

One hundred six respondents were willing to involve in this research. The respondent's characteristics, including gender, age, and education status, are seen in Table 1.

Table 1. Respondents Characteristics at Baseline

Characteristic	Categories	Frequency	Percentage (%)
Gender	Male	42	39.6
	Female	64	60.4
	20 – 25 years	13	12.3

Characteristic	Categories	Frequency	Percentage (%)
	31 – 40 years	37	34.9
	≥41 years	56	52
Education Status	Diploma	1	.9
	Bachelor degree	41	38.7
	Master degree	6	5.6
	Doctoral degree	2	1.9
	High School	56	52.8

Of the 106 respondents, 60,4% (64) are women with the most age over 40 years. Respondent's education level was relatively good, 52% are high school, and 38,7% are bachelors. The age of the respondents, most of whom are above 40 years old under the distribution of DM patients in the community. Thus, the respondents of this research represent the existing condition (Table 1). All of the 106 respondents were from East Java. The distribution of their hometown is represented in Table 2. Moreover, 48,1% of respondents in this research came from Surabaya, 23,6% came from Gresik, 12,3% came from Sidoarjo, and the rest came from several cities in East Java, such as Malang, Jember, Kediri, Lamongan, and Mojokerto.

Table 2. Distribution of Respondent's City

City	Frequency	Percentage (%)
Surabaya	51	48.1
Gresik	25	23.6
Sidoarjo	13	12.3
Jember	8	7.6
Kediri	1	0.9
Lamongan	1	0.9
Malang	6	5.7
Mojokerto	1	0.9

Respondents in this research were DM patients. Therefore, the researchers' initial question was the duration of diagnosis with DM. The distribution of respondents is as in table 3. Most of the respondents in this research admitted that they were newly diagnosed with DM for about one year (49%) and less than five years (20,7%). This condition makes respondents seek information about DM and its complications, including tuberculosis infections. Based on this result, our next health education target is people diagnosed with diabetes for less than five years.

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Table 3. Duration of Diagnosed with Diabetes Mellitus

Duration	Frequency	Percentage (%)
0 – 1 year	52	49
2 – 5 years	22	20.7
6 – 10 years	13	12.3
11 – 20 years	13	12.3
> 20 years	6	5.7

Moreover, before continuing the questionnaire, participants were also asked about DM patients' tuberculosis information. Surprisingly, even though DM and TB have known as double threats (Nicholson et al., 2017), only 52,8% of respondents answered "know," and 47,2% had never received information about the risk of tuberculosis infection in DM patients. Delivering and emphasizing new scientific knowledge may dramatically change TB prevention and care. Based on this supporting data, it is concluded that this research needs to undertake.

This research also asked the personal question about whether the respondents intend to seek information for early detection and prevention of transmission of DM-TB in the future, and 100% agreed that they need to know more about this issue.

Table 4. Information Resources

Information Resources	Frequency	Percentage (%)
Public Health Center/ Clinic	7	6.6
Health Facility	6	5.6
Family/ Friends	1	0.9
Social Media (Facebook, Instagram, WhatsApp/ LINE)	16	15.1
News Media (Radio/ Newspaper/ TV)	1	0.9
All above	75	70.8

To find out the effective media for health education, this research also asked about the media that had been used by the respondent to seek out information about DM and its complication including TB. We made a list of all information resource, from social media (such as Facebook, Instagram), Radio/ Newsletter/ Television, WhatsApp/ LINE, Healthcare Facilities (Public Health Center, Hospital, Clinic), Doctor/ Nurse, and Family/ Friend (Table 4).

Less than 10% of respondents stated that they search for health information, especially about DM-TB, from the doctor and health facility information desk. This result was contradicted with the health literation's paradigm about the doctor as the leading health information resource (Cepova,

Cicvakova, Kolarcik, Markovska, & Geckova, 2018; Mccormack, Haun, Sørensen, & Valerio, 2013; Pleasant, 2014).

Surprisingly, 15.1% stated that they received information from social media, such as Facebook and Instagram, and the rest, more than 70%, was a combination of obtaining information from doctor/nurses, healthcare facilities, social media, radio/ television, WhatsApp/ Line, and family/ friends. Therefore, from this research result, it can be stated that there was no single media that would be effective for sharing health education.

Table appendix 1 finds out people living with DM's perceptions and opinions about the risk of TB infections. The question is adopted from (Baskin, 2017). According to the results in Table appendix 2, the focus of providing health education is the patient, family, and friends. The implementation of health education needs involving diabetes mellitus patients' association including friends and family members. Special attention from friends and family members increases patients' motivation to seek more information related to DM, including TB infection risk. This result supported the theory that health literacy means empowerment (Pleasant, 2014). Table Appendix 3 shows that Health literacy was measured using the Short Test of Functional Health Literacy for Adults (STOFHLA) (Baskin, 2017).

The influence of attitudes, social factors, and beliefs in motivation to seek information through social media were analyzed using SEM (Structural Equation Model) and Smart PLS 3. The measurement models were also called outer models, and structural models (structural model) was called the inner model.

The validity and reliability measurement model showed that Internal consistency (composite reliability), Convergent validity (Indicator reliability/average variance extracted), and discriminant validity all meet the requirements. Thus, this data was valid and reliable for analysis. This fitness explains how the influence of attitude, health literacy, social factors, motivation, and intention to use social media The relationship between variables and hypothesis testing is shown as follows in Table 5 and Figure 1.

Table 5. Results of Inner Model Hypothesis Analysis (Influence Between Processing Results Variables Using Boothstraping)

Direct Effect					
Hypothesis	path	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Miscellaneous
H1	Attitude -> motivation	0,584	5,488	0,000	Significant
H2	Health Literacy -> Motivation	0,161	2,230	0,026	Significant
H3	Motivation -> Intention to Use	0,647	8,579	0,000	Significant
H4	Perceived Behaviour Control -> Motivation	-0,138	2,216	0,027	Significant
H5	Social -> Motivation	0,205	2,548	0,011	Significant
Indirect Effect					
	attitude -> Intention to Use	0,378	4,229	0,000	Significant
	Health Literacy -> Intention to Use	0,104	2,124	0,034	Significant
	Perceived Behaviour Control -> Intention to Use	-0,089	2,127	0,034	Significant
	Social -> Intention to Use	0,132	2,584	0,010	Significant

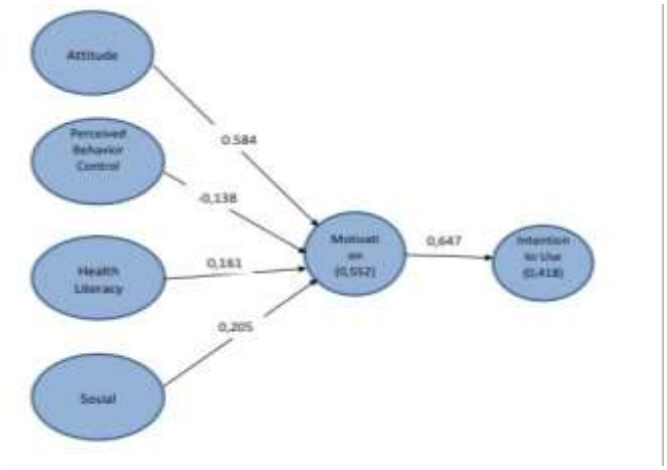

Figure 1. Model Analysis

Table 6. Perceptions and Opinions about The Risk Tuberculosis amongst People with

No.		Questions	Validity	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
		Motivation		**0,940**	**0,971**	**0,943**
1	Motivation 1	Getting information about early detection and prevention of TB transmission among DM patient is important	0,974			
2	Motivation 2	Getting information about early detection and prevention of TB transmission among DM patient is beneficial	0,968			
		Attitude		**0,329**	**0,707**	**0,572**
3	ATT1	Getting information about early detection and prevention of TB transmission among DM patient is very useful	0,953			
4	ATT2	Getting information about early detection and prevention of TB transmission among DM patient is easily	0,486			
		Perceived Behavior controll		**0,787**	**0,865**	**0,620**
5	PBC1	I could do early detection for TB infection while controlling DM condition	0,732			
6	PBC2	Early detection for TB infection while controlling DM condition is completely up to me	0,615			
7	PBC3	I can do the prevention for TB transmission	0,904			
8	PBC4	I could do the prevention of TB infection while controlling DM condition	0,867			
		Intention to Use		**1,000**	**1,000**	**1,000**
9	IU1	I am willing to seek information about early detection for TB infection while controlling DM	1			

		condition				
10	IU2	I am willing to seek information about prevention in TB infection while controlling DM condition	0,913			
		Social Support		**0,968**	**0,970**	**0,747**
1.	SOSUP1	I have got a special person who cares about how I feel when I do early detection and prevention for TB infection while controlling my DM condition	0,743			
2.	SOSUP2	I have a special person who could comfort me when I do early detection and prevention for TB infection while controlling my DM condition	0,823			
3.	SOSUP3	I get positive support from my family when I do early detection and prevention for TB infection while controlling my DM condition	0,908			
4.	SOSUP4	My family supports me in carrying out early detection and prevention for TB infection while controlling my DM condition	0,923			
5.	SOSUP5	My family help me to do early detection and prevention for TB infection while controlling my DM condition	0,868			
6.	SOSUP6	I could convey freely to my family about the problems I face when doing early detection and prevention for TB infection while controlling my DM condition	0,918			
7.	SOSUP7	My friends really support me to carry out early detection and prevention for TB infection while controlling my DM condition	0,925			
8.	SOSUP8	I could rely on my friends whenever I got problems in early detection and prevention for TB infection while controlling my DM condition	0,896			
9.	SOSUP9	I have friends to share the joys and sorrows when I do early detection and prevention for TB infection while controlling my DM condition	0,925			
10.	SOSUP10	I could share my experiences freely when doing early detection and prevention for TB infection while controlling my DM condition	0,790			
		Health Literature		**0,948**	**0,954**	**0,616**
1.	LIT2	I am aware that DM patients are at risk of TB because of impaired body defense system (immune system)	0,728			
2.	LIT3	I am aware the cause of TB is a bacterial infection/TB germ	0,802			
3.	LIT4	I am aware TB can be passed from person to person	0,841			
4.	LIT5	I am aware TB can be cured	0,777			
5.	LIT6	I am aware TB DOTS therapy can be obtained free of charge in all government health services	0,807			
6.	LIT7	I am aware smoking can cause TB	0,840			

		Health Literature		**0,948**	**0,954**	**0,616**
7.	LIT8	I am aware TB therapy is done for 6 months	0,815			
8.	LIT9	I am aware that coughing up phlegm for more than 2 weeks, night sweats, fever and or without weight loss are signs and symptoms of TB.	0,845			
9.	LIT10	I am aware that the acid-resistant sputum smear (BTA) is a mandatory examination to establish a TB diagnosis	0,752			
10.	LT11	I am aware TB can be prevented by not spitting everywhere	0,724			
11.	LIT12	I am aware that DM patients are three times more likely to get TB	0,768			

The magnitude of the regression coefficient showed that the relationship between attitude, health literacy, social factors, and perceived behavior control (PBC) toward motivation to use social media as a source of information about tuberculosis risk amongst people with diabetes mellitus showed positive coefficients, except PBC. This phenom indicated that increasing motivation in seeking information depends on not only his/herself but also family and community. The PBC result showed that when people feel they can do early detection for tuberculosis infection while controlling hyperglycaemia condition, they might not feel motivated to seek information through social media due to their previous experiences found false information.

Statistical analysis of all variables such as attitude, health literacy, social factors, and perceived behavior control toward motivation to use social media as a source of information about tuberculosis risk amongst people with diabetes mellitus showed all significant effects. The indirect effect coefficient also showed a significant coefficient. This means that motivation has an important influence in explaining how attitude, health literacy, social factors, and perceived behavior control could move people to start seeking information about tuberculosis risk amongst diabetes mellitus.

DISCUSSION

The Perception of Risk Associated DM Patients Infected with TB

The result in this research shows that health literacy as a community education effort about tuberculosis infection risk in diabetes mellitus patients' needs to pay attention to several points, which are: increasing patients knowledge, increasing patients' motivation to seek information related to health problems, especially about diabetes mellitus and its complications; optimizing information media in health facilities, including clinic and public health centers, and also increasing the involvement of family and friends support in seeking information and knowledge. This result is consistent with previous research related to health literacy (Lauder, 2001; Prasanti, 2018).

Treatment of active TB requires daily administration of medicines for at least 6 months and up to 2 years or more in the case of multidrug-resistant (MDR)-TB and extensively drug-resistant (XDR)-TB. Those conditions may lead to unfavorable outcomes with the continued spread of infection, acquisition of drug resistance, disease chronicity, and death. Diabetes Mellitus may lead to MDR-TB and XDR-TB three times higher (Kumar et al., 2017;

Parida et al., 2015). Prevention needs to be more actively done to decrease the risk of MDR, XDR, and mortality of DM-TB. This research focuses on developing the animation video for people to understand more about DM and TB, especially in risk, early detection, and prevention.

For many years, it stated that doctor and other health professionals, healthcare facility remains the main resource in gathering information. Surprisingly, in this research, less than 10% of our respondents seek out health information, especially about DM-TB, from the doctor and health facility information desk, while 70.8% of the 106 respondents stated that they received information from all resources (as seen in Table 4). Based on our result, there was no single media that would be effective for sharing health education. Then, the doctor, health professionals, and health facilities need to provide health information, especially in risk of TB among DM patients, and use several media to spread information. Research in various media spreading health information also yielded similar results (Widada, 2018).

Moreover, based on Table 4, health literacy emphasizing the risk of TB infection among DM patients was not much. Using various media for delivering health messages, such as social media, such as Facebook, Instagram, radio/ television, WhatsApp/ Line, may give better results in early detection and prevention of TB infection among DM patients.

Community Support

As seen in Table 5, respondents with DM knew and were aware that early detection and prevention for TB transmission were entirely up to them as individuals.

Furthermore, as stated in Table 6, family and friends were the most important component in supporting respondents while seeking out information in early detection and prevention for TB transmission. Community support from family/ friends may also motivate the patient in seeking health information. Nowadays, a club for diabetic patients provides by the health provider (primary health care and hospital).

This research result was related to nowadays conditions. Being around people with similar conditions may give better motivation to seek health information (Baskin, 2017). Therefore, doctors and other health professionals need to encourage more patients with diabetes, especially new cases, to join the diabetic club. Involving family and friends improves both DM and TB patients' skills in managing themselves, maintaining their blood glucose, preventing TB, and seeking health information (Kigozi, Heunis, Engelbrecht, Janse Van Rensburg, & Van Rensburg, 2017; Lauder, 2001).

The participants' education statuses were high school and above. This condition may affect health information retraining, specifically the risk of TB in DM patients, and hopefully could give better results in prevention. Research conducted by Cepova et al. stated that education status might involve a multidimensional problem of health literation (Cepova et al., 2018). The level of education may not directly relate to health literacy (Cepova et al., 2018; Riza et al., 2016). However, low health literacy may also be associated with barriers to DM patients accessing health care and engaging in health-promoting behaviors, such as seeking preventive TB infection.

There is also a need to consider appropriate selective media in presenting patient information. In the current research, the respondents passively seek information provided by medical professionals and through the information shared in the public health center, such as printed leaflets and advertisements. They also actively seek health information through social media. Therefore social media's function in providing health information such as on Facebook, Instagram, WhatsApp, and Line is

becoming more effective. The ultimate goal of health literacy is to improve the community's self-care skills (Baskin, 2017; Falzon et al., 2016; Sørensen et al., 2012).

The effective target of health literacy is patients newly diagnosed with DM or in a maximum period of 5 years, involving their family and friends. This is parallel with the government and health center's program to create diabetes mellitus associations and arrange useful activities. The animated video link in this research is https://www.youtube.com/watch?v=RhNUdRzb5NE. This video has been registered for the copyright of IPR with number 000176992.

Research Limitations and Future Research

Adequate communication might reduce conflicts, misunderstandings, achieves defined goals in this research. Moreover, direct two ways and need to respond and validate messages, both verbally and physically (proximity, posture, eye contact). However, due to the COVID-19 pandemic, this research minimized the crowd. Therefore, evaluation of the effectiveness of the animation video in delivering the message about the risk associated with DM patients infected with TB also could not be assessed.

Besides that, it is essential to assess whether a lack of motivation related to the DM patients' perceptions in searching risk of tuberculosis in hyperglycemia or lack of interest in DM patients in doing prevention against TB.

CONCLUSION

Since Diabetes Mellitus may lead to MDR-TB and XDR-TB three times higher, it is highly advised to communicate more about TB risk amongst DM patients. Theory of Planned Behavior explained the relationship between attitude, social support, perceived behavior control, health literacy, motivation, and intention to seek information in animated video form about tuberculosis risk in amongst diabetes mellitus by using social media.

Based on the patients' characteristics who were diagnosed with diabetes mellitus in East Java, it is shown that patients diagnosed with diabetes mellitus under five years are more actively seeking information about diabetes mellitus and its complications, including tuberculosis infections. The information concerning things to know for prevention and the desire to do the prevention became the first step as the result is the establishment of a brief video animation explaining diabetes mellitus and tuberculosis risk and early detection. The distribution of the animation video can be undertaken using social media (Facebook, Instagram), radio/ newsletter/ television, WhatsApp/ Line application, health facilities (public health center, hospital, clinic), doctors/ nurses, family, and friends.

Moreover, the information presented is not limited to patients and their families and friends. Actively involved in the diabetic group could also motivate DM patients in seeking health literation to achieve better health quality.

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THE CORRELATION BETWEEN KNOWLEDGE AND FOOD SELECTION PRACTICES AND HAZARDOUS SUBSTANCES AMONG JUNIOR HIGH SCHOOL STUDENTS

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ABSTRACT

Introduction: There are many cases of food poisoning in Surabaya. Furthermore, there are also many food vendors around the school and canteen using hazardous substances which can cause food poisoning. The aim of this study was to analyze the association between knowledge and food selection practices among students at one of junior high schools in East Surabaya towards hazardous substances. **Methods:** The methods of this is an analytic-observational study with a cross-sectional design which used primary data from the student who fills out the questionnaire. The study sample includes 119 students at junior high school 19 Surabaya, Indonesia, range of age 12-14 years old. The dependent variable in this study food selection practices, the independent variable was level of knowledge of hazardous substances. The study used 4 questionnaires to collect the data. Data collection was carried out in December 2019, this study used simple random sampling and the data analyzed by Chi-Square Test. **Result:** The results of this research showed that 52.9% of students have knowledge category 'moderate' and 47% of students 'food selection practices' category 'correct'. This research showed that there was no significant correlation between knowledge and food selection practices. **Conclusion:** The conclusion of this study there was no significant correlation between knowledge and food selection practices towards on hazardous substances, it must another factor that could be affected the decision of adolescents.

Keywords: food poisoning, food selection, knowledge, food vendor, hazardous substances, schoolchildren

INTRODUCTION

Food is an essentials need for humans to live, but in some cases, there is content from food that is not appropriate and can cause disturbances in human body functions such as food poisoning, diarrhea, and cancer (Sari, 2017). There have been several outbreaks (KLB; Kejadian Luar Biasa) of food poisoning in Indonesia, and one of them occurred in 1997 in Program Makanan Tambahan Anak Sekolah (PMTAS), which caused many deaths (Supraptini, 2002). Furthermore, food poisoning can be caused by contamination from chemicals, viruses, parasites, and microorganisms such as bacteria (Sari, 2017). In the Surabaya city, from the results of the (National Agency of Drug and Food Control, 2018) annual report, there were 83 cases of food poisoning, including those caused by chemicals, food, animals. According to BPOM (National Agency of Drug and Food Control), hazardous and toxic materials often found include formalin, borax, methanyl yellow, and Rhodamine B.

Based on the other study, there are still many harmful ingredients found in the snack by food vendors around the school that can potentially cause food poisoning. Furthermore, BPOM (National Agency of Drug and Food Control) carried out sampling and testing of food in the elementary schools spread across 30 cities in Indonesia in 2011. The result was 35% of the samples did not maintain food safety and ingredients quality (Paratmanitya and Aprilia, 2016). According to the study from Paratmanitya & Aprilia, which also tested food from food vendors around an elementary school in Bantul city, stated that the content of borax, formalin, and rhodamine-B had a high proportion and

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higher than the results of a survey by BPOM (National Agency of Drug and Food Control). According to another similar study which also tested food by food vendors around an elementary school in Samarinda city, there were formalin and borax contamination in food samples, as well as the contamination of Coliform bacteria in the food around the elementary school environment (Anton, Yearsi and Habibi, 2019).

One of the factors that influence food vendors to use hazardous chemicals inside the food according to BPOM (National Agency of Drug and Food Control) is to increase personal benefits by reducing the purchase price of the ingredients. Another factor that influence food vendors to use harmful stain are the attitude of the food vendors (Miratania and Rahmalia, 2019). This statement was supported with the other study about 'the use of red coloring agents in street vendors in Medan'. It was stated that the food vendors attitude towards stain were bad (87,5%) (Elfira, 2018). Furthermore, based on the other study about the use of prohibited substances and preservatives is in a bad category (65.5%) (Pramastuty, Raharjo and Hanani, 2017).

Another problem is students (adolescents) who have snack eating habits at school (Purtiantini, 2010). When the students are in the school, the students are between morning and lunchtime and at this time causes hunger and this hunger often arises, which prompts the students to buy snacks to eliminate hunger (Aprillia, 2011). This statement was supported based on the study by (Putra, 2009); and (Wowor, Engkeng and Kalesaran, 2018) which state that adolescents are often not taking breakfast and not taking a packed meal from home. Meanwhile, most students buy food based on its attractive appearance (Triasari, 2015). According to other studies, well-informed respondents in the sample of research do not necessarily have good behavior in food selection practices (Purtiantini, 2010).

Based on the data above, it is crucial to do research that has different study with other study did which the other study only about to explain the correlation between knowledge and food selection practice of adolescents. However, in this study, we also consider the existence of the priority of selection practice by students and the reality of conditions for it due to the possibility that besides the level of knowledge, other factors might influence food selection practices, which the other study did not consider it. The results of this study might have advantages in preventing food poisoning in Surabaya, which is still relatively high. The results of this study have the possibility to become a reference for the government in improving food safety, especially in school areas in Surabaya.

METHODS

This study was an analytic observational study with a cross-sectional design. The research population was all students in Junior High School 19 Surabaya.

There are eleven junior high schools by the government program and around eight junior high schools by the non-government program. This research chooses Junior High School 19 Surabaya by considering its location, which is in the middle of East Surabaya, and the number of students, which is relatively high than the other school in East Surabaya. The samples were students, especially 7th and 8th grade based on the requests from the school as well as considerations that students in grade 9 in junior high school have a heavier load of school material due to exams prepations. As a result, 960 inclusion samples were obtained. The number of sample collected is based on the calculation of the Slovin formula as follows:

$$n = \frac{N}{1 + N\,e^2}$$

Based on the calculation above, the result showed that the required research samples were 93 people. The inclusion criteria of this study include the students who agree as research subjects and get approval from the student's guardian to fill out all the questionnaires honestly and adequately. The exclusion criteria of this research study include the absent and sick subjects. The sampling technique of the study was simple random sampling. The subject was taken randomly after the overall sample size was set. The sample size was measured by drawing a lottery in 4 classes with details of 2 classes from class 7 and 2 classes from class 8. To anticipate the corrupted data, samples that should have been 93 people were increased to 119 people to anticipate the corrupted data.

The obtained data sources included primary data and the instrument of this research using a questionnaire checked against the validity and reliability values. The results of the questionnaire validity were obtained above the minimum value of r table for 36 people (0.2785), while the reliability was obtained values above 0.6 on the questionnaire for the level of knowledge and food selection practices. This questionnaire consists of 20 questions level of knowledge, 15 questions on priority food selection, five questions on food selection practices, and five questions about the reality types of food that are often bought in the school.

The data were collected in December 2019 in a junior high school in East Surabaya. There were two variables in this study; the dependent variable, i.e., food selection practices, and the independent variable (knowledge of hazardous substances). These variables are classified from the questionnaire scores for each student based on the independent and dependent variables into three categories. The cut of point of three categories (Good, Moderate, and Less) based on descriptive analysis from the results questionnaire scores by calculating the mean, median, mode, standard deviation, and class range, then determining the tendency of the variables by calculating the ideal mean and the ideal standard deviation and from these calculations can be continued by categorizing students into three categories for each variable; Good, Moderate, and Poor.

Data processing was undertaken using descriptive analysis techniques and qualitative analysis. This technique transcribes raw data from observations. Data were processed through several stages: editing, coding, data entry, and cleaning. The analysis used in this study is univariate analysis to determine the characteristics of respondents and categorization, and bivariate analysis using Chi-square square with a significance level of 95%. The data that has been analyzed with IBM SPSS Statistic 25 are presented in tabular and narrative form to determine the relationship between knowledge and the practice of food selection. This study was ethically approved by the Health Research Ethics Committee Universitas Airlangga School of Medicine No: 45/EC/KEPK/FKUA/2020.

Table 1. Characteristic of Respondents

Variable	(n)	(%)
Sex		
Male	59	49.60
Female	60	50.40
Age (years)		
12	22	18.50
13	67	56.30
14	30	25.20

Knowledge of Hazardous Substances		
Poor	30	25.20
Moderate	63	52.90
Good	26	21.80
Food Selection Practices		
Poor	32	26.90
Moderate	31	26.10
Correct	56	47.00
Total	119	100.00

Table 3. The Reality of Selection Practices

Variable	(n)	(%)
Reality of Frequently Purchased Food Types		
Cold drinks	46	38.60
Noodles	26	21.80
Rice and side dish	22	18.40
Milk	03	2.50
Meatballs/ Siomay	15	12.60
Chicken porridge	02	1.60
Fried food	02	1.60
Snack	03	2.50
Reality of Reasons for Frequently Purchased Food Types		
Delicious	44	37.00
Cheap prices	18	15.00
The price cheap and delicious	17	14.00
Nutritious	11	9.00
Kind of favorites food	19	16.00
Kind of favorites drink	05	4.00
Good hygiene	02	2.00
Other choice (which the respondents write by itself)	03	3.00
Total	119	100.00

Table 2. The Main Priority Food Selection Practices

Variable	(n)	(%)
Food Selection Practices		
Prices	20	16.80
Taste	26	21.80
Nutritious	47	39.50
Favorites food	05	4.20
Shape of food	03	2.50
Available menu	03	2.50
Personal experience	06	5.00
Quality of water used for washing tableware	05	4.20
Other choice (which the respondents write by itself)	04	3.40

Food Selection Practices (If The Prices are The Same)		
Prices	04	3.40
Favorites food	20	16.80
Taste	31	26.10
Nutritious	38	31.90
Shape of food	04	3.40
Available menu	12	10.10
Personal experience	04	3.40
Quality of water used for washing tableware	06	5.00
Reasoning Not Buying Food		
Water used by vendors to wash food utensils, dirty	31	26.10
Poor sanitation of food vendors location	26	21.80
Expensive prices	20	16.80
Taste not delicious	15	12.60
Not kind of favorite food	05	4.20
Personal experience	06	5.00
Shape of food are not good	02	1.70
The seller's treatment of food not using tools	12	10.10
Other choice (which the respondents write by itself)	02	1.70
Frequently Purchased Food Types		
Cold drinks	34	28.60
Rice and side dishes	22	18.50
Snack	17	14.30
Milk	14	11.80
Noodles	11	9.20
Fried food	12	10.10
Candy and chocolate	07	5.90
Meatballs and sauce	01	0.80
Other choice (which the respondents write by itself)	01	0.80
Reasons for Frequently Purchased Food Types		
Delicious	34	28.60
Cheap Prices	24	20.20
Good nutrition	29	24.40
Shape of food	01	0.80
Kind of favorite food	15	12.60
Available menu	03	2.50
Personal Experience	02	1.70
Good hygiene	07	5.90
Other choice (which the respondents write by itself)	04	3.40
Total	119	100.00

Table 4. Correlation between Level of Knowledge of Hazardous and Toxic and Food Selection Practices

Characteristic	**Level of Knowledge of Hazardous and Toxic**						**Total**		***p value***
	Less		**Moderate**		**Good**				
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	
Food Selection Practices									
Poor	8	25.00	19	59.40	5	15.60	32	100.00	
Moderate	7	22.60	19	61.30	5	16.10	31	100.00	0.446

Correct	15	26.80	25	44.60	16	28.60	56	100.00
Total	30	25.20	63	52.90	26	21.80	119	100.00

RESULT

Characteristic of Respondents

Table 1 showed that most respondents were female (60 respondents, 50.4%). Respondents were between 12- to 14-year-old. Most are 13 years old (67 respondents, 56.3%). The results showed that from three categories of level knowledge of hazardous substances, the most are category 'moderate' (63 respondents, 52.9%), and the results showed that from three categories of food selection practices, the most is category 'Correct' (56 respondents, 47%; see Table 1).

The Main Priority Food Selection Practice

Based on Table 2, there is also some questionnaire about the main priority of 'food selection practice' as additional data. Most students showed that they have the main priority of food selection practices: 'nutritious' (47 respondents, 39.5%); food selection practices if the prices are the same: 'nutritious' (38 respondents, 31.9%); in reasoning not buying food because 'water used by vendors to wash food utensils, dirty' (31 respondents, 26.1%); frequently purchased food types: 'cold drinks' (34 respondents, 28.6%), and reasons for frequently purchased food types: 'delicious' (34 respondents, 28.6%; see Table 2).

The Reality of Selection Practices

Based on Table 3, there are also some questionnaires about the reality of food selection practice by 'self-filling; non-multiple choice' as additional data. The majority of students from this research showed that have 'the reality of frequently purchased food types' category 'cold drinks' (46 respondents, 39%), the priority of reasons for frequently purchased food types' category 'delicious' (44 respondents, 37%; see Table 3).

The result from the statistics showed that there was no significant correlation between the level of knowledge of hazardous substances with food selection practices, with a p-value of 0.446; Table 4.

DISCUSSION

Description of Level of Knowledge

This study shows that the dominant level of knowledge is the 'Good' category. According to the other study that is in line with the results of this study regarding the level of knowledge about snacks undertaken by (Purtiantini, 2010) with the cross-sectional on 58 elementary students in Kartasura in 2010, it found that 96.6% had a good level of knowledge and 3.4% had a bad level of knowledge. However, from the results of these studies, there are differences in comparing the number of categories of knowledge level. In this study, there are three categories used: poor, moderate, and good. Meanwhile, the research conducted by Purtiantini used two categories: good and bad. Purtiantini stated that the knowledge of respondents who are dominated by the good category is probably caused by the sampling location in urban areas so that the students can easily access information sources. In addition, it can also be caused by the subject matter provided at school that can support more information because the sampling was undertaken at one of the high-quality private schools.

The results of this study are also supported by other research by (Syahputra, 2018) with a descriptive research design on 180 students from two elementary schools in North Labuhan Batu, state that in the

second elementary school the student dominated by ‘good’ level of knowledge.

The level of knowledge can be divided into two factors: internal factors and external factors. Internal factors come from oneself; based on life experiences, and external factors are derived from knowledge gained by others, including family and teachers (Purtiantini, 2010). According to other literature, internal factors can come from education, profession, and age, while external factors can come from environmental and social factors (Fitriani and Andriyani, 2015).

There are also factors associated with a person's lack of knowledge: lack of exposure to information, lack of memory/memorization skills, misinterpreting information, cognitive limitations, lack of interest in learning, and unfamiliarity with information sources (Syahputra, 2018).

Description Of Food Selection Practices

This study shows that the result of the dominant food selection practice is the 'correct' category. According to the other study that is in line with the results of this study regarding the practice of choosing food by (Alvionesty, 2018) on 335 elementary school students in Tanjung Senang District, Bandar Lampung, stated that the student dominated by 'good' food selection practice. However, from the results of these studies, there are differences in the comparison of the number of categories of food selection practices in both studies. In this study, there are three categories used; not correct, moderate, and correct.

Meanwhile, the research conducted by (Alvionesty, 2018) used two categories; good and bad. This statement also supported by study by (Febryanto, 2017) with the cross-sectional method on 86 elementary school students in Jombang, stating that the student dominated by positive categories of food selection practices. Similar to the discussion of previous studies, there are differences in the category of selection practice in both studies. In this study, there are three categories used; not correct, moderate, and correct. Meanwhile, (Febryanto, 2017) research used two categories; positive and negative. Another study that supports this study by (Syahputra, 2018) with a descriptive research design on 180 students from two elementary schools in North Labuhan Batu. While in the second elementary school, the results of the research were not in line with this research, but the percentage difference between good and moderate was measly.

Food selection practices can be divided into internal and external factors. These internal factors include knowledge, especially about nutrition, intelligence, perception, emotions, and motivation from outside. Another factor that influences the choice of food is the socioeconomic status of the person; pocket money can determine a child's behavior in choosing food to snack on because healthy food is usually more expensive (Notoatmodjo, 2003). Another factor that may also play a role in food selection is the condition of a person's eating habits in choosing, consuming, and using the available food, which is based on the socio-cultural background in which they live. Most school-age children have a habit of eating snack foods, and this snacking habit tends to become a habit or culture in a family (Purtiantini, 2010).

The Main Priority of Food Selection Practices

The data from this questionnaire are additional data to support the results of knowledge about hazardous substances with food selection practices.

Food Selection Practices

According to the results of this study, it is shown that students who choose the main priority based on nutrition have a dominant number. These results are supported with the statement by (Notoatmodjo, 2003) on the discussion of

factors that influence food selection based on internal factors, especially nutritional knowledge, and social and economic status plays a role in food selection and eating habits of a person according to (Purtiantini, 2010).

Food Selection Practices If The Prices are The Same

This study uses the type of question as in the previous discussion, but there are examples of price categories that are the same. From the results of this study, there was a decrease in the dominant number in the nutrition category by 9 respondents, and in the taste category there was an increase by 5 respondents, and in the category of favorite food types there was an increase by 15 respondents. The results of this study are in line with the theory according to (Notoatmodjo, 2003) which states that social and economic status plays a role in food selection and in accordance with other literature according to (Purtiantini, 2010) which states that eating habits also play a role in selection someone's food.

Reasoning Not Buying Food

The results of this study are in line with the study by (Purtiantini, 2010), which states that supportive attitudes in elementary school students have a more significant number (60.3%) than unsupportive attitudes (30.7%). This is also in support of the study by (Ratnawati, Arundina and Hadi, 2015) which stated that elementary school students' knowledge about hygiene is moderate and the knowledge of sanitation and nutrition are good.

Based on another study by (Nathalia and Vakol, 2019) does not support the statement before by (Ratnawati, Arundina and Hadi, 2015), s who stated that the knowledge of personal hygiene of elementary students is dominated by category 'less.' The different results of the study supported with internal and external factors could involve into the students.

Frequently Purchased Food Types

The results of this study are in line with research by (Iklima, 2017); regarding the frequently consumed snack conducted on 110 elementary school students in Bandung. From the study, it was found that 65 respondents (59.3%) chose the type of food in the category of flavored drinks; the flavored drink category that is meant in this study is 'cold drinks without brands that are made and served in various attractive colors' (Iklima, 2017). This is following the research results that gave the most dominant results were 'cold drinks.'

The results of the research in the form of food that entirely dominates after 'cold drinks' are heavy foods (rice and side dishes), according to (Aprillia, 2011) when an adolescent is in school the child is between morning and lunchtime so that the adolescents often get hunger and this hunger caused students to buy snacks for eliminating hunger. This is supported by the study from (Putra, 2009) on 78 elementary school students in Semarang city. The results showed that 60 respondents (77.9%) bought food to reduce hunger.

Reasons for Frequently Purchased Food Types

The results of this study state that the dominant reason chosen is the delicious taste category. This is following the results of research by (Putra, 2009) on 78 elementary school students in the city of Semarang. The results showed that the most reason chosen was reducing hunger. It was also supported by research from (Aprillia, 2011) stating that when the students are in the school, the students are between morning and lunchtime and at this time often causes hunger and this hunger are often arises which prompts the students to buy snacks to eliminating hunger. As well as the results of the research according to Putra in the category of reasons for purchasing food followed by the category of good taste by 24 respondents and the price was low by 21 respondents. This is

also supported with previous literature regarding the factors that influence food selection practices according to (Purtiantini, 2010) and (Notoatmodjo, 2003).

Reality of Frequently Purchased Food Types

The comparison of the results on the main priority of 'Frequently Purchased Food Types' categories 'cold drinks' and 'heavy foods' (rice and side dishes) is not much different from the previous results based on the choice of answers. However, there was a decrease in the number of categories of milk from the previous results of 11 respondents and an increase in the categories of noodles by 15 respondents. Data shows that there is an uncertainty in choosing the choice of answers between the manner that are prioritized to the conditions the respondent might face.

The results of this study are still in line with the results of research conducted (Iklima, 2017) which states that 'flavored drinks' have the highest number of respondents. Meanwhile, according to (Putra, 2009) types of noodles and rice are examples of the heavy food category. So this study supports the results of study by (Putra, 2009), that most students buy food to reduce hunger.

Reality of Reasons for Frequently Purchased Food Types

According to this data, it was found that a decrease in the number of respondents from the primary priority data for 'the reasons for choosing food' in the nutrition category was 18 respondents, who previously this category was the dominant choice category after the 'taste' category. In the category of good taste and low price, it is the dominant category chosen, and this is in line with the results of previous research regarding the main priority of food types in general, although the number of respondents has increased quite a lot.

The comparison of these results indicates a discrepancy in the practice and priorities chosen by the respondents. Another study that supports the results of this study is research by (Purtiantini, 2010) which states that "the attitude of the respondent who supports it does not necessarily have good behavior in choosing food." Moreover, this is in line with the previous literature regarding factors that influence the practice of choosing food (Notoatmodjo, 2003).

The Correlation between Knowledge and Food Selection Practices

In this study, no dominant data were found and the results of categorization on the number of respondents were not much different in each category. This shows that there is no pattern of correlation trends between knowledge and practice of food selection. This is reinforced by the results of the correlation test using the Chi Square Test with a p value of 0.446. This value is greater than 0.05. This means that there is no significant relationship between knowledge and practice of food selection in one of the junior high schools in East Surabaya.

Another study that supports the results of this study was by (Purtiantini, 2010) which was undertaken with a cross-sectional method on 58 elementary school students in Kartasura. It was stated that there was no correlation between adolescent's knowledge about food selection and adolescent's behavior in choosing food with $p = 0.185$. The study revealed that "the manner of respondents who are supportive does not necessarily have good behavior in choosing food and respondents who are knowledgeable do not necessarily have good behavior in choosing foods" (Purtiantini, 2010).

As for other studies that do not support the results of this study by (Alvionesty, 2018) on 335 elementary school students in Bandar Lampung who stated that there was a relationship / correlation between knowledge about the

selection of snacks and the behavior of students choosing food, amounting to 0.165. This shows that the level of closeness of the relationship is there but very low (Alvionesty, 2018).

Another study that support the results of this study but with different age ranges, by (Suswanti, 2015) on 181 medical and public health students in the city of Jakarta, stated that there is no correlation between knowledge and food selection with p value = 0.570. Another study that supports the results of this study by also having an age range, by (Maharibe, Kawengian and Bolang, 2014) which stated that there was no significant relationship between knowledge of balanced nutrition and balanced nutrition practices of students of the University Medical Education study program in Manado city.

Based on the data obtained from the results, some changes in food selection practices based on priority; these changes include when the questionnaire questions lead to several conditions such as the same price for the snacks purchased, against as a reality condition, and a general description of buying a food purchased. This is supported by the statement from (Purtiantini, 2010), attitude is not equal to action but a predisposition of action or practice. A good attitude does not necessarily lead to action or constitutes good practice. Therefore, the existence of good priorities for students is not a guarantee that in practice it will be good too.

According to (Notoatmodjo, 2003), factors that influence food selection and level of knowledge: internal and external factors; including experience, education level, belief, facilities, income, and socio-culture. According to (Purtiantini, 2010), those factors can affect the knowledge. According to (Fitriani and Andriyani, 2015), there are factors that affect the knowledge and these factors consist of internal factors including education, occupation, and age. In addition, external factors including the environment and socio-culture.

Meanwhile, according to (Purtiantini, 2010), mass media can be another factor that affects children's knowledge in choosing food. Food that is broadcasted in the mass media becomes popular and gives the effect of attraction to children even though the food can be unhealthy. This is also supported by study of (Higgs and Thomas, 2016) which states that social influence might be important factors regarding obesity.

According to (Notoatmodjo, 2003), factors that influence the formation of behavior can be divided into two factors: internal factors and external factors. Internal factors consist of knowledge, intelligence, perception, emotions, motivation and so on, which function to process external stimuli. Meanwhile, external factors consist of the surrounding environment, both physical and non-physical, such as climate, humans, socio-economy, culture, and so on. Furthermore, according to (Purtiantini, 2010), there are genetic or endogenous factors originating from individuals, consisting of race, gender, physical characteristics, personality traits, innate talents, and intelligence.

According to (Nozue et al., 2016) the selection of children's food intake is also based on children's habits in preparing their food. The results based on the reasons for choosing food stated that good taste and low prices were the dominant reasons chosen. These results are different from the study by (Vecchio et al., 2019) who conducted research in Southern Italy regarding people's choice patterns of bitter food, which states that people in Italy have a habit of prioritizing health in the chosen diet so that the taste bitter is no reason not to choose these foods. (Vecchio et al., 2019) stated in his research that people who received a bitter taste in dominant foods had good knowledge of nutrition, so they prioritized nutritional factors over taste.

Research Limitations

In this study, the amount of money given to the adolescents was not considered. In addition, this study did not ask about the parents' salary and the latest education of the parents. Therefore, it could no longer map out the criteria for respondents, and the age of the respondent was the age of adolescents who had the possibility of still having difficulty understanding the questionnaire and possibly not being fixed in answering the questionnaire.

Future research with asking more about characteristics of respondents such as the parents' salary, the latest education of the parents s is needed to get a better and more comprehensive insight about the correlation between the level of knowledge and food selection practices based on hazardous substances in the school canteen.

CONCLUSION

Based on the result of this study, most Junior High School students have the knowledge category 'moderate' and food selection practices category 'correct.' There was no correlation between knowledge and food selection practices based on hazardous substances (p-value = 0.446). There was no difference between knowledge and food selection practices based on sex.

Based on the priority and the real conditions of the questionnaire, it can be seen that some changes in the results of food selection practices are based on the main priority. These changes include when the questionnaire questions lead to several conditions such as the same price for the snacks purchased and against as a real condition. Most students bought snacks based on the good taste and the price on the reality. Moreover, it is shown that even they have a 'moderate' level of knowledge categories and 'correct' food selection practices categories, there is still a possibility that these students do not demonstrate appropriate practices due to other factors such as priorities and existing reality conditions such as prices, taste, type of food.

The results of this study also follow the explanation in discussing the factors that influence the level of knowledge and practice of food selection by internal and external factors. This study used a priority questionnaire and the existing conditions of reality.

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GENERAL POPULATION DISCRIMINATORY ATTITUDE TOWARDS ADULTS AND CHILDREN WITH HIV/AIDS IN INDONESIA

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ABSTRACT

Introduction: HIV continues to be a major global public health issue. While the treatment of people with HIV is still being a challenge, social issues towards people with HIV/AIDS gradually growing. HIV stigma is prevalent worldwide being the barrier to HIV prevention and treatment including in Indonesia. The purpose of this research is to explore the association of social demographic and level knowledge about HIV/AIDS with the discriminatory attitudes towards adults and children with HIV/AIDS in the general population in Indonesia. **Methods:** The type of research is non-reactive research based on secondary data. Chi-square analysis and logistic regression statistics were performed to test the association. **Result:** The result reported that socio-demographic statistically had a significant association with the discriminatory attitude. Males (OR 0.993 [95% CI 0.990 – 0.995]) tend to have an inclusive attitude towards adults with HIV/AIDS but children with HIV/AIDS (OR 4.235 [95% 4.003 – 4.480]). People with no education (OR 1.625 [95% CI 1.143 – 2.310]), people with primary education (OR 1.465 [95% CI 1.363 - 1.575]), poorest people (OR 1.471 [95% CI 1.361 – 1.590]), and people with low incomplete knowledge about HIV prevention and transmission (OR 4.083 [95% CI 3.752 – 4.444]) significantly had a non-inclusive attitude towards adults with HIV/AIDS. **Conclusion:** The result of this research suggested that increasing general public knowledge about HIV prevention and transmission is one of the significant methods in reducing discriminatory attitudes towards adults and children with HIV/AIDS.

Keywords: attitude, discriminatory, general, population, stigma

INTRODUCTION

The human immunodeficiency virus (HIV) continues to become a world health concern, while the treatment of people with HIV/AIDs (PHAs) is still being a challenge, social issues related to them gradually growing. HIV stigma and discrimination are prevailing worldwide due to the irrational fears of HIV infection, dismissive attitudes, and negative judgment towards PHAs. The condition persists even after a long period of HIV/AIDs awareness campaigns and raising efforts to the general population. People with a higher risk of HIV infection encounter a high degree of stigma and discrimination because of their gender identity, sexual preference, personal identity, drug user, and commercial sex employee. Stigma towards them drives acts of discrimination from altogether sectors of society, public officers, cops, schools, the general population, even from health workers (UNAIDS, 2017).

At the beginning of the HIV/AIDs disease epidemic, the transmission of HIV has worsened by stigma and discrimination, resulting in a terrible effect on the epidemic. The stigma is had a significant effect on PHAs or people who are anticipated to be infected with HIV, including children and adolescents (Boyes, Mason, and Cluver, 2013). The impact of stigma has proven to have a significant harmful effect on the physical and mental well-being of PHAs. Stigma is
additionally connected to fear and avoidan
ce of HIV testing program resulting in insufficient adherence to HIV treatment and outcomes (Chidrawi, Greeff, and Temane, 2014).

According to the obtainable information of nineteen countries, stigma and discrimination caused one in five PHAs

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to avoid clinics and hospitals because of fear about their status revelation. PHAs tend to hide their status by avoiding taking antiretroviral treatment (ART), they were afraid that they will be disowned by family and discriminated against by the community. UNAIDS reported that one in every four PHAs have experienced discrimination in the health care settings and one in every three female PHAs have experienced at least one type of discrimination in health care setting associated with their sexual and reproductive health (UNAIDS, 2017). Stigma and discrimination reported to be commonly experienced by pregnant females, it was reported as one crucial factor preventing them to accept HIV testing in antenatal care (Turan et al., 2011) Therefore, confronting a stigma is significant to improving the PHAs' quality of life and as an integral effort to confronting HIV (National AIDS Trust, 2016).

The 2016 UN Political Declaration on Ending AIDs recognized the HIV epidemic as human rights challenge. Restrictive legal and policy frameworks continue to be discouraging and preventing an individual from accessing HIV/AIDs services because stigma and discrimination are a deep concern (UNITED NATION, 2016). In these efforts, some countries have initiated and adopted regulations and educational programs to transfer comprehensive knowledge about HIV/AIDs. Consequently, the stigma and discrimination among PHAs that existed in society can be reduced. A research in Nigeria reported that health education of comprehensive knowledge on HIV/AIDs is one of the control measures in reducing HIV/AIDs stigma and discrimination in society (Dahlui et al., 2015).

Dissemination of HIV/AIDs knowledge is one of the main key factors to reduce HIV stigma and discrimination. Interventions to enhance HIV/AIDs knowledge do not seem to be solely vital for people's health. However, it is crucial to the success in achieving the goals of ending HIV/AIDs. Information related to HIV/AIDs is connected to extend information around risk perception and behavior modification. Besides, former studies had been suggested that increasing knowledge that concerning HIV/AIDs prevention and transmission is beneficial to reduce stigma and discrimination (Platten et al., 2014; Farotimi, Nwozichi, and Ojediran, 2015; Khan, Bilal, and Siddiqui, 2017).

In 2016, UNAIDS reported that more than six hundred twenty thousand PHAs were living in Indonesia with forty-eight thousand people was a new infection and there were thirty-eight thousand deaths. Among them, only 13% have access to antiretroviral treatment (ART) and only 14% of pregnant females with HIV had access to prophylaxis to prevent HIV transmission from mother to fetus. In addition, data showed that more than three thousand children have been infected with HIV from their mothers (UNAIDS, 2019). Several studies concerning the discriminatory attitude towards HIV/AIDs high-risk groups had been done in Indonesia. However, only a little evidence is available related to the general population's attitude toward PHAs in Indonesia. Prior available studies only cover specific populations that cannot be used to generalize the entire population. The main purpose of this research was to explore the association of the social-demographic background of the general population and level of knowledge about HIV prevention and transmission with the discriminatory attitudes towards people with HIV/AIDs based on the 2017 Indonesia Demographic and Health Survey.

METHOD

This research is non-reactive research or commonly called unobtrusive research. Unobtrusive analysis method represent non-reactive cognitive observation, investigation of existing files such as statistic result and records (Auriacombe, 2016). Data collection was

done by requesting data from USAID's *Demographic and Health Survey* (DHS) program, which was formerly collected for the Indonesia Demographic and Health Survey (IDHS) in 2017. The sampling design of the IDHS 2017 was designed to be able to present estimates of national and provincial levels. The sample covers 1,970 census blocks covering 34 provinces of urban and rural areas. The 2017 IDHS sample frame used the Indonesia Master Census Block Sample from the 2010 Census Population.

The social-demographic variable that was collected in this research including gender, residence status, education level, wealth quintile, and age. The wealth quintile was measured following the IDHS questionnaire. Household were given score based on the goods owned, housing characteristics, and facilities. National wealth quintiles are compiled by assigning the score to the family member then dividing the distribution into five categories (National Population and Family Planning Board (BKKBN), Statistics Indonesia (BPS) and (Kemenkes), 2018).

The level of knowledge was categorized as complete knowledge, incomplete middle knowledge, and incomplete low knowledge. The respondent's knowledge level of HIV/AIDS prevention and transmission was measured by nine statements. The level of knowledge categorized as Complete Knowledge (answer all of the question right, score 9), Incomplete Middle Knowledge (answer more than half question right, score 5-8), and Incomplete Low Knowledge (answer most of the question wrong, score 0-4).

Discriminatory attitude towards PHAs in IDHS of 2017 was assessed by two statements related to the situation of the respondents about an adult with HIV/AIDs and children with HIV/AIDs. The statement "*Would buy vegetables from a vendor with HIV*" aimed to assess the discriminatory attitudes of the respondent towards adults with HIV/AIDs and the statement "*Children with HIV should be allowed to attend school with children without HIV*" aimed to assess discriminatory attitudes towards children with HIV/AIDs. The response of the statement was categorized as inclusive and non-inclusive attitude. The total sample that was used in this research was 47.490 respondents with 39,393 females and 8,097 males. Chi-square analysis and logistic regression statistics were presented to explore the association of general population social-demographic background and knowledge of HIV/AIDs prevention and transmission with discriminatory attitudes toward PHAs. The 2017 Indonesia Demographic and Health Survey (IDHS) comply the Standard DHS survey protocol under The Demographic and Health Surveys (DHS) Program (DHS-7) number ICF IRB FWA00000845 that was approved by The Institutional Review Board (IRB) of ICF International. The IRB in Indonesia is housed within the Ministry of Health, and it was determined that the surveys did not require IRB review. Before conducting the research, the author had obtained approval IRB exemption number Y-2019-0158 from e-IRB of Severance Hospital (Yonsei University Health System) in South Korea to conduct this research

RESULT

Table 1. Respondent social-demographic and knowledge level

Variable	n	%
Age of Respondents		
Male (Mean)	39,03	
Female (Mean)	30.80	

Variable	n	%
Gender of Respondents		
Male	8,097	17.0
Female	39,393	83.0
Residence of the Respondents		
Urban	27,878	58.7
Rural	19,612	41.3
Complete Education of the Respondents		
No Education	210	0.4
Primary	8,317	17.5
Secondary	28,611	60.3
Higher	10,352	21.8
Wealth quintile		
Poorest	7,469	15.7
Poor	8,715	18.4
Middle	9,575	20.2
Rich	10,498	22.1
Richest	11,266	23.6
Knowledge Level		
Incomplete low knowledge	6,238	13.2
Incomplete middle knowledge	34,585	72.8
Complete knowledge	6,667	14.0

Table 1 showed data related to the social demographic data of the respondent in this research. In general, most respondents were females by 83%. The average age for the females involved in the survey was less than the average age of males. The female average age was 30.80 years old, while for males 39.03 years old. As for the distribution of respondent's residence, more respondents were observed living in the urban area by 58.6% and the rest were living in the rural or countryside area. Most highest education completed by respondents were in secondary school by 60.3%, followed by higher education with 21.8%, primary education with 17.5%, and 0.4% of respondents without educational background. Wealth was categorized into five classes, the distribution of each class was almost the same, the lowest number of the respondent was in the poorest class with 15.7% while the highest was in the richest class with 23.7%. The majority knowledge level of the general population in Indonesia was incomplete middle knowledge (72.8%).

Table 2. Association of socio-demographic & knowledge with discriminatory attitudes towards adult with HIV/AIDS

Variable	Would buy vegetables from the vendor with			χ^2	*p-value*
	Yes (%)	No (%)	Don't Know (%)		
Gender					
Female	11,48 (29.2)	25,929 (65.8)	1,976 (5.0)	312.748	<0.001

Variable	Would buy vegetables from the vendor with			χ^2	*p-value*
	Yes (%)	No (%)	Don't Know (%)		
Male	2,86 (35.3)	4,560 (56.3)	676 (8.4)		
Residence					
Urban	9,074 (32.5)	17,321 (62.2)	1,483 (5.3)		
Rural	5,275 (26.9)	13,168 (67.1)	1,169 (6.0)	175.231	<0.001
Education					
Higher	3,881 (37.5)	5,951 (57.5)	520 (5.0)		
Secondary	8,448 (29.5)	18,640 (65.1)	1,523 (5.3)	449.043	<0.001
Primary	1,979 (23.8)	5,764 (69.3)	574 (6.9)		
No Education	41 (19.5)	134 (63.8)	35 (16.7)		
Wealth Quintile					
Poorest	1,602 (21.5)	5,358 (72.1)	476 (6.4)		
Poor	2,324 (26.7)	5,876 (67.4)	515 (5.9)		
Middle	2,848 (26.7)	6,204 (64.8)	523 (5.5)	566.248	<0.001
Rich	3,472 (33.1)	6,479 (58.3)	591 (5.2)		
Richest	4,103 (36.4)	6,572 (58.3)	591 (5.2)		
Knowledge					
Complete	3,325 (49.9)	3,084 (46.2)	258 (3.9)		
Incomplete	9,974 (28.8)	23,025 (66.6)	1,586 (5.9)	2,347.269	<0.001
Incomplete Low	1,050 (16.8)	4,380 (70.2)	808 (13.0)		

Table 3. Association of socio-demographic & knowledge with discriminatory attitudes towards children with HIV/AIDS

Variable	Children with HIV should be allowed to attend school with children without HIV			χ^2	*p*-value
	Yes (%)	No (%)	Don't Know (%)		
Gender					
Female	33,278 (84.5)	4,591 (12.6)	1,148 (8.4)	3,330.423	<0.001
Male	4,591 (56.7)	2,584 (31.9)	922 (11.4)		
Residence					
Urban	22,204 (79.6)	4,626 (16.6)	1,048 (3.8)	76.171	<0.001
Rural	15,665 (79.9)	2,925 (14.9)	1,022 (5.2)		
Education					
Higher	8,015 (77.4)	2,059 (19.9)	278 (2.7)		
Secondary	23,251 (81.3)	4,201 (14.7)	1,159 (4.1)	449.382	<0.001
Primary	6,464 (77.7)	1,253 (15.1)	600 (7.2)		
No Education	139 (62.2)	38 (18.1)	33 (15.7)		
Wealth Quintile					
Poorest	5,818 (78.2)	1,133 (15.2)	485 (6.5)	186.500	<0.001

Variable	Children with HIV should be allowed to attend school with children without HIV			χ^2	*p*-value
	Yes (%)	No (%)	Don't Know (%)		
Poor	6,984 (80.1)	1,306 (15.0)	425 (4.9)		
Middle	7,742 (80.9)	1,415 (14.8)	418 (4.4)		
Rich	8,414 (80.1)	1,680 (16.0)	404 (3.8)		
Richest	8,911 (79.1)	2.017 (17.9)	338 (3.0)		
Knowledge					
Complete	4,795 (71.9)	1,725 (25.9)	147 (2.2)		
Incomplete Middle	28,408 (82.1)	5,068 (14.7)	1,109 (3.2)	1,857.075	<0.001
Incomplete Low	4,666 (74.8)	758 (12.2)	814 (13.0)		

Discriminatory attitude towards adults and children with HIV in IDHS of 2017 assessed by statements *"Would buy vegetables from the vendor with HIV"* and "*Children with HIV should be allowed to attend school with children without HIV*". Respondents were provided three choices which are "YES" indicating that they have an inclusive attitude towards people with HIV, answer "NO" indicating that respondents tend to have a non-inclusive attitude so as "DON'T KNOW" response.

Table 2 and Table 3 showed the result of Chi-square Pearson's independent variables: gender, residence, education, wealth quintile, and knowledge have an association with the attitude towards both adults and children with HIV/AIDs indicated by a *p-value* less than 0.05.

Table 4. Logistic regression of discriminatory attitudes towards people with HIV/AIDS

Variable	Adults with HIV/AIDS		Children with HIV/AIDS	
	OR (CI 95%)	*p*-value	OR (CI 95%)	*p-value*
Age	0.752 (0.712 – 0.794)	<0.001	1.002 (0.999 – 1.005)	0.127
Gender				
Female	RG		RG	
Male	0.993 (0.990 – 0.995)	<0.001	4.235 (4.003 – 4.480)	<0.001
Residence				
Urban	RG		RG	
Rural	1.039 (0.992 – 1.087)	0.104	0.930 (0.882 – 0.981)	0.007
Education				
Higher	RG		RG	
Secondary	1.200 (1.141 – 1.262)	<0.001	0.752 (0.708 – 0.798)	<0.001
Primary	1.465 (1.363 – 1.575)	<0.001	0.819 (0.755 – 0.889)	<0.001
No Education	1.625 (1.143 – 2.310)	0.007	1.379 (1.012 – 1.879)	0.042

Variable	Adults with HIV/AIDS		Children with HIV/AIDS	
	OR (CI 95%)	***p*-value**	**OR (CI 95%)**	***p-value***
Wealth Quintile				
Richest	RG		RG	
Rich	1.009 (0.951 – 1.070)	0.772	1.019 (0.950 – 1.094)	0.598
Middle	1.086 (1.019 – 1.156)	<0.001	0.982 (0.910 – 1.059)	0.632
Poor	1.192 (1.114 – 1.276)	<0.001	1.039 (0.959 – 1.125)	0.348
Poorest	1.471 (1.361 – 1.590)	<0.001	1.174 (1.076 – 1.281)	<0.001
Knowledge				
Complete	RG		RG	
Incomplete Middle	2.287 (2.166 – 2.415)	<0.001	0.849 (0.779 – 0.925)	<0.001
Incomplete Low	4.083 (3.752 – 4.444)	<0.001	0.535 (0.502 – 0.570)	<0.001

note: RG acronym of Reference Group

Table 4 showed the result of Logistic regression to analyse the tendency of people to have a non-inclusive attitude toward adults with HIV/AIDs based on several independent variables. Result showed that as the age increase, the respondent potentially to have an inclusive attitude towards adults with HIV/AIDs. Comparing to the female, males have fewer tendencies to have a non-inclusive attitude towards adults with HIV/AIDs but four times higher to have a non-inclusive attitude towards children with HIV/AIDs. The odds of people having a non-inclusive attitude towards people with HIV/AIDS gradually grow as education levels decrease. Regression results of wealth quintile showed that as economic class decreases, the odds of people having a non-inclusive attitude toward people with HIV/AIDs gradually grow. The odds of people with incomplete middle knowledge having a non-inclusive attitude towards adults with HIV/AIDS was 2.287 higher than people with complete knowledge, while the odds for people with incomplete low knowledge to have a non-inclusive attitude towards adults with HIV/AIDs was 4,083 times comparing to people with complete knowledge while other variables are on hold. However, the result was totally in contrast towards children with HIV/AIDS, as the knowledge level decrease the respondent tended to have an inclusive attitude while other variables were on hold.

DISCUSSION

Dismissive perceptions towards PHAs are general sign of HIV/AIDs stigma which precede to the discriminatory and pre-judgement attitudes (Beaulieu et al., 2014). This research only accommodates two statements from 2017 IDHS in measuring discriminatory attitude, towards adults with HIV assessed by statements "*Would buy vegetables from a vendor with HIV*" while towards children with HIV assessed by the statement "*Children with HIV should be allowed to attend school with children without HIV*". Respondents are provided three choices which are "YES" indicating that they have an inclusive attitude towards people with HIV, answer "NO" indicating that respondents tend to have a discriminatory attitude towards

adults with HIV, and "DON'T KNOW" indicating that they are not sure about how to respond with the situation. The author then categorized the "YES" response to inclusive attitude and "NO" and "DON'T KNOW" answer to non-inclusive attitude.

According to the finding of social-demographic factors that were tested, age, gender, residence, education level, and wealth index were significantly associated with the discriminatory attitude towards PHAs in Indonesia. The result suggested that as the age increase, the odds to have a non-inclusive attitude towards adults with HIV/AIDs was decreasing, it is homogeneous with the previous finding (Okonkwo et al., 2017). Okonkwo, et al (2017) reported that among Nigerian people, age above 57 was less likely to show stigmatism attitude toward PHAs compare to people age 18 to 27 years old. However, some studies report the inverse result (Li, et al., 2017). According to Li, et al (2017) people in China between the age of 21 to 50 years old are associated with the decrease of stigma attitude towards PHAs by 26%. The difference in the finding might be because of the cultural difference from country to country. In Indonesia, older people are arguably to have better knowledge about HIV/AIDs prevention and transmission because of being exposed several times to the HIV/AIDs awareness campaign that has been done by the government. Therefore, older people are likely to have a less non-inclusive attitude towards PHAs than young people because they are conceivably to have higher awareness than the younger.

Gender was one of the predictors of discriminatory attitudes toward PHAs. It is interesting to note that from the finding, a male is likely to have an inclusive attitude towards adults with HIV/AIDs than a female but towards children with HIV/AIDS. Some studies have shown that females are arguably to have a proponent of reducing discriminatory attitudes towards PHAs than males (Ouzouni, 2012; Li, et al., 2017). However, other studies also report contrast results, they showed that females had more dismissive and discriminatory attitudes toward PHAs when they are compared with male (Tofighi Niaki, 2012; Masoudnia, 2015). The possible explanation of females is arguably to have an inclusive attitude towards children with HIV/AIDS is because of female natural and social position as a mother in the community. Thus, females are arguably to feel more sympathy towards children with HIV/AIDs.

People who live in rural areas are arguably to hold non-inclusive towards adults with HIV/AIDS but towards children with HIV/AIDS. The finding is similar to several former types of research, people who live in a countryside is likely to have a discriminating attitude towards PHAs than people who live in an urban area (Amuri et al., 2011; Terán Calderón et al., 2015; Iqbal et al., 2019). Amuri (2011) reported that people who live in a rural area presumably to have a discriminatory attitude because people not familiar with the HIV/AIDs as the prevalence of HIV/AIDs in a rural area or countryside was less than in an urban area. Additionally, living in countryside are also arguably to have less access to information especially in Indonesia where the internet is still difficult to be accessed. The main source of information for them was television or radio. The limit of source information also being a barrier to the HIV/AIDs awareness campaign.

The finding indicates that one of the main predictors of discriminatory attitudes towards PHAs was the education level of the respondent. The results of this research are consistent with the findings of former researches in which shown the positive impact of education on the attitudes of the general population toward PHAs (Terán Calderón et al., 2015; Li et al., 2017; Khan, Bilal, and Siddiqui, 2017; Iqbal et al., 2019). Other studies confirmed the same result amid the health practitioners (Amuri et al., 2011; Memish et al., 2015; Farotimi, Nwozichi and Ojediran, 2015). Higher education less likely to have a non-inclusive attitude towards PHAs is because the

respondents have a longer period attending school. On account of this, higher education is arguably to have high awareness and better information about HIV/AIDs prevention and transmission compared to the people with lower education levels. However, there was a research that reports contrast result with the finding, Masoudnia (2015) reported that higher levels of education, especially academic education has higher discriminatory attitudes toward PHAs compared with those with lower levels of education. The phenomenon was due to the irrational fears of the people (Masoudnia, 2015). Some people who attended the special or specific school that was never exposed to the HIV/AIDs campaigns and awareness programs such as religious-based schools are arguably to have less knowledge of HIV/AIDs. As the result, even if people have certain degree of education, they might hold a non-inclusive attitude towards PHAs.

The wealth quintile was one of the predictors for discrimination toward PHAs. According to the result of the research, people who have better wealth are arguably to have an inclusive attitude toward PHAs. The finding indicates that people with a poor status are arguably to have a non-inclusive attitude toward PHAs, it is similar to the prior studies (Amuri et al., 2011; Terán Calderón et al., 2015; Iqbal et al., 2019). Calderon, et al (2015) reported that among Bolivian family who has income less than 1000 USD arguably to have a double discriminatory attitude toward PHAs than a family who has income greater than 1000 USD. Iqbal, et al (2019) reported that female who has less education and poor wealth index is arguably to show a less positive attitude toward PHAs. This finding is important to be considered when designing a program to reduce the discriminatory attitudes towards PHAs.

People with incomplete low knowledge about HIV/AIDs transmission and prevention tend to have four times higher odd of non-inclusive attitude toward adults living with HIV/AIDs and incomplete middle knowledge tend to have two times higher odd than people who have complete knowledge. The finding is homogeneous to several former studies (Ekstrand et al., 2012; Memish et al., 2015; Masoudnia, 2015; Yang et al., 2015; Bhagavathula et al., 2015; Vorasane et al., 2017; Okpala et al., 2017; Khan, Bilal and Siddiqui, 2017). Masoudnia (2015) did research in Iran, he found that respondent awareness about HIV/AIDs and discriminatory attitude toward PHAs was statistically significant, the more knowledge of respondents about HIV/AIDS, the lower discriminatory attitudes they showed. Ekstrand, et al (2012) reported a research in India that discriminatory attitude toward PHAs was reduced with more accurate knowledge about transmission of HIV. Stigma attitude and discrimination toward PHAs are driven primarily by HIV/AIDs transmission misconception, blame, and negative feeling towards PHAs. The same result was also reported by Bhagavatula et al (2015), insufficient knowledge correlates with a dismissive attitude towards PHAs. Okpala, et al (2017) reported the same result that nurses with a high level of knowledge related to HIV/AIDS are arguably to have a positive attitude toward PHAs. A research in Saudi Arabia done by Memish, et al (2015) reported that the medical practitioners who have inadequate knowledge of HIV/AIDs had significantly higher mean stigma scores than medical practitioners who have better knowledge about HIV/AIDs. Inadequate knowledge of physician related to HIV/AIDS may lead to being an impediment to the control measures of HIV/AIDs because it can affect doctor attitudes towards PHAs thereby discouraging patients with HIV/AIDs to access HIV/AIDS prevention, care, and treatment service. The same result reported by Vorasane (2017), physicians and nurses in Lao PDR who have a higher level of HIV/AIDs knowledge were less likely to show stigmatizing attitudes towards PHAs.

Even insufficient knowledge was found statistically significant with discriminatory attitude toward PHAs, there was research reported contrast results (Li et al., 2017). Li, et al (2017) reported that escalated stigma is associated with better knowledge of HIV/AIDs transmission. The possible explanation related to the result is due to overestimating the risk of HIV/AIDs contagion in China, therefore the respondent is arguably to avoid contact with PHAs as far as possible when they have better knowledge about it. The finding related to knowledge with discriminatory attitude indicates that improving knowledge of people is one of the effective reduction strategies related to discriminatory attitude towards PHAs. The stakeholder should provide more awareness campaigns to improve community knowledge related to HIV/AIDs prevention and transmission to support discriminatory attitude reduction strategy towards PHAs. Since it already noted that discriminatory attitude that received by PHAs can prevent them from accessing health service and treatment that can lead to the fails of HIV/AIDs prevention and control program.

This research presented an adequate amount of the sample that is representative enough to cover provincial and national generalization levels. The research also covers topics about the discrimination attitudes towards children with HIV which is still being a sensitive topic and there is only limited amount of research which addresses the same issues.

The major strength of this research is that the research compares between people with complete level knowledge that showed the better impact of people having complete knowledge related to the HIV/AIDS prevention and transmission affecting the discriminatory attitude towards PHAs. The outcomes of the studies also showed consistency with the prior studies even from different countries, indicates that the outcome of the research represents the association of social-demographic and knowledge related to the HIV/AIDs prevention and transmission with the discriminatory attitude towards PHAs.

Limitations

The research was limited by the bounded location and time of Indonesian citizens who were resided in Indonesia at the time of data collection. Data analysis was undertaken based on the questionnaire's secondary data collected for 2017 IDHS, which cannot provide deeper information. The research was undertaken by interview, limiting the author to collect additional information to support the explanation of research findings. Most of the results showed significant results determining the association between the independent and dependent variables, but that should be noted if using Chi-square analysis to analyse the association which chi-square analysis is highly sensitive with the sample size. The research's design was cross-sectional analysis in which the independent and dependent variables were measured simultaneously. Therefore, the research result cannot perfectly determine the direction of the relationship among variables. The direction of the association was conducted based on the theoretical framework.

CONCLUSION

The result of association analysis in this research indicated that the social demographic of the respondent, such as age, gender, residence, and wealth quintile, have a statistically significant association with discriminatory attitudes toward PHAs. The incomplete knowledge about HIV/AIDs prevention and transmission escalated the odds of people holding a biased attitude towards PHAs twice higher than people with a complete understanding of HIV/AIDs prevention and transmission.

The finding indicated that high education and complete knowledge related to HIV/AIDs prevention and transmission are the key factors that can be modified to reduce the odds of people holding a

discriminatory attitude towards PHAs in Indonesia. Future studies should be conducted to explore better information and deeper analysis in understanding the biased attitude mechanism towards PHAs.

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IDENTIFICATION OF SOCIAL SUPPORT FOR CHILDREN AS SURVIVORS OF DOMESTIC VIOLENCE AT THE SURABAYA EMBUN FOUNDATION

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ABSTRACT

Introduction: Violence is an act that can cause an injury and affects other people both physically and psychologically as opposed to the law. Violence can be considered a crime. In general, violence targets groups or parties that are vulnerable. Children are part of vulnerable groups to violent behavior, including child abuse. According to DPKP3A data, there are 38 children victims of sexual abuse. **Methods:** This research aims to describe the existence of social support for children as victims of domestic violence at the Embun Surabaya Foundation. This foundation focuses on protecting and empowering children and women who are victims of exploitation and violence. This research used a qualitative approach with phenomenology methods supported by data collection using in-depth interviews and observations. The informants of this research were five people consisting of four girls who were victims of domestic violence and one supervisor staff at the Surabaya Embun Foundation. **Result:** The results indicate that children as victims of domestic violence at the Embun Surabaya Foundation receive excellent social support in informational support, emotional support, appraisal support, and instrumental support. These four supports have brought victims to accept themselves and increase their confidence. **Conclusion:** The four supports are given by their families (families that are not included in the perpetrators of violence) and the staff of the Embun Surabaya Foundation.

Keywords: Violence, child abuse, social support

INTRODUCTION

Family has become a fundamental base of children's education as an innate core group. Inherent education from parents is considered a foundation for children to be used in the social stages of life and become their basic knowledge before entering the society full of diverse languages, ethnics, and cultures (Khairuddin, 2008).

he education provided by parents could be in the form of morality and ethics or compassions to express themselves as social beings. Everything that the children do might be likely to affect the family otherwise. Family, parents, in particular, may play a role in the concept of behavior, personality, morality, knowledge, and thought of the children. However, parents might likely make mistakes while engaging in roles that may cause uncertainty and disruption in children's psychological condition. These mistakes are assumed to be in the form of violence or child abuse. There are many forms of child abuse, including physical abuse (pinching and hitting), emotional abuse (threatening, frequently shouting, mocking, and constantly swearing), sexual abuse (rape and viewing child pornography), and neglect. Child abuse can be seen as a punishment method by parents. It is assumed that parents give the child punishment to stop bad behavior that does not reflect the social value and teach discipline (Lestari, 2012). Lestari stresses that some parents, but not all, still apply punishment as a method to teach discipline to the child. Withholding pocket money, giving a silent treatment, and spanking or paddling are some examples of punishment (Hapsari et al., 2016).

According to WHO, violence in general means the use of physical force and

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power, threats or actions against oneself, individual or group of people (community) that cause bruises or trauma, death, psychological damage, developmental disorder, and deprivation of rights (Bagong, 2010).

Violence against children or child abuse is considered an act of injuring physically or psychologically, sexual harassment, negligence of treatment, or child abuse on children under the age of eighteen by a caregiver that is marked by threatened health and welfare of the child. (Gelles, 1976)

Komisi Perlindungan Anak Indonesia (The Indonesian Child Protection Commission), mostly known as KPAI, points out that child abuse increases constantly each year. This can be seen from monitoring results done by KPAI, which has shown that there was a significant increase in child abuse from 2011 to 2014. It was noted that there were 2178 cases of child abuse in 2011, 3512 cases in 2012, 4311 cases in 2013, and 5066 cases of child abuse in 2014 that occurred in Indonesia (Setyawan, 2014).

On the other hand, in a journal article entitled the Institute of Child Protection (LPA)'s Role in Assisting Children Against Violence in the span of 2013 to 2015 in East Java, LPA found that complaints filed on child abuse have decreased. The most occurred abuse with 44% of cases is social abuse, including neglect and child exploitation. The second highest cases are sexual and physical abuse, with 26% of cases, while a few cases, around 3.6%, are psychological abuse. In 2013, the number of social abuse cases reached 66%, while in 2014, most cases of child abuse that occurred were physical abuse, with around 53.7%. The number of cases of child abuse occurs more than the number of other child issues. (Setyawan, 2014).

Based on data provided by Dinas Pengendalian Kependudukan Pemberdayaan Perempuan dan Perlindungan Anak (Surabaya Child Protection and Empowerment and Population Control Agency), shortened as DPKP3A Surabaya, there were 132 children victims of sexual abuse in 2017. There were 38 cases of child sexual abuse that occurred until February 2018. Meanwhile, according to another source, Unit PPA (Unit Perlindungan Perempuan dan Anak) Satreskrim Polrestabes Surabaya or the Women and Children Protection Unit Polrestabes Surabaya, it has been revealed that Unit PPA investigated around 52 cases of child sexual abuse in 2017 while in January and February 2018, 5 cases of child sexual abuse were handled.

Violence against children by a parent may cause a negative impact. Talbot (cited in Sachs-Ericsson, Medley, Kendall-Tackett, & Taylor, 2011) points out that the negative impact of child abuse can include physical or psychological damage. Physical damage may result in bruises or even worse, permanent disability. Furtermore, psychological damage may develop mental health problems later in the child's life.

The act of domestic violence against children might be the result of technological advances where negative influences affect the individual in a family. Mass media, including social media, may interfere with the harmony of a family, particularly in the development of a child. This interference might be caused by neglection by parents where they were too occupied with social media life. It may also affect the child psychologically, triggering insecurity, depression, feeling inferior, and being isolated by friends.

Child abuse is opposed in Indonesia, according to The Child Protection Act no.35 of 2014. It can be inferred that the legislation was enacted to improve and achieve full protection on the child, including the health status of a child, against any assault. Article 44 of The Child Protection Act states that national and regional governments are required to provide facilities and organize health supports for children so that each of them can obtain an optimal degree of health

starting from the mother's womb. Moreover, Article 45 of the act explains that parents and family are obligated to be responsible for maintaining and caring about the health of the children.

Social support could be one of the useful contributions consisting of verbal and non-verbal informative assistance, behavioral and material direct assistance through a close social relationship that can relay the sense of love, care, and value. Social support can be obtained from a group of people that can create a sense of security in life, which increases self-confidence, skills, and strategies in dealing with problems. This group of people includes family, particularly parents, friends, spouses, social environment, and people they trust (Breznitz, 1982). In other words, social support can be obtained from different sources (Sarafino, E. P., & Smith, 2012).

This research aims to show that social support for children as a victim of domestic violence exists through qualitative research on Embun Surabaya Foundation or Yayasan Embun Surabaya.

METHODS

A phenomenology method was employed and supported by data retrieval from in-depth interviews and observation. The subjects were parts of the Embun Surabaya Foundation. The survivors of domestic child abuse were chosen as the key informants, whereas the supervisor staff of the Embun Surabaya Foundation was selected to provide supporting statements of the key informant.

House, a prominent researcher in this field, identifies four social support dimensions: informational support, emotional support, appraisal support, and instrumental support. This statement is mentioned in Smet's book of Psychological Health and Sarafino's Book titled *Health Psychology: Biopsychosocial interactions* (7th ed.)

Embun Surabaya Foundation is a Non-Government Organization that focuses on protecting and empowering children and women. Not only serves as a place of protection and empowerment, but Embun Surabaya Foundation also functions as a place to accommodate, foster, and offer lessons for children and women who are experiencing a crisis in their lives. Embun Surabaya Foundation was selected for its reputation as a shelter for the abuse victims. Five informants consisting of four key informants and one supporting informant were chosen for this research. Primary data in this research were collected through in-depth interviews with the informants and observation of the facilities to obtain superficial information related to several things that became the focus of the research. Other than that, literature reviews were conducted as secondary data.

The research was undertaken using an interview guideline. The guideline effectively gathered lots of information and several vital points needed for the research. Ethical approval for this research protocol was obtained from the Research Ethics Committee of Faculty of Dental Medicine Universitas Airlangga on 29 Mei 2019 with certificate number 290/HRECC.FODM/V/2019.

RESULTS

The following are the results that can be seen from the existence of social support from professional helpers, including psychologists and doctors, and several social support aspects and supporting aspects in the form of the characteristics of the informants.

Characteristics of Key Informants

These 4 survivors of child domestic violence in Embun Surabaya Foundation as the key informants were interviewed to collect the data. It is further mentioned in Table 1.

Table 1. Characteristics of Key Informants

IK	Initial	Age	Educational Level
IK1	TAA	17	High School
IK2	SAO	17	High School
IK3	TN	10	Elementary
IK4	MLS	20	Elementary

The characteristics of the children abuse survivors as the key informant range in age between 16 to 20 years old. Key informant was determined based on the recommendation given by the supervisor staff of Embun Surabaya Foundation with several predetermined criteria. The highest level of education of the key informants is high school (SMA) and the lowest is elementary school.

It can be taken from the data that 4 key informants experienced variety of domestic violence. These interviews may support the result of the research that were conducted.

Table 2. Description of Answers Regarding the Type of Violence Experienced by Key Informants

IK	Informational Support
IK 1	Guidance regarding future plan
IK 2	Personal advice on education
IK 3	Suggestion regarding changing bad behavior
IK 4	Guidance regarding future plan

"Once my friend invited me to meet a man that I never knew. From that moment, I knew that she was a call girl. Since I was frequently asked to meet this man, I became close to him." (TAA, 17)

"It happened because of a certain issue, 'pergaulan bebas'(literally, free socializing) with my date. It was sexual abuse." (SAO, 17)

"A physical abuse by my father and teacher" (MLS, 20)

"We reconstructed entire crime scenes where gun, sickle, rope and some stuff used by my dad to abuse me were there." (MLS, 20)

Looking at the Table 2, it is apparent that the first key informant experienced trafficking before going to Embun Surabaya Foundation. The second key informant experienced sexual abuse. The third key informant experienced physical abuse while the last key informant experienced trafficking, physical and sexual abuse.

Informational Support

Based on the in-depth interview conducted, it can be concluded that the key informants received informational supports when staying in Embun Surabaya Foundation.

Table 3. Informational Support for Key Informants in Embun Surabaya Foundation

IK	Question Category	
	Inisial	Type of Violence
IK 1	TAA	*Trafficking*
IK 2	SAO	Sexual Abuse
IK 3	TN	Physical Abuse
IK 4	MLS	*Trafficking*, Physical and Sexual Abuse

"An advice or guidance was given. They said that I am not wrecked yet. I still have my own future as long as I won't be back to my dark past. As long as I open the new page, I can live this life to the fullest. They even said that I can be a great person in the future." (TAA, 17)

"The most unforgettable advice is "when you step outside of Embun and live your life, you can start here again as a trainer, educator, moreover, a good example for your children and kids in here so that they will be a better person."" (MLS, 20)

"The most remarkable advice that I got is related to school problem. That we should focus on school, spare time for our children, and do not ever engage with that kind of social life again (free socializing or 'pergaulan bebas')." (SAO, 17)

"If you decided to step out from Embun, do not ever forget Embun. Change your bad behavior like stealing stuff, lying, and other bad habits. We should be someone greater." (TN, 10)

From the in-depth interviews with key informants and a supporting informant, several informational supports were delivered by staffs of Embun Surabaya Foundation, including advice and suggestion that are useful later in life. The answers stated above shows that the survivors have received a significant amount of informational support from the supervisor staff in the Embun Surabaya Foundation that can be helpful for them.

Emotional Support

Based on the in-depth interview conducted, it can be concluded that the key informants received emotional supports when staying in Embun Surabaya Foundation.

Table 4. Emotional Support for Key Informants in Embun Surabaya Foundation

IK	Appraisal Support
IK 1	Being praised for doing homework
IK 2	Being praised and receiving motivation when telling problems
IK 3	Getting compliment
IK 4	Being praised for doing homework

"I consider the staff here as my parents, my family related by blood. They are very kind and gracious. They let us, children like me, to live here. Some children those undergone problems are allowed to stay here. They teach us a lot of things and share some conversation. Not only sharing, but they are always trying to engage with us until we feel comfortable in here." (MLS, 20)

"They treat me as their own child, as if I was part of their family. They also teach me about life." (TAA, 17)

From on the in-depth interviews with key informants and a supporting informant, it is reported that staff of the Embun Surabaya Foundation gave several emotional supports. However, it is apparent that the answers from the key informants do not display proper emotional support from the staff of the Embun Surabaya Foundation. There is not enough evidence of emotional support for the children since the only evidence that can be acquired is a statement that the staff treats them as a family.

Appraisal Support

Based on the in-depth interview conducted, it can be concluded that the key informants received appraisal supports when staying in Embun Surabaya Foundation.

Table 5. Appraisal Support for Key Informants in Embun Surabaya Foundation

IK	Emotional Support
IK 1	Treated as their own child and family
IK 4	Considering the staff as family

"They give compliment to me, saying that I am smart and do a good job in cleaning. I rarely have a fight with my brother and sister too." (TN, 10)

""Don't ever give up, don't ever repeat the old incident again, focus on your future, keep up your spirit, and most importantly, when you are on top, don't forget about your parents because parents are your everything", they said. If I already get a job and have enough salary, I'll definitely give a decent life for my child. Oh, they also like to give compliment when I do my housework such as sweeping the terrace and cleaning the entire house." (SOA, 17)

"You are pretty, it is such a waste if you decided to still socialize with that kind of friends who only give you nothing but loss. You still have enormous potential." (TAA, 17)

"Some of the compliment that I received are, "You are very talented in cooking!", "You know what? You could just open your own catering and it will be the finest of all.", "You should also open 'penyetan' restaurant! All of the food you cooked are incredible! Evenmore, you make very tasty coffee and tea." I become all-rounded person in here. Everything is done without anyone's help including cooking and cleaning." (MLS, 20)

From the in-depth interviews with key informants and a supporting informant, it can be seen that the staff of the Embun Surabaya Foundation delivered several appraisal supports, including comforts and the feeling of being appreciated. The answers stated above shows that the survivors have received a significant amount of appraisal support from the supervisor staff in the Embun Surabaya Foundation that can be helpful for them. It may be because of the motivation and compliment given to the children.

Instrumental Support

Based on the in-depth interview conducted, it can be concluded that the key informants received instrumental supports when staying in Embun Surabaya Foundation.

"They sometimes give pocket money to me" (TAA, 17)

"The staff in here sometimes give us money voluntarily from their personal income. Well, I'll accept it if it is given, but no demand attached." (SOA, 17)

"They sometimes give me from 2 thousand to 5 thousand rupiah." (TN, 10 tahun)

"Mr. D and Ms.R often give me some money. For example, when I go out to buy milk formulas for my child. But now, there is no benefactor anymore." (MLS, 20)

There are also statements uttered by the key informant that they receive assistance from the staff while doing their homework.

"They frequently help us. Well, not only the staff, but the older kids in here like to hand-in-hand help us finishing our homework. Everyone always tries to reach out, such as M and Y." (TN, 10)

"They help us a lot. Something like calculation and other. They often teach my child and research together." (MLS, 20)

"Friends and staff hand-in-hand in taking care of my child when I am busy. Bathing the baby, accompanying while I am doing the housework are the example." (SOA, 17)

Table 6. Instrumental Support for Key Informants in Embun Surabaya Foundation

IK	Instrumental Support
IK 1	Material and assistance while doing the housework
IK 2	Material support from family
IK 3	Material and assistance while doing the school homework
IK 4	Material and assistance while doing the school homework

From the in-depth interviews with key informants and a supporting informant, several instrumental supports were given by the staff of the Embun Surabaya Foundation that allows the survivors of domestic child abuse to experience a feeling of being helped and not having difficulties facing the task assigned to them. The answers stated above show that the survivors have received a significant amount of instrumental support from the supervisor staff in the Embun Surabaya Foundation that can be helpful for them by giving some assistance to each other. It may be because the staff continuously give out some support both in material and non-material.

DISCUSSIONS

Key informants of the research have a specific characteristic: children as the survivors of child domestic violence living in the Embun Surabaya Foundation. They have been staying in the Embun Surabaya Foundation for some time and have adapted living. They have also participated in all activities provided by the foundation. The key informants' average age ranges from age 10 to 20 which identified as a teenager. At this age, an individual's mental health and way of thinking may not mature enough and still undergo changes that may affect their mindset. This reason also might result in a more significant potential to become victims of violence.

Another characteristic of the key informants is the type of violence experienced by them. Nevertheless, the type of violence can be considered a factor related to the impact of violence committed by their parents. This statement is in line with Maisah's research under the title of Psychological Impact on Victims of Domestic Violence in Jambi. It is stated that children and women are very likely to be the victims of violence (Maisah & SS, 2016). Maisah's research focuses on wives, as the victim, who claimed to receive physical and psychological abuses from their spouses. The impact of the violence is in the form of psychological effects. The effects include lack of concentration at work, doing careless actions, feeling confused by their surroundings, forgetfulness, and insomnia. This negative impact may affect not only wives but also children. Lingering inferior feelings and lacking confidence in front of their friends might be examples of the adverse effects in children.

The research results confirm the existence of social support given by family (who are not the assailant) and staff of Embun Surabaya Foundation. The social support might be able to increase their willingness to be better than before, so they may get through the problems they are facing without any difficulties.

Social support may come from non-professional people, including those around the victims such as family, parents, spouses, and friends. Some professionals are already experts in their fields, such as psychologists and doctors. The social support group can also come from volunteers and those who allow helping people in need of support.

This research seems to be consistent with social support theory by House and Smet that social support is divided into four types, which are informational support, emotional support, appraisal support, and instrumental support (Sarafino, E. P., & Smith, 2012). It can also be concluded that only three types of social support met the criteria of House's theory: informational support, appraisal support, and instrumental support. It might be associated with the key informants' statement, which consists of the evidence of the existence of three types of social supports given by the staff of the Embun Surabaya Foundation.

Another possible explanation for this might be that the staff of Embun Surabaya Foundation unable to deliver proper emotional support for the survivors since the only statement acquired from the interview is that they treat the children as their child. However, the other two statements may be suitable to be considered informational support and material instrumental support.

Another possible explanation for this might be that the staff of Embun Surabaya Foundation unable to deliver proper emotional support for the survivors since the only statement acquired from the interview is that they treat the children as their child. However, the other two statements may be suitable to be considered informational support and material instrumental support.

CONCLUSION

This research focuses on two informants: key informants and supporting informants. Children as the survivors of

domestic violence in Embun Surabaya Foundation were chosen as the key informants. In contrast, the supervisor staff of Embun Surabaya Foundation, someone in charge of providing necessities in the foundation, was selected as the supporting informant.

This research shows that children as the victims of domestic violence received social support, including informational support, emotional support, appraisal support, and instrumental support when staying in Embun Surabaya Foundation. These social supports help victims accept themselves, improve self-confidence, and forget their past. However, the emotional support has not yet been fully interpreted by key informants—the results in the imperfect social support expressed by House.

These four social supports were received from family (those not included as perpetrators) and staff at Embun Surabaya Foundation. It has been examined that several impacts were delivered to the children as survivors. These impacts can be in acceptance toward themselves, increasing self-confidence, becoming a better person, and forgetting about the past.

The staff has also delivered several advice and suggestions for the children of the Embun Surabaya Foundation. One of the suggestions is that children, as the survivors, should be able to employ the staff's social support to receive necessary knowledge for later in their life outside of the Embun Surabaya Foundation.

On the other hand, Embun Surabaya Foundation should be able to add some supervisors who are committed enough to dedicate themselves to Embun Surabaya Foundation. The supervisor may guide, supervise, and pay attention to the details of the conditions and needs of the victims later in the foundation.

This research suggests that Embun Surabaya Foundation can manage the existing programs intensively and periodically so that the children can gain extensive knowledge and undertake plenty of creative activities. The intensity of counseling programs should also be increased, especially the programs related to introducing diseases that can be beneficial spiritually. Increasing the intensity of the counseling programs outside of the foundation might also prefer to let the victims be comfortable complaining about their problems.

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RELATIONSHIP BETWEEN DRINKING WATER HABITS AND WORK CLIMATE PERCEPTIONS WITH DEHYDRATION INCIDENCE IN SHIPPING COMPANIES' WORKERS

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ABSTRACT

Introduction: Workers in the maintenance and repair division's shipping division work in outdoor physical environments, which get hot temperatures from the environment. They cause excessive sweating while working and can cause dehydration if not drinking enough water. **Methods:** This study aimed to analyze the relationship between drinking habits and work climate perception with dehydration status in shipping companies' workers. The research method was analytic observational, with a cross-sectional design in 2019 in one of the shipping companies with a sample size of 49 workers who were selected using simple random sampling from 55 worker populations. The independent variables included respondent characteristics, drinking water consumption habits, and work climate perceptions, while the dependent variable was dehydration status. Dehydration status among workers was measured base on the specific gravity of urine measured in the laboratory, and the working climate was measured using a heat stress monitor. **Result:** The results showed that 85.71% of workers had minimum dehydration status, and 14.29% had significant dehydration. Then, there was a meaningful relationship between drinking water habits and dehydration status ($r = -0.320$ and $p = 0.025$). There was also a relationship between workers' work climate perceptions and dehydration status ($r = -0.283$ and $p = 0.049$). **Conclusion:** The relationship showed a weak negative meaning that the less habit of drinking water among workers, the higher the dehydration status of the workers. The more disturbed they perceive the working climate; the less dehydrated status of workers will be. So it can be ignored that there were drinking habits and the work climate perceptions with dehydrated status in shipping companies' workers.

Keywords: dehydration status, drinking habits, work climate perceptions.

INTRODUCTION

Nowadays, many shipping companies in Indonesia are run. They develop fastly shipping companies develop. There are many divisions in shipping companies. One of the divisions is the maintenance and repair division, the activities of this division are maintaining and repairing the ship, ranging from a commercial ship, submarines, warship, TNI ship, navy, and others. The maintenance and repairing division is the division that has more routine activities with faster processing time than other divisions. The routines in maintaining and repairing, there is a yearly routine even it can be finished until three years. That routine activity causes the workers to get pressure or stressor continuously from their job and work environment so that many projects must be done with a short processing time. As a result, the maintenance and repair division trigger to have many activities. Dense activities, both indoor and outdoor, will cause some health risks. One of the risks is losing body fluids which can lead to dehydration.

Dehydration is the condition when the fluids inside the body are getting deficit because the total excreted fluid is more than the amount that consumes a little water. The body can be dehydrated when it loses many fluids (Rismayanthi, 2012). Bad drinking habits can lead to dehydration because they are not proportional to the excretion of fluids from the body. Drinking water is vital for every human being, especially for workers who do more activities, someone

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will get dehydration if they lack drinking water.

There are still many workers who ignore drinking water habits while working, which causes dehydration. It is in line with the research done by (Huda et al., 2018) showed a significant relationship between mineral water consumption with dehydration cases among workers in tofu factories, which correlation showed (r) 0,882 or very strong.

Besides the lack of drinking water among workers and dense work activities, dehydration can be caused by work climate factors. Workers experience rapid evaporation of fluids in their bodies. Humidity, radiant heat, air temperature, and air velocity are part of the working climate (Suma'mur, 2009). As the maintenance and repair divisions, technical workers work in outdoor physical environments, which are getting to heat stress from the environment, which can lead to excessive sweating while working and can cause dehydration if they do not drink enough water. Moreover, the workers' perception or feeling of the hot temperature in the workplace can be fatal if they cannot control it. Perception can appear because of the condition in the hot work environment. It can be evidenced by the results of measuring the working climate in the work environment. According to (Sayuti and Susanto, 2017), hot temperatures in the workplace can interfere with the workers' comfort while working.

Based on (Soedirman and Suma'mur, 2014), the high heat exposure for the long term causes the body to secrete sweat to reduce the water inside the body. The result of the research was done by (Puspita and Widajati, 2017) at a PT. X in Sidoarjo shows that work climate correlates with dehydration in workers. The workers who experience dehydration are obtained as much as 87.1% with the category of light, moderate, and exceeding TLV. The work climate in the workplace needs to be considered to avoid dehydration among workers even though the workers' workplace has adapted to the work climate.

Based on the problem identification found, this research aims to analyze the age difference with dehydration status, analyze the relationship between drinking habits with dehydration status among workers in the shipping company, and analyze the relationship between work climate perceptions with dehydration status among workers in a shipping company.

METHODS

This research was quantitative research in which the collected data was obtained by direct observation in the workplace. The researcher did not give any treatment or intervention on the research subject. Based on the analysis, this research was analytical because hypothesis testing used data analysis with the statistical method and results from a conclusion that can be generalized.

Based on the scope of research, this research was field research because the research data was carried out directly in the workplace. This research used a cross-sectional design based on the timed approach because the research data was conducted at one specific time. The population in this research was all technician workers in the Production Department, Maintenance and Repair Division of shipping companies and as many as 55 workers. To determine the sample size in this research was probability sampling with the simple random sampling method. Based on the determination on the sample size determined using the Lemeshow formula, as follows:

$$n = \frac{z^2_{1\frac{\propto}{2}} P(1-P)N}{d^2(N-1) + z^2_{1\frac{\propto}{2}} P(1-P)}$$

$$n = \frac{1{,}96^2 \times (0{,}5(1-0{,}5)55)}{0{,}1^2(51-1) + 1{,}96^2 \times 0{,}5(1-0{,}5)}$$

$$n = \frac{3{,}8416 \times 13{,}75}{0{,}125 + 0{,}9604}$$

$$n = \frac{52{,}822}{1{,}0854}$$

$n =$ 48,665 ≈ 49 people

Description:

n = Sample size

N = Population size

$z^2_{1\frac{\propto}{2}}$ = Z value on the degree of significance (95% = 1.96)

P = The proportion of a particular case to the population (50% = 0.5)

d = Degree of deviation to the desired population (5% = 0.05)

So the samples obtained in this study were 49 technician workers in the Maintenance and Repair Division of Shipping Companies.

Data was gained in 2019 at the shipping companies on the maintenance and repair division. The independent variable was workers' characteristics such as age, drinking water habit, and work climate perception. Meanwhile, the dependent variable was dehydration status.

Dehydration status among workers was measured based on the specific gravity of urine measured in the laboratory. The categorization of dehydration was according to the urine-specific gravity test results. The status was well-hydrated if the BJU value was <1.010 g/dl. If the BJU value was 1.010-1.020 g/dl, the status was minimal dehydration. If the BJU value was 1.021-1.030 g/dl then the status was significant dehydration, and if the BJU value was >1030 g/dl then it has the status of seriously dehydration (Dieny and Putriana, 2015).

A questionnaire was used to find out the characteristics of workers contained age, drinking water habits with categories of insufficient, sufficient, and more than using reference from (PERDOKI, 2014) and (Suma'mur, 2009). The standard was categorized as less if the drinking water consumption was <2.8 liters per day, enough if 2.8 liters per day, and more if >2.8 liters per day. The working climate was given the perception of being disturbed and undisturbed. This was based on the measurement of the working climate in the Shipping Company Maintenance and Repair Division.

The work climate in the company can be measured. It used a tool Quest Type Quest Temp 36 heat stress monitor at the measurement location consisting of welding work, fitter plate work, AS propeller work, axle and steering work, machine tool work, diesel machine work, and piping work. The results obtained will be compared with TLV working climate in the workplace.

The resulting research data were analyzed using a statistical test to find out the relation between a variable and based on the objectives. Then, the test used was two-way ANOVA to find out the differences in each group and using correlation spearman that can be determined was there any relation between each variable. This research has got ethical approval from the ethics section of the Ethics Commission of the Faculty of Public Health, Universitas Airlangga Number: 156 / EA / KEPK / 2019.

RESULT

The workers' characteristics assessment results in shipping companies included age, dehydration status, drinking water habit, and work climate perception, presented in Table 1. Based on Table 1, it shows that most of (40.8%) respondents at 26-35 years have minimum dehydration status approach (85.71%), enough drinking water habit at (48.98%), and undisturbed perception on work climate at (73.47%).

Meanwhile, based on Table 2, the total respondents aged <25 years have a minimum dehydration status of 15 (83.33%) respondents for the rest is significant dehydration. At the age of 26-35 years, out of a total of 20 respondents, 17 (85%) of them had minimum dehydration status, while at the age of 36-45 years, out of a total of 5 respondents, 4 (80%) of them had minimal dehydration status. Also, at more than 46 years, out of 6 (100%) respondents had a minimum dehydration status. The statistical test result used two-

way ANOVA with a significant value of 0.377 > α 0.05 shows there was no differentiation between workers' age and workers' dehydration status.

Table 1. Characteristics of Respondents

Characteristics	f	%
Age (Years)		
<25	18	36.7
26-35	20	40.8
36-45	5	10.2
>46	6	12.2
Dehydration status		
Minimal dehydration	42	85,71
Significant dehydration	7	14,29
Drinking habits		
Less	17	34,70
Enough	24	48,98
More	8	16,32
Work Climate Perceptions		
Yes	13	26,53
No	36	73,47

Table 2. Workers Age Differentiation with Dehydration Status

Variable	Dehydration status		Total	p	(r)
	Minimal Dehydration	Significant Dehydration			
Age					
<25	15 (83,33%)	3 (16,67%)	18		
26-35	17 (85%)	3 (15%)	20	0,377	0,17
36-45	4 (80%)	1(20%)	5		
>46	6 (100%)	0 (0%)	6		

Table 3. Relationship between Drinking Habits and Dehydration Status

Variable	Dehydration Status		Total	p	(r)
	Minimal Dehydration	Significant Dehydration			
Drinking-Water Habits					
Less	12 (70,59%)	5 (29,41%)	17	0,025	-0,320
Adequate	22 (91,7%)	2 (8,3%)	24		
More	8 (100%)	0 (0%)	8		

Based on table 3, 12 out of 17 respondents had less mineral water drinking habits, which means that (70.59%) of respondents had minimum dehydration. In comparison, 22 out of 24 respondents had enough drinking water habits meaning that (91.7%) had minimum dehydration status. The respondents who had more than 100% drinking water habit had minimum dehydration status. The Spearman test result showed that the p-value is 0.025 < α 0.05, which means there was a correlation. The (r) coefficient value was -0.320, which means drinking water habit among workers has a weak negative relationship. The negative value means less mineral water drinking habit on workers the high dehydration status among workers in shipping companies.

Table 4 on work climate perception shows that 9 out of 13 respondents were

disturbed by work climate, as much as (69.23%) among them had minimum dehydration meanwhile 33 out of 36 respondents responded no on the work climate perception, (91.67%) among them had minimum dehydration status. Using the Spearman test showed a p-value of 0.049 < α 0.05, which means there was a correlation and the obtained coefficient (r) value -0.283. The work climate perceptions with dehydration status have a weak negative relationship. A negative value means that the more disturbed the perception of the work climate was, the lower the dehydration status of shipping company workers.

Based on table 5, 17 respondents have fewer drinking water habits. As much as 7 (41.18%) of them perceive being disturbed by the working climate. Twenty-four respondents have enough drinking water habits, and 5 (20.83%) perceive being disturbed. Eight respondents have more drinking water habits. Only 1 (12.5%) of respondents have a disturbed perception of the work climate. The p-value was 0.312, indicating no relationship between drinking water habits and work climate perceptions.

Meanwhile**,** based on Table 6, the results showed that the measurement of the working climate obtained from several points was carried out in the welding work. The WGBT was 29.7˚ C, and the fitter plate work was 29.7˚C, the AS propeller work was 29.6˚C. For axle and steering work, a WGBT was 28.7˚C, and a WGBT was 29˚C for machine tools. However, a WGBT was 29.6˚C for a diesel mechanic. Piping works were 29.6˚ C. Besides, 8 hours of work were obtained. The metabolite rate was classified as moderate because the workers were doing a medium category of work. There was construction work (Ministerial Regulation No.5 of 2018 concerning Occupational Safety and Health at Work Environment) that, based on the measurement results and workers' working hours, was obtained WGBT NAV of 28˚C. Thus, all measurement locations showed that it exceeded the approved limit (exceeds the TLV).

Table 4 The Relationship Between Work Climate Perceptions and Dehydration Status

Variable	Dehydration Status		Total	p	(r)
	Minimal Dehydration	Significant Dehydration			
Work Climate Perceptions					
Yes	9 (69,23%)	4 (30,77%)	13	0,049	-0,283
No	33 (91,67%)	3 (8,33%)	36		

Table 5 The Relationship between Drinking Water Habits and Work Climate Perceptions

Variable	Work Climate Perceptions		Total	p	(r)
	Yes	No			
Drinking-Water Habits					
Less	7 (41,18%)	10 (58,82%)	17	0,312	-0,145
Adequate	5 (20,83%)	19 (79,17%)	24		
More	1 (12,5%)	7 (87,5%)	8		

Table 6 Measurement Results *in Heat stress*

Location Measurement	Sb (^{0}C)	Sk (^{0}C)	Sg (^{0}C)	RH (%)	WGBT (˚C)	Description
The Welding Works	28	32,2	33,4	73	29,7	>NAB 28 ^{0}C
The Fitter Plate Works	28,1	32,3	33,3	74	29,7	>NAB 28 ^{0}C
The AS Propeller Work	28,1	32,4	33,2	72,5	29,6	>NAB 28 ^{0}C
Axle and Steering Work	27,1	32,3	32,5	65,5	28,7	>NAB 28 ^{0}C
For Machine Tools	27,3	32,4	34,7	67	29	>NAB 28 ^{0}C
For Diesel Machine	28,3	32,4	33,3	70,5	29,6	>NAB 28 ^{0}C
Piping Works	28	32,3	33,2	73	29,6	>NAB 28 ^{0}C
Airflow velocity	0,1-1 (m/dt)					

DISCUSSION

Based on the research result done at shipping companies' maintenance and repair divisions in 2019, it was found out that all man workers at the age 18-55 years have good dehydration status minimum dehydration and significant dehydration. Technical workers caused this did many physical activities and in the hot temperature work climate. As a result, the workers produced sweat from their bodies, leading to dehydration (losing body fluid). As many as 84.4% of respondents were at the minimum dehydration status. However, 15.6% of the respondents were at a significant dehydration status. It was said as significant dehydration based on the result of specific gravity of urine (BJU) measurement. The result was 1.021-1.030 g/dl. Meanwhile, as minimum dehydration, the result of specific gravity of urine measurement (BJU) is 1.010-1.020 g/dl. The shipping companies at the maintenance and repair division was not found the workers with good dehydration status (BJU<1.1010 g/dl) and weight (BJU>1030 g/dl). Research conducted by (Dieny and Putriana, 2015) on football athletes who had physical activities was obtained that 89.4% as the specific gravity of urine (BJU) 1.016-1.020 g/dl experienced significant dehydration because athletes only drink when they felt thirsty and because athletes were also doing physical activity.

According to the result of the research, there were three categories. They were insufficient, sufficient, and more based on the reference (PERDOKI, 2014) and (Suma'mur, 2009) the standard was ≥ 2.8 liters per day, which workers must consume. Most workers were in the moderate category, approaching 48.98%.

The secretion of body fluids needs to be balanced with the body fluids entry. Drinking water habits among the workers need to be considered to complete the body's needs. While working, the workers needed more mineral water consumption than they did not. If the daily mineral water consumption was 8 glasses, the workers should be more than 8 glasses, around 2 Littre a day. (NIOSH, 2011) also suggested that the workers drink a glass (about 150 cc) for 15-20 minutes even did not feel thirsty for the workers at the hot temperatures. Therefore, drinking adequate mineral water will fulfill the body's needs while working.

Work climate perception was disturbed and undisturbed in the hot temperature work climate at shipping companies' maintenance and repair divisions. The perception was subjective which hot feeling in the work climate is based on six factors: a heat source, air temperature, moving air velocity, relative humidity, clothing used, and the physical workload expended by the worker (Kuswana, 2014). (Suma'mur, 2009) also explain that hot pressure can be caused by the combination of work climate (humidity,

hot radiance, air temperature, and moving air velocity) with the body's metabolic heat. Each person's perception was subjective, which means it is different from one to another. It was also the same with the perception of disturbed and undisturbed work climate. This case can be caused by acclimatization among the workers at the maintenance and repair division.

Workers Age Differentiation with Dehydration Status

Based on the research done on the technical workers at the maintenance and repair in shipping companies, all the workers are men aged 18-55 years and had good minimum dehydration and significant dehydration. However, based on statistical tests using two-way ANOVA did not show a differentiation of status dehydration with workers' age. In line with (Puspita and Widajati, 2017), age was not the only factor that can lead to dehydration among workers because dehydration can attack anyone from children to the elderly.

Concerning the research by (Wright et al., 2014) on the health and science research ethics board at the University of Ottawa obtained, there was no difference in the young (Y, mean ± SE; 25.8 ± 0.8 years), middle-aged (MA, 43.6 ± 0.9 years) group, and old (O, 57.2 ± 1.5 years) in the incidence of dehydration. It measured the specific gravity of urine (BJU), both before and after intermittent exercise treatment, which was carried out constantly at a moderate heat production rate (400 W). The participants were well hydrated before the exercise trial. Their dehydration was measured after doing the activity and showed no difference between age and dehydration. Another study also revealed that age was not related to the level of dehydration experienced by manic workers in Jombang workers and showed a very weak negative relationship (Nilamsari, Damayanti, and Nawawinetu, 2018).

The Relationship between Drinking Water Habit with Dehydration Status

Based on the research result and statistics test using, a Spearman correlation test revealed that there was a significant correlation. This finding is in line with the previous research conducted by (Sari and Nindya, 2017) on the mechanics at PT PAL Indonesia general engineering division. It found that there is a relation. The workers have good dehydration status if they consume adequate mineral water, while they get dehydration if they lack mineral water consumption. According to them, drinking water that contains salt can prevent dehydration because it can fulfill body fluids.

Previous research done by (Ariantika and Mardiyati, 2017) among badminton athletes shows a positive correlation between drinking habits and dehydration status. There was a significant correlation where the less drinking habit has 70% low hydration status. Also, athletes carry out sweaty physical activities, such as technician workers in the maintenance and repair division of shipping companies, so they need a balanced consumption to balance fluids in the body. Another research by (Fitriah et al., 2018) among salt farmers in Kalioari, Rembang regency there was 51% of farmers got dehydration at the lack of fluids because body fluids can not be fulfilled. The other factor was the lack of easy access to get mineral water so that the amount of mineral water and its habit can not be achieved.

Furthermore, research by (Puspita and Widajati, 2017) shows six workers with severe dehydration status who drink water only when they feel thirsty. When the workers' drinking habits are low, the thirst mechanism cannot be used as a measurement for workers to drink following the amount of fluid that comes out through sweat; as a result, it will not be fulfilling the fluids in the worker's body. Dehydration due to lack of drinking water consumption can impact workers' health problems if there is no proper treatment.

The workers can disrupt their mental and physical performance because of the significant dehydration impact, which can potentially cause health risks for workers, especially when they are at work and when they finish working (Zulkarnain et al., 2020). According to (Andayani and Dieny, 2013), cognition abilities decreased, focus ability and memory decreased, the effect on mood and morale can be caused by dehydration among workers. Besides, their productivity will decrease if they get dizzy, weary, and exhausted. It is the depiction of low physic capacity.

Based on research by (Huda et al., 2018), heat cramps on tofu workers factory, the symptom is a pain in the arms or shoulders. It is a symptom of heat cramps caused by excessive sweating so that the salt content in the body does not match. It can also occur if workers consume water without sufficient electrolytes.

Research conducted by (Imas, Setyaningsih, and Suroto, 2018) shows that water consumption among workers in IV airport construction projects workers can relate to heat strain disorders. If the workers have insufficient drinking water and its intake, it can be risky on the emergence of subjective complaints caused by heat stress.

Research also found that a worker has sufficient drinking water with significant dehydration status. Furthermore, the workers who have insufficient drinking mineral water with minimum dehydration status can be caused by other factors such as a hot work climate. It shows related results to avoid dehydration among technician workers at the maintenance and repair division of shipping companies are maintaining drinking water habits and adding some electrolytes.

The Relationship between Work Climate Perceptions with Dehydration Status

Technician workers at the maintenance and repair of shipping companies run outdoor, related to hot temperature from the environment. The research and statistical tests using the Spearman correlation test show a low negative relationship between work climate perceptions and dehydration status. It means the more feel disturbed, the less dehydration status among workers of shipping companies. Furthermore, drinking water habits that correlate to dehydration among workers did not correlate with work climate perception experienced by the workers, even the workers with the disturbing perception of work climate. Some workers have poor drinking water habits, leading to dehydration on workers. According to (Puspita and Widajati, 2017), when the workers did the activities at hot temperatures, they had to drink frequently (200 up to 300 c a day per one minute) to fulfill the workers' fluids.

Perception is the result of the outdoor work condition that is evidenced by the hot temperature that appropriates with the work climate measurement. The measurement result on work climate at the maintenance and repair of shipping companies was obtained WGBT temperature that the measuring was done in some work areas, based on the job is the medium workload for 8 hours or around 75%-100% working hours. Based on Ministerial Regulation No.5 of 2018 concerning Occupational Safety and Health at Work Environment, Work Environment is obtained a work climate threshold value (TLV) WGBT that is allowed is 28˚C. While the result of WGBT work climate measurement from 7 points of measurement location shows 28.7˚C; 29˚C; 29.6˚C; and 29.7˚C. If it is compared with the threshold value obtained more than 28˚C, it exceeds the limit allowed, and the hot work climate can affect the worker. One of them is the thirst which causes dehydration.

Research conducted in Australia by (Xiang et al., 2015), most of the workers were worried and disturbed by the hot work climate that can increase the danger in the workplace. Research held in Afrika by (Mathee, Oba, and Rose, 2010) shows that the workers feeling disturbed by the hot work climate will impact their health. In the

hot working temperature, the workers feel uncomfortable. That leads to thirst, dehydration, itchy skin, exhaustion, malaise, profuse sweating, dry nose, and even sinusitis, burning and watery eyes, headaches, back and legs, nosebleeds, baldness, itchy and sluggish skin, and dizziness. Consequently, the health effect can influence workers' productivity. This result is in line with research on Australian workers who did their activities during summer. The workers said that the hot exposure could impact their health and their work become inefficient (Singh, Hanna, and Kjellstrom, 2013).

The perception of every human being is subjective, so the results show that even though they are not disturbed by the work climate, there are workers who show significant dehydration results. In the research results on the perception of hot work climate, more workers perceive that they are not disturbed (as much as 73.47%). Even the measurement results show more than the TLV, which means the workers have acclimatized to the work climate. Acclimatization is a condition where workers adapt or make adjustments. Physiologically with exposure to hot environments (NIOSH, 2018), acclimatization is a process for the first time they work or when they first return to work. The workers will have heat tolerance and having the ability to survive in hot environmental conditions (Jacklitsch et al., 2016). According to (Kuswana, 2014), acclimatization is important for workers to work more safely and efficiently.

Even there have had acclimatization on workers in the hot work climate if there was no control. Hence, it can impact workers' health, such as heat rash, heatstroke, heat edema, heat cramps, multigrain dysfunction syndrome continuum, heat exhaustion, and heat syncope (Kuswana, 2014). Similar to research done by (Arianto and Prasetyowati, 2019) on workers of the tofu industry in Dukuh Janten, Bantul found that there was complaint illness because of hot temperature (heat cramps, heat exhaustion, and dehydration) in the hot workplace. Research by (Ningsih, 2019) on fish-smoking workers showed a relationship between physical conditions of the work environment involved hot temperatures when the workers were working. They were humidity with dehydration level, which the contingency coefficient temperature with dehydration level was 0.603 that indicated strong relationship and the p-value was $0.003 < 0.05$. Research is done by (Sari, 2017) there is a correlation between hot climate with dehydration at weaving division workers in PT. Candi Mekar Pemalang with p-value $0.00<0.05$. Moreover, it is also stated that when the ambient temperature increases, the worker's body temperature also increases and causes evaporation through sweat. Sweating more will lead to dehydration if not followed by adequate fluid consumption.

In a study conducted by (Zulkarnain et al., 2020), sand shovel workers at the Pasir Mutiara Depot, Boom Baru Palembang, were exposed to a hot environment experienced mild fatigue. It would increase if they were exposed to a hot environment. While the research conducted by (Boonruksa et al., 2020) in Thailand showed that informal workers who harvest sugarcane in outdoor environments found significant dehydration and psychological symptoms. For example, headache, fever, nausea, dizziness, swollen hands/feet, and respiratory symptoms such as coughing, eye, and skin irritation.

In addition, working in a hot environment can cause the impact of dehydration and disease disorders in human organs. According to research conducted by (Bardosono and Ilyas, 2014) on Indonesian workers in two factories located in Cibitung, West Java, in a hot working environment shows the results of risk, acute and chronic risk status occurs on workers who work in hot work environments. In addition to the risk of acute and chronic dehydration, according to (Bardosono and Ilyas, 2014), working in a hot environment

can also cause organ damage such as kidney damage and blood vessel buildup. However, it does not rule out that both workers in hot and cold environments will be susceptible to dehydration and metabolism, so it is necessary to pay attention to physical work activities and the provision and consumption of water in the workers' environment.

Based on previous research, work climate perception shows a relationship to dehydration in workers. It is necessary to know the work climate to not exceed a predetermined limit or threshold value (TLV). The impact of work-related diseases from a hot work climate can be prevented from company loss both materially and non-material.

CONCLUSIONS

The research had found that 85.71% of respondents in shipping companies had minimum dehydration status and significant dehydration for the rest. Meanwhile, in the drinking water habit among workers, it was found that there were less, enough, and more categories. There were 34.7% of respondents in the less category. The work climate measurement locations were obtained >28 C, exceeding the allowed limit. However, only 26.53% of respondents had disturbed perceptions, and the rest had undisturbed perceptions. Analysis of the age differences and dehydration status did not show any differences. Meanwhile, drinking water habits and work climate perceptions were related to dehydration status in shipping company workers.

Some suggestions that the researchers can give to the workers are improving drinking water habits while working to avoid dehydration that will impact their health. Moreover, according to the measurement, the working climate conditions exceed TLV. The shipping company should pay attention to drinking water consumption for workers, add some electrolytes to the workers' drinking, and educate about dehydration, such as the causes, characteristics, impacts, and ways to prevent dehydration. It is also needed to control the hot work climate, the regulation of rest time, and physical activity among workers.

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PREVALENCE AND RISK FACTORS OF THE HYPERTENSION OF TRUNYAN VILLAGE, BALI IN 2019

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ABSTRACT

Introduction: Hypertension is the cause of 7.5 million deaths, equivalent to 12.8% of total deaths based on WHO data. Trunyan Village currently has limited access to health services, low public awareness of maintaining personal health and environmental health, and no descriptive or analytical data discussing hypertension prevalence and risk factors. **Methods:** Therefore, this study aims to determine hypertension prevalence and risk factors in Trunyan Village, Bangli. This study used a cross-sectional design, with the subject selection method using simple random sampling and blood pressure status as a dependent variable. The interview was conducted on 55 people, which used a questionnaire. **Result:** Data analyzed used the chi-square test, and the relationship between variables was considered significant with a p-value <0.05. The prevalence of hypertension in Trunyan Village is 52.7%, with female dominance (65.5%) and age ≤50 years (52.7%). There is a significant relationship between hypertension and age (p<0.01; PR=3.50), the habit of consuming sweet foods (p=0.02; PR=0.54), and family history of hypertension (p<0.01; PR=1.91). **Conclusion:** It can be concluded that hypertension has a significant relationship with risk factors for age, habits of consuming sweets foods, and a family history of hypertension. Further research needs to be carried out with a larger sample size to obtain more representative results.

Keywords: Bali, hypertension, prevalence, risk factors, Trunyan village

INTRODUCTION

Hypertension is one of the most critical risk factors for cardiovascular disease and is estimated to cause 12.8% of deaths (WHO, 2020). According to the JNC (Joint National Committee) VII, hypertension is defined as systolic blood pressure value ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg. A non-communicable disease has become a significant health challenge for developing countries and developing economies (Natalia, Diana ; Hasibuan, 2015). Hypertension was a considerable disease because it caused various heart failure complications, ischemic heart disease, left ventricular hypertrophy, renal failure, stroke, retinopathy, and peripheral arteries (intermittent claudication) (Nuraini, 2015).

The World Health Organization stated that the highest prevalence of hypertension sufferers in 2013 was in Africa (46% of the adult population). The lowest was in America (35% of the total adult population). Overall, in high-income countries, hypertension reaches 35% of the total adult population and 40% of the adult population (Pinto & Martins, 2017). Data and Information Center of the Ministry of Forestry of the Republic of Indonesia stated that Indonesia's hypertension sufferers reached 65,048,110 people in 2013. Meanwhile, 840,851 patients with hypertension were detected in Bali (Rohaendi, 2008).

Trunyan is one of the traditional villages in Bali, located in Kintamani. The inhabitants of this village are indigenous Balinese because there are very few migrants living in this village. Trunyan Village still has quite a lot of health problems, such as (1) a limited number of health workers, (2) limited availability of

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health facilities and infrastructure, (3) low public awareness of personal health and environmental health as seen from the habit of littering and the community which still uses the lake to defecate, wash clothes, wash livestock, and even bathe children (4) the absence of landfills and garbage trucks (Gunatama et al., 2017). Besides that, the community is also dominated by the elderly. It is because young people in Trunyan Village tend to migrate outside the village. The lack of access to health services has led most people to use plants to make traditional medicines such as fever, coughs, skin diseases, and even headaches (Sudirga, 2012). People in this village are also unaware of a healthy diet, physical activity, and risk factors for hypertension (Ministry of Health, 2013). There is still limited descriptive and analytic data to discuss the Trunyan Village community's health conditions. Therefore, this study aimed to determine the prevalence and risk factors for hypertension in Trunyan Village.

METHODS

This study used a quantitative descriptive study design to determine the prevalence and risk factors for hypertension in Trunyan Village, Kintamani District, Bangli Regency in 2019. This research was conducted simultaneously with complementary medical service in the Trunyan Village area, Kintamani District, Bangli Regency. The sample size was calculated using the total sampling technique. Every individual who came to the complementary medical service would be included as a research respondent after agreeing to the informed consent during the study period.

The hypertension variable will be obtained by measuring blood pressure, the Joint National Committee (JNC) VII. The respondent's blood pressure was measured twice, and then the recorded value was the average calculation result. The blood pressure measurements will be grouped into hypertension and not hypertension. Respondents were classified as hypertensive if they had ≥140 mmHg of systolic blood pressure and≥90 mmHg of diastolic blood pressure. Other variables, such as patient characteristics and risk factors, were obtained from questionnaires using the interview method. Researchers will give respondents questions and then record their answers on the questionnaire to minimize their understanding of the items. All data were analyzed using a data analysis program. Univariate analysis of proportions was used for respondent characteristics and risk factors variables. The bivariate analysis evaluated the relationship between risk factors and hypertension with a significant p-value<0.05 using a chi-square test. Ethics approval has been obtained from the ethics committee of the Faculty of Medicine, Universitas Udayana. No.757/UN14.2.2.VII.14/LT/2020

RESULT

This study obtained 55 samples that met the inclusion criteria. Based on the respondents' characteristics in table 1, it was found that 19 people (34.5%) were male, while many 36 people (65.5%) were female. Based on the age distribution, 26 people (47.3%) were >50 years old, while 52.7% were ≤50 years old. The prevalence of hypertension sufferers in Trunyan Village, Kintamani District, Bangli Regency is 52.7%.

Table 1. Characteristics of Respondents

Characteristic	N (%)
Sex	
Male	19 (34.5%)
Female	36 (65.5%)
Age	
>50 years old	26 (47.3%)
≤50 years old	29 (52.7%)
Blood pressure	
Hypertension	29 (52.7%)
Normotension	26 (47.3%)

Several risk factors for hypertension were reviewed in this study: obesity, smoking, sweet, salty, fatty foods, consumption of fibrous foods, exercise routines, stress levels, and genetic history. Based on the cross-tabulation result (Table 2), respondents who experienced hypertension were dominated by females aged over 50 years. They did not have a smoking habit, were not obese, did not smoke, did not have the habit of consuming sweet and salty foods, and did not have a family history of hypertension. In addition, most respondents who experienced hypertension had the habit of consuming fatty, fibrous foods, exercising regularly, and under stressful conditions.

Table 2. Relationship between Risk Factor and Blood Pressure

Risk Factor	**Blood Pressure**		***P-value***	**PR (95% CI)**
	Hyper-tension n (%)	**Normo tension n (%)**		
Sex				
Female	19 (65.5)	17 (65.4)	0.99	0.99 (0.58-1.80)
Male	10 (34.5)	9 (34.6)		
Age				
>50	22 (75.9)	4 (15.4)	<0.01*	3.50 (1.80-6.82)
≤50	7 (24.1)	22 (84.6)		
Obesity				
Yes	14 (48.3)	11 (42.3)	0.65	1.12 (0.68-1.84)
No	15 (51.7)	15 (57.7)		
Smoking				
Yes	4 (50)	4 (50)	0.86	0.94 (0.44-1.97)
No	25 (53.2)	22 (46.8)		
Consumption of Sweet Foods				
Yes	10 (34.5)	17 (65.4)	0.02*	0.54 (0.31-0.95)
No	19 (65.5)	9 (34.6)		
Consumption of Fatty Foods				
Yes	17 (58.6)	22 (84.6)	0.06	0.58 (0.36-0.91)
No	12 (41.4)	4 (15.4)		
Consumption of Fibrous Foods				
Yes	27 (93.1)	23 (88.5)	0.55	1.35 (0.44-4.07)
No	2 (6.9)	3 (11.5)		
Consumption of Salted Foods				
Yes	14 (48.3)	15 (57.7)	0.48	0.83 (0.50-1.38)
No	15 (51.7)	11 (42.3)		
Exercise Routine				
Yes	18 (62.1)	16 (61.5)	0.96	1.01 (0.60-1.69)
No	11 (37.9)	10 (38.5)		
Stress				
Yes	19 (65.5)	16 (61.5)	0.75	1.08 (0.63-1.85)
No	10 (34.5)	10 (38.5)		
Family History				
Yes	14 (48.3)	4 (15.4)	<0.01*	1.91 (1.20-3.04)
No	15 (51.7)	22 (84.6)		

**significant relationship with chi-square test (p-value <0.05)*

Risk factors that had a significant relationship with hypertension were the

respondent's age (p<0.01), the habit of consuming sweet foods (p=0.02), and family history of hypertension (p<0.01).

DISCUSSION

This study involved 55 respondents as the research sample. The prevalence of hypertension is 52.7%, with the dominance of the sample of women with hypertension compared to men. This study showed that hypertension status is more dominant in female respondents (65.5%) compared to male respondents (34.5%). This is in line with the RISKESDAS 2007 and 2013, which show that hypertension is more common in women. The 2007 and 2013 RISKESDAS results compared the prevalence of hypertension in females and males, respectively, namely 31.3%: 22.8% for 2007, and 31.9%: 28.8% for 2013 (Ministry of Health, 2013). However, Widia and Sudhana's study in 2013 in Klungkung Regency Bali showed contradictory results. In this study, it was found that the prevalence of hypertension in men was more (63.9%) than in women (36.1%) (Widia, 2015). Based on the bivariate analysis, the relationship between the risk of hypertension and sex showed a p-value = 0.99, which means there was no statistically significant relationship. Similar results were also shown by research on the correlation between the prevalence of hypertension and gender by Adnyani and Sudhana with 146 respondents (p=0.24) and research in Palembang with 91 respondents (p=0.22) (Adnyani & Sudhana, 2014).

Sex has an essential role in blood pressure regulation that men have a higher risk than women at a productive age. However, a woman's risk will increase at the age ≥45 years of menopause. During a productive period, women have high estrogen hormone levels, which increases High-density Lipoprotein (HDL) levels. Nevertheless, at menopause, there is a decrease in the hormone estrogen, an increase in visceral androgens, and adipose, causing an increase in inflammatory cytokines such as TNF-α and NF-kB, which will lead to increased renal vascular resistance and hypertension (Widia, 2015).

This study results showed that the prevalence of hypertension is higher in the age group >50 years old (75.9%) than ≤50 years (24.1%). Based on the bivariate analysis, the relationship between the risk of hypertension and age showed a p-value<0.01, which means statistically significant. The prevalence ratio (PR) value of 3.50 indicated that the risk of hypertension in older individuals would be 3.5 times higher than in young people. The same results of a case-control study with 106 respondents in Rembang Regency that those over 60 years of age have a risk of hypertension 11.34 times greater than those under 60 years of age (Kartikasari et al., 2012). Azhari's research also supported this result in 2017 at the Public Health Center of Makrayu Palembang. That study showed the relationship between age and hypertension prevalence (p=0.01) (Azhari, 2017). Hartanti and Mifbakhuddin's research in 2015 also stated a significant relationship between the risk of hypertension and age in 22 respondents in Ringin Village (p<0.01) (Hartanti & M, 2015). Research in Sidemen Village Bali with 146 respondents also showed a significant relationship between hypertension and age (p-value=0.05). The increase in prevalence was directly proportional to the increase in age is influenced by a decrease of arteries elasticity and a reduction in regulation of the baroreceptor reflex (Adnyani & Sudhana, 2014).

Table 3 showed that in the hypertension group, 48.3% were obese (p-value=0.65, which means no statistically significant relationship between the risk of hypertension and obesity. Sulastri, Elmatris, and Ramadhani's research in 2012 showed a different result with a p-value<0.05 (Sulastri et al., 2012). However, Rohkuswara and Syarif's study in 2016 stated that respondents with obesity had a risk of 1.7 times for suffering from grade II hypertension than individuals who are not

obese after controlling for age, family history hypertension, and physical activity (Rohkuswara & Syarif, 2017).

Research in Palembang also shows similar results: respondents heavily overweight and obese have a greater risk of developing hypertension, which is 2.5 times and 1.9 times higher (Kartikasari et al., 2012). Based on the theory, individuals weighing more than 20 pounds based on the calculation of ideal body weight will have a more significant blood pressure of around 2-3 mmHg than individuals with ideal body weight (Kaplan, 1994). Obese individuals have an increased need for oxygen to transport nutrients to body tissues. Therefore, there is compensation for increased pressure on the artery walls.

This study indicated that the normotension and hypertension groups have the same number based on the smoking habit. Based on the bivariate analysis, the p-value was 0.86 ($p>0.05$), which means no statistically significant relationship between smoking history and hypertension risk. This study contradicted Narayana and Sudhana's research in the Pekutatan Community Health Center in 2013. It stated that Respondents who smoke have a higher risk of hypertension than respondents who do not smoke. (Narayana, 2015). Umbas, Tuda, and Numansyah's research at Kawangkoan Health Center also stated a significant relationship between risk of hypertension and smoking ($p=0.01$) (Umbas, 2019). The nicotine in cigarettes can affect a person's blood pressure, either through the formation of atherosclerotic plaques (Amanda & Martini, 2018).

This study found no relationship between the risk of hypertension and consumption of fatty foods (p-value=0.06). This study's results contradicted the research conducted by Manawan in Minahasa Regency with a p-value<0.01 (Manawan et al., 2016). High saturated fat intake will trigger dyslipidemia, which can cause atherosclerosis increasing resistance of the walls of blood vessels, which later triggers an increase in heart rate, leading to hypertension.

According to the results of the statistical tests, sweet foods were seen to have a relationship with the onset of hypertension in Trunyan Village. This study showed a significant relationship between the risk of hypertension and consuming sweet foods (p-value=0.02). This study's results contradicted the research conducted by Rawasiah, Wahiduddin, and Rismayanti in 2014 at the Pattingallong Health Center. The study showed that 52.8% of people with hypertension consumed excess sweet food, with a p-value =0.41 (Rawasiah et al., 2014). Consuming foods with high fructose doses (≥74 grams/day or the equivalent of 2.5 bottled sweet drinks per day) will result in a higher energy intake and cause microvascular changes (Jalal et al., 2010).

The association between added sugar intake and blood pressure remained significant even after controlling confounding factors that could influence blood pressure increase, such as physical activity, BMI, total calorie intake, and antihypertensive drugs (Mansoori et al., 2019). A meta-analysis study showed that higher sugar intake significantly increased 7.6 mmHg of systolic blood pressure and 6.1 mmHg of diastolic blood pressure (Te Morenga et al., 2014). Raben et al. showed that consuming sucrose for ten weeks increased 3.8 mmHg of systolic blood pressure and 4.1 mmHg of diastolic blood pressure (Raben et al., 2002). There is a recommendation from the Dietary Approaches to Stop Hypertension (DASH) to maintain heart health by limiting added sugar intake to nine teaspoons/week for individuals following a 1600 kcal diet.

Based on fiber foods consumption, this study showed no significant relationship between the risk of hypertension and the consumption of fibrous foods with a p-value=0.55. Kholifah et al. (2015) showed that consuming fiber foods had a negative association with systolic pressure and had no relationship

with diastolic pressure (p>0.05) in hypertensive patients (Kholifah et al., 2015). Prakosa's research with 72 respondents showed that the frequency of fruit and vegetable consumption was relatively high (2-6 times/week) does not have a statistically significant relationship with the prevalence of hypertension. In theory, it is stated that fruits containing flavonoids and potassium have a role in improving endothelial function and controlling the heart's electrical activity to lower blood pressure (Prakosa et al., 2014).

This study showed no relationship between the risk of hypertension and salty foods' consumption (p-value=0.48). A case-control study in Karanganyar Regency with 310 respondents indicated that individuals who habitually consume salty foods risk hypertension by 3.95 times higher than individuals who do not have this habit (Sugiharto et al., 2007). According to several studies, a decrease in sodium intake of approximately 1.8 grams/day can reduce blood pressure by four mmHg (systolic) and two mmHg (diastolic). High salt intake will cause the kidneys to respond by increasing salt excretion through urine. However, sodium excretion exceeding the kidney's ability threshold will cause retention and increase intravascular volume. Besides that, there will also be an increase in the antidiuretic hormone release, indirectly increasing blood pressure (Ramadhini & Suryati, 2018).

The risk factor for hypertension based on exercise routine showed p-value=0.96, which means no significant relationship. The results of this study indicated that respondents who regularly exercise have high blood pressure. This condition is caused by respondents who routinely exercise are dominated by those over 50 years of age and have a family history of hypertension. Aris Sugiharto et al. showed a statistically significant relationship between exercise routines and hypertension prevalence (p-value<0.01). Individuals who do not regularly exercise have a 4.73 higher risk of developing hypertension than individuals who routinely exercise (Sugiharto et al., 2007). The study conducted at the Petang Health Center, with 112 elderly respondents, also showed results contrary to this study. The study found that the elderly who did not regularly exercise had a risk of suffering from hypertension 1.42 times greater than the elderly who regularly (p-value=0.02) (Bin Mohd Arifin & Weta, 2016). Physical activity is associated with reducing obesity and triggering new capillary vessels (Kartikasari et al., 2012).

Based on the stress variable, it was found that respondents who experienced stress had more hypertension (65.5%) compared to respondents who did not experience stress. This was in line with Ajiningtyas et al., which showed that 20% of respondents with mild stress category experienced hypertension, 90.9% of respondents with moderate stress category experienced hypertension, and 92.3% of respondents experienced severe stress with hypertension (Ajiningtyas, 2019). The same results were obtained from Rusnotoa and Hermawan's research, which involved 81 respondents in which 22 respondents in the moderate work stress category and 43 respondents in the severe work stress category experienced hypertension. (Hermawan et al., 2018).

The relationship between stress and hypertension had a p-value=0.75, which means no significant association. A study in Padang with 64 respondents showed a positive correlation between stress levels and hypertension degrees. Higher stress levels will cause an increase in the degree of hypertension (p<0.01; r=0.48). The physiological stress response will increase the pulse rate, hormone adrenaline release, and blood pressure (Saleh et al., 2014).

The study results on the variable family history of hypertension showed that 48.3% of respondents who had a family history of hypertension had hypertension (p<0.01). This was also supported by Adam et al., which involved 89 respondents, showing that 57.3% of respondents who had

hypertension had a family history of hypertension (p-value<0.01) (Adam et al., 2018). Therefore, a family history of hypertension has a significant relationship with hypertension. The PR value of 5.13 indicates that a person with a family history of hypertension will have a five times greater risk of hypertension. A similar study also showed that family history was one of the hypertension risks (p<0.01; OR= 6.29) (Sugiharto et al., 2007). Shep's study stated that individuals with one parent who suffers from hypertension have a 25% risk of developing hypertension. However, individuals with both parents who have hypertension will have a 60% risk of developing hypertension (Sheps, 2005).

CONCLUSION

The prevalence of hypertension in Trunyan Village was 52.7%. The risk factors that have a statistically significant relationship with hypertension are age, habitually consuming sweet foods, and a family history of hypertension. This study has limitations due to the small number of samples and the interview method to assess risk factors in respondents having the possibility of bias because it is subjective and without further examination. Other researchers who wish to research in similar fields are advised to use the case-control method and increase the number of samples to be more representative.

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IMPLEMENTATION OF PREVENTION PROGRAM FOR HEPATITIS B TRANSMISSION FROM MOTHER TO CHILD IN PUBLIC HEALTH CENTER OF SURABAYA

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ABSTRACT

Introduction: The number of women with Hepatitis B in Surabaya has increased since 2015; the most significant increase occurred in Public Health Center (PHC) A and a consistently high at PHC B. The state has issued a guideline for preventing vertical hepatitis B transmission from mother to child through the Indonesian Ministry of Health issued the Minister of Health Regulation No. 52 of 2017. This program was in the open-access stage and focused on first-level health facilities in 2018-2019. **Methods:** For this reason, this study aims to analyze the implementation of the prevention program for Hepatitis B transmission from mother to child in PHC A and B, Surabaya, in 2019. This research was an exploratory, descriptive study with a qualitative approach through in-depth interviews and document review**. Result:** The study results indicated the lack of specificity of counseling materials and gaps in recording forms at PHC A. The presence of hepatitis B cadres as a promotion strategy at PHC B, incompleteness of filling out forms, achieving early detection coverage, not optimal pre- and post-early detection counseling activities, and coverage of case management were still below the target at both PHCs. **Conclusion:** the implementation of the prevention program for Hepatitis B transmission from mother to child is still not optimal, especially in health promotion at PHC A, surveillance, and case management at both PHC.

Keywords: Implementation, Prevention, Transmission of Hepatitis B

INTRODUCTION

Hepatitis B is a liver infection that has the potential to cause death. The disease is caused by the Hepatitis B virus, which is transmitted vertically (perinatal) and horizontally (WHO, 2020). According to the Data and Information Center of the Ministry of the Health RI in 2018, most Hepatitis B transmission is 95% vertical. Half of the deaths due to hepatocellular carcinoma and cirrhosis in Asia and Africa are caused by vertical Hepatitis B transmission (Stanaway et al., 2016). However, this vertical transmission can be prevented by early detection in pregnant women and giving vaccines to babies born from mothers infected by Hepatitis B (Schillie et al., 2018).

Efforts to prevent vertical Hepatitis B transmission need to be done because the number of women infected by Hepatitis B continues to increase. In Surabaya City, there were no women infected by Hepatitis B in 2015. However, there were 201 cases in 2016 and 920 cases in 2017. An increase in the number of cases of women infected by Hepatitis B also occurred in PHC A in 2017 by 42 times compared to the previous year; this increase was the highest compared to other PHC in Surabaya City. The increase in cases also occurred in PHC B, from 19 cases of Hepatitis B infection in women in 2016 to 38 cases in 2017. Hepatitis B infection cases in women in PHC B were the highest in 2016 and the second highest in 2017 in Surabaya City (Surabaya City Health Office, 2017).

The state is responsible for ensuring the child's survival by breaking the chain of Hepatitis B transmission from mother to child to prevent transmission of Hepatitis B

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from mother to child (Ministry of Health of the RI, 2017). The Indonesian Ministry of Health issued the Minister of Health Regulation No. 52 of 2017, consisting of four activities. They are promotion, surveillance, early detection, and case management. From this policy, it is hoped that by 2030 it can achieve the SDG's three targets, namely the elimination of Hepatitis B (Ministry of Health of the RI, 2017). In 2018 – 2019, the Hepatitis B vertical transmission elimination program was at the open-access stage; namely, its implementation is carried out at the first level health facility, the PHC (Ministry of Health of the RI, 2017).

PHC A and B are different sub-districts, but the distance between both PHCs is about 2 km. The characteristics of both PHCs are almost the same, including dense urban areas with a population density of more than 20,000 population/km^2 and the number of emigrants and immigrants in each region are also high, namely both of them more than 1,000 immigrants or emigrants. The majority of the population in both PHCs are similar, namely domination with Javanese and Madurese in PHC A and B (Central Bureau of Statistic for the City of Surabaya, 2020). In this study, the selection of PHC A as the PHC studied was based on the number of Hepatitis B cases in women who experienced the highest increase in Surabaya City in 2017. However, the selection of PHC B was based on the cases number of Hepatitis B in women who persisted high in 2016 and 2017.

Implementing a prevention program for Hepatitis B transmission from mother to child at first-level health facilities is very important to eliminate Hepatitis B transmission from mother to child so that the government's target is to eliminate mother-to-child Hepatitis B transmission can be achieved. Therefore, this study aims to analyze the implementation of the prevention program for Hepatitis B transmission from mother to child in PHC A and B Surabaya City in 2019.

To the authors' knowledge, no one has ever conducted qualitative research on the prevention program for hepatitis B transmission from mother to child, especially in Surabaya. Several previous studies have taken a quantitative approach and focused more on factors influencing early detection and hepatitis B vaccination. At the same time, this research explores how programs are implemented, from health promotion, surveillance, early detection to case management. The results of this research are likely to be input or evaluation material for the Health Office, policymakers, and especially PHC related to the policies being implemented.

METHODS

This research was a study with a qualitative approach and descriptive explorative research methods with triangulation validity testing sources (in-depth interviews and previous document review). In-depth interviews with public health center staff and pregnant women were conducted to see from both perspectives. There was no population or sample in qualitative research, but there are subjects to be studied. The sampling technique in this study was purposive sampling. The number of subjects in this study was four informants from PHC A, namely Communicable Disease Eradication (P2M) coordinator, Maternal and Child Health (MCH) coordinator, a midwife in charge of Hepatitis B, and pregnant women.

In comparison, the informants from PHC B consisted of 5 informants, namely Hepatitis B cadres, P2M coordinator, MCH coordinator, a midwife in charge of Hepatitis B, and pregnant women. Primary data were obtained from in-depth interviews, and secondary data in this study were obtained from the document review. This study was conducted from January until June 2020 at PHC A and B, Surabaya. The data analysis stage used Colaizi's steps, namely transcription, determining keywords, grouping respondent answers

into various categories and integrating the overall results of the influencing factors into a descriptive narrative form. This research was conducted after obtaining a recommendation from the ethical review team of the Faculty of Medicine Universitas Airlangga, and it was declared feasible based on certificate Number 197/EC/KEPK/FKUA/2020.

RESULT

Implementing a prevention program for Hepatitis B transmission from mother to child based on the Minister of Health Regulation No. 52 of 2017 consisted of four activities: health promotion, health surveillance, early detection, and case management.

Health Promotion

Socialization regarding the prevention program for Hepatitis B transmission from mother to child at PHC A and B was carried out to all employees through monthly meetings. It can be happened to independent practicing midwives (BPM) in the PHC working area through facilitative meetings so that BPM in the future can provide counseling to pregnant women patients for conducting antenatal activities at the PHC. Apart from socialization, training on this program has also been obtained by PHC A and B. The particular health promotion strategy carried out by PHC A included the use of Integrated Healthcare Posts and Mobile PHC *(Pulling)*, while PHC B included Integrated Healthcare Posts and Hepatitis B cadres. Besides providing counseling, Hepatitis B cadres also assisted pregnant women infected by Hepatitis B and mothers infected by Hepatitis B who have babies less than 1-year-old.

"*I got a certificate as a cadre on September 26, 2019. There are a total of 10 cadres. Previously, the activity started with the name I-HBV (Inhibit Hepatitis B Virus Infection) under the auspices of a doctor from Airlangga University (UNAIR). This event was held on to tackle the high number of hepatitis B cases in PHC B. The I-HBV activity was training, and it goes directly to the community. We got guidelines about Hepatitis B and provision to go to the community to be ready and not nervous."* (Cadre of Hepatitis B in PHC B)

"Hepatitis B is jaundice. The signs are yellow eyes and nails, and swollen feet. Pregnant women infected by Hepatitis B have many risks, can transmit, but can be prevented by immunization." (Cadre of Hepatitis B in PHC B)

"Every month, we hold meetings with Family Welfare Development (*PKK*) *women and conduct counseling to them. Patients from PHC are monitored, and if we are asked by PHC staff, we will also take the patient to the* PHC *for a laboratory check. So far, we have four people. Two of them are women who are also Hepatitis B patients. We are coordinating with the PHC in the form of contacting patients when asked by the PHC, especially for patients who disobey appropriate immunization, etc. We also have a WhatsApp group for coordination. Every month, we conducted training in PHC from doctors administering I-HBV and have had meetings several times. If only for the cadres meeting themselves, we only got together once for sharing."* (Cadre of Hepatitis B in PHC B)

The obstacle faced by cadres is being asked difficult questions when conducting counseling.

"if there is a question that cannot be answered during counseling, we have to look at the book first or ask the doctor by chat, there are participants in the counseling moment who do not pay attention, so it would be better if health promotion is door to door." (Cadre of Hepatitis B in PHC B)

Health promotion was carried out by PHC A and B directly, but also, at PHC B provided leaflets as a medium for health education. During counseling at PHC A, the information conveyed did not specifically discuss Hepatitis B, namely information related to pregnant women and how to

register and the intended poly when they were at PHC. At the same time, PHC B provided information primarily on early detection of Hepatitis B, besides explaining the definition of Hepatitis B, its causes, symptoms, prevention, and treatment.

The PHC has also installed service channels to provide convenience and certainty of service to the community to make services easier. The flow of MCH services at PHC A was that after entering the MCH poly, patients could go to the general poly, nutrition poly, dental poly, or laboratory. After getting the examination results, the patient can be referred to the hospital or directly to the pharmacy and go home or reproductive health counseling. Meanwhile, the service flew at PHC B. After entering the MCH poly, patients who need a laboratory examination will go to the laboratory and return to the MCH poly again. If they did not need a lab examination, the patient would immediately take the drug at the pharmacy and go home. The patient from the MCH poly who also needed a nutritional consultation and sanitation will conduct a nutrition or sanitation consultation and return to the KIA poly again afterward.

Health Surveillance

The recording of Hepatitis B cases in PHC A is carried out in two fields. They recorded the Hepatitis B early detection registration form (RR DDHB) and the immunization monitoring form by MCH poly. They filled out the information system and digestive tract infection disease (SIHEPI) form online by P2M. Recording in the SIHEPI format included the date of early detection, patient identity, pregnancy status, HBsAg examination results, treatment and referral status, delivery, and monitoring of infant hepatitis (0-12 months). Recording in the RR DDHB format for pregnant women included the date of registration, the identity of the pregnant woman, pregnancy status, history of hepatitis symptoms, history of hepatitis detection and examination results, history of blood transfusions, history of hemodialysis, history of having other sex partners, history of using drugs and syringes, history of hepatitis B immunization status, history of one domicile with hepatitis B sufferers, history of HIV and CD4 examination and results, history of taking ARVs, history of suffering from symptoms of sexually transmitted diseases in the last 1 month, history and examination results after early detection (HBsAg, Anti Titer HBs, SGPT, Anti HBe, HBeAg, HBV DNA), recommendations given if HBsAg is reactive (check anti-HBS, monitors, and therapy), place and time of delivery, monitoring of infants (date of immunization HB0, HBIG, DPT/HB1 (given in the form of pentavalent immunization), DPT/HB2 (given in the form of pentavalent immunization), DPT/HB3(given in the form of pentavalent immunization), and HBsAg examination results and anti-HBS titer), and maternal immunization and maternal counseling. Last, monitoring forms for pregnant women with hepatitis B and infant immunization include the date of registration, the identity of the pregnant woman, pregnancy status, estimated delivery, date and place of delivery, weight and length of the baby, method of delivery, the identity of the baby, date of HBIG immunization, date of HB < 7 days, BCG, P1, Penta 1, P2, Penta 2, P3, Penta 3, P4, MR, and additional immunizations.

Based on Table 1, the results of the documentation review showed that the difference in performance achievement of early detection of Hepatitis B in the recording carried out by PHC A was 39.9%. This condition was due to the difficulty in retrieving separate data between each field which held many PHC programs. Meanwhile, recording at PHC B from filling in the RR DDHB form for pregnant women to the SIHEPI form was only implemented by midwives from the MCH poly.

Table 1. Hepatitis B Early Detection Coverage in Pregnant Women at PHC A in 2019

	Number of Targets	Number of Early Detection		Performance Achievements (%)	
Type Form	**2019 year**	**RR DDHB Form**	**SIHEPI Form**	**RR DDHB Form**	**SIHEPI Form**
Total	1,593	1,585	949	99.5	59.6

Also, filling in the forms at both PHCs was incomplete, namely that there was monitoring that was not filled in, 17 out of 33 (51.5%) and 13 out of 33 (39.4%) columns that were not filled in the RR DDHB form for pregnant women at PHC A and B, respectively (Table 2).

Meanwhile, the recording was also carried out in pregnant women's Maternal and Child Health book.

"The result of test lab are recorded in the MCH Handbook" (IP1)

"The results are recorded in the MCH book because when I wanted to give birth, the doctor at the hospital knew that I was Hepatitis B positive from that book" (IP2)

All recorded data will be exported online to the Surabaya City Health Office and will be validated once every 3 months. The data obtained by PHC A will be analyzed to get an overview of the coverage of early detection, the management outcomes of referring to pregnant women. Besides that, data on pregnant women in both PHCs will be grouped based on delivery time to recap the number of HBIG vaccines that need to be prepared.

Barriers to conducting this surveillance.

"Yes, there are separate data on different computers, and it makes it difficult to retrieve" (PP1)

"One officer holds many programs." (PP2)

"Yes, officers are lazy to input data, and now the entry in the application also takes time, and SIHEPI still has to update, so sometimes, there is double data." (BP2)

Table 2. Completeness of Filling in the RR DDHB Form Column in PHC A and B

Completeness of Filling in the RR DDHB Form Column	PHC A (%)	PHC B (%)
Completely filled	6.1	6.1
Partially Filled	42.4	54.5
Not Filled	51.5	39.4

Early detection

Pregnant women who visit PHC are required to carry out Hepatitis B surface Antigen (HBsAg) tests. In 2019, 99.5% of pregnant women who visited PHC A had early detection, and 1.7% were reactive HBsAg. Meanwhile, 97.9% of pregnant women performed early detection of Hepatitis B, and 3% of them were reactive HBsAg. During pregnancy visits, information was conveyed to pregnant women to detect early. However, some pregnant women say that what they did was laboratory tests without knowing what benefits they got. Post-early detection counseling was delivered to all pregnant women with reactive HBsAg, but those with non-reactive HBsAg have not been carried out according to guidelines.

The obstacles to implementing early detection activities in both PHC are lack of

reagents and indiscipline of pregnant women patients to control.

"Discipline of the patient for routine control." (PP1)

"Sometimes, stock of reagents was empty." (BP2)

The empty reagent preparations for laboratory tests became one of the obstacles in early detection activities in PHC B. This was due to PHC B employees who had not had time to report the reagents to the city pharmacy building (GFK) or the empty reagent stock at GFK.

Case Management

Management of cases in pregnant women with reactive HBsAg, namely being referred to the hospital and asked for their availability to sign a vaccine request for their baby. Meanwhile, the treatment for infants of mothers with reactive HBsAg was administering Hepatitis B Immunoglobulin (HBIG) vaccine <24 hours. In addition, there was immunization for HB0 <24 hours, HB1 (given in the form of pentavalent immunization), HB2 (given in the form of pentavalent immunization), HB3 (given in the form of pentavalent immunization), and checking for HBsAg at the age of 9-12 months.

The number of pregnant women with reactive HBsAg at PHC A with an estimated date of birth in 2019 is 25 people. As many as 16 out of 25 or 64% were recorded as having been delivered at the hospital, and 9 out of 25 or 36% had no data regarding where the delivery was carried out. In contrast, the number of pregnant women with reactive HBsAg at PHC B with an estimated date of birth in 2019 was 23 people. As many as 20 out of 23 or 87% were recorded as having been delivered in the hospital. 1 out of 23 or 4.3% was recorded to have delivered in independent midwives, and 2 out of 23 or 8.7% had no data regarding their place of delivery.

The case management coverage in infants of mothers with reactive HBsAg can be seen in Table 3. The coverage of case handling was not optimal due to pregnant women who were late in carrying out early detection of Hepatitis B so that they did not get the HBIG vaccine. Also, the lack of monitoring of mothers with reactive HBsAg by PHC employees and the high number of population mobility in PHC A and B working areas so that some pregnant women and their babies are difficult to monitor.

The obstacles to implementing case management for hepatitis B transmission from mother to child are inactive of monitoring patients and their infants. Hepatitis B patients did not report to the health center when they moved to another village, thus complicating the immunization monitoring.

"Monitoring is not active. Some patients were missing, some patients who had received vaccines moved to the village with no news or notification. Patients sometimes give fake addresses or addresses outside the work area of the PHC. Usually, we only ask for monitoring and evaluation from their area so as not to interfere own territory." (BP2)

Table 3. Coverage of Case Management in Infants of Mothers with HBsAg Reactive in 2019

	PHC A			PHC B		
Intervention	**Number of targets**	**Number of case management**	**Coverage (%)**	**Number of targets**	**Number of case management**	**Coverage (%)**
HBIG	25	13	52	22	20	90.9
HB0	25	12	48	22	20	90.9

	PHC A			PHC B		
Intervention	**Number of targets**	**Number of case management**	**Coverage (%)**	**Number of targets**	**Number of case management**	**Coverage (%)**
HB1	23	10	43.5	20	15	75
HB2	22	11	50	20	15	75
HB3	24	12	50	19	12	63.2
HBsAg Test	27	2	7.4	24	14	58.3

DISCUSSION

In this study, the authors analyzed the implementation of the prevention program for hepatitis B transmission from mother to child in PHC A and B, namely health promotion activities, health surveillance, early detection, and case management. The findings showed there were different strategies in health promotion activities in both PHC and not specified in the education material at PHC A. For Health surveillance activities, there were gaps in data recording in PHC B and incomplete form filling in both PHCs. In early detection, activities found coverage of early detection that met the target. Vacancy of rapid test reagents and minimal post-early detection counseling was carried out, in case of management activities found coverage of HBIG, HB0, HB1, 2, 3 vaccination and HBsAg examination in infants aged 9 -12 months which is still below 100%.

This study found that both PHC health promotion strategies and utilizing integrated healthcare posts activities were empowered several PKK mothers around the PHC area to become hepatitis B cadres in PHC B. In other studies, there was a significant relationship between the role of health workers and the provision of Hepatitis B immunization (Helmi, 2008; Rachman, Handayani and Ridwan, 2015; Harahap, 2016). Hepatitis B cadres as community leaders also have a significant role in giving Hepatitis B immunization (Helmi, 2008; Harahap, 2016). The role of Hepatitis B cadres in PHC B is providing counseling and assistance to pregnant women with Hepatitis B or to babies of mothers with Hepatitis B. They do not immunize properly, which can be a consideration for other health centers with a high number of pregnant women with Hepatitis B and empower the community.

However, the material presented by PHC A to the public was not specific to discussing hepatitis B. It was limited to only discussing the health of pregnant women in general, while PHC B discussed the definition, symptoms, causes, prevention until management. Another study said that understanding the material presented to pregnant women and mothers with Hepatitis B is required when conducting counseling. It was due to the mother's good knowledge about Hepatitis B has a significant effect on the mother's behavior in immunizing her baby for Hepatitis B (Helmi, 2008; Pontolawokang, Korah and Dompas, 2016). In a study in northern Vietnam, educational exposure to Hepatitis B during pregnancy was the only factor that influenced pregnant women's knowledge about Hepatitis B (Hang Pham et al., 2019). Education for pregnant women about Hepatitis B during the first trimester also has a big influence on the actions of pregnant women to carry out early detection of Hepatitis B (Putri, Hanum and Simanjuntak, 2019; Effendy and Yustiari, 2019). In PHC Sei Jang, Tanjung Pinang study found that educational exposure can use individual counseling

methods and leaflet media (Rahmadona, Lestanti, and Respatiningrum, 2018). The use of flipchart media also provides a significant difference in knowledge between before and after exposure to education about Hepatitis B (Dewi, 2019). Also, (Ningsih and Rahmawati, 2017; Mukhoirotin and Ismawanto, 2015; Rachman, Handayani, and Ridwan, 2015) said a significant relationship between maternal knowledge about Hepatitis B immunization and the mother's decision to join the immunization program. For that, efforts are needed to increase maternal knowledge about Hepatitis B and immunization. This can be done by providing education about the definition, causes, route of transmission, symptoms, prevention of transmission, and treatment of Hepatitis B, as well as information about Hepatitis B immunization, through the delivery of immunization schedules, service places, and reactions that generally occur after immunization.

The findings related to health surveillance in this study were that the recording of the two health centers was carried out offline using the RR DDHB form and the mother and child monitoring form. In contrast, the online recording was carried out at SIHEPI. It was found that a gap in data filling in PHC B was 39.9% between RR DDHB and SIHEPI. Another study about Prevention Mother to Child Transmission (PMTCT) HIV services in Depok City found that there was a gap in recording the coverage of HIV early detection from the family health (Kesga), HIV, and Aids Information System (SIHA) forms of 7.2%. Using each form according to their respective programs was due to limited personnel, time, and lack of understanding of implementing officers in taking notes (Puspitasari and Junadi, 2018). According to (Suharni and Hersumpana, 2015), recording and reporting integrated with a general information system will increase the effectiveness and efficiency of recording and reporting. It takes a sense of responsibility and a good understanding in implementing activities at PHC A. It must also be recording the results of screening and monitoring in a form integrated with SIHEPI from the Ministry of Health of the Republic of Indonesia so that the data obtained can be appropriately documented. The gap in the number of cases recorded in the RR DDHB and SIHEPI PHC B forms is due to the filling of offline and online forms by two people from different programs, namely offline filling by midwives at the MCH poly online filling by P2M employees. This is different from PHC A, whose filling is held by a midwife in charge of Hepatitis B in the MCH Poly.

Other findings related to health surveillance in this study were the incompleteness of filling out the data on the form in PHC A and B, namely 51.5% and 39.4% unfilled, respectively. In a study regarding the description of recording and reporting of maternal health at MCH Local Area Monitoring (PWS) in Jember, the recording could not be done optimally on all forms because types of forms had to be filled in are too much. At the same time, the workload of services was high. So automated data collection was needed (Rani and Hargono, 2012). In addition to computerized data collection, there are many programs in both PHCs. Some of them have information systems such as the Integrated Tuberculosis Information System (SITT), the HIV AIDS Information System (SIHA), the PHC information system, and other information systems. Those input data in each other information system and move independently.

For this reason, an integrated system that contains much data is needed by only doing input once. It will minimize repetitive data entry and establish cross-program coordination in efforts to deal with health problems. The possibility that the form filling is incomplete is the number of programs running in each poly. The large number of administrative forms that also need to be completed make filling in the form incomplete because the work is done two times, namely filling offline than online

to SIHEPI. It requires more time and effort and good coordination.

Both PHCs have exceeded the target coverage for early detection of Hepatitis B in pregnant women in 2019, which is 70% in the Minister of Health Regulation No.52 of 2017, and the prevalence of pregnant women with early detection of hepatitis B with HBsAg reactive results in PHC A and B of 1.7% and 3%, respectively. The achievement of Hepatitis B early detection coverage in pregnant women shows the quality of MCH services and contributes to detecting Hepatitis B cases (Ministry of Health of the RI, 2017). Some pregnant women at PHC B did not have their HBsAg checked because the rapid test reagent stock at PHC B was empty several times in several months. A better health service strategy is needed to improve the control and prevention of Hepatitis B to increase Hepatitis B screening for all pregnant women, especially in terms of stocking reagents or laboratory medical devices that are still available (Wuan and Molina, 2018). Thus, the exchange of data regarding reagent stock, both at PHC B and GFK, can be a strategy so that the implementation of early detection activities can run optimally. Research design aimed to fulfill the internal demand process and distribution of pharmaceutical preparations (drugs and medical supplies) in health services in Surabaya. Several problems in the supply chain process for health services in Surabaya are the availability of pharmaceutical preparations at GFK. The ability to supply pharmaceutical preparations (drugs and medical supplies) can result in PHC pharmaceutical preparations running out before the next period of demand for pharmaceutical preparations. The accuracy of planning pharmaceutical preparations is very low. The deficit of pharmaceutical preparations at PHC may require PHC to make sudden requests to GFK. Hopefully, pharmaceutical preparations can be fulfilled immediately so that this problem requires intervention from health service providers and drug providers by providing information on drug availability at GFK (Dzulquarnain, Usman, and Lestari, 2016). To avoid the same thing in the future, PHC B and GFK should improve the data exchange relationship between reagent availability at PHC and GFK because the availability of resources (reagent) is crucial to implement this prevention program.

Also, pregnant women in PHC A and B as informants in this study did not know that early detection was carried out, but what they did know was blood tests. In another study at the PHC Sei Jang, Kepulauan Riau, pregnant women have already done blood tests at the PHC. However, some pregnant women do not know about this examination, one of which is for early detection of Hepatitis B. However, after intervention in health education, the result was an increase in the average score of pregnant women's knowledge about Hepatitis B compared to before being given health education (Rahmadona, Lestanti, and Respatiningrum, 2018). Providing information on early detection to pregnant women who visit PHC is very important to make pregnant women understand more about the reasons for early detection activities and avoid transmission of disease from mother to child. Counseling activities after early detection of Hepatitis B were also carried out by both PHCs but were more aimed at pregnant women with reactive HBsAg. Based on the Minister of Health Regulation No. 52 of 2017, pregnant women receive counseling after conducting early detection. They got messages to keep the results negative, suggest that they enter the class of pregnant women, ask their partners to be tested for Hepatitis B, and avoid risky behavior (Ministry of Health of the RI, 2017).

The findings obtained in case management activities are that the coverage of giving HBIG, HB0, HB1, HB2, HB3 is still below the coverage targeted according to the Minister of Health Regulation No.52 of 2017, which is 100%. Giving HB0

followed by the completeness of giving HB1, 2, and 3 can help prevent the vertical transmission of Hepatitis B, but it is even better if combined with HBIG vaccine <12 hours (Buckley and Strom, 2016). This study is also supported by a systematic review of 30 years of experience from (Van Den Ende et al., 2017), which shows that the efficacy of giving 3 doses of hepatitis B vaccine and giving HBIG to infants of mothers with reactive HBsAg is 96% when examined at 5 years of age. In the study in Magelang, the coverage of HB0 to infants of pregnant women with reactive HBsAg in 2014-2016 was 100%, and the vertical hepatitis B transmission rate in the study was 0% (Ahmad and Kusnanto, 2017). In another study by (Purwono et al., 2016), Indonesia's low birth dose coverage might contribute to the endemicity of HBV infection among children in Indonesia. However, a universal Hepatitis B vaccination program for the infant was adopted in 1997. Therefore, the coverage of HBIG and HB0 vaccines <24 hours after delivery plays a major role in terminating the vertical transmission of hepatitis B, and the coverage of implementation must be increased. Implementation interventions to increase HB0 coverage included promoting community awareness of the need for HB0 vaccine, building capacity and knowledge of health workers for HB0 administration, and promoting delivery in health personnel. It was because supporting pregnant women to deliver in health facilities can reduce neonatal mortality and morbidity by ensuring the mother and baby are examined by a health professional within 24 hours of delivery to increase HB0 coverage (Allison et al., 2017).

Meanwhile, the coverage of HBsAg examination in infants aged 9-12 months from mothers with reactive HBsAg in 2018 and 2019 at PHC A and B, respectively, was 7.4% and 58.3%. The coverage of the HBsAg examination is still below the target coverage based on the Minister of Health Regulation No. 52 of 2017, namely 100%. In a study conducted by (Yang et al., 2020), regarding the prevention program of mother-to-child hepatitis B transmission in the Republic of Korea, the low PVST rate is also a concern, even though several efforts have been made since 2015. Health center officers are encouraged to use post or cell phones to remind mothers about the baby for examination. Besides that, it also adds a verification step at the visit of children aged 9-12 months to identify babies who missed vaccinations. Vaccination coverage, which is still below the target of the Minister of Health Regulation No.52 of 2017, is associated with the sudden demand for HBIG approaching the time of delivery that cannot be fulfilled, low infant monitoring, and the lack of participation and public awareness in vaccination. This can be seen from the presence of pregnant women who move houses after receiving the HBIG vaccine without notifying PHC or cadres, which can make monitoring difficulties. Besides that, monitoring is also low because of the high workload of PHC staff because each employee implements many programs. An integrated information system between health facilities can be a solution for patients who are migrants and those who have moved so that they can continue the process of treating their illness wherever the patient is in Indonesia. Also, health workers' role and maternal knowledge have a significant relationship with Hepatitis B immunization (Helmi, 2008; Rachman, Handayani, and Ridwan, 2015). However, PHC B, which has Hepatitis B cadres, has higher coverage than PHC A; this can be a strength to back up the limited time or staff of PHC staff in monitoring vaccinations so that vaccination coverage and HBsAg examinations are high. For this reason, training and supervision of health workers are needed to raise awareness about the importance of Hepatitis B immunization and infant outreach by monitoring cohorts to increase the coverage of vaccines and complete immunizations.

CONCLUSIONS

This study aims to determine how to implement a prevention program for Hepatitis B transmission from mother to child. Based on the description above, it can be concluded that the implementation of health promotion activities has been running. However, the implementation has not been optimal, especially in PHC A, because the material presented has not led explicitly to early detection and prevention of infection with Hepatitis B immunization. Health surveillance activities have been running but not yet optimal in both PHCs; there was a gap in recording the coverage of early detection of Hepatitis B in PHC A and incomplete form filling in both PHCs. Early detection activities have been running and achieved the target coverage. However, the quick test reagent stock was empty at PHC B, and the pre-or post-early detection counseling activities are still not optimal in both PHCs. Case management activities have also been running but are still not optimal because the coverage of HBIG, HB0, HB1, 2, 3, and HBsAg examinations is still far below the target set based on the Minister of Health Regulation No. 52 of 2017.

There are several recommendations that researchers can provide. Implementing health promotion activities can make more efforts to convey messages of early detection and immunization activities to the community in their working area. Hence, coverage of early detection activities and understanding pregnant women has to do with the benefits of early detection and Hepatitis B immunization. It requires commitment and a good understanding between activity implementers in recording early detection results that have been integrated with SIHEPI. Therefore, it is better if the executors of these activities gather to equalize perceptions and make good commitments in the recording. MCH poly midwives should improve the infant monitoring system from mothers infected by Hepatitis B to increase the coverage of complete immunization and increase the coverage of HBsAg examination in infants.

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ANALYSIS OF WORK MOTIVATION AND WORK DISCIPLINE OF EMPLOYEE AT WIYUNG SEJAHTERA HOSPITAL SURABAYA

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ABSTRACT

Introduction: Work discipline is the obedient attitude of an employee towards the rules that apply in the workplace. Work discipline directly affects work productivity. **Methods:** This study aimed to investigate the correlation of work motivation and work discipline of the employee at Wiyung Sejahtera Hospital Surabaya. This study was an observational analytical research with cross sectional method, where each of the respondents was observed or interviewed for once. The samples used proportional random sampling with a sample size of 80 respondents who were hospital employees. Independent variable in this study was work motivation and a dependent variable was dicipline of employee. Data were analyzed by using spearman. **Result:** The respondents' characteristics were mostly female (81.25%) with age criteria age 21-30 years old (80.0%). Meanwhile, the characterictic based on educational level suggested that more than half of respondents were diploma graduates(67.5%) and have the most work periode for more than 3 years (33.75%). The majority of respondents had a moderate level of work motivation at 41.3% and the majority of respondents had a moderate level of work discipline at 42.5%. The results showed that there was correlation between work motivation and work discipline (p = 0.000). **Conclusion:** It can be concluded that there is a relationship between work motivation and work discipline of employee at Wiyung Sejahtera Hospital Surabaya. As the relation is very strong, an employee who has a high level of work motivation will have a high level of work discipline too and otherwise.

Keywords: work motivation, work discipline,Wiyung Sejahtera Hospital

INTRODUCTION

According to Law Number 44 of 2009, hospital is a health service institution that conducts complete individual health services that provide inpatient, outpatient and emergency services. Being an advanced health facility, the hospital provides more complete and complex health services compared to the first and second level health facilities. Humans are resources that must be fulfilled by hospitals in carrying out their functions. Human resources as one of the hospital inputs must have sufficient quality and quantity so that the output produced is in accordance with the hospital's goal of providing complete health services to the community.

The quality of human resources can be seen one of them through the attitude of discipline that they have. Work discipline becomes an attitude that must be instilled in a workforce. Employee who have a discipline attitude in themselves will use their time and opportunities well, for example getting up early and quickly leaving for the office to carry out productive activities and maximize the time available. Efforts in creating a discipline work environment are by making regulations or policies for employees to be obeyed. An employee who obeys all forms of regulations in an organization then he has a high attitude of work discipline, whereas if an employee violates and neglects the organizational rules then he has a low

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attitude of work discipline. Work discipline has an important role to achieve organizational goals that are realized in the form of commitment to the organization. The right strategy is needed as an effort to encourage employees to comply with all regulations or organizational policies, namely by increasing the work motivation of employees (Widayat, 2017). Work discipline which is manifested in the form of a great sense of responsibility to the organization shows that a workforce has a great work motivation (Kirana, 2013).

Based on data from the Surabaya Central Statistics Agency in 2019 there were 93,096 people unemployed out of a total workforce of 1.52 million. The unemployment rate is quite a lot. The number of unemployed reflects that the level of productivity of the population of the city of Surabaya is something that needs attention. Some researchers say that one of the factors that can affect the level of productivity is work discipline. According to Alex S Nitisemita (Patmarina & Erisna, 2012) said that the factors that can influence the level of work discipline of a person are welfare, threats, leadership examples, assertiveness, goals and abilities of employees. Work discipline problems that are often found in the workplace are related to the number of absences or absenteeism, the level of alertness, adherence to work standards, adherence to work regulations and ethics at work (Tyas & Sunuharyo, 2018).

Problems related to work discipline that are often found in Wiyung Sejahtera Hospital in Surabaya are delays when working. Employee assume that time is unimportant and often underestimated , so that over time the attitude of work discipline will fade. Therefore, the purpose of this research was to analyze the factors of work motivation and work discipline in the workforce of Wiyung Sejahtera Hospital in Surabaya.

METHODS

This research is an analytic observational study with cross sectional method. The study was conducted at the Surabaya Wiyung Sejahtera Hospital. The population used in this study was 251 people who were employees or employees at the Wiyung Sejahtera Hospital in Surabaya. The sample size was determined by proportional random sampling. After sampling, the number of respondents became 80 people. The independent variable in this study was work motivation and the dependent variable was work discipline.

Data was collected by survey using questionnaire and document review. Variable work motivation and work discipline were obtained through interviews using a questionnaire with 16 questions and 13 questions each. In research related to work motivation assessment results were categorized into 5, which were very high if the score is more than 109, high if the score is 102-109, medium if the score is 94-101, low if the score is 86-93 and very low if the score is less than 86. At research related to work discipline results of assessment were also categorized into 5, which were very high if the score is more than 62, high if the score is 57-62, medium if the score is 50-56, low if the score is 44-49 and very low if the score is less than 44.

Data analysis was presented in the form of frequency distribution tables and cross tabulations. The technique used to analyze data is univariate and bivariate analysis. Univariate analysis was performed to obtain the frequency distribution of variables of labor characteristics, work motivation and work discipline. Bivariate analysis was performed to determine the relationship between work motivation and work discipline using the spearmen test with a significance level (α) 0.05. This study had passed the ethical review with No: 287 /HRECC.FODM/V/2019 from the Health Research Ethics Commission of the Faculty of Dentistry, Airlangga University.

RESULTS

Work motivation

In this study, the data collection of work motivation variables was carried out using a questionnaire. The total score of respondents 'answers regarding work motivation is 112.

Table 1 Percentage of Respondents' Work Motivation at Wiyung Sejahtera Hospital in 2019

Category	N	%
Very low	7	8.8
Low	14	17.5
Medium	33	41.3
High	23	28.8
Very high	3	3.8
Total	80	100

Table 1 presents the results of work motivation in hospital employees. It can be seen that the majority of respondents have a level of work motivation with a medium category that is equal to 41.3%. The category of work motivation is very high at the least amount of the total workforce as a whole so it is necessary to increase work motivation so that employees have a high or very high level of work motivation.

Work Discipline

This section presents the results of the percentage of work discipline. The total score of respondents 'answers regarding work discipline was 65.

Table 2 Percentage of Work Discipline of Respondents at Wiyung Sejahtera Hospital in 2019

Category	N	%
Very low	7	8.8
Low	15	18.8
Medium	34	42.5
High	18	22.5
Very high	6	7.5
Total	80	100

Table 2 presents the results of work discipline in hospital employees. It can be seen that the majority of respondents have a level of work discipline with a medium category that is equal to 42.5%. The category of very high work discipline is the least amount of the total workforce so that there needs to be an increase in work discipline so that the workforce has a high or very high level of work discipline.

BIVARIATE ANALYSIS

Level of Work Motivation Based on Respondent Characteristics

Based on Table 3 it is known that the majority of very high levels of work motivation are held by employee with female gender, 21-30 years age group and diploma education level.

Table 3. Frequency Distribution of Work Motivation Levels Based on Respondent Characteristics

Characteristics of Respondents	Level of Work Motivation									
	Very low		Low		Medium		High		Very high	
	N	%	N	%	N	%	N	%	N	%
Gender										
Male	3	20.0	1	6.7	5	33.3	6	40.0	0	0.0
Female	4	6.2	13	20.0	28	43.1	17	26.2	3	4,6
Age										
21-30 years	5	7.8	12	18.8	26	40.6	18	28.1	3	4.7
31-40 years old	1	8.3	2	16.7	5	41.7	4	33.3	0	0.0
41-50 years old	1	25.0	0	0.0	2	50.0	1	25.0	0	0.0
Level of education										
High school	2	15.4	2	15.4	4	30.8	4	30.8	1	7.7
Diploma	3	5.6	8	14.8	26	48.1	15	27.8	2	3,7

Bachelor	2	15.4	4	30.8	3	23.1	4	30.8	0	0.0
Years of service										
> 3 months	1	5.9	3	17.6	7	41.2	5	29.4	1	5.9
> 1 year	0	0.0	4	17.4	14	60.9	4	17.4	1	4,3
3 years	3	23.1	3	23.1	2	15.4	5	38.5	0	0.0
> 3 years	3	11.1	4	14.8	10	37.0	9	33.3	1	3,7

Work Discipline Level Based on Respondent Characteristics

Table 4. Frequency Distribution of Work Discipline Level Based on Respondent Characteristics

Characteristics of Respondents	Work Discipline Level									
	Very low		Low		Is		High		Very high	
	N	%	N	%	N	%	N	%	N	%
Gender										
Male	3	20.0	1	6.7	6	40.0	5	33.3	0	0.0
Female	4	6.2	14	21.5	28	43.1	13	20.0	6	9.2
Age										
21-30 years	5	7.8	13	20.3	27	42.2	13	20.3	6	9.4
31-40 years old	1	8.3	2	16.7	5	41.7	4	33.3	0	0.0
41-50 years old	1	25.0	0	0.0	2	50.0	1	25.0	0	0.0
Level of education										
High school	2	15.4	2	15.4	4	30.8	4	30.8	1	7.7
Diploma	3	5.6	8	14.8	25	46.3	13	24.1	5	9.3
Bachelor	2	15.4	5	38.5	5	38.5	1	7.7	0	0.0
Years of service										
> 3 months	1	5.9	3	17.6	7	41.2	4	23.5	2	11.8
> 1 year	0	0.0	6	26.1	13	56.5	3	13.0	1	4,3
3 years	3	23.1	3	23.1	2	15.4	4	30.8	1	7.7
> 3 years	3	11.1	3	11.1	12	44.4	7	25.9	2	7,4

Based on Table 4, it is known that the majority of the very high level of work discipline is owned by female employee, the age group of 21-30 years and diploma education level. Employee with a work period of more than 3 months and more than 3 years have a very high level of work discipline with the same amount of 2 people.

The Relationship between Work Motivation and Work Discipline

Table 5 is the result of the analysis of the spearman test between the independent variables, namely work motivation and the dependent variable, namely the work discipline of the workforce of Wiyung Sejahtera Hospital, Surabaya. Based on Table 5 it can be seen that the results of calculations from statistical tests show the correlation coefficient value of 0.897** with a significance level of 0,000 at the level of confidence (α) = 0.05 or 95%. If the significance level is less than α, then Ho is rejected and Hi is accepted. If the significance level is more than α, then Ho is accepted and Hi is rejected.

The calculation results are obtained the significance value of 0,000. This value is smaller than α = 0.05 meaning that there is a significant relationship between work motivation and work discipline in the workforce of Wiyung Sejahtera Hospital in Surabaya. This relationship is indicated by

the correlation value of 0.897 which is included in the very strong category. The direction of the correlation is shown by the correlation coefficient that is positive, then the relationship between work motivation and work discipline can be said to be in the same direction which mean that if work motivation increases, work discipline will also increase. Conversely, if work motivation decreases work discipline will also decrease.

Table 5. The Relationship Between Work Motivation and Work Discipline in Workforce of Wiyung Sejahtera Hospital in 2019

Work motivation	Work Discipline					Total (%)	Sig.	Koef. Correlation
	Very low (%)	Low (%)	Medium (%)	High (%)	Very high (%)			
Very low	8.8	0	0	0	0	8.8		
Low	0	16.3	1,3	0	0	17.6		
Medium	0	2.5	35.0	3.8	0	41.3	0.0	.897 **
High	0	0	6.3	18.8	3.8	28.9		
Very high	0	0	0	0	3.8	3.8		

DISCUSSION

Work motivation

The urge to meet needs and achieve the expected goals within a person is a form of motivation. When acting someone is based on clear reasons why they have to do an activity or activities. Motivation is closely related to human resources. According to Setiawan (2016), motivation is a form of energy that arises in a person who is intended to provide strength and generate it to achieve a certain goal. Rahsel (2016), motivation is an impulse that influences one's behavior to meet needs and achieve expected goals.

Based on The presentation, concluded that motivation is a form of encouragement that comes from within oneself to achieve an expected goal. The effort spent by an employee in carrying out his workforce is closely related to work motivation which is an important factor in achieving high performance (Setiawan, 2016). In addition, work motivation is the desire of employee to do a workforce. Work motivation in the workforce can be seen from their behavior in completing the task or workforce and participate in helping the organization or company to survive.

Motivation grows when someone feels a lack of fulfillment of life's needs. Needs will arise when individuals feel an imbalance with what is currently owned. Needs are the dominant factor influencing the work motivation of employee (Sarinadi, 2014). Based on Maslow's Hierarchy (Gardjito, 2011: 02), there are five basic needs, among others, first, namely physiological needs such as food, drinks, clothing, and others. Second, the need for security includes security, order, stability, and so on. Third is the social needs which consist of affection, relationships, family, and others. The fourth is the award which includes, achievement, status, responsibilities, reputation, and others. The fifth is the need for self-actualization such as, self-development, fulfillment of ideology, and others. As a form of effort to meet their needs, employee will try to do activities or workforce that is more leverage to obtain maximum results as well (Gardjito, 2011). Therefore, some researchers say that the needs are directly proportional to work motivation, because the more a person's needs must be met, the higher one's work motivation to work harder (Sarinadi, 2014). In a work situation that is positive and in accordance with the wishes, expectations and personality of the individual, then a employee will feel comfortable in running the workforce so

that he has high motivation (Puspitasari, 2019).

Frederick Herzberg (Wijono, 2013) said that work motivation is influenced by two factors, namely dissatisfiers or causes of individuals feeling dissatisfied and satisfaction factors or causes of individuals feeling satisfied. The dissatisfiers or hygiene factors are factors that are influenced by extrinsic conditions such as salary, security, work environment, status, ways of working, interpersonal relationships and quality of supervision, while satisfaction factors or motivators are factors that are influenced by intrinsic labor conditions that will form motivations such as, responsibilities, achievements, rewards, progress and possibilities for development.

The existence of work motivation on the workforce will affect the workforce's performance. Performance of employee who experience continual improvement will increase opportunities for the achievement of organizational or company goals. Efforts to increase work motivation can be carried out by organizations or companies by applying the work discipline of the workforce, applying the target system in payroll, creating a conducive work environment for employee, as well as providing incentives and compensation (Muslikhah, 2011).

Measurement indicators used in work motivation variables were the Multidimensional Work Motivation Scale (MWMS) approach. There are five dimensions of work motivation measured, namely Extrinsic Regulation - Social, Extrinsic Regulation - Material, Introjected Regulation, Identified Regulation, and Intrinsic Motivation (Gagné et al., 2015).

Extrinsic Regulation - Social, is the influence of social work environment factors on workforce motivation which includes recognition from coemployees, praise or criticism given by coemployees. Extrinsic Regulation - Material, is the influence of material factors related to finance that includes salaries, incentives, benefits and job guarantees. Introjected Regulation, is the involvement of the employee's emotional feelings towards his workforce which includes feeling of pride, feeling guilty if making a mistake or feeling embarrassed if he fails to do labor. Identified Regulation, is the compatibility between labor and the personality values of the workforce. Employee will be more motivated to work when the work done is in line with their personality. Intrinsic Motivation,

The labor force of Surabaya Wiyung Sejahtera Hospital mostly has work motivation that is classified as extrinsic social regulation. This illustrates that the workforce has a tendency to need social relations such as getting recognition and praise from co-employees to increase work motivation and show optimal performance. Therefore, the work atmosphere formed has a good sense of kinship between one workforce and other employee. Some other employees have work motivation that is identified regulation. The employee will feel satisfied and proud when the work they do provides results as expected.

In this study, it is known that the level of work motivation possessed by the majority of respondents included in the medium category that is equal to 41.3%. Research conducted by Rahsel (2016) got the same results that the majority of respondents have a level of motivation with a medium category. This is due to the lack of maximum motivation models that are used as a reference in carrying out human resource functions, such as recruitment, selection and payroll.

Work Discipline

Based on performance appraisal data of Surabaya Wiyung Sejahtera Hospital, it is known that in the disciplinary indicators there are still 50.58% of the workforce who have not yet reached the disciplinary assessment standards. Issues related to discipline that are often found are delays at work. Delay is a form of disobedience to work regulations. Work time is not important and is underestimated

by employees so that work discipline becomes faded.

Discipline is the compliance and obedience of a employee in all forms of rules or policies in the workplace. Shaping the character of discipline in a person can be done starting from the environment such as the work environment (Puspitasari, 2019). An employee who is in a work environment with a high level of discipline then the workforce has a high level of work discipline as well. Otherwise, if the employee is in a work environment with a low level of discipline, he has a low level of work discipline as well. A supportive work atmosphere for creating work discipline can be formed with the habit of mutual respect among co-employees, giving praise and criticism to colleagues at the right time, involving employee to participate in meetings related to labor welfare and providing information to fellow employees, superiors or even subordinates if they want to leave the workplace (Sarinadi, 2014). The success of an organization to achieve its goals is aided by the attitude of work discipline possessed by the workforce that can affect performance to be optimal. The workload given to employee must be adjusted to the capability of the workforce, so that they can carry out their workforce well, be disciplined and truly (Suroyo, 2016).

According to Hasibuan (Astutik, 2017), work discipline is the awareness of a workforce to be obedient to all norms and all forms of regulations in an organization. Sopian (2014), work discipline is an attitude of respect, obedience and respect for existing regulations or policies and able to do so and is willing to accept penalties or sanctions if they violate these rules or policies as well as their responsibilities. Puspitasari (2019) stated that work discipline is a condition in the work environment that is formed through a process that encourages and shows the behavior of employees' obedience to existing regulations.

Based on the definitions according to some researchers, it can be concluded that work discipline is an attitude of obeying the rules and the norms that apply in the workplace. The existence of work discipline which is shown and owned by the employee will give an illustration that the employee already have responsibility for the tasks given (Puspitasari, 2019).

The main factor in work discipline is the awareness of the rules that apply (Patmarina & Erisna, 2012). Organizational culture is considered related to the work environment that is characteristic of an organization and can also reflect the behavior of the workforce, especially those related to work discipline (Puspitasari, 2019). Some criteria in work discipline indicators include time discipline, rules and responsibilities (Sopian, 2014). The time discipline in question is an attitude that reflects compliance with working hours which can be seen from the timeliness in completing tasks and the level of workforce attendance. Discipline is the attitude of obedience to existing rules and regulations such as using uniforms at work. Discipline of responsibility can be realized by using and maintaining work equipment as well as possible while working.

According to Alex S Nitisemita (Patmarina & Erisna, 2012), there are six factors that can increase the attitude of work discipline, among others, threats, goals, welfare, assertiveness, role models and employee abilities. Meanwhile according to Sutrisno (Puspitasari, 2019) the factors that influence the emergence of work discipline are exemplary leaders, the provision of compensation, regulations and policies in the agency, the courage of leaders in deciding actions, supervision by leaders, attention to employees and the creation of habits that can shape work discipline. The provision of compensation has an impact on meeting the needs of the workforce because of the appropriate remuneration so that the workforce is motivated in implementing work discipline. Exemplary leadership in an agency is shown by the obedience of the

leader in carrying out existing disciplinary rules for himself, not only in the form of words or orders so as to make subordinates be more reluctant when committing violations. The rules in the agency control the attitudes and behaviors carried out by employees related to work discipline. The courage of the leadership in taking action is to apply sanctions that apply to the actions of subordinates when disciplinary violations occur to provide a sense of deterrent to subordinates so as not to repeat the violation again. Supervision by the leader is carried out to direct subordinates related to work discipline which includes work time, task responsibilities and other related matters. Attention to employees is given so that subordinates can receive every direction or reprimand conveyed by their leaders. The creation of habits that can shape work discipline related to the creation of a comfortable and harmonious working environment. The courage of the leadership in taking action is to apply sanctions that apply to the actions of subordinates when disciplinary violations occur to provide a sense of deterrent to subordinates so as not to repeat the violation again. Supervised by the leader is carried out to direct subordinates related to work discipline which includes work time, task responsibilities and other related matters. Attention to employees is given so that subordinates can receive every direction or reprimand conveyed by their leaders. The creation of habits that can shape work discipline related to the creation of a comfortable and harmonious working environment. The courage of the leadership in taking action is to apply sanctions that apply to the actions of subordinates when disciplinary violations occur to provide a sense of avoid to subordinates so as not to repeat the violation again. Supervision by the leader is carried out to direct subordinates related to work discipline which includes work time, task responsibilities and other related matters. Attention to employees is given so that subordinates can receive every direction or reprimand conveyed by their leaders. The creation of habits that can shape work discipline related to the creation of a comfortable and harmonious working environment.

In this study, it is known that the majority of respondents have a medium level of work discipline that is equal to 42.5%. Research conducted by Patmarina and Erisna (2012) got the same results that the majority of respondents have a level of discipline with a moderate category that is equal to 48.15%. Astutik's research (2017) found the same results. The respondent has a moderate or sufficient level of discipline because the workforce was at work until time to go home and was able to take responsibility for each workforce.

Work Motivation Level Based on Respondent Characteristics

According to the results of employee performance appraisal, it was known that 131 employees out of 251 employees have a level of work discipline that did not meet the standards set by the hospital. This can occur one of which was influenced by work motivation factors. Most of the hospital workforce was female. Therefore, the majority of work motivation level was owned by female employees than male.

Based on age group, the majority of hospital employees were at the age of 21-30 years. The level of work motivation was also very high in the 21-30 years age group. This showed that young employees tend to have high morale, especially for employees who have just entered the workforce.

The level of work motivation was very high owned by employees with an education level of D3 graduates. In a study conducted by Ayer (2016) stated that the level of education was the background for the workforce mindset that affects work motivation that was applied in the form of optimal performance to support organizational progress.

The working period of the majority of employee was more than 3 years.

Hospital employee who have a longer service life tend to have a high level of work motivation. Work motivation reflects the mental attitude of the workforce which is one factor in achieving work productivity (Laminia & Muniroh, 2018). The period of work that has been undertaken becomes an experience of a workforce becoming more empowered in controlling his workforce so that it affected his work productivity (Koesindratmono & Septarini, 2011).

Work Discipline Level Based on Respondent Characteristics

As many as 50.58% of the total hospital workforce has an assessment of work discipline that did not meet the standards set by the hospital. The majority of high levels of work discipline were owned by female employees'. According to research conducted by Hibau (2018), the results showed that female employees are superior in terms of discipline than male employees. Discipline differences are in terms of time, responsibility, and discipline of the rules.

Hospital employees are mostly aged 21-30 years. High level of discipline is also owned by this age group. Young age employee tend to have high morale with everything they can do dedicated to the interests of the organization. This can be reflected in the attitude of work discipline they have.

Employees with diploma graduates have a higher level of discipline than others. Based on Utama's research (2013), it was found that there was a fairly strong relationship between education level and work discipline. However, education is not the main factor that determines a person in his workforce but rather the skills of the workforce.

The level of work discipline will change with the length of service of a employee. In the hospital workforce, a high level of work discipline is mostly owned by employees with a work period of more than 3 years. Employees with long tenure generally understand better how management patterns are applied in the workplace so that they are expected to work better (Ayer, 2016).

The Relationship between Work Motivation and Work Discipline

Work motivation and work discipline are two different but interrelated things. As a form of ways to improve the discipline of the workforce, high work motivation is necessary to achieve optimal work results (Yoesana, 2013). Work motivation is manifested in the form of encouragement for employee to be able to do their work in accordance with the tasks assigned to them through the attitude of work discipline which is the commitment of the workforce towards the organization. In achieving high levels of success, a leader in a workplace organization can improve the workforce's performance by applying work discipline through work motivation (Muslikhah, 2011).

Based on this study result, there was a very strong relationship between work motivation and work discipline in the workforce of Wiyung Sejahtera Hospital in Surabaya. That was due to work motivation is one of the factors of a workforce being obedient and obeying the rules in the hospital. When the workforce has a high level of work motivation, he also has a high level of work discipline. Conversely, if the workforce has a low level of work motivation then he also has a low level of work discipline. If a workforce with high work motivation is instilled with a good attitude of work discipline, then the individual goals to meet basic needs and organizational goals can be achieved together.

Work motivation behavior has a relationship with work discipline. It is because motivation can encourage individual behavior to carry out certain activities or workforce (Widayat, 2017). In addition, the link between work motivation and work discipline, if the workforce has high motivation, the workforce will run the workforce according to the applicable rules

and consider compliance as an obligation so that the workforce does not intend to commit violations (Puspitasari, 2019).

These results were supported by Andryani's research (2015), by concluding the same results that there was a strong relationship between work motivation and work discipline. This was due to the supporting motivational aspects such as opportunity for achievement and responsibility. Moreover, it was also supported by hygiene aspects such as salary and company policies. Yoesana's research (2013) found the same results that there was a relationship between work motivation and work discipline. This was due to the need for employees in the workplace that has been fulfilled such as a supportive work environment, appropriate compensation, implementation of routine supervision and career guarantees for employees.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that the majority of the workforce of the Wiyung Sejahtera Hospital in Surabaya has a moderate level of work motivation and work discipline. There is a very strong relationship between work motivation and work discipline. This is evidenced by the direction of a positive relationship meaning that the higher the work motivation, the higher the work discipline of the workforce and vice versa.

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POSITION AND ATTACHMENT MODEL OF EXPENDITURE COLOSTRUM AND BREAST MILK PRODUCTION USING THE TRIANGULAR OF LOVE THEORY APPROACH

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ABSTRACT

Introduction: Breastfeeding is the natural process of becoming a mother. However, not all mothers can breastfeed with the correct breastfeeding technique, causing problems in breastfeeding and affecting milk production. **Methods:** This study analyzes the model of colostrum and breast milk production using the Triangle of love theory approach. The research design was a descriptive, explanatory survey. The sample was 95 breastfeeding mothers using the multistage random sampling technique. The sample criteria were mothers breastfeeding infants aged 0-6 months with spontaneous delivery in two public health centers in Sidoarjo regency. Data analysis using structural equation test-partial least square (PLS). **Result:** The results showed that there was an effect of health workers on colostrum and breast milk production (T = 1.423), there was a lifestyle effect on position and attachment (T = 1.475), and there was an effect of position and attachment on colostrum and breast milk production (T = 2.142). **Conclusion:** The position and attachment of breastfeeding using the Triangle of love theory approach can help increase colostrum and milk production of nursing mothers.

Keywords: attachment, breastfeeding position, triangle of love

INTRODUCTION

The best food for babies that can support babies' health, growth, and development is breast milk (Etika & Partiwi, 2015). The World Alliance for Breastfeeding Action (WABA) said that babies have a strong immune system and are not easily exposed to infection if they are given Early Initiation of Breastfeeding / early initiation of breastfeeding at the beginning of their birth, which is the first hour then continued with exclusive breastfeeding for up to 6 months. Exclusive breastfeeding is a global problem because it affects infant morbidity and mortality. However, only about 2/5 babies worldwide get exclusive breast milk. WHO data found that the average exclusive breastfeeding mother in the world is about 38%. In Indonesia, it is still below the national target (80%) 52.3% (2014), 55.7% (2015), and 54% (up to 6 months) and 29.5% (0-5 months) (2016). While in East Java is 74% (2014), 74.1% (2015), and in 2016 there were 31.3% (up to 6 months) and 48.1% (0-5 months). In 2016, data on exclusive breastfeeding in Sidoarjo Regency amounted to 54.7%. Sidoarjo is the place of research because of the low exclusive breastfeeding coverage, which is in the order of 37 out of 38 districts and cities in East Java in 2016 (Ministry of health, 2017; Ministry of health, 2016; Ministry of health, 2015; Sidoarjo district health office, 2017).

A woman after giving birth and becoming a mother, requires special skills in caring for the baby born, then breastfeeding properly, both the position and the adhesion. Mothers who are accustomed to breastfeeding will become skilled at breastfeeding their babies properly. After several days of breastfeeding, milk production will increase. The production of breast milk for the first time came out until the second day very little then increased by about 500 ml on day 5 and increased by about 600-690 ml in the second week, and about 750 ml during the 3-5th month. The needs of babies are increasing, so milk production follows and adjusts. If the baby gets additional food other than breast milk then

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the baby's need for breast milk will be decreased thus the production of breast milk will decrease (Pujiastuti, *et al*., 2018; Pujiastuti, 2010).

Efforts have made to increase breast milk production include IMD, correct positioning and attachment, consuming vegetables (Sauropus androgynus, Momordica charantia, Pluchea indica) nuts (Machmudah & Khayati, 2014). To improve understanding of breastfeeding mothers, especially the correct position and attachment, the Triangular of Love theory approach is carried out which includes 4 components (intimacy, passion, calculative commitment and affective commitment) which differentiate it from other studies. The aim of this study was to analyze the post colostrum model and breast milk production using the Triangular of love theory approach.

METHODS

The study population was breastfeeding mothers in Sidoarjo Regency. The size of the sample is determined based on the rule of the thumb formula. Determining the model in this study there are 18 parameters (measured variables) so that the sample size needed is 5 x 18 = 90 people. In this study, using a sampling technique, namely multistage sampling. Multistage shows several stages of sampling, namely stage 1 in the Sidoarjo Regency area with 3 coverage areas, stage 2 by determining the district, stage 3 by determining the village, and stage 4 by determining the posyandu. Furthermore, respondents were selected according to the inclusion criteria (Nursalam, 2015). This research was conducted in Sidoarjo Regency in July-October of 2020. Sidoarjo Regency consists of 24 Districts. The research was conducted in 3 villages in Candi District, namely Balongdowo, Balonggabus, and Ngampel Sari Village, and 2 villages in Gedangan District, namely Punggul and Gemurung Village. Respondents for each village were 19 people with a total of 95 respondents.

The research design used in this research is explanatory survey research which aims to explain a symptom, to determine the causal relationship between variables. Data collection using questionnaires and interviews conducted by researchers together with posyandu cadres. After the data is collected, data processing is carried out. The questionnaire was made by the researcher and the validity and reliability were tested. The validity test of the instrument using pearson bivariate correlations and obtained correlation value greater than r table 0.202 (n = 95) which means it is valid. The reliability test using alpha (Cronbach) and obtained alpha value is greater than the value of r table which means it is reliable. In the questionnaire, there are 56 closed questions, namely “yes” or “no” answer and “never”, “rarely”, “sometimes”, “often”, and “very often” answers, the respondent only needs to choose answers based on the conditions experienced.

Data analysis of the research results was carried out using PLS, namely variant-based structural equation analysis. This data analysis can simultaneously test measurement models as well as strultural models. Testing of measurement models (outer models) and testing of structural models (inner models). This is used to ensure indicators that measure latent variables are valid and reliabel. While testing structural models to find out the significance of the relationship between exogenous factors to endogenous so as to obtain the right model (Wiyono, 2011). Research ethics certificate Reg. No. 909/KEPK-POLKESMA/2020.

RESULTS

The research was conducted in 5 villages of Puskesmas Candi and Puskesmas Gedangan Sidoarjo Regency. For puskesmas candi the intended villages are Balongdowo village, Balonggabus village, and Ngampel Sari village.

Meanwhile, Puskesmas Gedangan, the intended village is Punggul village and Gemurung village. Respondents for each village were 19 people with a total of 95 respondents.

The subjects used in this study were 95 breastfeeding mothers who lived in the working area of the public health center and according to the sample criteria. Inclusion criteria include are breastfeeding mothers who are willing to be research respondents, the mother breastfeeds with spontaneous delivery and breastfeeding mother who lives in Sidoarjo Regency. While the exclusion criteria included are breastfeeding mothers who are not willing to be research respondents and breastfeeding mothers who do not live in the Sidoarjo Regency area. The research was conducted for 4 months from July to October 2020.

This research variable description displays the research data constructs according to the measurable indicators in each construct. The factors studied included breastfeeding factors, health care factors, socio-cultural environmental factors, position and attachment factors, and breastfeeding factors.

Factors of breastfeeding mothers

The factors of breastfeeding mothers are measured through 6 indicator aspects: age, education, profession, parity, number of children, and mode of delivery. Descriptive results on the construct of factors for breastfeeding mothers:

Table 1. Factors of breastfeeding mothers in Sidoarjo Regency July-October 2020

Factors of breastfeeding mothers		n	%
Age	< 25 years old	43	45,3
	25-34 years old	38	40,0
	35-45 years old	6	6,3
	>45 years old	8	8,4
Education	Elementary school	4	4,2
	Junior High school	24	25,3
	Senior High school	67	70,5
	University	0	0
Profession	Not working	46	48,4
	Factory employees	49	51,6
Parity	1 live birth	48	50,5
	2 live birth	39	41,1
	3 live birth	8	8,4
Number of children	1-2	53	55,8
	3-4	35	36,8
	>4	7	7,4
Mode of Delivery	Normal	83	87,4
	Caesar surgery	12	12,6

Based on table 1 regarding the factors of breastfeeding mothers, it can be seen that most of the respondents were <25 years old, most of the respondents had high school education, most of the respondents worked as factory employees, most of the respondents parity had 1 birth live, most of the respondents had 1-2 children, and most of the mothers gave birth normal.

Health service factors

Health service factors was constructed by 4 indicators, namely the role of health workers, early initiation of breastfeeding, classes of pregnant women, and postpartum visits. Descriptive results on the health service factor construct are in the following table:

Table 2. Health service factors in Sidoarjo Regency July-October 2020

Health service factor		n	%
Role	Good	60	63,2
	Moderate	35	36,8
early initiation of breastfeeding	Good	6	6,3
	Moderate	19	20
	Less	70	73,7
Maternity class	Good	8	8,4
	Moderate	9	9,5
	Less	78	82,1
Postpartum visit	Good	9	9,5
	Moderate	10	10,5
	Less	76	80

Based on Table 2 regarding health service factors, it can be seen that most health service factors (the role of health workers) are categorized as good with a cut of 12-14 points, most health care factors (early initiation of breastfeeding) are categorized as less with a cut of 4-5 points, most health care factors (maternity class) are categorized as less with a cut of 4-5 points and most health care factors (postpartum visit) categorized as less with a cut of 4-5 points.

Sociocultural environmental factors

Sociocultural environmental factors are constructed by 2 indicators, namely social kinship and lifestyle. Descriptive results on the constructs of sociocultural environmental factors are shown in the following table:

Table 3. Sociocultural environmental factors in Sidoarjo Regency from July-October 2020

Sociocultural		n	%
Social and kinship	Good	34	35,8
	Moderate	61	64,2
Lifestyle	Good	18	18,9
	Moderate	76	80
	Less	1	1,1

Based on table 3, sociocultural environmental factors can be seen that most sociocultural environmental factors (social and kinship) categorized quite a number of 61 (64.2%) with a cut of 11-15 points and most sociocultural environmental factors (lifestyle) categorized quite a number of 76 (80%) with a cut of 5-11 points.

This means that breastfeeding mothers really need support from their families, especially those who live in one house because they will follow family habits.

Position and attachment factors

Table 4. Position and attachment factors in Sidoarjo Regency from July to October 2020

Position and attachment		n	%
Intimate	Good	39	41,1
	Moderate	56	58,9
Passion	Good	35	36,8
	Moderate	60	63,2
Calculative	Good	25	26,3
	Moderate	70	73,7
Affective	Good	45	47,4
	Moderate	50	52,6

Position and attachment factors are constructed by 4 indicators, namely intimacy, passion, calculative commitment, and affective commitment. Based on table 4, it can be seen that most of the position and attachment factors (intimate) categorized are quite a number of 56 respondents (58.9%) with a cut of 12-18 points, most of the position and attachment factors are categorized quite a number of 60 respondents (63.2%) with a cut of 12-18 points, most of the position and attachment factors (calculative) are categorized quite a number of 70 respondents (73.7%) with a cut of 12-18 points, and most of the position and attachment factors (affective) are categorized quite a number of 50

respondents (52.6%) with a cut of 12-18 points.

Intimacy is a feeling of wanting to always be close to, connected, forming, and making love bonds. There is a desire to always pay attention to people who are loved. Breastfeeding mothers are quite intimate with their babies, supported by most of them having 1 child, so it is the first experience and wants to be close to the baby. Passion is a drive that is focused on strong emotions in a bonding or loving relationship, giving and receiving attention, and the need for self-esteem or dominating. Breastfeeding mothers are quite passionate about giving frequent attention to their babies and support from families who help mothers breastfeed and care for their babies. Commitment is an agreement in making an agreement or someone will give serious service. Calculative commitment is an extension of the need to maintain relationships because of economic benefits. Meanwhile, affective commitment is based on a continuous relationship because each party feels emotional or psychological closeness. Affective commitment is related to trust and supports the benefits of a longer relationship. Breastfeeding mothers have sufficient calculative commitment because they know the benefits that can be obtained from breastfeeding their babies exclusively. The benefits that are obtained are not only for himself but for babies and their families as well as for breastfeeding mothers to have enough affective commitment because they experience various benefits from exclusive breastfeeding.

Breast milk factor

Breast milk factors are constructed by 2 indicators, namely colostrum and breast milk production. The descriptive results of the breast milk factor constructs are in the following table:

Table 5. Breast milk factor in Sidoarjo Regency in July-October 2020

Breast milk factor		n	%
Colostrum	Good	91	95,8
	Moderate	4	4,2
Production	Good	95	100
	Moderate	0	0

Based on table 5, it can be seen that most of the breast milk (colostrum) are categorized good was 91 respondents (95.8%) with a cut of 6-7 points and all factors of breast milk (breast milk production) are categorized as good was 95 respondents (100%) with a cut of 6-7 points.

This means that the mother has been breastfeeding with the correct position and attachment so that milk production increases. Figure 1 shows that not all T-statistical values in the path chart have a value greater than the T-table value of 1.96. These pathways include the path of health care factors (X2) to the breast milk factor (Y1) with statistical T of 2,282, environmental factor (X3) to position and attachment (X4) with statistical T of 5,054, position and attachment factor (X4) to the breast milk factor (Y1) with T-statistics of 2,071.

While the variable that indicates an insignificant relationship is the relationship between the breastfeeding mother factor (X1) to the position and attachment factor (X4) and T-statistics 0.359, breastfeeding maternal factor (X1) against breast milk factor (Y1) with T-statistics 0.444, health service factor (X2) against position and attachment factor (X4) with T-statistics 1,502, environmental factor (X3) to breast milk factor (Y1) with T-statistic 0.463.

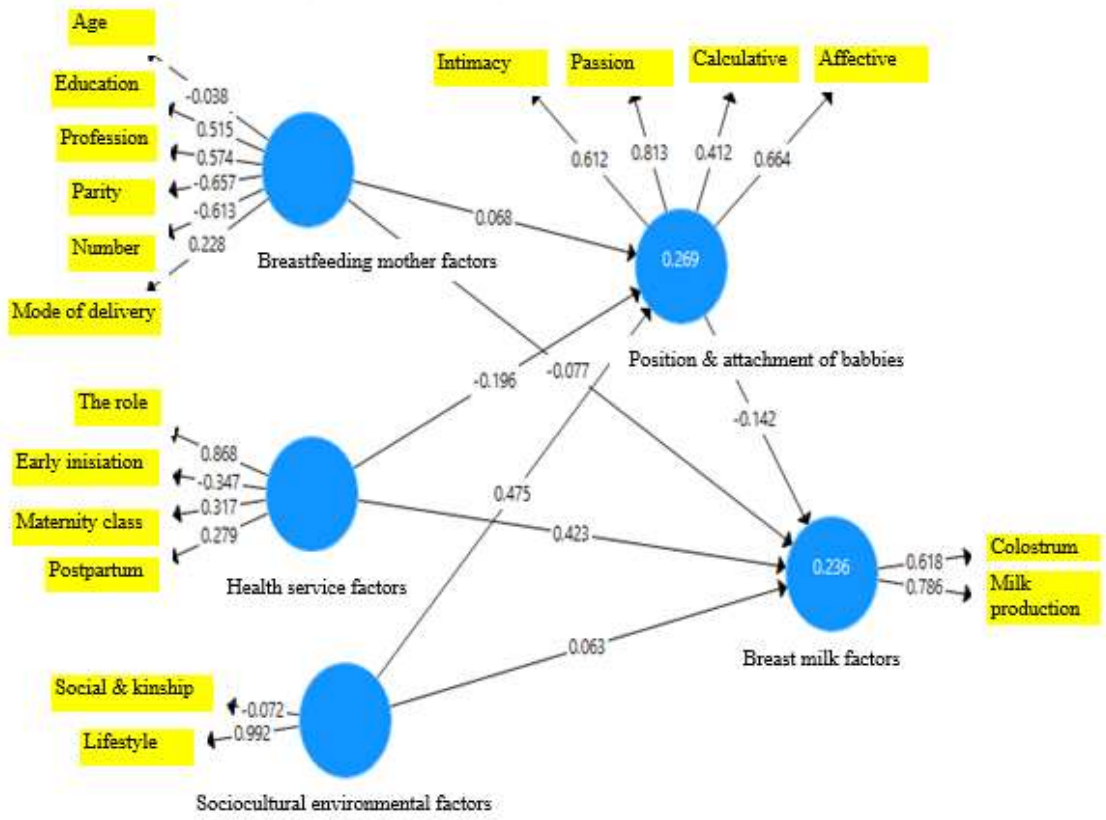

Figure 1. T-statistical value path diagram

DISCUSSION

Breastfeeding Mother Factors

Statistical test results showed that the breastfeeding mother factor does not affect the position and attachment of the baby with the triangular of love model and the breastfeeding mother factor does not affect the breast milk factor. Breastfeeding maternal factors include age, education, employment, parity, number of children, and mode of delivery.

Most of the breastfeeding mothers are < 2 5 years old. This shows that the majority of breastfeeding mothers are of productive age and plus most breastfeeding mothers are working so that the responsibility for caring for children is generally given to the baby's grandmother. Research conducted by Wahyuni & Abidin (2015) shows that the grandmother's decision to take care of her grandchildren is due to several reasons, including working breastfeeding mothers, the condition of the child's / daughter-in-law's family, distrust in the care of grandchildren by maid, or as a filler in activities due to the absence of a spouse.

Some breastfeeding mothers have a parity of 1 birth so they do not have experience in caring for their babies and obey the advice of the baby's grandmother because they are considered more experienced in caring for babies. Research conducted by Simbolon (2011) and Saputri, (2013) shows that grandmothers generally accompany breastfeeding mothers after giving birth for approximately 6 months and reduce parenting habits, especially regarding early feeding and the assumption that the baby's needs are less if only breastfed. Research conducted by Negin, *et al* (2016) showed that grandmothers who had a breastfeeding experience produced an effect 1.6-12.4 times more likely to affect exclusive breastfeeding. According to researchers, grandmothers have enough experience and

strength to influence breastfeeding mothers including how to breastfeed and care for babies so that they generally participate in determining decisions made by families, especially about breastfeeding. In addition, breastfeeding mothers follow all the advice given by grandmothers because they are considered more experienced**.**

Health Service Factor

Statistical test results showed that health care factors did not affect the position and attachment of babies with the triangular of love model. While the health service factor affects the breast milk factor. Health service factors include the role of health workers, IMD, maternity classes and medical visits. According to Blum (1981) in Notoatmodjo (2012) states that a person's health status is influenced by four factors, one of which is health services. Health services are provided by the health system to help people become healthy. Health services help people, families, and individuals in getting treatment, prevention and treatment of a disease. Health professionals in health services are resources that provide support for breastfeeding mothers because they have the knowledge to initiate and maintain breastfeeding, so it is necessary to facilitate 10 steps for successful breastfeeding, and not market formula milk in health services because it significantly reduces exclusive breastfeeding and the duration of breastfeeding . In addition, information support from health personnel makes mothers more optimistic in facing breastfeeding difficulties (Misdayanti, *et al*., 2016; Thet, *et al*., 2016)

Most of the health services regarding the role of health workers are in good category. The role of health workers includes providing information and motivation to families about exclusive breastfeeding. Information support from health workers makes mothers more optimistic in facing breastfeeding difficulties (Misdayanti, *et al*., 2016; Thet, *et al*., 2016). According to researchers, the role of health workers is in the good category because health workers have carried out their duties and obligations in providing health services. For example, health workers provide information about breastfeeding starting at pregnancy checks, in the delivery room, and during postpartum visits.

Most maternity class programs are in the less category. The class program of pregnant women is a means of learning with pregnant women with a gestational age of 4-36 weeks with a maximum number of participants of 10 people, learning about the health of pregnant women (pregnancy care, childbirth, s nips, and newborn care) to improve the knowledge and skills of pregnant women, scheduled and continuous manner (Kemenkes, 2011). Research conducted Palmqvist, *et al* (2015) Research conducted by Palmqvist, et al (2015) shows that a parent class that includes married couples can increase exclusive breastfeeding behavior. According to the researcher, the maternity class was in the poor category because most of the breastfeeding mothers worked so that they could not participate in maternity class because the implementation was held on weekdays.

Most IMD programs are in less category. Early Breastfeeding Initiation Program (IMD) is the contact of the baby's skin with the mother's skin. The process begins with the creeping of the baby to the mother's chest after smelling the nipple (breast crawl). Early skin-to-skin contact can increase the production of the hormone oxytocin, thus helping to smooth the lactation process. This lactation process will be easily achieved when the mother is in rooming in (Etika & Partiwi, 2015). After 24 hours of delivery is an important time for the success of further breastfeeding, so there needs to be continuous family support so that breastfeeding mothers can carry out the

lactation process optimally (Etika & Partiwi, 2015). According to researchers, IMD is in the less category due to the Covid-19 pandemic, which makes health workers place a newborn on the mother's chest immediately after birth but not until 1 hour has taken the baby to be moved to the nursery so that the minimum 1 hour IMD rule and the mother's baby have not been met. Feeling worried that her child is exposed to Covid-19 so that colostrum / breast milk is given through expressed breast milk.

Most of the postpartum visits were in the less category. Postpartum re-visit is the contact of the post-partum mother with the second health worker and so on to get standard services. Postpartum revisits of at least four visits to assess the condition of the mother and newborn and to prevent, detect, and deal with problems that occur at that time (Saifuddin, *et al*., 2014). According to researchers, postpartum visits are in the less category due to the Covid-19 pandemic so that mothers give birth to minimize visits / treatment to health services. In addition, the fourth postpartum visit is rarely done because the mother has returned to work or she does not feel any complaints so she does not make a postpartum visit.

Sociocultural Environmental Factors

Statistical test results showed that environmental factors affect the position and attachment of the baby with the triangular of love model. However, environmental factors do not affect the breast milk factor. Environmental factors include social-kinship and lifestyle.

Most of the social and kinship categories are moderate. Families need to be involved so that the nursing care provided is in accordance with the family culture. Most of the family forms in East Java are in the form of extended family and nuclear family. In the form of a large family (extended family), the role of the grandmother greatly influences decision making in breastfeeding (Sudiharto, 2007). Research conducted by Negin, *et al* (2016) showed that the role of grandmothers as the older generation and experienced in exclusive breastfeeding resulted in an effect of 1.6-12.4 times more likely to affect exclusively breastfeeding children. According to researchers, family solidarity to help breastfeeding mothers is good enough in overcoming problems related to exclusive breastfeeding because families think that childbirth is a woman's nature so it is a natural thing to happen to women.

Most of the cultural and lifestyle values are in moderate category. Culture or habits in parenting today are still influenced by the belief in the comfort of doing familiar habits to meet the basic needs of individuals or groups(Sudiharto, 2007). A woman who gets married and becomes a new member of a family has additional parents, namely father and mother-in-law. During the adaptation process in marriage, there are sometimes differences in opinions and principles with grandmothers. The opinions and principles are based on differences in family habits and culture. This can be a source of conflict so that son-in-law usually chooses to avoid conflict (Ririen, 2007).

According to researchers, the cultural and lifestyle values are in the sufficient category because of the harmonious relationship between breastfeeding mothers and their families so that there are no serious conflicts in the family and the family supports mothers to breastfeed their babies exclusively.

Position and attachment of the baby in Triangular of Love model

The statistical results show that the position and attachment of babies with the triangular of love model affect the breastfeeding factor. The baby's position and attachment using the triangular of love model includes intimacy, passion, calculative commitment, and affective commitment.

Most of the baby's position and attachment with the triangular of love model about intimate in the enough category. Intimacy means the feeling of wanting to be close, wanting to be in touch, forming bonds with loved ones. In this component , there is a desire to always pay attention to loved ones. The closeness of oneself with a partner and intimate communication is important. This component is very important both in romantic love, love for children and for good friends (Sternberg, R.J., & Barnes, 1988).According to researchers, breastfeeding mothers are quite intimate with her baby because most have parity of the birth so it is the first experience of being a mother and wants to always air close early with the baby to care for her baby. Family support is needed to provide motivation for breastfeeding mothers.

Most of the positions and attachments of babies with the triangular of love model about passion are in the moderate category. Passion is the impulse that leads to a strong emotion in the love relationship. In a romantic love relationship, physical and sexual attraction may be the main thing. But other motives such as giving and receiving attention, the need for self-esteem or the need to dominate are involved (Sternberg, R.J., & Barnes, 1988). According to researchers, breastfeeding mothers are quite passionate by often giving attention to their babies and support from families who help mothers breastfeed and care for their babies.

Most infant positions and attachments with a triangular of love approach of calculative commitment fall into the moderate category. Commitment is a high promise that someone will devote himself seriously in any circumstances so that someone has a commitment, that person can feel safe and comfortable and pleasant in carrying out the commitments he made (Mulyasa, 2011). Research inducted by Wulandari (2009) shows that breastfeeding mothers who have good knowledge tend to exclusively breastfeed than breastfeeding mothers who have poor knowledge.

Calculative commitment relates to the instrument type of commitment and as an extension of the need to maintain the relationship due to the economic benefits of making the commitment. According to researchers, breastfeeding mothers have quite a calculative commitment because they know the various benefits that can be obtained from breastfeeding their babies exclusively. The benefits obtained are not only for herself, but for the baby and her family.

Most of the baby's position and attachment with the triangular of love model of affective commitment is in the moderate category. Affective commitment based on an sustainable relationship not because of short-term economic benefits but because each party feels an emotional or psychological closeness to each other. Affective commitment is positively related to trust and supports the benefit of the relationship over a longer time. According to researchers, breastfeeding mothers have enough affective commitment because they experience various benefits from exclusive breastfeeding.

Model of baby's position and attachment to colostrum and breast milk production with triangular of theory approach

This study emphasizes that the position and attachment of babies using the triangular of love model carried out to influence colostrum and breast milk production so that the mother is able to exclusively breastfeed. Baby's position and attachment are measured by intimacy, passion and commitment. Commitment is divided into two, namely calculative commitment and affective commitment. Position and attachment are breastfeeding techniques for successful breastfeeding. The correct breastfeeding position is the

auricle and upper arm next baby is a straight line (if the line is drawn). Meanwhile, the correct attachment can be abbreviated as amubidapi. Amubidapi is part of the areola enter largely into the mouth of the baby, the baby opens wide its mouth, the baby's lips folded out while feeding, the baby's chin during breastfeeding will be stuck in the breast, and the baby's cheeks as inflated as being express the milk. Research conducted by Kusumawaty (2015) shows that the success of exclusive breastfeeding is supported by having good knowledge and commitment to the mother. In addition, information support from health personnel makes mothers more optimistic in facing difficulties during breastfeeding their babies (Misdayanti, *et al*., 2016; Thet, *et al*., 2016).

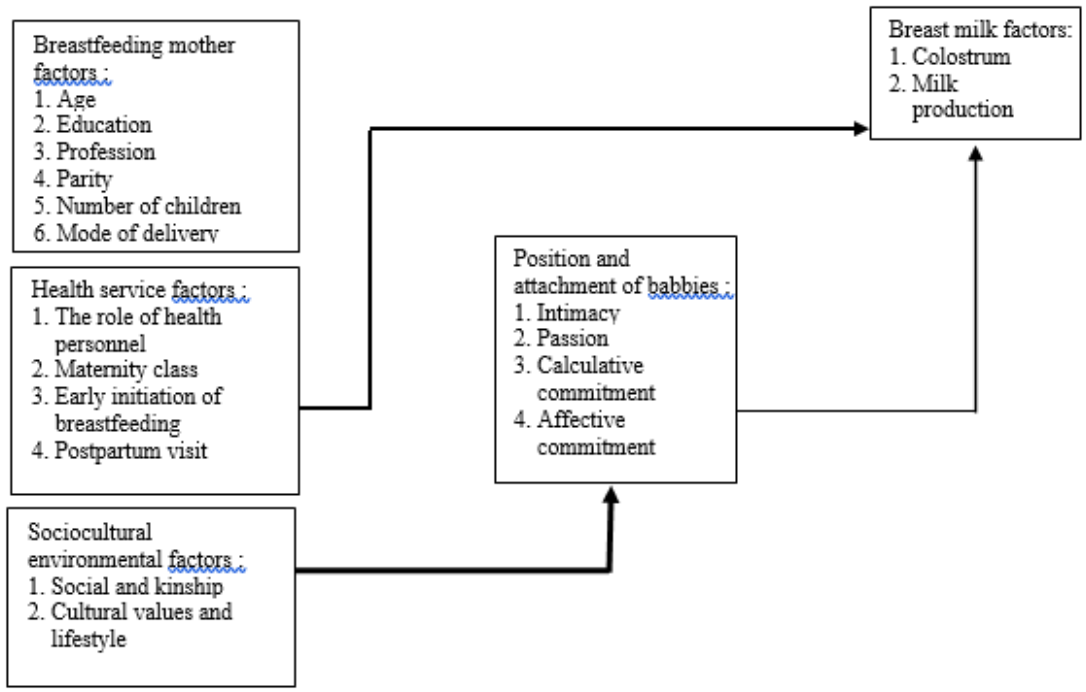

Figure 2. The new findings of the study

The theory of Robert Stenberg known as Stenberg's triangular of love is the most famous theory of love. Stenberg says that all experiences of love have 3 components including intimacy, passion, and commitment (Anindyojati, 2012). According Peppers & Rogers (2004) divides the type of commitment that is calculative and affective

In this research, the triangular of love theory was applied to increase the success of breastfeeding through the correct position and attachment of the baby using the triangular of love theory approach. The information given to breastfeeding mothers is in accordance with the modules that have been prepared. The infant's position and attachment module using the triangular of love approach discusses the correct breastfeeding position, the correct latching, various breastfeeding positions and how to increase breast milk production.

The correct position and attachment of the baby with the triangular of love approach will be realized if the breastfeeding mother takes actions such as (1) breastfeeding her baby in the correct position, (2) latching the baby properly when breastfeeding, (3) performing the mother-baby inner bond (intimacy) by always being closed to the baby (caressing, inviting communication while breastfeeding) (4) caring for the baby such

as changing diapers, bathing babies, breastfeeding in accordance with the needs of the baby (passion), and (5) carrying out the commitments that have been made so that exclusive breastfeeding increases.

Intimacy is the feeling of wanting to always be closed, touch, form and create a bond of love . There is a desire to always pay attention to loved ones. These components are the one essential to the love of the child or good friend / friend (Puspitawati, 2013). According to the researchers, breastfeeding mothers are quite intimate with their babies, supported by most of them having a parity of one birth so that it is the first experience and wants to be close to their babies. While passion is an impulse focused on the emotion is strong in bond or a love relationship, giving right and receive attention, as well as the need for self-esteem or dominate (Puspitawati, 2013). According to the researchers, breastfeeding mothers often passionate enough to give attention to the baby as well as the support of the family that help breastfeeding mothers in caring for babies.

Commitment is an agreement in making an agreement or someone will give devotion in earnest (Mulyasa, 2011). Calculative commitment as an extension of the need to maintain relationships because of economic benefits. Meanwhile, affective commitment is based on a continuous relationship because each party feels emotional or psychological closeness. Affective commitment relates to trust and supports the benefits of longer relationships. According to the researchers, breastfeeding mothers have sufficient calculative commitment because they know the various benefits that can be obtained from breastfeeding their babies exclusively. The benefits that are obtained are not only for herself, but for her baby , her family and breastfeeding mothers who have enough affective commitment because they feel various benefits of exclusive breastfeeding so that they are motivated to breastfeed their babies exclusively.

Emphasis on environmental factors (social kinship and lifestyle) to optimize the position and attachment of the baby with a triangular of love approach so as to increase colostrum and breast milk production. The intervention of position and attachment of babies with the triangular love approach includes providing knowledge and skills around breastfeeding (contained in the module).

The position and attachment of babies using the triangular of love approach are influenced by factors of breastfeeding mothers, health service factors, and environmental factors. Of the three factors, the biggest influence is the environment so that the process of position and attachment of the baby using the triangular of love approach is carried out based on environmental factors. The environment in question is support from family members to motivate breastfeeding mothers to be able to care for their babies and breastfeed exclusively.

CONCLUSION

From the research, the novelty lies in the socio-cultural environmental factors have the greatest influence on the position and attachment of the baby which further affects the factor of breast milk (colostrum production and breast milk production).

There are several factors that do not affect, among others: the factor of breastfeeding mothers does not affect the position and attachment, the factor of breastfeeding mothers does not affect the breast milk factor, health service factors do not affect the position and attachment of the baby, and environmental factors do not affect the breast milk factor.

The use of the triangular of love approach on the position and attachment of the baby can increase colostrum expenditure and milk production.

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INFLUENCE OF ATTITUDE, SUBJECTIVE NORM, PERCEIVED BEHAVIOUR CONTROL TO PERFORM INTENTION IN PREVENTION ACTION OF DIABETES

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ABSTRACT

Introduction: This study aimed to identify influence of attitude, subjective norm, and perceived behavior control to intention on preventive behavior of type II diabetes in Theory of Planned Behaviour model. **Methods:** This study is an observational study with a cross-sectional and analytical design. The population in this study were all undergraduate students of Public Health FKM UA. The sample was determined by using simple random sampling technique, until a total sample of 234 respondents was obtained. **Result:** Research on type II preventive behavior showed that respondents who agreed to the positive impact of preventive behavior of type II diabetes and had confidence that they could implement preventive behavior of type II diabetes by 70.08% of the total respondents. Respondents who had subjective norms agree on preventive behavior of type II diabetes and havmd the confidence to be able to perform preventive behavior for type II diabetes by 70.09% of the total respondents. Respondents who had the confidence to be able to interpret themselves were able to perform preventive behavior of type II diabetes and had confidence in carrying out preventive behavior for type II diabetes by 47.44% of the total respondents. **Conslusion:** Based on the results of the study showed that the attitude variable (P < 0.905) did not significantly influence the intention variable. While the subjective norm (P > 0,001) and perceived variables control (P > 0,001) significantly influence intention.

Keywords: Type II Diabetes Mellitus, Prevention, TPB

INTRODUCTION

Diabetes is a non-communicable disease that is divided into two types based on the cause. Type I diabetes is caused by heredity (genetics) and type II diabetes is more due to lifestyle factors (IDF, 2015). According to the International Diabetes Federation (IDF) there are around 429 million people with DM worldwide with an age range between 20-79 years with a total number of deaths due to DM reaching 4 million people in 2017. Among the 429 million people with DM, 279 million people live. in urban areas while 146 million people live in rural areas. The lift showed that 65% of people with DM live in urban areas. (IDF, 2017).

Indonesia itself, based on the latest IDF publication in 2017, occupied the 6th position from the previous 7th position in the country with the largest number of DM sufferers in the world in 2015. Meanwhile, the prevalence of people with DM in Indonesia nationally in 2015 and 2017 did not change, namely 6.2% (IDF, 2015, 2017). Although it did not increase, this figure was much higher than the 2013 Riskesdas data, namely the prevalence of DM in Indonesia was 2.1% (Ministry of Health, 2014b). The increase was due to the IDF data also calculating the possibility of people being undiagnosed, which was 52.8% of the total people with DM according to the IDF. Although people who are not diagnosed are not counted, the prevalence of DM in Indonesia is still high at around 3.2% (IDF, 2015). So that there was an increase of about 1.1% over a period of 2 years, namely 2013-2015. In addition, the prevalence of DM also experienced a significant increase during the period 2007-2013 in almost all regions in Indonesia. The prevalence of DM in 2007 was 1.1% (Ministry of Health, 2008a), almost doubled (1.0%) in 2013 to 2.1% (Ministry of Health, 2013b). Distribution of

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data on Riskesdas in 2013, the highest prevalence of DM was in the 55-64 year age group with higher education levels, namely D1-D3/PT graduates and living in urban areas (Ministry of Health, 2013b).

One of the cities in Indonesia that experienced a significant increase in the prevalence of DM is the city of Surabaya. The prevalence of DM in Surabaya reached 4.8% in 2013 (Ministry of Health, 2013a), from the previous 2.7% in 2007 (Ministry of Health, 2008b). Based on the two Riskesdas data, the prevalence of DM in Surabaya is always above the prevalence of DM in East Java, namely 2.1% at Riskesdas 2013 and 1.3% at Riskesdas 2007 (Ministry of Health, 2008b, 2013a).

Diabetes is an incurable disease, diabetics must have strict dietary control, and are dependent on drugs or even have to receive insulin injections throughout their lives (IDF, 2015). In contrast to type I diabetes which cannot be prevented, type II diabetes can be prevented. Various researchers believe that unhealthy lifestyle factors are the trigger for type II diabetes. Khan said that diabetes can be prevented if the risk factors can be identified early (Khan et al, 2012). However, many people with type II diabetes are not aware that they have the disease. This is because the symptoms of type II diabetes have the nature of appearing slowly (insidious onset). This can happen because the bodies of people with type II diabetes can still use insulin, in contrast to people with type I diabetes (IDF, 2017). But along with the times, type II diabetes in the world, which used to only show clinical symptoms in people over the age of 60 years, is now experiencing an age shift. Type II diabetes patients who have shown clinical symptoms are found in the age group <40 years. Even in several studies, cases of type II diabetes have been found in the age group <40 years. Charles' research showed cases of type II diabetes at the age of 18-19 years (Charles, Pollack, & Britt, 2015). In another study found cases of type II diabetes in the age group 18-29 years as many as 17 respondents, in the age group 30-39 years as many as 58 respondents, and 40-50 years found 69 respondents suffering from type II diabetes (Nguyen, et. al., 2012). Another study in Sydney Australia showed that cases of type II diabetes were found in the youngest age group, 15-30 years old (Al-Saeed et al, 2016). Another study in Australia from 2000 to 2013 showed an increase in type II diabetics for the 18-39 year age group. The increase in the prevalence of type II diabetes in Australia is also accompanied by an increase in BMI in the same age group (Charles et al., 2015).

The exact cause of type II diabetes is not known. However, many studies support the fact that lifestyle factors play an important role in the management of type II diabetes. Successful trials have shown that doing either diet or physical activity to prevent or delay the onset of type II diabetes will not produce significant results. However, by doing both, namely managing diet and physical activity, it can reduce or inhibit the incidence of type II diabetes in people who have shown disturbances in sugar consumption or what is known as Impaired Glucose Tolerance (IGT) (Hemmingsen et al., 2017). Wimalawansa stated that diet and physical activity can affect diabetes cases in obese people (Wimalawansa, 2015). Physical activity referred to as an effort to prevent type II diabetes is physical activity carried out for at least 30 minutes every day and at least 3 times a week. As for the dietary pattern, there are four factors that can affect the incidence of type II diabetes. The four factors are excessive fat consumption, excessive sugar consumption, not eating breakfast, eating less fruit and vegetables (Ministry of Health, 2014a).

Several experiments on dietary factors have proven that dietary factors have a role in the incidence of diabetes, especially type II diabetes. Increasing the amount of fat consumption starting from 25% can increase the fat content in the blood (Vitale et al., 2016). In another study, it was also proven that the habit of consuming beverages added with sweeteners was associated with the

incidence of type II diabetes (Imamura et al., 2016). In his research, Imamura did not specialize in just one sweetened drink, but included all drinks with added sweeteners. In addition, Imamura did not classify the sweeteners used. In another experiment, it was proven that the habit of not eating breakfast was also associated with the incidence of diabetes (Reutrakul et al., 2014). In his experiment, Reutrakul explained that the habit of not having breakfast had an impact on the number of calories in-take and sleep patterns of respondents. Respondents who do not eat breakfast have fewer calories in-take than respondents who eat breakfast, but the number of calories per meal is greater in respondents who do not eat breakfast. For sleep patterns, respondents who do not eat breakfast have an extra night's sleep at 24 hours and wake up at 8, while respondents who eat breakfast sleep at 11 and wake up between 6-7 hours. In another study, it was shown that the quantity of fruit and vegetable consumption was associated with the incidence of type II diabetes (Mamluk et al., 2017). In their research, Mamluk, et al., explained that the incidence of type II diabetes may occur because the amount of consumption of fruits and vegetables that are less can lead to a lack of fiber and magnesium intake in the body.

The Theory of Planed Behavior (TPB) is a theory put forward by Fisbein and Ajzen. This theory explains the intentions in a person who are the most influential in realizing an action. Intention itself is formed from three factors, each of which is influenced by two other factors. The three factors are attitudes, subjective norms, and perceived behavioral control. TPB has been applied to explain various health behaviors, including exercise, smoking, drug use, as well as HIV and sexually transmitted disease prevention behaviors. In type II diabetes itself, this theory is important to use to predict what kind of individuals are more likely to consistently carry out preventive behavior for type II diabetes, so that in the future this can be used to make interventions that can provide good outcomes (Akbar, Anderson, & Gallegos). , 2015; Gomes & Nunes, 2018).

Based on this explanation, the purpose of this study was to analyze the effect of attitudes, subjective norms, and perceptions of behavioral control on intentions in type II diabetes preventive behavior in students in Surabaya. The results of the analysis were expected to be able to describe how preventive behavior for type II diabetes can emerge.

METHODS

This research used the type of observational research. The research design used was Cross Sectional. The population in this study were all active undergraduate students of the Faculty of Public Health, Airlangga University semester III, V, and VII with a total of 991 students. Students were selected as the population because based on the 2013 Riskesdas, the largest diabetics were people with a higher education level (PT) (Ministry of Health, 2013b). While the determination of the sample was done using a simple random sampling technique using the Slovin formula. So that the total samples obtained were 234 respondents consisting of students in semester III, V, and VII.

The research location was at the Faculty of Public Health, Airlangga University. The university was chosen because based on the 2013 Riskesdas, the prevalence of diabetes in Surabaya was ranked first with a prevalence of 4.8 / 6.2, besides that, most people with diabetes were in the diploma or college education group (Ministry of Health, 2013b). While the primary data collection using a questionnaire was carried out during August 2017.

The variables studied in this study consisted of independent variables and dependent variables. The independent variable consists of attitudes, subjective norms, and perceived behavioral control, while the dependent variable consists of intentions. Attitude is the willingness to

respond positively or negatively to a behavior. Subjective norms are defined as individual perceptions of social pressure to perform or not to perform a behavior. Perception of behavioral control is an individual's belief about the presence or absence of factors that support or prevent individuals from eliciting a behavior. While the intention is defined as an indication that a person is ready or able to perform a certain behavior.

Primary data collection was obtained through interviews with assistive devices in the form of a questionnaire regarding the respondent's type II diabetes preventive behavior in the form of physical activity at least 30 minutes/day and 3 times/week as well as dietary management which includes limiting sugar consumption, limiting fat consumption, limiting consumption of sweetened drinks, fruit consumption, and breakfast were studied based on the theory of planned behavior. The questionnaire was prepared following the guidelines for preparing a questionnaire that had been exemplified by Fishbein & Ajzen as the founders of TPB in their book entitled Predicting changing behavior. The data in this study used an ordinal scale on all variables. Ordinal data was chosen because the questionnaire used a linkert scale where respondents were asked to rate their level of agreement with the preventive behavior of type II diabetes.

After the data is obtained, then the data will be processed and analyzed. Univariate analysis will display frequency distribution information for each of the variables studied. Meanwhile, multivariate analysis will display information on the relationship between the independent variable and the dependent variable. The analysis of the influence of the independent variable on the dependent variable was analyzed using the help of the SPSS application using multiple linear regression tests that were carried out simultaneously at one time.

During the process of filling out the questionnaire, the respondent received an Explanation Before Approval (PSP) form and put a signature on the PSP before filling out the questionnaire. Respondents who fill out the questionnaire will receive souvenirs in the form of leaflets and drinking water bottles. This research has passed the ethical feasibility test with an ethical test certificate by the Health Research Ethics Commission, Faculty of Public Health No. 386-KEP.

RESULT

Based on Table 1, it can be seen that the age of the respondents ranged between the ages of 17-22 years and the majority of the respondents' gender was female, namely 88.03%. While the rest are male by 11.97%.

Table 1. Characteristics of Respondents Based on Age, Gender.

Characteristic	Frequency	%
Age	**Total**	
17	3	1.28
18	18	7.69
19	65	27.78
20	72	30.77
21	67	28.64
22	9	3.84
Total	234	100
Gender		
Male	28	11.97
Female	206	88.03
Total	234	100

Attitudes are formed from behavioral beliefs and evaluation of behavioral outcomes. The results of the study for the behavioral beliefs factor showed that 67.52% of respondents agreed that physical activity 30 minutes/day and 3 times/week could prevent type II diabetes and 96.15% of respondents agreed that dietary regulation in the form of not eating breakfast, limiting sugar consumption, limiting the consumption

of fried foods, and consuming fruit can prevent the occurrence of type II diabetes.

Table 2. Percentage of Respondents' Opinions Regarding Preventive Behavior of Type II Diabetes In Accordance With Theory Of Planned Behavior

Theory of Planned Behaviour	Opinion	
	Agree	**Disagree**
Attitude		
Behavioral Beliefs		
Physical activity	67.52	32.48
Diet management	96.15	03.85
Evaluation of Behavioral Outcomes		
Physical activity	65.38	34.62
Diet management	98.29	01.71
Subjective Norms		
Normative Beliefs		
Physical activity	94.02	5.98
Diet management	96.58	3.42
Motivation to Comply		
Physical activity	69.96	30.04
Diet management	84.19	15.81
Behavior Control Perception		
Control Beliefs		
Physical activity	67.52	32.48
Diet management	76.92	23.08
Perceived power		
Physical activity	82.91	17.09
Diet management	96.58	03.42
Intention	75.21	24.79

Meanwhile, the results of the study for the evaluation of behavioral outcomes showed that 65.38% of respondents agreed that physical activity 30 minutes/day and 3 times/week could prevent type II diabetes and 84.19% of respondents agreed that the management of eating patterns in the form of not eating breakfast, limiting sugar consumption, limiting the consumption of fried foods, and consuming fruit can prevent the occurrence of type II diabetes.

Subjective norms are formed by normative beliefs and Motivation to Comply. The results of the research for normative beliefs showed that 94.02% of respondents agree that physical activity 30 minutes/day and 3 times/week can prevent type II diabetes and 96.58% of respondents agree that the management of eating patterns in the form of not eating breakfast, limiting sugar consumption, limiting consumption of fried foods, and eating fruit can prevent type II diabetes. In addition, the results of the motivation to comply research showed that 69.96% of respondents agree that physical activity 30 minutes/day and 3 times/week can prevent type II diabetes and 84.19% of respondents agree that the management of eating patterns in the form of skipping breakfast, limiting sugar consumption , limiting the consumption of fried foods, and consuming fruit can prevent the occurrence of type II diabetes.

Perception of behavioral control is formed by control beliefs and perceived power. The results of the study for control beliefs show that 67.52% of respondents believe that they have the convenience of doing physical activity 30 minutes/day and 3 times/week as an effort to prevent type II diabetes and 76.92% of respondents believe that they have ease in carrying out dietary management in the form of not eating breakfast, limiting sugar consumption, limiting fried food consumption, and consuming fruit in an effort to prevent type II diabetes. In addition, the results of the perceived power study showed that 82.91% of respondents believe that they have the ability in each of the supporting factors when

doing physical activity 30 minutes / day and 3 times / week in an effort to prevent type II diabetes so as to be able to minimize existing obstacles and 96, 58% of respondents believe that they have the power to manage their diet in the form of not eating breakfast, limiting sugar consumption, limiting fried food consumption, and consuming fruit and are able to minimize existing obstacles.

The results of the study for the variable of type II diabetes preventive behavior intention showed that 75.21% of respondents are considered to have good intentions and can represent these intentions to become a type II diabetes preventive behavior.

Table 3. Lenier Regression Test for Attitude Variables, Subjective Norms, and Perceptions of Behavioral Control on Intentions.

Model	Un-Sd. B	Sd. Std. Error	Sd. Beta	t	Sig.
Constant	2.554	2.283		1.119	0.264
Attitude	0.004	0.035	0.008	0.120	0.905
Subjective Norms	0.103	0.029	0.238	3.495	0.001
PBC	0.164	0.047	0.218	3.471	0.001

Based on Table 2, it can be seen the influence and magnitude of the influence of the attitude variable, subjective norm, and perceived behavioral control on the intention variable. In this study, the attitude variable had no significant effect on the intention variable. Meanwhile, the subjective norm variable and the behavioral control perception variable have an effect on the intention variable. It can be concluded based on the significance value of the regression test results where the significance value of the attitude variable is greater than 0.05. While the significance value of subjective norms and the value of the behavioral control perception variable is smaller than 0.05.

DISCUSSION

Based on the results of research on the attitudes of FKM UA students towards preventive behavior for type II diabetes, it showed that respondents agree that physical activity 30 minutes/day and 3 times/week and management of diet in the form of not eating breakfast, limiting sugar consumption, limiting fried food consumption, and consuming fruit can prevent type II diabetes.

However, respondents believe that diet management can be more influential in preventing type II diabetes than physical activity. This is evidenced by the respondents' answers (Table 3), that the value of respondents' approval for diet management is higher than physical activity, both in terms of behavioral beliefs and evaluation of behavioral outcomes. The results of this study are in line with research by Anam et al., which showed that dietary intervention had a greater effect on reducing body fat in 20 subjects (Anam et al., 2016).

The time for fulfilling the criteria for physical activity, which is a minimum of 30 minutes/day and 3 times/week, cannot be reduced, if the student does not meet these criteria, then the student has not behaved in preventive type II diabetes based on the criteria for physical activity. Time as an indicator of the implementation of physical activity assessed by students is often burdensome. This is because the demands of student activities are sometimes dense, making it difficult for students to meet the time limit for carrying out these physical activities. As revealed in other studies, respondents participated in sports groups due to looking for friends and the lack of time to exercise in the morning to evening (Ramadha, 2016). So that makes respondents formed or participate in a group to exercise together at night.

In addition, although there are Student Activity Units (UKM) engaged in

sports such as volleyball UKM, futsal UKM, basketball UKM, and other UKM, the existing UKM is more directed to accommodate student interest to hone skills and not infrequently for competition purposes. So that the majority of students who do not have the ability in the field of sports will participate in UKM other than the sports field. Students who do not have the ability in sports do not have a place to do physical activity.

Although the results of the attitude research showed a positive value along with two determinants of attitudes (behavioural beliefs and evaluation of behavioral outcomes) towards type II diabetes preventive behavior, based on the multiple linear regression test in this study, attitudes do not have a significant effect on respondents' intentions regarding diabetes preventive behavior type II. The results of this study are in line with the results of research conducted by Jaffar & Musa and Philippen. The results of Jaffar and Musa's research showed that subjective norm variables and behavioral control perception variables have a more significant influence in predicting respondents' intentions (Jaffar & Musa, 2016). Meanwhile, in Philippen's research, all the variables studied did not have a significant effect on the formation of respondents' intentions to reuse the used goods (Philippsen, 2015).

According to Soekidjo, the concept of behavior is known has three important domains, namely, knowledge, attitudes, and actions. The three domains can influence each other or not in the appearance of a behavior in individuals. In addition, attitudes themselves also have levels based on their intensity from the lowest to the highest, namely accepting, responding, appreciating, and being responsible (Soekidjo, 2010). The level defines the depth of a person's attitude towards a particular behavior. The deeper the level of a person's attitude towards a behavior, the greater the possibility of that person to bring up the expected behavior. However, although the influence of attitudes and behavior can be measured, it is not uncommon that the results of attitude measurements are not in harmony with the results of behavioral measurements. This is because the correlation between attitudes and behavior is still lacking. The lack of correlation is due to the different levels of attitude and behavior measurement. Attitudes are measured on a general scale but behavior is measured on a very specific scale (Ramdhani, 2011). So, even though the results of measuring respondents' attitudes in diabetes preventive behavior show high scores, it is not impossible that attitudes do not have a significant influence on the emergence of intentions to type II diabetes preventive behavior.

Subjective norm is a person's perception of doing or not doing a certain action/behavior which is more based on the social opinion that develops in the environment around a person. In the Theory of Planned Behavior (TPB) model, subjective norms are formed by normative beliefs and motivation to comply. Normative beliefs are a person's belief in the opinion of someone important to him about an action/behavior. Meanwhile, motivation to comply is a person's belief that the important person will support the behavior he will do (Fishbein & Ajzen, 2011).

In line with the results on the attitude variable, the results of the subjective norm research on preventive behavior for type II diabetes showed that respondents agreed that physical activity was 30 minutes/day and 3 times/week as well as dietary management in the form of not eating breakfast, limiting sugar consumption, limiting fried food consumption, and eating fruit can prevent type II diabetes.

Comparison of respondents' answers on the subjective norm variable between diet management and physical activity is also the same as the attitude variable, namely the respondent more believes that the environment around the respondent believes that diet management is more influential than physical activity. In addition, from the results of the factors forming the subjective norm variable, it can be seen that the

percentage of respondents' approval for the normative beliefs element is greater than the respondent's agreement for the motivation to comply element. These results indicate that some respondents are more influenced to carry out preventive activities for type II diabetes based on the opinions of others who are considered important than the support of others. This is because the personality that has been formed at the age of students, so what is needed by students is to know that what they are doing is good or bad. When students already know that the activities they are doing are good, students will carry out these activities by themselves. In this study, the respondents were FKM UA students, where FKM UA students would gain knowledge that preventive measures, whether in the form of physical activity or management of diet, are important for everyone to do. This knowledge will make students to take a preventive action without or with the support of other people who are important to them. It's just that, sometimes there are some obstacles that will be encountered by FKM UA students, one of which is the barriers to doing physical activities that have been described previously. Therefore, it is necessary to have another forum to encourage students, especially FKM UA students to be able to take preventive actions for type II diabetes, especially physical activity 30 minutes/day and 3 times/week. The container is expected to be able to overcome the problem of time that is often experienced by students. In addition to overcoming the problem of time, the availability of a place for physical activity will make the participants, namely students, even more excited, as has been explained in research conducted by Ramadha. That the “LibuRun” group was created apart from the time factor, it also aimed to find friends in doing physical activities. “LibuRun” was a running sports group created to accommodate the community's need for sports as well as for people who are busy working during the day. “LibuRun” was held at night when the members have completed their respective work activities. With the formation of the group, making it members were able to meet the needs of physical activity. The implementation of "LibuRun" itself was carried out in the middle of the city by utilizing the existing sidewalks (Ramadha, 2016).

Another effort that can be done to increase respondents' interest in taking preventive measures for type II diabetes is to create media for promotion of type II diabetes preventive measures, both to increase respondents' interest in doing physical activity 30 minutes/day and 3 times/week or managing diet in the form of not having breakfast, limiting sugar consumption, limiting the consumption of fried foods, and consuming fruit. The making of this media is based on the results of research on respondents' assessments of preventive measures for type II diabetes, where respondents agree more to take preventive measures for type II diabetes based on the opinions of other people who are important to them. Making media can be by using a photo of a person added with words of invitation to take preventive action for type II diabetes.

Based on the results of multiple linear regression, it is known that the model in this study has met the requirements for regression testing. In addition to the results of the multiple linear regression test, it is known that the subjective norm variable has a significant influence on the respondent's intention to prevent type II diabetes. The results of this study are in line with the results of research conducted by Yean et al., (2015) and Nam et al., (2017). Where Yean et al.'s found that pressure from family, friends, coworkers, and superiors plays a major role in growing respondents' intentions to return to work (Yean et al., 2015). Meanwhile, according to Nam et al.'s research, when respondents feel that they are under pressure from people who are important to themselves to use environmentally friendly goods, they will be increasingly encouraged to use environmentally friendly goods (Nam et al.,

2017). The two research results proved that the opinions and encouragement of important people can lead to a person's intentions towards certain behaviors.

In this study, the opinions and encouragement of other people who are important for respondents can encourage respondents to carry out preventive behavior for type II diabetes, namely by carrying out physical activity 30 minutes / day and 3 times / week and managing diet in the form of not eating breakfast, limiting sugar consumption, limiting the consumption of fried foods, and consuming fruit.

In the linear regression test, besides being able to determine the strength of the influence between the independent variables on the dependent variable, the regression test can also determine the proportion of the influence of all independent variables on the dependent variable. The proportion of the effect of the independent variable on the dependent variable is explained by testing the classical assumption of autocorrelation using Durin-Watson. The classic assumption test of autocorrelation showed an R-Square value of 0.165. This value indicates that the proportion of the influence of the independent variable on the dependent variable in this study is 16.5%, the remaining 83.5% is influenced by variables not examined in this study. So it can be concluded that the influence of attitudes, subjective norms, and perceptions of behavioral control on the intentions of FKM UA students in 2017 in type II diabetes prevention behavior on intentions is 16.5%.

In addition, the regression test is also able to determine the sign and magnitude of the influence between the independent variables on the dependent variable. However, in this study, the regression test can only show signs of influence. The regression test cannot identify the magnitude of the influence of the independent variable on the dependent variable because this study uses a linkert scale, so the value in this study does not have a certain magnitude. The sign referred to in this study is the direction of the relationship between the independent variable and the dependent variable. The positive sign indicates the direction of the relationship in the same direction but the negative sign indicates the opposite direction. The results of the model interpretation test in the regression test show a positive (+) value on the regression coefficient for subjective norms. So that the direction of the influence of the independent variable on the dependent variable is unidirectional. In this study, if there is an increase in the intention variable, the subjective norm variable will also increase and vice versa.

In this study, the interpretation of behavioral control is an individual's interpretation of the ease and difficulty of carrying out preventive behavior for type II diabetes, namely by doing physical activity 30 minutes / day and 3 times / week and managing diet in the form of not eating breakfast, limiting sugar consumption, limiting food consumption fried, and eat fruit. Based on the Theory of Planned Behavior (TPB) model, the interpretation of behavioral control is determined by control beliefs and perceived power. Control beliefs are a person's beliefs about the ease or difficulty in carrying out preventive behavior for type II diabetes. Meanwhile, perceived power is a person's belief that he has the strength of every supporting factor and inhibiting factor in him in carrying out preventive behavior for type II diabetes.

The results of the research on behavioral control interpretation variables showed that the respondents believed that they could carry out preventive behavior for type II diabetes. Based on the results of the research on the determinants of behavioral control interpretation, it can be seen that the respondents' confidence in carrying out preventive behavior for type II diabetes and being able to overcome existing obstacles is greater than the respondents' self-confidence in the supporting and inhibiting factors that arise in carrying out preventive behavior for type II diabetes. This is illustrated by the percentage of perceived power that is greater than the percentage of control beliefs. In

addition, the results of the study also show that respondents' beliefs to take preventive measures for type II diabetes are more inclined to managing diet than doing physical activity based on existing supporting factors and inhibiting factors that can be minimized by the respondents themselves. The results of the research on the PBC variable are in line with the results of the attitude variable research, namely that respondents are more confident that diet management can prevent type II diabetes than physical activity.

This could be due to the fact that physical activity requires additional time to be carried out rather than carrying out dietary management which does not require additional time. This opinion has been proven in Ramadha's research (2016), where several people living in Pekanbaru City formed a group called "LibuRun" which aims to accommodate the working community who do not have time to exercise to do sports activities at night. In addition, research conducted by Kasriman stated that the majority of urban people who come to Car Free Day (CFD) activities in Jakarta aim for refreshing, not for exercising (Kasriman, 2017). The results of this study illustrate that the interest of the urban community for refreshing is greater than the interest of the urban community for doing sports. In addition, the weather in the city of Surabaya is considered not very supportive of physical activities carried out during the day. This also makes students think again if they are going to do physical activities during the day. Therefore, making a container so that students can be active at night is a good idea. It is also known that the activities of SMEs engaged in sports are not infrequently carried out late in the evening and even at night.

Based on the results of multiple linear regression, it is known that the model in this study has met the requirements for regression testing. In addition to the results of the multiple linear regression test, it is known that the behavioral control interpretation variable has a significant influence on the respondent's intention to prevent type II diabetes at FKM UA 2017. The results of this study are in line with the results of research by Shahrabadi et al., (2017) and research by Tseng et al., (2017). Research conducted by Shahrabadi et al., shows that PBC along with subjective attitudes and norms have a significant effect on determining respondents' intentions to marry (Shahrabadi et al., 2017). Meanwhile, in the research conducted by Tseng et al., the interpretation of behavioral control along with attitude has a significant influence on respondents' intention to quit smoking (Tseng et al., 2017).

As in the subjective norm variable, the regression test on the PBC variable also includes testing the classical assumption of autocorrelation which shows the proportion of the influence of the independent variable on the dependent variable. The value of the proportion shows the value of the influence of the independent variable as a whole on the dependent variable and cannot be separated. The value of the proportion of the influence of attitudes, subjective norms, and interpretation of behavioral control on the intentions of FKM UA students in 2017 in type II diabetes prevention behavior on intentions is 16.5%.

The regression test on the behavioral control interpretation variable also includes the classic multicollinearity assumption test. The test is able to determine the sign and magnitude of the influence between the independent variables on the dependent variable. The results of the classical assumption of multicollinearity resulted in the value of the regression coefficient for the behavioral control interpretation variable which was positive (+). The positive value indicates the direction of the unidirectional relationship. So in this study, if there is an increase in the intention variable, the behavioral control interpretation variable will also increase and vice versa.

Based on this research, it can be seen that even though FKM UA students are students in the health family, they also gain knowledge about preventive behavior,

especially preventive behavior for type II diabetes. However, students who have intentions that are considered to be represented so that they become a type II diabetes preventive behavior still need to be improved. This appears based on the results of the study where the results of the intention showed that 75.22%.

To get other people to do a new behavior knowledge of the impact and benefits that are qualified is not enough. There needs to be environmental factors that support and there needs to be self-will to carry out the intended behavior. This is in accordance with the results of the attitude variable which has no significant effect, but the subjective norm variable and the interpretation of behavioral control have a significant effect on this study. Efforts to support preventive behavior for type II diabetes must be carried out in an integrated manner, both from students, Faculty *(FKM)*, and University *(UA)*. It is hoped that an environment that fully supports type II diabetes prevention behavior will be created. In the end, FKM UA students will get used to doing preventive behavior for type II diabetes. So that it can be used as a reference for other similar behavioral models. A further impact is expected to contribute to reducing the increasing prevalence of diabetes. However, this study does not discuss further in detail about behavior change efforts.

CONCLUSION

There were 75.21% of FKM UA students who were considered ready to carry out preventive behavior for type II diabetes. Readiness for type II diabetes preventive behavior based on research is influenced by subjective norm factors and perceived behavioral control. While the attitude factor of FKM UA students is indeed of great value but does not significantly affect the readiness of FKM UA students to carry out preventive behavior for type II diabetes.

To accommodate the readiness of FKM UA students in carrying out preventive behavior for type II diabetes, it is necessary to create a forum in the form of groups to do sports together and not aim at achievement and the implementation of sports activities is carried out at night. To avoid hot weather and lecture activities by students. In addition, there is also a need for mass sports activities that can be carried out every Sunday around the lake of Campus C UA.

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HAZARD IDENTIFICATION OF WELDING IN CONFINED SPACE OF THE CEMENT PRODUCTION COMPANY

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ABSTRACT

Introduction: Maintenance of a electrostatic precipitator cooler machine involving welding activities in confined spaces, so the company of cement production need to understand the existing hazard by conducting hazard identification. Welding are related with physical, chemical, mechanical, and electrical hazards that can cause accidents and occupational illnesses. When the welding is carried out in confined spaces, it can increasing the hazards include chemical hazards in the air, configuration of the building structure, poor airflow, or any combination of existing hazards. **Methods:** This research aimed to conduct hazard identification on welding activities in confined spaces. The research design used a descriptive observational with cross sectional approach. The research population was the workers who repair the electrostatic precipitator cooler machines. Sample of this research were selected using the Purposive sampling method, 2 welders in the rapping bar and 1 safetyman. Primary data was collected by conducting observation and interviews using checklist sheet, secondary data was obtained by collecting company profile and daily safety reports. **Result:** The results of the analysis showed that the identified hazards of welding activities in confined space are 5 of mechanical hazards, 4 of atmospheric hazards, 5 of ergonomics hazards, 5 of falling hazards, 6 of physical hazards, 5 chemical hazards, and 4 electrical hazards. **Conclusion:** The conclusion of this research was the dominant potential hazard come from physical hazards consisting of inadequate light, welding sparks, optical radiation, noise, high pressure gas and hoses. Some hazards inflict accidents and illness due to work on welding in confined space are welding sparks, fume, oxygen and asitelyn gases, as well as toxic and carcinogenic substance i.e. cement and coal dust.

Keywords: confined space, hazard identification, welding

INTRODUCTION

Working in confined spaces almost exist in every industry where the underground areas such as pipelines, tunnels and sewers, while the other areas are storage tanks, silos, machines, and similar structures. Based on Occupational Safety and Health Administration of United State, confined space is sufficient work area for workers to enter and work in it, have limited access to entry, and it is not designed for routine work (Burlet-Vienney *et al.*, 2015). The work carried out by workers in confined space is maintenance of the machine if there is any damage or other problems.

Maintenance has important role to ensure the operation of the machine and the equipment used in the production process runs well because the machine can be damaged any time. Basically, maintenance is divided into two types of activities, preventive maintenance which carried out before the damage occurs and corrective maintenance which carried out after the damage is known. Preventive maintenance can be done by conducting inspections area whereas if damage has occurred then corrective maintenance needs to be done by means of machine repair. Machine repair always involves welding activities in the process of connecting metal materials (Wiryosumarto and Okumura, 2010).

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Welding activities are not only related to the work steps, but the operation of tools, maintenance of welding equipment, attitude of the workers, personal protective equipment, and environment. Based on the research conducted by (Ambarani and Tualeka, 2017), welding activities are always related to physical, chemical, mechanical, and electrical hazards that can cause accident if the workers and management neglect work safety. Maintenance activities that involve welding in confined spaces increase occupational safety and health risks so they require proper planning and supervision.

Confined space is one of the high risk workspace because it has hazards that can cause workers to be trapped in confined space due to chemical hazards content in the air, configuration of building structures, poor air flow, or combination of the existing hazards (Burlet-Vienney *et al.*, 2015). This is also supported by the National Institute for Occupational Safety and Health, the result of the survey and investigation of Fatality Assessment and Evaluation Control (FACE) in Confined Space stated that the hazards in confined space are specifically determined by the type of material stored in it, work processes that can be done, and environmental condition.

Based on Census of Fatal Occupational Injuries (CFOI) in 2015, total accident cases in confined spaces caused 136 workers to experience fatality (Bureau of Labor Statistics US Department of Labor, 2017). Research conducted at the Douglas N. Higgins, Inc. and McKenna Contracting, LLC fatality cases that occurred in confined space caused three workers died when entering a manhole containing hydrogen sulfide gas and carbon monoxide (Rekus, 2018). As the result of the accident in Douglas N. Higgins, Inc. and McKenna Contracting, LLC lost US $ 119.507 for not conducting hazard analysis in the workplace where there could be chemical hazards, hazardous gas detectors were not calibrated before use, did not have work permit in confined space, did not conduct training or tool box meetings for workers who will work in confined spaces, and don not provide emergency equipment.

Research conducted by (Wulandari, 2017) stated that there are six cases of work accidents in a month that occurred on welding process in confined space of PT DUMAS Tanjung Perak Shipyards Surabaya. The accidents resulted in a worker experienced burns on the hand and blister, two workers were hit by gram grains in the eye, a worker suffered from burns on the face, and two others got burn on the arm.

Every work done in a confined space has potential hazards that need to be understood by every company, especially for welding activities which is included in hot work. Therefore, the company must apply regulations by applying work permit, welder qualifications, hazards identification, procedures in case of emergencies; controlling poor air flow in confined space; and choosing a responsible supervisor (Burlet-Vienney *et al.*, 2015). Based on the standard of (ISO - The International Organization for Standardization, 2009) hazard identification become part of the risk assessment stage in risk management. In the process of hazard identification, there are several hazard determination techniques carried out by the company in the scope of its work and these can be assessed more detail in the ISO 31010 standard (International Organization for Standardization, 2009). Appropriate hazard identification instruments at the planning stage are important to increase awareness of hazards in the workplace, the possible failure of work equipment, and the level of likelihood of accidents which have an impact on work safety. The result of hazard identification serves as a consideration for companies in controlling hazards by applying appropriate occupational safety and health regulations.

PT X Tuban is a general contractor, supplier, mechanical, civil, engineering and maintenance company at PT Semen Indonesia Tuban which carries out routine contracts for the utility, routine and non-routine maintenance. PT X Tuban often gets non-routine maintenance project for machine repair which always involve welding activities. PT Semen Indonesia as the holding company always determined the target and working time for subcontractors project, so the aspects of the occupational safety and health are not given due attention. This is supported by work accident report related to welding at PT Semen Indonesia Tuban in 2013, there was one fatality case and seven workers suffered burns with 50% rate due to the explosion of asitelyn and oxygen cylinders gas used in welding of the hopper section, in 2014 there was one case of work accident due to damage of welding equipment which caused serious burn to welders, four accident cases in 2018 included one person was exposed to welding sparks in the eye, one person suffered burns in the arm, and two people exposed to sparks in the arm to the head.

Confined space of the rapping bar section has the highest risk of welding activities because the workers relate to the rapper system that moves when adjusting the plate in the right place, working in a narrow area, inadequate light, dusty environment, there are other workers at the top of the machine (*top box*) and the bottom of the machine (*hopper*) of electrostatic precipitator coller Pabrik Tuban IV. Based on data obtained after the pre-survey and work accident report, the purpose of this study was to identify hazards on welding activities in confined space using checklist instrument so the management can control the hazards with appropriate programs.

METHODS

This research was a qualitative research with the observational data collection. The data was collected with systematic recording by making observations to find interactions in the actual situation and there was no treatment on the objects. The hazard identification for welding activities in confined space used descriptive method which describes a situation objectively and it was presented in the form of a narrative observation and assessment. Observations were made at the rapping bar electrostatic precipitator cooler Tuban IV, PT Semen Indonesia Tuban. The observations were carried out at April 20th-27th 2019. Since the observations took place in a certain time period, it used cross sectional method.

Informant of the research were welders in the rapping bar section and safetyman PT X Tuban in non-routine maintenance activities of electrostatic precipitator cooler Tuban IV PT Semen Indonesia Tuban. This study used a purposive sampling method with the principle of appropriateness and adequacy to obtain two welders and a safetyman as an informant.

Primary data collection techniques based on interviews and observation of welding activities was checklist sheets that have been adapted to welding SOP in confined space. The checklist instrument contained a description of general information about confined space, the structure of buildings, the work environment, the welding equipment used, and the characteristics of welders. Secondary data was collected in the form of company profiles, SOP for welding activities in confined spaces, daily safety report and other data that support the research. The result of the interviews and observations were then presented in the form of hazard identification tables of confined space and welding activities. Data analysis was presented in the form of narratives about the causes and consequences of accident and occupational

diseases that can be used as conclusions and suggestions for appropriate control.

This study passed the ethical test from the Faculty of Dentistry Universitas Airlangga with a certificate number 142/HRECC.FODM/IV/2019.

RESULT

Description of Welding Activities in Confined Space

Non-routine maintenance of machine by PT X Tuban carries out with a contract system of project electrostatic precipitator cooler repair for 8 days. There are several engine components that must be replaced and repaired which involve welding activities in the process of connecting iron and plates. PT X Tuban's workers on project contracts consists of 16 casual daily laborers. The workers are divided into three groups including the top box, rapping bar and hopper section. Each section consisted of 2 welder who already have a welder certification. These parts were connected to each other in a multi-room inside the electrostatic precipitator cooler. Based on the hazards of welding in the confined space, each part has the same risk. However, when it is viewed from the configuration of the building, the rapping bar section has the highest potential hazards because it is located at a height, directly connect to the moving machinery, and among the welding activities at the top box and hopper.

Welding activities is one of the techniques of joining two or more metals by heating until the part of metal is melted and fused in a cold state. The activities related to the welding process are cutting plate/ iron, grinding, and tearing with slag hammer (Wiryosumarto and Okumura, 2010). PT X Tuban using SMAW (Shield Metal Arc welding) techniques that use electric current to form a current arc and use webbed electrodes. Welding equipment which commonly used in the SMAW process are a traformator, welding cable, slag hammer, electrode arc clamp, and electrode arc. Electrostatic precipitator cooler is a dust collector tool (ash collection) from the combustion of coal and cement that uses an electric field to separate ash from air. The electrostatic precipitator cooler is completely shut down after getting a repair work permit.

PT X Tuban management system in the project has a good communication flow because it is supported by a clear organizational structure. The principle of occupational safety and health applied by PT X Tuban is to identify and mange risks before work is carried out, periodically evaluate the level of workers compliance in accordance with applicable regulations, applying 5S in the workplace, provide understanding and direction regarding safety and hazards in the workplace, conducting supervision, and increasing the worker's concern for occupational safety and health.

Result of Hazard Identification on Welding Activities in Confined Space

Hazard identification instruments are adapted from five main categories of Ishikawa analytical techniques which is machinery, materials, environment, methods, and human resources. The categories are adjusted to the SOP so that it becomes a description of general information about confined space, the structure of the buildings, work environment, work done in confined space (material and method), and worker characteristics (unsafe behavior).

Identification is done to look for potential hazards, the possibility of workplace accidents, as well as occupational diseases that will occur. Hazards of the welding activities in confined space are divided into eight types namely physical hazards, electrical hazards, chemical hazards, falling hazards, biological hazards, mechanical hazards, atmospheric hazards, and ergonomic hazards.

Table 1. Hazard Identification result Based on *Checklist Sheets*

Category	Types of Hazards	Potential Hazard
General Information and Configuration Structure of Confined Space Building		
Stationary confined space	Mechanical	Hit the machine iron/ plate when working
Confined space totally closed	Atmospheric	Engulfment with toxic and carcinogenic gases, lack of oxygen
The entrance dimensions is < 610 mm	Ergonomic	Work posture
	Falling	Fall from height and slippery floor surface
Entrance partially vertical then horizontal	Falling	Fall from height and slippery floor surface
Limited interior air volume	Atmospheric	Engulfment with toxic and carcinogenic gases, lack of oxygen
Hard to move around	Mechanical	Hit the machine iron/ plate when working
Perforated floor surface	Falling	Perforated and slippery floor surface
Inadequate light	Physical	Inadequate light/ visibility
Presence of toxic agents, asphyxiation substance	Chemical	Inhalation of toxic substances, carcinogenic, asphyxiation of cement dust and coal
Presence of flammable products	Chemical	The existence of explosive/ burning material
Presence of corrosive, irritants, and carcinogenic substance	Chemical	Inhalation of toxic substances, carcinogenic, asphyxiation of cement dust and coal
Presence of sediments, residues, etc.	Chemical	The existence of explosive/ burning materials
Equipment must be secured is moving machine	Mechanical	Hit the machine iron/ plate when working
Equipment must be secured is moving machine electrical	Electrical	Electrical flow from machine that have not been totally extinguished
Presence free-flowing materials is cement dust and coal	Chemical	The existence of explosive/ burning material and Inhalation of toxic substances, carcinogenic, asphyxiation cement dust and coal
Work Environment		
Technically difficult to access	Falling	Fall from height, Perforated and slippery floor

(e.g. at height, on unstable ground)		surface
Exposed to other workers	Chemical	The existence of explosive/ burning material and Inhalation of toxic substances, carcinogenic, asphyxiation of fume
	Mechanical	Falling object, Hit the machine iron/ plate when working, hit by the hammer, exposed to remaining electrodes
	Physical	Exposed to sparks, welding light, radiation, noise, high pressure tubes and hoses
	Electrical	Electrical flow from flaky hoses, welding protectors are broken, excessive current sources of electrical power
Presence of moving machine	Mechanical	Inadequate light/ visibility
Inadequate light	Physical	
	Falling	Fall from height, Perforated and slippery floor surface, Falling object
Welding (hot work) have an impact on confined space	Chemical	The existence of explosive/ burning material and Inhalation of toxic substances, carcinogenic, asphyxiation of fume
	Mechanical	Hit the machine iron/ plate when working, hammer slag hit, Falling object, exposed to remaining plate
	Physical	Exposed to sparks, welding light, radiation, noise, high pressure tubes and hoses
	Electrical	Electrical flow from flaky hoses,
Category	**Types of Hazards**	**Potential Hazard**
	Electrical	welding protectors are broken, excessive current sources of electrical power
Adjacent to hazardous materials	Chemical	The existence of explosive/ burning material
Changeable condition of air flow	Chemical	The existence of explosive/ burning material and Inhalation of toxic substances, carcinogenic, asphyxiation
Welding Activities in Confined Space		
Entrance to the working space partially vertical then horizontal	Falling	Fall from height, Perforated and slippery floor surface
High-pressure cleaning	Atmospheric	Engulfment with toxic and carcinogenic gases, lack of oxygen

	Physical	High pressure tubes and hoses
Hot work (welding)	Physical	Exposed to sparks, welding light, radiation, noise, high pressure tubes and hoses
	Chemical	The existence of explosive/ burning material and Inhalation of toxic substances, carcinogenic, asphyxiation of fume
	Electrical	Electrical flow from flaky hoses, welding protectors are broken, excessive current sources of electrical power
Working at height	Falling	Fall from height, Perforated and slippery floor surface
Use specific tool (welding equipment)	Mechanical	Hit the machine iron/ plate when working, hammer slag hit, Falling object, exposed to remaining plate
	Physical	Exposed to sparks, welding light, radiation, noise, high pressure tubes and hoses
	Electrical	Electrical flow from flaky hoses, welding protectors are broken, excessive current sources of electrical power
Setting up temporary lighting	Physical	Inadequate light/ visibility, radiation
Use a generator (traformator)	Electrical	Electrical flow from flaky hoses, welding protectors are broken, excessive current sources of electrical power
Use of chemicals (electrode arc, *oxy-asitelyn gases*)	Chemical	The existence of explosive/ burning material and Inhalation of toxic substances, carcinogenic, asphyxiation of fume
Category	**Types of Hazards**	**Potential Hazard**
Release of particles, dust, etc.	Chemical	Inhalation of toxic substances, carcinogenic, asphyxiation of cement dust and coal
Work under load, load at height, etc.	Ergonomic	Physical exertion and work posture
Handling of heavy object	Ergonomic	Physical exertion and work posture
Discretion of using PPE	Ergonomic	Physical exertion and work posture

The identification of hazards on welding activities in confined space were using checklist sheet which consist of seven types of hazards, namely mechanical hazards, atmospheric hazards, ergonomic hazards, falling hazards, physical hazards, chemical hazards, and electrical hazards. Each answer of the checklist describes the potential hazards that may exist in confined space and welding activities.

The Most dominant potential hazards on welding activities in confined space were physical hazards and chemical hazards. There are 6 potential physical hazards such

as inadequate light, sparks, visible light, noise, high pressure tubes and hoses. Meanwhile, the potential chemical hazards are identified such as inhalation of toxic substance, carcinogenic, asphyxiation, explosive/ flammable materials, and oxidizing agents.

The types of hazards that got least attention from the companies and workers were ergonomic hazards. There are 5 potential ergonomic hazards which are work posture, awkward position of entering the room, repetitive movements, physical exertion, and lack of using PPE. In addition, psychology of the workers while working is also included in ergonomic hazards.

Types of hazards associated with welding equipment are mechanical hazards, falling hazards, and physical hazards. There are 5 potential mechanical hazards such as hit the iron/ plate when working, falling object, hit the slag hammer, and exposed to sharp plates/ remains electrodes. Falling hazards have 5 potential hazards include falling at height, slippery floor surfaces, perforated floor surfaces, and falling object. Meanwhile, electrical have 4 potential hazards namely electrical flow from electrostatic precipitator machine, electrical flow from cables, protective welding wear, and excessive sources of electrical current power.

Potential atmospheric hazards consist of 4 hazards including engulfment of toxic gases, carcinogenic substances, oxidizing gases, and oxygen deprivation. Atmospheric hazard is a type of hazards that only exists in confined spaces.

The potential hazards identified in the structural configuration of the building without any welding activities are 7 types of hazards with 15 potential hazards. In a work environment where there is welding work in a confined space there are 5 types of hazards with 21 potential hazards. Welding activities and other work in confined space also the characteristics of workers have 7 types of hazards with 27 potential hazards. The results of hazards identification are presented in Table 1.

DISCUSSION

Hazard identification is one of the stages in occupational safety and health risk management based on ISO 31000. In the planning stage the company identifies hazards to recognize potential hazards in the work environment and establishes its characteristics so that they can be used as the development and implementation of safe operating procedures (Ramli, 2013). Identification of potential hazards related to general information on confined space, configuration structure of building, limited work environment, welding activities include equipment, materials, procedures, worker attitudes, etc.

Hazard Potential Analysis of General Information on Confined Space and Building Configuration Structures

The results of the identification of potential hazards in confined space based on building configuration structures without any work are categorized according to the types of hazards that can cause work accident or occupational diseases. Each potential hazard was further being analyzed in the aspects of the sources, risk, consequences, and attitudes of workers in order to recognize the hazards and exercise appropriate controls.

Potential mechanical hazards which occur in confined space is workers at risk of being hit by iron/ plates and pinched plates due to limited space and the presence of moving machinery. It may cause bruising and tearing to workers body. The mechanical hazards are in accordance with research of (Wulandari, 2017) in welding activities at PT Dumas Tanjung Perak

Shipyard which stated that the hazards of hit work materials can cause bruising to workers including moderate hazards that need to be considered by workers.

Atmospheric hazards consist of engulfment of poisonous gas/ toxic gas and lack of oxygen caused by confined space totally closed and the limited volume of the air. Lack of oxygen in confined space can occur if the oxygen concentration in the air is below 19.5% or exceeds 23.5%, workers may experience difficulty breathing or oxygen poisoning (Pengawasan, Keselamatan and Kerja, 2006). Workers are at risk of decreased concentration until they lose consciousness with symptoms of headache/ dizziness and heat stress.

Ergonomic hazards occur when entering the confined space in an awkward position. Since the door size is less than 610 mm, workers have to bend and squat. Squatting can cause occlusion or blockage of blood flow due to pressure on the knee and can cause leg muscle tension (Soedirman and Prawirakusumah, 2014). The risk of sprained and falling when entering confined spaces can cause injury to fractures. One of the unsafe behaviors of workers is to enter confined space by carrying work equipment made a highest risk of dislocation joints and falling.

Falling hazards occur because of the door's location is 100 cm higher than the surface of the floor and perforated floor surface has the risk of falling from height, tripping on a plate, and slipping. If workers don not wear PPE such as safety shoes and improper footrests, it can cause them to bruises, and fracture bones when slipping or falling. This is accordance with research conducted by Bakhtiar in 2013 which found that workers often fall due to descending vertical stairs, handrails are not tight and slippery, the shoes slip when stepping on (Bakhtiar, 2013).

Physical hazards in confined space that have the greatest risk are inadequate natural lighting. The natural lighting that comes in only slightly through the entrance. The presence of dust in the workspace reduces the intensity of natural lighting in confined space. Limited lighting of work floors and around of work space makes the worker's excessive focus so workers feel tired eyes to headaches. Research at PT PERTAMINA Persero in the overhauling the tank found that the lighting around the work area of the confined space was lacking or non-existent. So, it cause workers collision by plates (Ambarani and Tualeka, 2017).

Chemical hazards inhalation of toxic substances, exposed to carcinogenic materials, exposed to the dominant asphyxiation material in confined space such as cement dust and coal. Coal dust is a flammable material when it is in a high enough concentration and exposed to heat. Chemical substance entered the worker's body at high concentration, long-term exposure, and unsafe worker's behavior can cause respiration irritation (pneumoconiosis). Workers wearing masks that do not adequately protect them from dusting of cement dust and coal, so the danger of chemical substance entering the body is even greater. Research conducted by Dhi'fansyah in 2016 at PT Semen Indonesia the risk of accumulation of dust inhaled by workers is not immediately felt but in the long-term condition can cause several diseases such as lung cancer, tuberculosis, and asthma (Dhi'fansyah, 2017).

Electrical hazards in the electrostatic precipitator cooler are the main engine must be extinguished completely because this machine has a main power of electrical. The risk of being stung by electrical hazards can result burns to death. The company (PT Semen Indonesia Tuban) has implemented the LOTO system to prevent the engine

from being started without supervision. Based on Saputra's research in 2015 at PT PetroChemical Gresik the LOTO program on work machines was implemented to control energy, use lockout devices to lock the machine when repairs, use tag outs as a lockout complement, ensure LOTO was carried out thoroughly in accordance with standards, carry out documentation, implementing occupational safety and health policies in the presence of LOTO procedures, and effective training (Saputra, 2019).

Analysis of Potential Hazards in the Work Environment in Confined Space with Work Contained Within

The work environment in a confined space that has welding activities inside has potential hazards that need to be considered by workers and companies. The falling hazards is caused by work at height, access to narrow stairs, slippery and perforated floor surfaces, limited room lighting, risk of slippery, tripping of plates/ falling object, and falling at height. Uncontrolled hazards can result in workers experiencing torn wounds, fractures, bruises, until death. Research conducted by Wiranto at PT Indonesia Power stated that falling from height more than 2 meters is a high risk hazards and the greatest potential hazards because it can cause fractures to death (Winiarto and Mariawati, 2013).

Other work in confined spaces includes welding and oxy-cutting which has an impact on the environment, including chemical hazards due to explosive/ flammable materials, oxidizing agents such as oxygen gas, asphyxiation agent and carcinogenic materials such as electrode welding fumes and oxy-cutting fumes. The presence of hot work in confined space can trigger explosions of fires due to heat and reactions with flammable liquids, gases, vapors or dust that have concentrations exceeding 10% of BRDM (Pengawasan, Keselamatan and Kerja, 2006). Measurement and examination of dust or gas levels in confined space has not been carried out. The most dangerous aspect of welding activities is welding fume because it contains a complex mixture of metal oxides, silicates, fluorides, and chromium (Popov, 2017). Welding electrode fumes and oxy-cutting fumes inhaled by welder can cause metal fume fever, in the long run accumulation of the fumes containing beryllium, cadmium oxide, chromium, fluoride, iron oxide, manganese, CO_2 gases, etc. can effect on body cell that trigger the growth of cancer cells and Parkinson's syndrome. CO_2 gases in excess of 700 ppm NAV can cause increased respiratory rate, fatigue, drowsiness, headaches, seizures, dyspnea, sweating, and anesthetic effects. Desy Riesa's studied results at PT PAL Indonesia Persero stated that there were 3 workers who experienced pulmonary function disorders with the category of mild obstruction and restrictions caused by exposure to welding fumes (Desy and Sulistyorini, 2008). If the fumes enter the worker's eyes can cause pain such as sparks.

Asphyxiation materials such as cement dust and coal inhaled by workers who are working in confined space can cause shortness of breath to irritation of the respiratory tract (pneumokoniosis). As a study conducted by Desy at PT PAL Indonesia that there is a worker who has pulmonary function disorders due to dust levels at the work site of 10.9 mg/m^3 (Desy and Sulistyorini, 2008).

Mechanical hazards in welding and oxy-cutting are pieces of plate can fall and affect the body parts of workers, the danger of being squeezed plate to be connected, hit by slag hammer, exposed to pieces of sharp plate/ remains electrode. Mechanical hazards can consequence in bruising, tearing, and fractures. Research conducted

by Thursina at PT Bangun Sarana Baja Gresik, there were 2 workers who had an occupational accident and suffered a fracture due to the iron cutting process (Thursina, 2018).

Physical hazards in confined space are limited work floor lighting and work space. Physical hazards increase due to welding activities including welding/ torch sparks, welding/ torch light, noise, high pressure tubes and hoses. Welding sparks have an average temperature of 1200^0C to 1600^0C so that that if exposed to flammable materials can cause a flame (Sukaini, 2013). Artificial lighting for welding is not allowed to be too bright because it can irritate the eye. Based on (Wiryosumarto and Okumura, 2010) lighting voltage for welding activities maximum 12 Volt. Excessive lighting from lamps and the presence of welding light/ torch can result in tired eyes, welding eyes, and irritation. This is supported by research (Ambarani and Tualeka, 2017) that exposure to welding light and sparks can cause welders to experience eye irritation so that welders feel pain in the eyes after exposure to welding light, besides sparks causing burns.

Noise on welding and oxy-cutting activities has the potential to interfere with communication between welders and other workers. This is supported by research (Dhi'fansyah, 2017) that noise such as hammer banging, welding process, and grinding in cement companies can cause hearing loss. High pressure tubes and hoses come from oxygen cylinders and must be provided with safety in the form of valves and tubes tied so as not to fall easily when used. Tubes that leak and come into contact with heat/ fire can cause explosion and flame (Rinjanto, 2011).

Electrical hazards are derived from the flow of flaky welding electrical wires, large flow of excessive traformator, wear welding arc insulators. Welding cables that are chipped due to frequent trampling by welders. This is supported research by (Bakhtiar, 2013) at PT Dok and Shipping Surabaya that the cable insulator is peeled off causing workers to be stung by electrical.

The welding traformator is set at a starting electrical voltage of 120 to 220 volts adjusted to the electrode used, after that the electrical arc setting with a voltage of less than 45 volts. In addition, welders need to regularly replace electrodes not less than 6 cm so that the arc welding insulator does not wear out easily (Wiryosumarto and Okumura, 2010). If it is not according to welding procedures, workers are at risk of being stung by electrical and fire which can cause burns to death.

Analysis of Potential Hazards on Welding Activities in Confined Spaces

Identification of potential hazards in equipment, materials used, and specifications of welding activities in confined space have been partially identified in the question of the work environment in confined spaces, namely chemical, mechanical, physical, and electrical hazards.

Another physical hazards on welding activities carried out in electrostatic precipitator machines are the process of dust removal and the remaining welding material that adheres to the plate using high pressure gas from the blower. The gas pressure on the blower is well regulated and there is no leakage in the hose. Workers need to pay attention to the position of the hose so as not to get caught, bent, or twisted because it can made explosion due to gas pressing on the blocked point.

Falling hazards because the welding location is at a height, the access condition from the entrance has a perforated floor surface, slippery floor surface, and scattered equipment. The welding activity in the rapping bar scafolding has been installed so

that the welders can safely welding the underside of the machine. Equipment in the work area such as welding cables and other welding equipment in the entrance can risk of slipping and falling, and further cause bruising, tearing, and death. Research conducted by Bakhtiar at PT Dok and Shipping Surabaya stated that the danger of materials scattered in the work area allows accident (Bakhtiar, 2013).

Atmospheric hazards include the presence of asphyxiation gases, toxic and carcinogenic dust. Welders in confined space risk being exposed to dust and welding residue while cleaning the room. Dust entering the respiratory lines of welders can increase the risk of breathing problems in workers. Workers who work with exposure of dust above NAV have a 14 times greater risk of experiencing pulmonary physiology (Triatmo, Adi and D., 2006).

Ergonomic hazards of welding include awkward positions, repetitive movements, and excessive reach/ physical exertion. This potential ergonomic danger creates discomfort for workers to use PPE, especially work helmet. Ergonomic hazards of welding in confined space cause complaints MSDs to workers. Cumulative trauma disorder in the form of injuries to nerves, muscles, tendons, ligaments, bones and joints in the upper body, lower body, and spine that includes the back and neck are the risk of ergonomic hazardz. Carpal tunnel syndrome in the form of pain, numbness, and tingling caused by repetitive movements and vibrations in work equipment (Soedirman and Prawirakusumah, 2014). Ergonomic hazards affect the psychological condition of workers, namely fatigue.

CONCLUSION

The conclusion of this research is the dominant potential hazard come from physical hazards consisting of inadequate light, welding sparks, optical radiation, noise, high pressure gas and hoses. Some hazards inflict accidents and illness due to work on welding in confined space of the cement production company are welding sparks, fume, oxygen and asitelyn gases, as well as toxic and carcinogenic substance such as cement and coal dust. Thus, some hazards that have been identified on welding activities in confined space of the cement company need to be controlled to prevent and reduce the number of accidents and occupational diseases.

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HYPERTENSION SCREENING IN MULYOREJO PUBLIC HEALTH CENTER AT 2019: WHAT LESSONS LEARNED?

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ABSTRACT

Introduction: Hypertension is one of silent killer that become priority on health coverage era. Early detection and risk factors related must be conduct for effective prevention. **Methods:** This research aimed to detected earlier hypertension case in adult and elderly people in Mulyorejo Public Health Center (PHC), Surabaya, Indonesia. Survey was conduct from 12th to 19th November with the target adult and elderly that were visited PHC. Structured questionnary were used as a screening instrument, and examination using digital tensimeter were used as gold standard. Family history, smoking, physical activity, vegetable consumption, and fruit consumption were recorded as independent variable. Data were analyzed using chi-square test. Accidental sampling and total 0f 100 participants were joined this research, and 10% of them classified as hypertension based on examination using tensimeter, whereas 16% participants classified as hypertension based on structured questionnaire. **Result:** Validity was counted, and sensitivity showed 70%, spesifity was 87.78%, positive predictive value was 38.8%, negative predictive value was 96.34%. There's no significant relationship between the independent variables family history (p=0.48 ; OR=1.64 ; 95% CI= 0.42<OR<6.29), smoking (p=0.21 ; OR=2.96 ; 95% CI= 0.52<OR<16.7), physical activity (p=0.46 ; OR=1.71 ; 95% CI= 0.4<OR<7.29), vegetable consumption (p=0.94 ; OR=0.95 ; 95% CI= 0.25<OR<3.62), fruit consumption (p=0.89 ; OR=1.09 ; 95% CI= 0.29<OR<4.03), salt consumption (p=0.66; OR=1.33; 95% CI= 0.25<OR<6.98). **Conclusion:** There's no relationship between independent variables with the hypertension during this study. In case, much effort from health worker to conduct medical check up massively would be needed, so that hypertension not become undetected.

Keywords: family history, hypertension, screening, smoking, vegetable consumption

INTRODUCTION

Hypertension is one of non communicable disease that still required attention and give significant health risk (Forouzanfar et al., 2016). Hypertension or high blood pressure defined as a condition where systolic value more than 140 mmHg and diastolic more than 90 mmHg on two times measurement with the range about five minutes and relax condition. The aforementioned blood pressure were permanent, lead to disturbance of nurients and oxygen intake which should be not clogged and transfered normally to the required body's tissues (Indonesia Ministry of Health, 2014). Health profile of East Java Province on 2018 were showed that the prevalence of hypertension in Surabaya was 31.13%, this more lower than previous year which noted as many as 45.32%. However promotive and preventive medicine still needed due to the prevalence still higher than national prevalence (Health Office, 2017, 2018) Worldwide targets aims to reduce prevalence of hypertension as many as 25% by 2025 (WHO, 2020). Common symptoms appear in patients were dizziness, nosebleeds, frequently headaches, shortness of breath. Two types of hypertension were identified—those are secondary hypertension that means as systemic increasing of blood pressure which causation still can't detected, while essential or primary hypertension can lead to increase risk of renal events, cardiac, and cerebral (Jennings & Touyz, 2013; Messerli, Williams, & Ritz, 2007).

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Hypertension can resulting serious damage to many organs which mainly to the heart. Elevated pressure causing of arteries harden, suddenly decrease of blood flow and oxygen to the heart—including chest pain or frequently called as angina, heart attack, heart failure, and irregular heart beat. In rare case, this can cause suddenly death, due to the burst or block arteries that have role for supplying blood and oxygen to the brain (Elliott, 2006; WHO, 2020). Hypertension can act as a risk factor of cardiovascular disease, such as stroke, coronary artery disease, and heart failure (Ogah & Rayner, 2013; Opie & Seedat, 2005), that can affects 26% of adult population (Kearney et al., 2005).

WHO estimated as many as 1.13 billion population worldwide have hypertension, two-thirds of them were lived in low and middle-income countries. One of four men and one of five women tend to have hypertension. Many determinants were known as risk factor of hypertension—including sodium intake, alcohol, obesity, genetics, age (WHO, 2020), lifestyle, working conditions (Chen & Mccullough, 2013). Although medical treatment for hypertension using anti-hypertensive medications already provided, but this medications still questioned its effectiveness and also its side effects (Tedla & Bautista, 2016). CDC report showed 75 millions people worldwide have hypertension, in another words only 54% of people worldwide have normal blood pressure (CDC, 2020).

Prevalence of hypertension in East Java based on Basic Health Research conducted by Indonesian Ministry of Health showed 8.01% for hypertension based on doctor diagnose. Those value shows increasing if compared with the result of Basic Health Research on 2013, with the increasing value 9.9% (Indonesian Ministry of Health, 2019). Clinical manifestation of hypertension are headache, nose bleeding, heavy neck, ringing on the ears, insomnia, frequent dizziness, and blurred vision (Sustrani L, 2006). Some determinant of hypertension in Indonesia have been identified-- including age, man, low education level, smoking, regularly caffeine consumption more than one servings every day, alcohol consumption, lack of physical activity, and obesity (Rahajeng & Tuminah, 2009).

Preventive medicine have an important role on the prevention of cardiovascular disease that can be conduct by early detection namely screening, in order to minimize complication. Health screening on health coverage era classified as two, those are screening for primary prevention/historical health and screening for secondary prevention (limited on people with cronical disease and cancer detection). Primary screening is a priority on Indonesian health coverage regarding to minimize economic burden (Indonesia Ministry of Health, 2020). Health screening already used for long decade as an instrument that easily to use and cheap, with the target to prevent premature death (Bowers & Johnson, 2017). A valid screening instrument need to be developed so that it will be easier and risk factor can be identified. Validity can reveal the suitability of an instrument to find case. This research was conducted to detect hypertension case, and reveal the sociodemographic and lifestyle factors associates with hypertension.

METHOD

Analytical observational study with cross sectional design were carried out from November 12th to November 15th 2019. The population were people whom visited Mulyorejo Public Health Center, while the sample were adult and elderly whom have willingness to participate during this study. Accidental sampling were conducted and a number of 100 people participated in this study, every participant were given explanation of the purpose of this study and then signed an informed consent. Participant were interviewed using structured questionnaire. Independent

variables that were observed in this study were age, gender, body mass index, family history, smoking, physical activity, vegetable consumption, salt consumption, and fruit consumption, while the dependent variable was hypertension. Blood pressure were measured two times by qualified nurse using automated sphygmomanometer. Measurement were conducted two times with the position of patient was seated, and range within measurement was about 5 minutes. Average of two measurement were recorded.

Age were classified into six groups, those were 17-25, 26-35, 36-45, 46-55, 56-65, and >65 years old. Gender were classified as man and woman. Body mass index were classified as <25 kg/m^2 and ≥25 kg/m^2. Family history classified as "Yes" if participant has a hypertension history from one or both their biological parents. Smoking variable classified as "Yes" if participant were an active smoker. Vegetable and fruit consumption categorized as "Adequate" when consume vegetable/fruit five servings in a week. Physical activity classified as adequate if participant doing exercise at least 30 minutes everyday. Salty consumption categorized into two groups, participant whom consume about more than 5 mg each day or equal with one spoon of salt, and participant whom consume less than 5 mg each day. Participants categorized as hypertension when the average of two measurement of blood pressure showed value ≥140/90 mmHg (Indonesia Ministry of Health, 2014) .

Structured questionnaire divided into risk factor and clinically symptoms. Clinically symptom consisting of headache, epistaxis/nose bleeding, insomnia, heavy neck, frequent dizziness, and blurred vision. Questionnaire was arranged used Indonesian language, otherwise when participant didn't understand, it was explained by researcher using Java language. Question point were formed based on (CDC, 2020) about hypertension. Scoring were categorized from 1-3. Score 1 for risk factor question, score 2 for clinilcally simptoms that often experienced by participant. Score 3 were given for clinically symptom that often appear when hypertension level was high. Participant were categorized as hypertension if getting score ≥5, prehypertension if getting score 3-4, normal if getting score 0-2. Body weight and body height were recorded to get data of Body Mass Index. Validity of questionnaire were calculated using positive predictive value (PPV), negative predictive value (NPV), sensitivity, and spesifity. Data of risk factor were analysed using chi-square test, if p showed <0.05, it can be noted have significant association with the occurrence of hypertension. Below were the formula for measuring validity of questionnaire.

$$\text{Sensitivity} = \frac{True\ Positive}{True\ Positive + False\ Negative}$$

$$\frac{True\ Positive}{True\ Positive + False\ Negative}$$

$$\text{Spesifity} = \frac{True\ Negative}{Fales\ Positive + True\ Negative}$$

$$\frac{True\ Negative}{Fales\ Positive + True\ Negative}$$

$$\text{PPV} = \frac{True\ Positive}{True\ Positive + False\ Positive}$$

$$\frac{True\ Positive}{True\ Positive + False\ Positive}$$

$$\text{NPV} = \frac{True\ Negative}{False\ Negative + True\ Negative}$$

$$\frac{True\ Negative}{False\ Negative + True\ Negative}$$

This study design had been approved by Ethical Committee Faculty of Medicine Universitas Airlangga with the number 201/EC/KEPK/FKUA/2019.

RESULTS

Validity of Screening Instrument's

Validity refers to the level of how result interpretation from certain study can be counted as valid. In another words, it can be defined as level of a measurement can reveal the truth of the attribute that counted (Porta, M., Greenland, S., Hernán, M., dos Santos Silva, I., & Last, 2014). Validity of a questionnaire as a measurement

instrument in public health survey can be influenced by many factors, such as length of question, appearance of questionnaire, cultural and social differences regarding to the understanding of question, and kind of questionnaire (de Bruin, A., Picavet, H.S., & Nossikov, 1996). An easy questionnaire can be identified by how's the respondent in the field can understand the survey questionnaire. Many ways can be conducted to evaluate a questionnaire through review from experts, focus groups, cognitive test, field pretest, and statistical evaluation. External data for survey and various indicators which applied during one survey were the method to estimate validity. In case, data external have purpose to made an assumption regarding to the availability of a "gold standard". Sensitivity and specificity used as the main parameters. Sensitivity shows the number of persons whom had positive values through survey and gold standard (true positives), then divided by number of persons whom had positive score in the gold standard (false negatives and true positives). While, specificity is a result of number of persons whom had scored negative values through survey and gold standard (true negatives), then divided by number of person whom had negative score in gold standard (false positives and true negatives) (Shrout, P.E., & Fleiss, 1979). Based on the comparison with gold standar examination, seven participants categorized as true positive, three participants as false negative, eleven participants as false positive, seventy nine participants as true negative. Validity was counted, and sensitivity showed 70%, spesifity was 87.78%, positive predictive value was 38.8%, negative predictive value was 96.34%. contents of this questionnaire were modified from European Union Health Interview Survey which consist of some health determinants including – weight and height, physical activity/exercise, consumption of fruit and vegetables, smoking, and alcohol consumption. Despite of the validity of screening instrument, sociodemographic factors is also need to be recorded regarding to analyse case distribution and other health determinant that would be interact.

Sociodemographic Factors

A total of 31 men and 69 women were participated in this research (shows in Table 2). Based on the gold standard examination, 10% of participants were categorized as hypertension. Of those 26 participants were in age 46-55 years old, 18 participants were categorized in 36-45 years old, and the minority were in 17-25 years old. Ninty percents had normal body mass index (<25 kg/m^2), while 10 percents had body index ≥25 kg/m^2. Most of participants already finished high school (33%). While the most occupation of participant were private sector (29%). Most of participants were Moslem.

Relationship between Family History and Hypertension

Table 3 shows that most of participants have no family history with hypertension (70%). Chi-square test shows that p= 0.48 (p<0.05), it is indicated that there is no relationship between family history and hypertension. OR results shows 1.64 (95% CI = 1.64 < OR < 6.29) means that participants with the family history of hypertension are 1.64 times tend to be at risk of hypertension than participants without family history of hypertension.

Relationship between Smoking and Hypertension

Table 3 shows that most of participants have no smoking activity (91%). Chi-square test shows that p= 0.21 (p<0.05), it's indicated that there is no relationship between smoking activity and hypertension. OR results shows 2.96 (95% CI = 0.52< OR < 16.7) means that participants that smoking are 2.96 times tend to be at risk of hypertension than participants that have no smoking activity.

Relationship between Physical Activity and Hypertension

Table 3 shows that most of participants have inadequate physical activity (79%). Chi-square test shows that p= 0.46 (p<0.05), its indicated that there is no relationship between physical activity and hypertension. OR results shows 1.71 (95% CI = 0.4 < OR < 7.29) means that participants with the inadequate physical activity are 1.71 times tend to be at risk of hypertension than participants with adequate physical activity.

Relationship between Vegetable Consumption and Hypertension

Table 3 shows that most of participants have adequate vegetable consumption (61%). Chi-square test shows that p= 0.94 (p<0.05), its indicated that there is no relationship between vegetable consumption and hypertension. OR results shows 0.95 (95% CI = 0.25 < OR < 3.62) means that participants with the inadequate vegetable consumption are 0.95 times tend to be at risk of hypertension than participants with adequate vegetable consumption.

Relationsip between Fruit Consumption and Hypertension

Table 3 shows that most of participants have inadequate fruit consumption (52%). Chi-square test shows that p= 0.89 (p<0.05), it is indicated that there is no relationship between fruit consumption and hypertension. OR results shows 1.09 (95% CI = 0.29 < OR < 4.03) means that participants with the inadequate fruit consumption of hypertension are 1.09 times tend to be at risk of hypertension than participants with adequate fruit consumption of hypertension.

Relationship between Salt Consumption and Hypertension

Table 3 shows that most of participants consume >5 mg of salt each day (70%). Chi-square test shows that p= 0.71 (p<0.05), its indicated that there's no relationship between salt consumption and hypertension. OR results shows 1.35 (95% CI = 0.26 < OR < 7.07) means that participants with the salt consumption more than 5 mg are 1.35 times tend to be at risk of hypertension than participants with salt consumption less than 5 mg each day.

Table 1. Validity of screening instrument

Based on questionnaire	Based on gold standar	Validity of questionnaire			
		Sensitivity	Specivity	Positive Predictive Value	Negative Predictive Value
16	10	70%	87.78 %	38.8%	96.34 %

Table 2. Sociodemographic Characteristics of Participants

Variable	Frequency	Percentage
Gender	31	31%
Men	69	69%
Women		
Blood Pressure		
Normal	90	90%
Hypertension	10	10%
Age		
17-25	6	6%
26-35	11	11%
36-45	18	18%
46-55	26	26%
56-65	22	22%
>65	17	17%
Body Mass Index		
<25 kg/m^2	90	90%
≥25 kg/m^2	10	10%
Educational Level		
Uneducated	8	8%
Elementary graduate	22	22%
Middle school graduate	11	11%

Variable	Frequency	Percentage
High school graduate	33	33%
College graduate	26	26%
Occupation		
Civil Servant	8	8%
Army	1	1%
Police	3	3%
Private sector	29	29%
Retired	11	11%
Enterpreneur	7	7%
Student	4	4%
Trader	4	4%
Housewife	22	22%
Yet working		11%
Religion		
Moslem	91	91%
Christian	6	6%
Catolic	1	1%
Hindu	2	2%
Buddha	0	0%
Total	100	100%

Table 3. Chi Square Tes Results between Risk Factors and Hypertension

Variable	Hypertension		p	OR
	Yes	No		
Family History				1.64 (0.42 <OR<6.29)
Yes	4	26	0.48	
No	6	64		
Smoking				2.96 (0.52<OR <16.7)
Yes	2	7	0.21	
No	8	83		
Physical Activity				1.714 (0.4<OR< 7.29)
Adequate	3	18	0.46	
Inadequate	7	72		
Vegetable Consumption			0.94	0.95(0.25< OR<3.62)
Adequate	6	55		
Inadequate	4	35		
Fruit Consumption			0.89	1.09(0.29< OR<4.03)
Adequate	5	43		
Inadequate	5	47		
Salt Consumption			0.66	1.33 (0.25<OR <6.98)
<5 mg/day	2	14		
>5 mg/day	8	76		

DISCUSSION

A total of 100 people consist of adult and ederly were participated and screened in this study. Based on to the gold standar examination, we found 10 of the participants categorized as hypertension, whereas based on screening instrument is 16 participants. Validity of this screening instrument shows enough value, with the sensitivity value was 70%, specifity 87.78%, positive predictive value 38.8%, negative predictive value 96.34%. Based on Table 1, this study was highlighted some lifestyle as risk factor of hypertension, but in this study it's variable didn't shows significant association with the occurrence of hypertension.

Validity of Screening Instrument

Hypertension screening actually could reduce cardiovascular disease. The specifity and sensitivity value in this study in line with the study of (Lima-Costa, Peixoto, & Firmo, 2004). Health screening especially for the disease that can lead to much complication due to the late prevention is important. Rare frequency of health screening in developing country influenced by many factors, one of it was associated with the high cost of examination and health beliefs. 2004; Holland, Stewart, & Masseria, 1933. All of the participant with the hypertension in this study were said that never joined health screening before, it is because of feeling healthy and feeling not necessary to do screening. This causation also in line with the study of (Anttila et al., ; Spadea, Bellini, Kunst, Stirbu, & Costa, 2010). This phenomenon can be a consideration for policy maker in health coverage area regarding to increase promotive and preventive medicine, so that citizen will be aware with their health status (Jin, Louange, Chow, & Fock, 2013). Therefore, continuously study and observation related to the citizen's perception on health screening were needed. Valid screening instrument must be developed. The more valid of the instrument, the more valuable result that will get. Increasing validity of instrument can be done through continuously do the literature review about risk factor and clinical manifestation of a disease.

Relationship between Family History and Hypertension

Identifying family history experienced hypertension was important regarding to the similar genes that composed blood. Some relatives also lead to dispose hypertension to their offspring, related to the habits like diet, exercise intensity, and smoking activity (CDC, 2020). However, in this study, family hypertension didn't show significant association with hypertension. Thus, this results didn't suitable with some studies that reported family hypertension strongly associated with the hypertension (Muldoon, Terrell, Bunker, & Manuck, 1993; Ranasinghe, Cooray, Jayawardena, & Katulanda, 2015; Winnicki et al., 2006). Family level (parents, grandparents, children, siblings) in people with family history with hypertension significantly show association with the occurrence of hypertension (Ranasinghe et al., 2015). In case, physical activity can be a confounder with the effect of family history on hypertension, as revealed by (Shook et al., 2012) that showed decreasing hypertension risk from 21 to 43 percents on people whom have family history with the hypertension but regularly doing exercises. Relate with this, a study advice obviously 6 minutes/hour low-intensity physical activity have valuable outcome on hypertension prevention (Dempsey et al., 2016). Similarity of lifestyle—including diet in family with the history of hypertension revealed by Japan's researcher increase obesity as a risk factor of hypertension (Liu et al., 2014). Cardiovascular disease can be a threaths in person with family history of hypertension didn't improve their lifestyle (Lascaux-Lefebvre et al., 2001). Studies in young adult populations shows association between rare frequency of physical activity and hypertension (Carnethon et al., 2010; Chase, Sui, Lee, & Blair, 2009). Globally studies reported showbete significantly association between physical activity and increasing risk of hypertension already—including Denmark, Italy, France, Saudi Arabia, Thailand, Korea, and China (Asferg et al., 2011; Holzgreve, 2018; Jae et al., 2012; Palatini et al., 2010; Pouliou, Ki, Law, Li, & Power, 2012; Salman & Al-Rubeaan, 2009; Thawornchaisit et al., 2013;).

Relationship between Smoking and Hypertension

Smoking directly related with nicotine consumption inside of cigarette. Nicotine could play adrenergic agonist which can mediated local and systemic catecholamine and lead to vasopresin releasing (Cryer, Haymond, Santiago, & Shah, 1976). In this study, smoking didn't show significant association with the hypertension, this paradoxically with the study from some published report (Lee, Ha, Kim, & Jacobs, 2001; Minami, Ishimitsu, & Matsuoka, 1999). Effect of smoking on hypertension can be a bias regarding to some confounding like ethnic, body weight, alcohol intake, coffee intake, and physical activity (Green, Jucha, & Luz, 1986).

Relationship between Physical Activity and Hypertension

Physical activity defined as kind of routinely body movement resulting from skeletal muscles contraction and produce energy expenditure that more higher than during rest levels,—including occupational task, commuting, and household activities in order to producing health benefits. Other than that, exercise can be defined as well planned physical activity, systhematic, and continuously in purpose to maintainance health status (Sigmundsson, Englund, & Haga, 2017). This screening was reveal no significant relation with the occurrence of hypertension. The result are not in line with another report that exercise/physical activity showed significant effect on systolic blood pressure reduction (Communications, 2004). Blood pressure reduction mechanism caused by physical exercise hypothesized due to the attenuation

of peripheran vascular that lead to neurohormonal and structural response, reductions in symphatetic nerve caused increasing of arterial lumen diameters (Hamer, 2006). Study from (Kim et al., 2010) indicated slow progression of being pra-hypertension and hypertension were seen in people whom conduct regularly exercise. This also supported with the study in China's population that showed people with low exercise 40% tend to be high risk of hypertension (Zheng et al., 2010). Neverthless, this mechanism still need further investigation.

Relationship between Dietary (Fruit, Vegetables, and Salt Consumption) and Hypertension

Dietary point in this questionnaire showed no significant association with the occurrence of hypretension. Other than that, healthy diet have been known as a preventive way to reduce blood presure. Adapted the DASH (Dietary Approaches to Stopping Hypertension) recommended eating plan that can decrease blood pressure about 8-14 mmHg—consist of vegetables, fruits, low fat dairy products, whole grain, poultry, fish, nuts, limited red meat, and limited salt (Azadbakht et al., 2011). Healthy food may affect blood viscosity, reducing salt intake in range 5 gram per day effectively reduce systolic and diastolic blood pressure more than 10 mmHg (WHO, 2020). Mean salt intake associated with mean SBP levels and related with age causing blood pressure. Studies in Chinese population showed correlation of highest sodium consumption with increasing of blood pressure (Rose et al., 1988). However in meta analysis reported that salt intake didn't show association with increasing of stroke and CVD (Strazzullo, D'Elia, Kandala, & Cappuccio, 2009). Improving lifestyle actually needed as an easier prevention for reducing blood pressure and other chronical disease such as diabetes melitus because of lipid metabolism would be improved (Egan, 2017). In this study there was no participant that consume alcohol, whereas frequently alcohol intake would increase high risk of hypertension. Ethnicity plays an important role for increasing high risk of hypertension, this shows by study from (Taylor et al., 2009; Zheng et al., 2010) that Asian men tend to be have hugh risk hypertension compared with non-Asian men although have similarity of alcohol consumption. Salt consumption have been discussed globally and guideline in "Creating and Enabling Environment for Population based Salt Reduction Strategies" that become first goals of WHO meeting (World Health Organization, 2010). Some countries already published national actions for antihypertensive dietary strategies, including salt consumption reduction. Thus countries are Brazil, Canada, China, Czech Republic, Finland, South Korea, UK, and USA. Other than that, the aforementioned countries also tribute to the arrengement of national nutrition guideliness—including nutrition status of national populations, especially for increasing the accessibility, availability, and affordability of healthy foods by updating national standards (Wong, Lim, Ma, Chua, & Heng, 2015).

Research Limitations

This study have some limitations especially in duration of study and the number of participants that joined were limited. The majority of participants were above 35 years old, study were conduct only in one public health center so it's cannot be figuring condition in another public health center.

CONCLUSION

Hypertension screening urgently needed in order to minimize complication and decreasing economic burden during health coverage era. Unspesifically clinical manifestation and variation of risk factor like family history with hypertension, smoking, physical activity, dietary habit (fruit, vegetable, and salt consumption)

must be known by citizen, so that healthy lifestyle can be citizen's habituation.

Hypertension is a combination of genetic and environmental factors. Burden of hypertension tribute to burden of economic country. In case, health promotive and preventive strategy must be integrated in many stakeholders—including health policy maker, health officer, public health center, health worker, and also nutritionist. Better prevention could reduce severity complication. National guidelines of nutritional status must be arranged sisthematically in each country due to the difference of ethnicity, cultural, and lifestyle. Awareness of health screening must be a habituation in every age especially in adult and ederly.

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CORRELATION STUDY COVERAGE OF EXCLUSIVE BREASTFEEDING AND RISK FACTORS IN INDONESIA

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ABSTRACT

Introduction: Exclusive breastfeeding decreases the possibility of death in newborns to achieve the 3rd SDGs goal. However, some provinces have not yet extended the quarry to include infants receiving exclusive breastfeeding. The research purposed to analyze the relationship in the middle of the inclusion of the fourth antenatal care, delivery in healthcare facilities, early commencement of breastfeeding, smoking mothers, and the inclusion of infants receiving exclusive breastfeeding. **Methods:** The study design was conducted using the correlation study from the 2019 Indonesian Health Profile and the 2020 Maternal and Child Health Profile. The unit of analysis was 34 provinces in Indonesia which were analyzed using scatter plot and Pearson correlation test. **Result:** The outcome of the scatter plot and correlation test manifested that the factors that correlated with the coverage of infants receiving exclusive breastfeeding were coverage of the fourth antenatal care (r=0.370), delivery in health care facilities (r=0.466), early initiation of breastfeeding (r=0.592), mother smoking (r=-0.608). **Conclusion:** It was concluded that the 4th antenatal care visit and parturition at a healthcare facility had a moderate and positive relationship. Early commencement of breastfeeding had a strong and positive relationship, while smoking mothers had a strong relationship with a negative direction. It was recommended that the government formulate special policies for regional targets with coverage of the fourth antenatal care, delivery in health care facilities, low early commencement of breastfeeding, and areas with a high percentage of smoking mothers.

Keywords: exclusive breastfeeding, prenatal care, delivery obstetric, smoking, sustainable development

INTRODUCTION

Child health efforts are activities carried out integrated and sustainable to maintain and improve children's health. One of the goals of child health efforts is to ensure children's survival through efforts to reduce the mortality rate of neonatal, infants, and toddlers (Minister of Health RI, 2014). The tendency of child fatality regularly has shown a decline. The Indonesian Demographic and Health Survey in 2017 manifested Neonatal Fatality Rates at 15 of 1000 live births, Infant Fatality Rates 24 of 1000 live births, and Toddlers Mortality Rates 32 of 1000 live births (Ministry of Health RI, 2020). The mortality rate for neonates, infants, and toddlers is expected to be the downturn. Implementations that can assist child endurance aim to reach the third SDGs goal point 3.2. By 2030, ending avoidable neonatal and toddlers fatality, with all nations trying to decrease Neonatal Fatality Rates to at the minimum 12 per 1000 live births and Child Fatality Rates to 25 per 1000 live births (Ministry of Health RI, 2015).

Indicators that describe child health efforts as referred to in the Minister of Health Regulation Number 25 of 2014 through health services for the fetus in the womb, neonatal health, infant and toddler health to ensure optimal child growth and development. One of the endeavors made by advancing the inclusion of exclusive breastfeeding dependent on Government Regulation Number 33 of 2012 in bosom milk that is given to infants from birth for a half year, without adding or supplanting with other food or beverages (aside from medications, nutrients, and minerals) (Minister of Health RI, 2014)(RI Government, 2012).

Mother's milk is an ideal nutrient for babies because it contains nutrients most

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suitable for the baby's needs and some substances protect against various diseases. Based upon facts from the '*World Health Organization* (WHO) in 2016, the inclusion of restrictive breastfeeding in the world was just 36%. This accomplishment is still underneath the worldwide objective of restrictive breastfeeding inclusion set by WHO of 50% (WHO, 2017). Broadly, the inclusion of newborn children getting restrictive breastfeeding in 2019 was 67.74%. This amount has surpassed the 2019 Vital Arrangement focus of 50%. Nonetheless, there are as yet 4 out of 34 territories in Indonesia (11.76%) that have not arrived at the 2019 Vital Arrangement target, including Gorontalo Area (49.29%), Maluku (43.35%), Papua (41.42%), and West Papua (41.12%) (Ministry of Health RI, 2020).

To achieve the goal of infants receiving exclusive breastfeeding, the necessary preparations early, namely the period, *antenatal* here milk production began trimester 3. Thus, efforts to achieve coverage visits *of antenatal care* should be increased. Specifically, the number of pregnant ladies who have gotten antenatal consideration by the guidelines in some measure once in the primary trimester, one time in the subsequent trimester, and double in the third trimester. It is contrasted with the objective number of pregnant ladies in a single workspace inside a time of one-year wellbeing administrations. *Antenatal*, one of them is the provision of interpersonal communication and counseling for breastfeeding preparation and exclusive breastfeeding (Ministry of Health RI, 2020).

An intervention in the form of an innovation that is confirmed to reduce the Infant Mortality Rate (IMR) is the Childbirth Planning and Complications Prevention Program. The Childbirth Planning and Complications Prevention Program is proven to be able to form a ready husband and mobilize families and communities to be involved in planning safe childbirth. In addition, The Childbirth Planning and Complications Prevention Program forms pregnant women to have good planning in the event of risk or occurrence of complications and to have a postpartum plan in terms of the need for contraceptive devices or drugs. The Childbirth Planning and Complications Prevention Program is also proven to make pregnant women interact with health workers during pregnancy, childbirth, postpartum, and newborn examinations. The Childbirth Planning and Complications Prevention Program motivate mothers to initiate early breastfeeding and continue exclusive breastfeeding for the next 6 months. In planning delivery, the delivery target is done in health care facilities by 85% to increase the accessibility and acceptability of quality infirmary for maternal and child health (Secretariat General of the Ministry of Health of the Republic of Indonesia, 2015).

Mothers who smoke are one of the risk factors for not exclusively breastfeeding their babies by considering the impact. Nicotine and other destructive synthetic compounds are found in cigarettes, stogies, pipe tobacco, and biting tobacco. Moms who smoke are a danger for abrupt baby demise, just as lower respiratory sicknesses like bronchitis and pneumonia, ear contaminations, and weakened lung work in babies and youngsters. Notwithstanding the danger of used smoke for every single uncovered newborn child, the synthetic substances found in tobacco can be passed from a smoking breastfeeding mother to her child through bosom milk. Smoking has been displayed to diminish bosom milk supply, and the impacts of nicotine decrease serum prolactin levels. E-cigarettes and other vaping gadgets are battery-fueled gadgets that convey nicotine, flavorings, and different added substances about the impacts of e-cigarette use by moms on newborn child wellbeing. Spray e-cigarettes can contain hurtful synthetics like nicotine and different poisons, flavorings, and solvents (CDC, 2021). This is a

consideration for mothers not to breastfeed their babies.

The causes of the low coverage of infants receiving exclusive breastfeeding are multifactorial. Thus, this study aimed to examine the coverage variables of the visit *antenatal care*, fourth, delivery coverage in health care facilities, coverage of early commencement of breastfeeding, and percentage of smoking mothers with exclusive breastfeeding coverage of infants. This correlation or ecological variable, an aggregate number, is important because it will provide clear targets for policymakers as the basis for policy formulation efforts to increase the inclusion of infants accepting exclusive breastfeeding. So this study aims to analyze the relationship of the fourth antenatal care, delivery in healthcare facilities, early commencement of breastfeeding, smoking mothers, and the inclusion of infants receiving exclusive breastfeeding.

METHOD

This research was conducted using a correlation or ecological analysis study approach (the study of aggregates) and taken from the report that 'Indonesia Health Profile 2019'(Ministry of Health RI, 2020) and the 'Maternal and Child Health Profile 2020'(Central Bureau of Statistics, 2020).

Report data was available on the page http://www.kemkes.go.id. Data used were family health data, namely data on health services for pregnant women (4^{th} antenatal care coverage), maternal health services (coverage of delivery in health care facilities), data on prevention and treatment of nutritional problems (early initiation of breastfeeding and breastfeeding exclusive) based on routine data and survey data from specialized units within the Ministry of Health.

Meanwhile, data on smoking mothers were obtained from the percentage of mothers who smoked last month by province based on the March 2020 national socio-economic survey data. We changed the Indonesian health profile report data and maternal and child health profiles in raw form (basic data) and processed them using the program computer. The data that has been obtained was carried out by tabulating and checking for missing data until the data was ready for analysis.

Correlation or ecological analysis was a way for researchers to see the large-scale impact of a particular policy or intervention on the health of the population in a region (Boskey, 2019). The unit of analysis in this study was 34 provinces in Indonesia. The dependent variable as the focus of the study was the coverage of infants receiving exclusive breastfeeding. There were four independent variables projected as predictors. They were the coverage of visit antenatal care 4th (visit antenatal care 4th ratio per number of pregnant women by province), coverage of parturition in healthcare facilities (ratio of deliveries at health facilities per number of mothers giving birth by province), early commencement of breastfeeding (ratio of babies receiving early commencement of breastfeeding per number of newborns by province), and smoking mothers (percentage of mothers who smoked during the last month by province) (Ministry of Health RI, 2020)(Central Bureau of Statistics, 2020).

Data were analyzed using scatter plots and Pearson correlation test (r). It was carried out to ensure a relationship between two variables after previously the variables that numerical data scale (ratio-interval). It was examined with the One-Sample Kolmogorov-Smirnov Test, which showed that $p = 0.952$ means that the facts were normally distributed. The research has gotten approval from the Health Research Ethics Committee of the Faculty of the Public Health University of Jember with No.100/KEPK/FKM-UNEJ/IX/2021.

Table 1. Descriptive Statistics Coverage of Newborn getting Exclusive Breastfeeding and Associated Variables in Indonesia 2019

Variables	N	Minimum(%)	Maximum(%)	Mean(%)	Std. Dev(%)
Antenatal Care Visit 4th	34	37.1	103.6	82.14	14.45
Delivery in Health Care Facilities	34	46.6	103.8	81.37	14.08
Early Initiation of Breastfeeding	34	3.1	94.9	73.17	17.55
Mothers Smoking	34	0.2	2.8	0.91	0.65
Exclusive Breastfeeding	34	41.1	86.3	64.05	11.55

RESULT

Table 1 shows the disparities in including babies getting exclusive breastfeeding and related variables. The inclusion of newborn children getting exclusive breastfeeding showed a high disparity. The province of West Papua has the lowest coverage, namely 41.12%, while the province of West Nusa Tenggara accomplished the most elevated inclusion at 86.26%.

Coverage of The 4th Antenatal Care Visit

Figure 1 shows the distribution of coverage plots for exclusive breastfeeding infants and coverage of visits antenatal care fourth. In the variable coverage of the visit antenatal care 4th, which was seen to be higher in an area, there was a likelihood for the coverage of infants to receive exclusive breastfeeding to be higher. The outcome of the Pearson correlation test in table 2 manifests that between the coverage variables of the visit antenatal care 4th and the inclusion of babies getting exclusive breastfeeding, there was a correlation fairly strong with the direction of the positive relationship (r = 0.370 p = 0.031).

Coverage of Parturition in Healthcare Facilities

Figure 2 shows the allocation of the coverage plots of babies receiving exclusive breastfeeding and the inclusion of parturitions in healthcare facilities. In the variable coverage of parturition in health care facilities, the higher in a territory, the higher the probability of the inclusion of babies receiving exclusive breastfeeding was also higher. The after-effects of the Pearson relationship test in Table 2 manifested a correlation between the variable inclusion of parturition in healthcare facilities and the inclusion of infants receiving exclusive breastfeeding strong (r = 0.466 p = 0.005).

Coverage of Early Commencement of Breastfeeding

Figure 3 shows the distribution of the coverage plots of babies receiving exclusive breastfeeding and the coverage of babies receiving early commencement of breastfeeding. In the variable coverage of early commencement of breastfeeding, which was seen to be higher in an area, there was an inclination that the inclusion of infants receiving exclusive breastfeeding is also getting higher. The after-effects of the Pearson correlation test in table 2 manifested that between the variables of coverage of infants receiving early commencement of breastfeeding and coverage of infants receiving exclusive breastfeeding, there was a correlation strong with the direction of a positive relationship (r = 0.592 p = 0.000).

Percentage of Mothers Smoking

Figure 4 shows the distribution of the coverage plots of infants receiving exclusive breastfeeding and the percentage of moms smoking. In the variable percentage of smoking mothers, which looks high in an area, there was a propensity that the inclusion of babies receiving exclusive breastfeeding was getting lower.

The consequences of the Pearson correlation test in Table 2 manifested a relationship in the middle of the percentage of moms smoking and the inclusion of babies getting exclusive breastfeeding strongly in the negative direction (r = -0.608 p = 0.000). The correlation with the negative direction means that if the percentage of mothers who smoke were high, it would decrease the coverage of babies receiving low exclusive breastfeeding.

DISCUSSION

The inequality of exclusive breastfeeding coverage is quite high in several regions in Indonesia. Implementing strategies in increasing exclusive breastfeeding coverage ignores factors related to increasing coverage for infants receiving exclusive breastfeeding. This study proves the connection in the middle of the coverage of the visit fourth antenatal care, the inclusion of deliveries in healthcare facilities, the coverage of early commencement of breastfeeding, the percentage of smoking mothers, and the inclusion of babies getting exclusive breastfeeding in Indonesia.

Table 2. Pearson Correlation Test Variables related to Exclusive Breastfeeding in Indonesia 2019

Variables		Exclusive Breastfeeding
Antenatal Care Visit 4th	'Pearson Correlation'	0.370*
	P-value	0.031
	N	34
Delivery in Health Care Facilities	'Pearson Correlation'	0.466**
	P-value	0.005
	N	34
Early Initiation of Breastfeeding	'Pearson Correlation'	0.592**
	P-value	0.000
	N	34
Mothers Smoking	'Pearson Correlation'	-0.608**
	P-value	0.000
	N	34

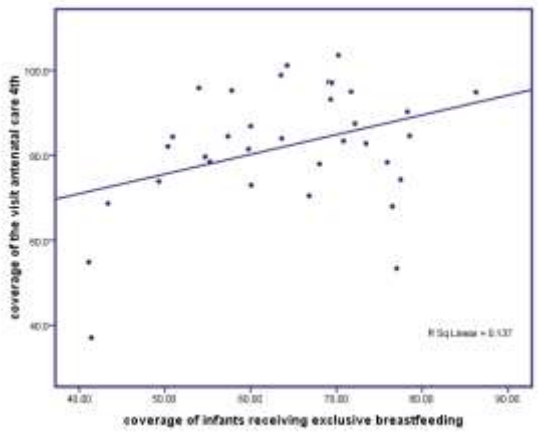

Figure 1. *Scatter plot* coverage of infants receiving exclusive breastfeeding and coverage of the visit *antenatal care* 4th in Indonesia, where R is 0.137(Ministry of Health RI, 2020)

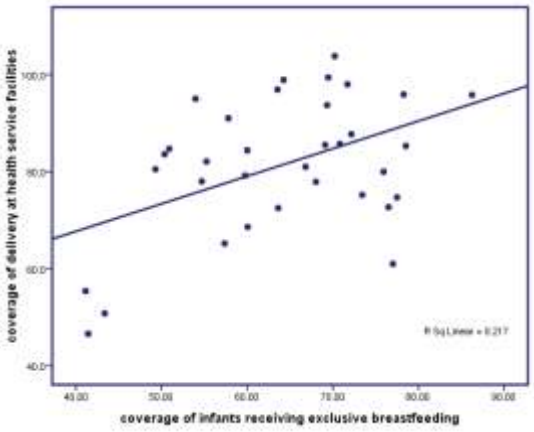

Figure 2. *Scatter Plot* coverage of infants receiving exclusive breastfeeding and coverage of delivery at health service facilities in Indonesia, where R is 0.217 (Ministry of Health RI, 2020)

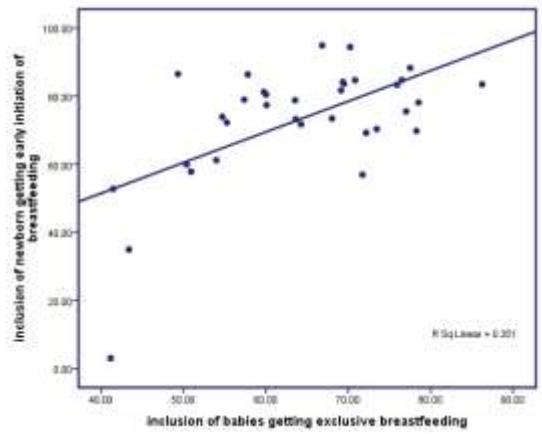

Figure 3. *Scatter plot* inclusion of babies getting exclusive breastfeeding and inclusion of newborn getting early initiation of breastfeeding in Indonesia, where R is 0.351 (Ministry of Health RI, 2020)

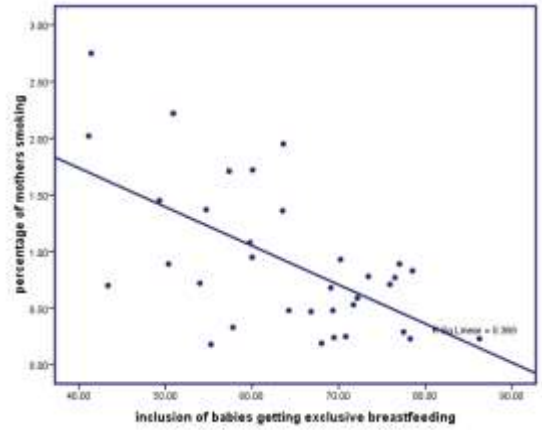

Figure 4. *Scatter plot* inclusion of babies getting exclusive breastfeeding and percentage of mothers smoking in Indonesia, where R is 0.369

(Central Bureau of Statistics, 2020; Ministry of Health RI, 2020)

The Relationship between Inclusion of the 4th Antenatal Care Visit and Coverage of Infants receiving Exclusive Breastfeeding

The results showed that the higher coverage visits of antenatal care 4th, the higher the coverage of infants receiving exclusive breastfeeding. Preparation of exclusive breastfeeding starts from the antenatal care third trimester, due to the first lacto genesis process when breast milk begins to be produced. In the first lacto genesis, the breasts produce colostrum, a thick yellowish liquid. At that time, high progesterone levels prevent actual milk production (Asih, 2016).

So the importance of health promotion during the period antenatal is a fairly good strategy in increasing exclusive breastfeeding coverage. The counseling strategy with informal communication and non-formal conditions, providing complete information about exclusive breastfeeding, and combining discussion with counseling targets, is quite good in motivating and maintaining exclusive breastfeeding behavior. The implementation of counseling strategies in promoting exclusive breastfeeding requires the commitment of all health workers to support by involving husbands, parents-in-law, and traditional birth attendants as counseling targets (Widodo et al., 2019). Another study also found similar results that breastfeeding tutoring the termantenatal was a successful method to expand breastfeeding self-efficacy that could increase the practice of exclusive breastfeeding (Piro and Ahmed, 2020).

This result is also in order with research in Nigeria, which declared that antenatal care seriously expanded the application of exclusive breastfeeding for half a year (OR=2.54, 95%CI=1.49-4.35) (Okafor, Olatona and Olufemi, 2014). A study in Ethiopia (Ahmed et al., 2019) proved that four or more visits to antenatal care had a 2.26 times chance of exclusive breastfeeding contrasted to moms who did not visit antenatal care attend (aOR=2.26, 95%CI=1.46 -3.50). Studies in the same country confirmed that moms who had at minimum one overtake antenatal care had a much higher probability of exclusively breastfeeding for half a year than mothers who did not attend antenatal care. This is possible because health workers provide guidance and counseling about breastfeeding during visits to antenatal care (Habtewold, Sharew, and Alemu, 2019). A

study in Ethiopia also explained that antenatal care received counseling on nutrition and health education during visits regarding the benefits of exclusive breastfeeding (Jino, Munyanshongore, and Birungi, 2013).

A study conducted in Bangladesh (Rahman et al., 2020) provides evidence that areas with a high level of antenatal care have a positive relationship with increasing opportunities for exclusive breastfeeding practices. The study also explains that the increase in antenatal care at the regional level affects the application of exclusive breastfeeding at a different level.

Regions in Indonesia with the inclusion of babies getting exclusive breastfeeding that have not met the target are related to the low coverage of antenatal care in these areas. This shows that the regional approach that does not meet the coverage of infants receiving exclusive breastfeeding requires a strategy to improve antenatal care by considering the substance of health promotion during the period antenatal and methods of effective communication practices involving related parties and elements.

The Relationship between Delivery Coverage in Health Care Facilities and Coverage of Infants Receiving Exclusive Breastfeeding

The place of delivery is an option for mothers to give birth to their children. This study explains that the higher the inclusion of deliveries in healthcare facilities, the higher the inclusion of babies getting exclusive breastfeeding. The place of parturition in healthcare facilities is related to the role of health workers in the accomplishment of exclusive breastfeeding. This is in a row with the research results in Ethiopia (Biks, Tariku, and Tessema, 2015) that delivery in a health care facility was positively connected to exclusive breastfeeding (AOR=1.29, 95%CI=1.80-3.07). The research results in Tanzania (Nkala and Msuya, 2011) also explained that deliveries in healthcare facilities had a 2.2 times chance of exclusive breastfeeding contrasted to mothers who permit childbirth at home.

The present is because mothers who give birth in health care facilities receive health education during treatment, including nutrition education, education on the benefits of breastfeeding, right breastfeeding position and attachment, and breast care (Sefene et al., 2013)(Yeneabat, Belachew, and Haile, 2014). Healthcare facilities are good sources of knowledge about breastfeeding practices.

Health workers in health services promote exclusive breastfeeding—delivery in health care facilities as a forum for breastfeeding promotion. WHO/UNICEF has started '*The Baby-Friendly Hospital Initiative'* (BFHI) as a capable implement to increase breastfeeding assess. Breast-feeding is a safety component for health (Victora *et al.*, 2016).

Accordingly, the advancement of breastfeeding remains a significant stage to work on maternal and kid wellbeing in both created and non-industrial nations. 'The Baby-Friendly Hospital Initiative' is the best mediation to increment breastfeeding rates at the wellbeing framework level (Sinha et al., 2015).

The execution of the procedure in supporting fruitful breastfeeding emphatically affects breastfeeding results (Pérez-Escamilla, Martinez, and Segura-Pérez, 2016). Nations that have carried out 'The Baby-Friendly Hospital Initiative' include Sweden, the Netherlands, the United States, Canada, Switzerland (Labbok, 2012), and Ethiopia (Habtewold, Sharew, and Alemu, 2019) with the reveal of a supported reaction on the rate and span of breastfeeding nationally. Breastfeeding achievement stays extremely high when healthcare facilities practice breastfeeding monitored. Implementation of health care facilities for 'The Baby-Friendly Hospital Initiative' program, precisely the principal endeavor to breastfeed within 1 hour after birth, is directed on breastfeeding methods. It is not giving food or beverages other than

bosom milk, joining mother and baby in 24 hours, breastfeeding according to the baby's request (on-demand), and not using a pacifier (Spaeth et al., 2018). With the increasing coverage of mothers who give birth in health care facilities, more and more mothers are encouraged by health workers to exclusively breastfeed and do not use pacifiers so that they can help mothers achieve the goal of exclusive breastfeeding (Perrine et al., 2012).

A study in Bangladesh (Rahman et al., 2020) also proves that in areas where delivery in a health facility impacts the success of the act of exclusive breastfeeding. This is because health facilities play a role in providing knowledge about the importance of exclusive breastfeeding practices and subsequent maternal health services identified to childbirth services postnatal, which likewise assume a part in working on the act of exclusive breastfeeding.

Regions in Indonesia that have not reached the target of delivery coverage in health care facilities are related to the low coverage of infants receiving exclusive breastfeeding. A strategic approach is needed in areas with low inclusion of deliveries in healthcare facilities by promoting the benefits received in labor in healthcare facilities. The role of health workers in health care facilities optimally encourages the success of the implementation of exclusive breastfeeding.

The Relationship between Coverage of Early Commencement of Breastfeeding and Coverage of Babies Getting Exclusive Breast-feeding

The coverage of infants receiving exclusive breastfeeding is associated with the high coverage of early breastfeeding initiation. It places the child on her abdomen on the mother's breast or midsection so the child's cutis contacts the mother's cutis, completed something like one hour following birth. If the contact is impeded by a fabric or done in under 60 minutes, it is considered inadequate and does not start early breastfeeding (Ministry of Health RI, 2020). So it is expected that the baby gets breast milk as soon as possible in the second lactogenesis process, which occurs during childbirth and the expulsion of the placenta, which causes a sudden decrease in levels of the hormones progesterone estrogen human placental l*actogen* (HPL). In contrast, levels of the hormone prolactin are still high, which causes the production of Massive breast milk. When the breast is stimulated, the blood prolactin level rises, peaks over 45 minutes, then returns to pre-stimulation levels three hours later. The release of the hormone prolactin stimulates cells in the alveoli to produce breast milk (Asih, 2016).

Another study explains that appropriate breastfeeding techniques are needed, namely the correct attachment between mother and baby, which impacts increasing prolactin levels so that milk production is abundant (Eidelman and Schanler, 2012). One global study manifested that early commencement of breastfeeding was seriously under in mothers with problems ingestion and cesarean parturition (Takahashi *et al.*, 2017).

The benefit of breastfeeding immediately after birth is to prevent infant death and is the first step that determines the success of breastfeeding in children. The enabling factor that causes the disappointment of exclusive breastfeeding is that the mom does not receive early commencement of breastfeeding facilities. Mothers who provide immediate breastfeeding are 2-8 times bound to solely breastfeed for four months, contrasted with mothers not breastfeeding (Bai, Fong, and Tarrant, 2015). In line with this theory, mothers who carry out early inception of breastfeeding can apply the act of exclusive breastfeeding, and moms who do not do early commencement of breastfeeding cannot make a difference in the act of restrictive breastfeeding. Moms who start early breastfeeding will, in general, have the option to apply the act of restrictive

breastfeeding because moms have the certainty and eagerness to have the option to only breastfeed their infants for as long as a half year (Pusporini, Pangestuti, and Rahfiludin, 2021). This statement is reinforced by a study (Permatasari and Syafruddin, 2016) that the early commencement of breastfeeding within 24 hours of birth can decide restrictive breastfeeding and the term of breastfeeding. A study in Haiti (Walsh *et al.*, 2019) added that mothers with early commencement of breastfeeding were 1.35 occasions bound to rehearse exclusive breastfeeding.

Regions in Indonesia that have not reached the objective of exclusive breastfeeding for babies are related to the low coverage of early breastfeeding initiation. Therefore, a strategic approach is needed in areas with low coverage of early commencement of breastfeeding with an expanded comprehension of the significance of early inception of breastfeeding facilities. It includes an understanding of appropriate breastfeeding techniques, namely the correct attachment between mother and baby, which impacts increasing prolactin levels to increase milk production and successful practice exclusive breastfeeding.

The Correlation the middle of The Percentage of Moms Smoking and The Coverage of Infants Receiving Exclusive Breastfeeding

The inclusion of babies getting exclusive breastfeeding is related to the percentage of mothers who smoke. Clinical trials have also shown that smoking hurts breastfeeding. A systematic study review (Macchi *et al.*, 2021)explains a transformation in the construction of breast milk in breastfeeding mothers who smoke. In smokers, the content of lipids, calories, and protein is lower. In addition, it is characterized by a decrease in antioxidants and an altered immune status.

Smoking in pregnancy is generally and reliably recognized as a factor related to non-commencement of breastfeeding and early suspension of breastfeeding (Lechosa Muñiz *et al.*, 2019)(Cohen *et al.*, 2018). This statement was added by a study in Spain (Lechosa-Muñiz *et al.*, 2020) that moms who smoke identity are more averse to breastfeeding their kids than moms who do not smoke (Pineles *et al.*, 2016)(Pereira *et al.*, 2017)(Soneji and Beltrán-Sánchez, 2019). Another study confirmed that moms who smoke are multiple times bound to give equation milk to their infants contrasted with breastfeeding (Lechosa Muñiz *et al.*, 2019). This is in line with a study (Timur Taşhan, Hotun Sahin, and Omaç Sönmez, 2017) which expressed that moms who smoke are 3.9 occasions bound to give correlative food varieties to newborn children matured four months or sooner than moms who do not smoke.

One study also explained the connection between the middle of mom smoking and the early termination of exclusive breastfeeding. Nicotine is known to expand dopamine discharge in the hypothalamus, which causes a decrease in prolactin levels, impacting milk production (Amir and Donath, 2002). On the other hand, moms who smoke might be less mindful of their wellbeing and are less spurred to breastfeed solely (Donath, Amir, and Team, 2004). This statement is reinforced from a study (Tavoulari *et al.*, 2016) that mothers who smoke do early weaning due to uncertainty about the safety of breastfeeding, reluctance to seek advice in helping breastfeeding problems from health workers, and concerns about the reaction of health workers to smoking behavior from mothers.

Indonesia is a country with a culture that is still quite strong in the tradition of giving breast milk after giving birth. However, this is associated with the high percentage of mothers smoking in some Indonesian areas that have not yet reached the exclusive breastfeeding target for infants. The strategic approach in areas with a high percentage of smoking mothers is education on the negative impact of cigarette content on children's health.

Research shows that not achieving inclusion of newborn children getting exclusive breastfeeding is a multifactorial problem, indicating the need for cross-sectoral coordination. Increasing the inclusion of newborn children getting exclusive breastfeeding will support progress in achieving the 3rd SDGs in diminishing baby mortality and further developing youngster sustenance (Sudfeld and Fawzi, 2017)(Ministry of Health RI, 2015).

This study uses secondary facts that the Indonesian Ministry of Health has officially produced, so the facts used have good credibility. However, this study using aggregated data by the province in Indonesia tends only to discuss superficially. A more comprehensive study is required by considering the study results related to the causes of inequality in coverage of infants receiving exclusive breastfeeding. It should be conducted in areas that have not reached the minimum target of coverage visit *antenatal care* for the 4th, including conveyances in medical care offices, early inception of breastfeeding, and a high percentage of smoking mothers.

CONCLUSION

Because of the consequences of the research and discussion, it was reasoned that the coverage of the visit antenatal care 4th and the coverage of deliveries in health care facilities had a sufficient correlation and positive relationship to the inclusion of infants receiving exclusive breastfeeding. Early commencement of breastfeeding has a strong and positive relationship, while smoking mothers have a strong and negative relationship with the inclusion of babies getting exclusive breastfeeding. It is recommended that the government formulate a special policy related to strategies to expand the inclusion of infants receiving exclusive breastfeeding in targeted areas with the visit antenatal care fourth, delivery in health care facilities, and early initiation of breastfeeding with low coverage, as well as in areas with a high percentage of smoking mothers.

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PSYCHOLOGISTS' ROLE IN MENTAL HEALTH PROMOTION PROGRAM AT PUBLIC HEALTH CENTRE

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ABSTRACT

Introduction: One of the initiations in Daerah Istimewa Yogyakarta is related to mental health workers who are expected to conduct mental health efforts, including optimal optimization promotive efforts through the placement of psychologists in Public Health Centre. Purpose of the study was to analyze psychologists' roles in mental health promotion programs at Public Health Centre in Sleman District. **Methods:** This was case study approach in qualitative study. Data collection through indepth interviews and focus group discussions were conducted with 32 informants selected by purposive sampling from two Public Health Centres in Sleman District based on extreme cases. Thematic analysis was performed considering four aspects of Normalization Process Theory. **Result:** Analysis results from psychologists' roles in mental health promotion program at Public Health Centre based on the Normalization Process Theory included, (1) coherence: a difference was observed with the presence of psychologists in the education system, community, and mental health services, (2) cognitive participation: participants were involved from inside and outside of Public Health Centre, (3) collective action: there was coordination between psychologists with cross-profession to promote mental health (4) reflexive monitoring: there were internal and external assessments of psychologists' roles. **Conclusion:** The conclusion of this study is psychologists played their roles in mental health promotion programs such as communication, giving information, and education.

Keywords: mental health promotion program, Normalization Process Theory, Public Health Centre, psychologists' role

INTRODUCTION

Due to the definition of health by World Health Organization related to mental health is an integral part of health, mental health is more than the absence of illness, and mental health is intimately connected with physical health and behaviour. The promotion of mental health is the effort to prevent of mental disorders and to encourage the treatment and rehabilitation of people with mental illnesses and disabilities. Like health promotion, mental health promotion involves actions that support people to adopt and maintain healthy lifestyles and which create supportive living conditions or environments for health (WHO et al., 2004). Therefore, mental health including mental health promotion is an important thing.

Global conditions showed that mortality and disability rate were higher in mental health disorders' people (WHO, 2013). Public Health Center (PHC) as primary health care in community also face various mental health problems. Based on the preliminary studies, mental health problems that found in PHC especially in Sleman District such as depression, schizophrenia, psychosomatic, anxiety,

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bullying, suicide, frustrated, stress, sleep disturbance, drug use, etc.

Indonesia showed that the prevalence rate of family members with schizophrenia/psychosis is about 7.0/mile and the prevalence rate of emotional mental disorders is 9.8% in 2018 (Ministry of Health, 2018). Daerah Istimewa Yogyakarta (DIY) was a province that has the highest prevalence rate of severe mental disorders in 2013 and the second-highest of prevalence rate of schizophrenia/psychosis in 2018 (Ministry of Health, 2013; Ministry of Health, 2018).

WHO and Wonca (2008) were initiated the implementation of mental health promotive and preventive efforts by integrating mental health into primary health care. Related to the context of Indonesia, the primary health care form is a PHC. Therefore, mental health professionals such as psychologists in PHC are needed. The screening and assessment services provided by psychologists are key to detecting and identifying patients' mental health problems, and psychologists are trained to help patients develop coping strategies and healthy behaviors, which promote and maintain both mental and physical health including in PHC (APA, 2014). Besides, psychologists have a role in the behavioural education of patients, families, and the functioning of the community's mental health care (Isfandari et al., 2012).

One of the initiations in DIY is related to mental health workers who are expected to conduct mental health efforts, including optimal optimization promotive efforts through the placement of psychologists in PHC. Cooperation between the Psychology Faculty in Universitas Gadjah Mada with Health Office of Sleman (Dinas Kesehatan Kabupaten Sleman) is managed to place one psychologist in each PHC in Sleman District comprehensively since 2004 (CPMH, 2015).

Evaluation of psychologists' role in PHC of Sleman District has been conducted by the Ministry of Health, which showed that psychologists did not know the basic service of PHC comprehensively, so it inhibits the psychologists' role optimally (Ministry of Health, 2011). On the other hand, community and other professions working in PHC were not easy to accept psychologists due to a lack of understanding of psychologist's tasks and skills (Setiyawati & Subandi, 2019). While, according to the Health Profile of Sleman District in 2018 from the Health Agency of Sleman District (2018), it is known that psychologist visits in 2017 reaching 88% (231 persons per month) exceed the specified target of about 73% (110 persons per month).

However, there was insufficient monitoring and evaluation of psychologists' performance in mental health promotion programs at PHC of Sleman District, that data was very important to improve policy consideration to scale up this program at the national level. This study was expected to provide a comprehensive current overview about it. The study aimed to analyze psychologists' role in mental health promotion programs in the PHC of Sleman District based on four aspects of NPT.

One theory that can be used in this implementation research was Normalization Process Theory (NPT). NPT is useful for evaluating and understanding the implementation process specifically according to the context (Gillespie *et al.*, 2018; (C. R. May et al., 2018). This theory has been used to gather information about the implementation of broad and complex policies related to implications for related professions and service systems in the health context (C. R. May et al., 2018).

NPT theory is not prescriptive or rigid, so it is more flexible and dynamic in its use. Besides, this theory is quite complex because it can lead to a combination of practical and analytical aspects in viewing the implementation process (C. May & Finch, 2009). components in this theory can also be used as a reference to see the normalization of psychologists' existence in

the mental health promotion programs' implementation of at PHC (Gask et al., 2008).

METHODS

The study was located in the PHC of Sleman District, with two main locations that were A and B PHC. The study was conducted from February – April of 2019. The population of this study was the participant involved in the implementation of mental health promotion efforts in 25 PHCs in Sleman District. PHC was selected as the location of this study using extreme cases based on data of psychologist visits in 2018 (Palinkas *et al.*, 2015). Thus, two PHCs were obtained, namely A and B PHC. Besides, the selection of informants was conducted in purposive sampling by considering the parties involved and the information held about mental health promotion efforts at PHC (Creswell, 2014).

The informants were derived from the policymaker, program implementers, and program recipients (Peters, Tran and Adam, 2013; Widianto, 2015). In this study, policymaker was from the Health Office of Sleman. Besides, program implementers were the head of PHC and psychologist. While program recipients were consist of mental health cadres and local community. Total informants are 32 persons. In addition to the data, one focus group discussion was conducted with eight psychologists from other PHCs (excluded A and B PHC).

Table 1. Classification of Informants.

Backgroud	Position	Informant (Person)
Policymaker	Staff of Health Office of Sleman District	1
Program implementer	Head of PHC (A & B)	2
	Psychologist	10
Program Recipient	Cadre of mental health program	10
	Local community	9
Total of informats		32

It used a qualitative method with a case study design that refers to the real conditions which occurred according to the case context (Creswell, 2014; Yin, 2013). Data collection was done in two ways, i.e. in-depth interviews with one policymaker, two heads of PHCs, and two psychologists as the main informants of this study. Focus group discussion to eight psychologists outside the main informants, ten mental health cadres, and nine local communities for supporting and clarifying the data. Meanwhile, the instrument was using in-depth interview guidelines (Creswell, 2014; May and Finch, 2009; May *et al.*, 2015) and also focus group discussion (FGD) guidelines (Rietbergen-mccracken and Narayan, 1998; Creswell, 2016) about psychologists' role in mental health promotion program that conducted based on four aspects of NPT.

Ethics committee approval published by medical and health research ethics committee (MHREC) for this study with the number KE/FK/0208/EC/2019. Informed consent has been distributed and agreed upon by all informants. Data trustworthiness ensured by i.e.: (1) informant triangulation with various participants or using data sources triangulation (Saryono & Anggraeni, 2011) i.e. informant from policymaker, program implementers, and program recipients; (2) data collection, review, and analysis did by the researcher by self; and (3) some of the informant quotations were listed in this paper to support the authenticity of the study (Cope, 2014).

It used thematic analysis with a descriptive approach (Braun & Clarke, 2006) and it was an iterative process (Saryono & Anggraeni, 2011). The analysis began with preparing and organizing the

data according to the analysis unit; reading the data comprehensively as the basis of making code; creating the code, categorizing, and structuring the theme; describing the code results according to the theme and ensuring it; presenting the information according to the theme in narrative form with quotes, and interpreting the data (Creswell, 2014; Saryono and Anggraeni, 2011; Braun and Clarke, 2006). Data conformity ensured by using qualitative analysis software was Open Code 3-6 version.

The study's theme was based on the NPT consists of coherence, collective action, cognitive participation, and reflexive monitoring of psychologists' role in mental health promotion program in PHC of Sleman District. NPT is used in this study because it can be used in qualitative analysis with various kinds of interventions due to the high stable construct for various settings. This theory can be used to explain and guide the implementation process and also assist in drafting recommendations for improved implementation (McEvoy et al., 2014).

Detail explanation about the theme was: (1) coherence consists of differences in mental health promotion program with presence of psychologists, understanding the role of psychologists, and urgency of psychologists' role in mental health promotion program; (2) cognitive participation includes enrollment of participants involved with psychologist, each participants' contribution related to psychologists' role, and an agreement between psychologist and participants involved related to procedure in mental health promotion program; (3) collective action includes the rule related to the role of psychologists, unification of psychologists' role with the condition of PHC, cooperation between psychologist with participants involved, and the tasks distribution of participants involved including psychologist in mental health promotion program; and (4) reflexive monitoring consists of suggestion to improve the psychologists' role, assessment of the output of psychologists' role, and assessment of benefits and effectiveness of the psychologists' role in mental health promotion program.

RESULT

Based on the results of the checklist document, here are some mental health promotive programs that have been implemented as well as excellent programs in the work area of PHC A, displayed in the following table.

Table 2. Mental health program in A PHC.

Featured Programs	**Desa Siaga Sehat Jiwa (DSSJ)**	**Sahdu Sehati (Sekolah Peduli Kesehatan Jiwa)**
Program Description	Forming a mental health cadre to detect its citizens who have mental health problems.	Forming a mental health cadre in school so the school has the mental health awareness.
Funding	Yes	Yes
Planning	Yes	Yes
Progress Report	Yes	Yes
Program Scope	Community	Community
Program Management	Coordination	Coordination
Focus of Program	-Mental health awareness /anti-stigma -Suicide prevention	School-based mental health promotion

Featured Programs	Desa Siaga Sehat Jiwa (DSSJ)	Sahdu Sehati (Sekolah Peduli Kesehatan Jiwa)
	-Parents' health promotion	

A PHC had also held a program called Posyandu ODGJ (*Orang dengan Gangguan Jiwa* or People with Mental Health Problem) which was filled with one of the training activities to make or increase skills for mental disorders' people. An example of a training activity that had been carried out was making salted eggs.

Table 3. Mental health program in B PHC.

Featured Programs	Penyuluhan Kesehatan Jiwa	JIGO 25 (*Jiwo lan rogo* aku dan kamu peduli sesama)
Program Description	Providing information about importance of mental health for all ages. Besides, giving information about the type of mental disorder along with its symptoms and characteristics.	Psychic assistance in people with mental disorders.
Funding	Yes	Yes
Planning	Yes	Yes
Progress Report	Yes	Yes
Program Scope	Community and Regency	Regency
Program Management	Coordination	Coordination
Focus of Program	Mental health awareness / anti-stigma / safeguarding human rights	Anti-stigma / safeguarding rights human

In addition, in B PHC there was counseling on children's growth and development. It was done to optimize the growth and development of children's age. This program was also done in schools for teachers to monitor the growth and development of their students.

Community access to psychological services in A PHC was relatively easier compared to B PHC because there were mental health cadres in all villages of A PHC, while in B PHC still focused on one village. Cadres in A PHC were more evenly distributed and easy to reach the community in the working area of PHC. Cadres Were involved in activities related to mental health promotion programs both of A and B PHC. This is influenced by the geographical condition of the PHC's work area which in this case A PHC is relatively easier to reach by the community, while in B PHC there are hills that inhibit the community to access psychological services in PHC.

The coherence

Table 4. bellow refer to the coherence of psychologists' role in the mental health promotion program.

Table 4. The coherence of psychologists' role in the mental health promotion program.

Components of coherence	Quotations
Differentia-tion	"Moreover, we already had a psychologist in each of 25 PHC, do not let people with severe mental disor-ders with stigmatized" (policy-maker)
Communal specification	"When the patient needs a drug or runs out of drugs or anything, please to be asked me (psychologist) in Whatsapp personally" (4th-cadre)
Individual specification	"Sometimes had a psychologist to speak in an elderly forum" (head of B PHC)
Internaliza-tion	"Prepare the community to people with mental disorders who come home (already cured)" (psychologist of B PHC)

There was a perceived difference with the presence of a psychologist in PHC on mental health promotion programs by individual or communal. The psychologist was contributing to education, community visits, coordination, and services related to mental health in PHC. Besides, the urgency of psychologists' role was having a strong influence in the community, providing comprehensive services, and giving information about mental health.

The cognitive participation

This section explain about cognitive participation of psychologists' role in the mental health promotion program. According to the informant, there were various participants involved in mental health promotion program in PHC both from cross-profession such as general practitioners, mental nurses, health promoters, nutritionists, midwives, etc. and cross-sectors such as village officials and sub-district officials, social office, police, non-governmental organization, etc.

Table 5. The cognitive participation of psychologists' role in the mental health promotion program.

Components of cognitive participation	Quotations
Enrollment	"Village official, parents, society, cadres also" (3rd-cadre)
Activation	"So, the coordination meeting of cadres" (4th-community representative)
Initiation	"There is technical guidance" (for psychologists) (policy-maker)
Legitimation	"So, there is the plan of action of each program" (head of A PHC)

The role of program recipients were cadres coordinating with a psychologist, assisting program implementation, approaching patients, making patients' reports, applying for funding, attending the training, and police join to accompany the patients' treatment. Besides, the role of policymaker and program implementers were policymaker facilitate the capacity building of psychologists, psychologists have been conducting education and socialization about mental health, and PHC has involved the psychologist in inter-profession service. Besides, agreements between the psychologist and other participants were written form such as the term of reference (TOR) and plan of action (POA), as well as not written form such as compromising with other health workers and forum discussion with stakeholders.

The collective action

Collective action of psychologists' role in this case show in the table bellow.

Table 5. The collective action of psychologists' role in mental health promotion program.

Components of collective action	Quotations
Skillset workability	"Each psychologist has the same job description" (B PHC's psychologist)
Contextual integration	"We always hold (cross-sector) meeting every month routinely" (head of B PHC)
Interactional workability	"Then we (psychologists) doing community visiting tentatively" (8th-psychologist)
Relational integration	"Usually, if we (psychologists) feel that community case needs the other professions, we will invite them to join home visit with us" (A PHC's psychologist)

There was coordination between psychologists and participants involved. The rule related to psychologist's roles, such as job descriptions and minimal service standards. Besides, the unification form of psychologists' role such as strengthening cadres' role, coordination with participants involved, and adapting with PHC conditions in program planning. Also, psychologists were already coordinated with internal and external participants in PHC and they build good communication. Task distributions of participants involved are each profession based on each competency, as well as each external participant based on potencies related to mental health problems.

The reflexive monitoring

Reflexive monitoring of psychologists' role in the mental health promotion program explain in this section. PHC was used assessing cadres' performance, assessing the change of patients with mental health problems, analyzing the psychologist's performance and psychologist's visit, and hearing cross-sector responses in health office forum.

Table 6. The reflexive monitoring of psychologists' role in the mental health promotion program.

Compo-nents of reflexing monitoring	Quotations
Reconfigu-ration	"(Psychologists) need more communication, need to meet and to share each other" (4th-psychologist)
Communal appraisal	"Psychological role evalua-tion..from the (change of) patient itself" (9th-cadre)
Individual appraisal	"From PHC there is a monthly report" (psychologist of A PHC)
Systemati-zation	"Oh very helpful and we are good in coordination" (policy-maker)

Advice to improve the psychologists' role was an initiation of implementer team of mental health community at PHC level, the addition of psychologist quantity in PHC, intensive communication among psychologists, routine reporting of the psychological service, optimization of technical guidance for psychologists, and optimization of media about mental health. Besides, the usefulness of psychologists' role were socialization about mental health, data collection of problems in mental health, and contribution in decreasing the rate of mental health cases.

DISCUSSION

This study showed several findings related to psychologists' role in mental health promotion program at PHC. A and B PHC were have and done mental health promotive program such as *Desa Siaga Sehat Jiwa, pSahdu Sehati, Penyuluhan Kesehatan Jiwa,* and *JIGO 25*. The psychologists' role in A and B PHC either the other PHC in Sleman were have the coherence, cognitive participation, collective action, and reflexive monitoring related to mental health promotion programs.

Differences that felt by informant related to psychologists' role due to a psychologist can contribute to various levels of health services including primary health care (Seidl et al., 2019). Understanding of psychologists' role i.e. the role related to patients, society, and health care (Setiyawati et al., 2015). A psychologist should be prepared with various challenges both in internal and external PHC (Johnson & Marrero, 2016). The urgency of psychologists' role due to psychological assessment and intervention that affect the number of mental health problems (Tay et al., 2018).

Various community health workers (CHWs) can be involved in health efforts (Surjaningrum et al., 2018). Related to this mental health promotion program, it was needed the community collaboration to identify and overcome barriers of participation (Tynan, 2016). The involvement of health care professionals, social organizations, and stakeholders is required in mental health promotion programs (Supper et al., 2014). There has been an agreement between psychologists and participants involved both in writing such as TOR and POA as well as not written such as compromise with other health workers and discussion forum activities. Similarly, agreement is required in medical and mental health services (Kroenke & Unutzer, 2017).

Rules related to the role of psychologists at PHC like competencies of psychologists (McDanie et al., 2014). Integrating mental health services is one way that can be done to align psychologists' role in implementation of the mental health promotion program (Miller-Matero et al., 2018). Cooperation between government, health care service, and health funding providers has an impact on decreasing the risk of death and incidence of disease (Holt-Lunstad et al., 2017). Each participant has its functions ranging from planning to evaluation (Petersen et al., 2016).

Media of mental health promotion programs can be utilized for communication in delivering health messages (Bartholomew et al., 2006). Training can develop a psychologist's competence in mental health services (McConville et al., 2017). One of the competencies that a psychologist should have is to evaluate the achievement of the program (Setiyawati *et al.*, 2015; McDanie *et al.*, 2014). Also, there is a performance evaluation of psychologists. Similarly, the assessment of the capacity of mental health officers in the USA has been conducted through skills assessment applied by mental health experts with several indicators (Jessica V et al., 2021). The benefit of psychologists' role felt in exploring one's psychological potential related to improving the quality of life (Gupta et al., 2019).

Coherence aspect from psychologits' role in mental health promotive program show that there are mental health promotion program in A and B PHC, mental health education and community visits in working area of the PHC, mental health coordination and services in both of PHCs, and than psychologist' giving influence, service, and information about the mental health in PHC.

The cognitive participation of the psychologist in PHC related to the mental health promotive program such as there are participation from internal and external

participants of the PHC, mental health cadres and community contribution, the role of health office and PHC, and also there is an agreement with internal and external participants of PHC.

Besides, related to collective action of psychologits' role in mental health promotive program are job description and minimal service standard in PHC, cadres strengthening, coordination, and adapting to the PHC condition, there is coordinating with cross-profession and cross-sector to realize the promotive program of mental health, and there is the reporting and task distribution of cross-profession and cross-sector in the program.

The reflexive monitoring aspect show that there is the suggestion and expectation of psychologists' role, asessment of the role of cadres and patients with mental health problem, assessment of psychologists' role, and socialization, data collection, and decreasing cases.

Based on the results, the figure below describes psychologists' role in mental health promotion comprehensively based on the NPT components at PHC in Sleman District including A and B PHC.

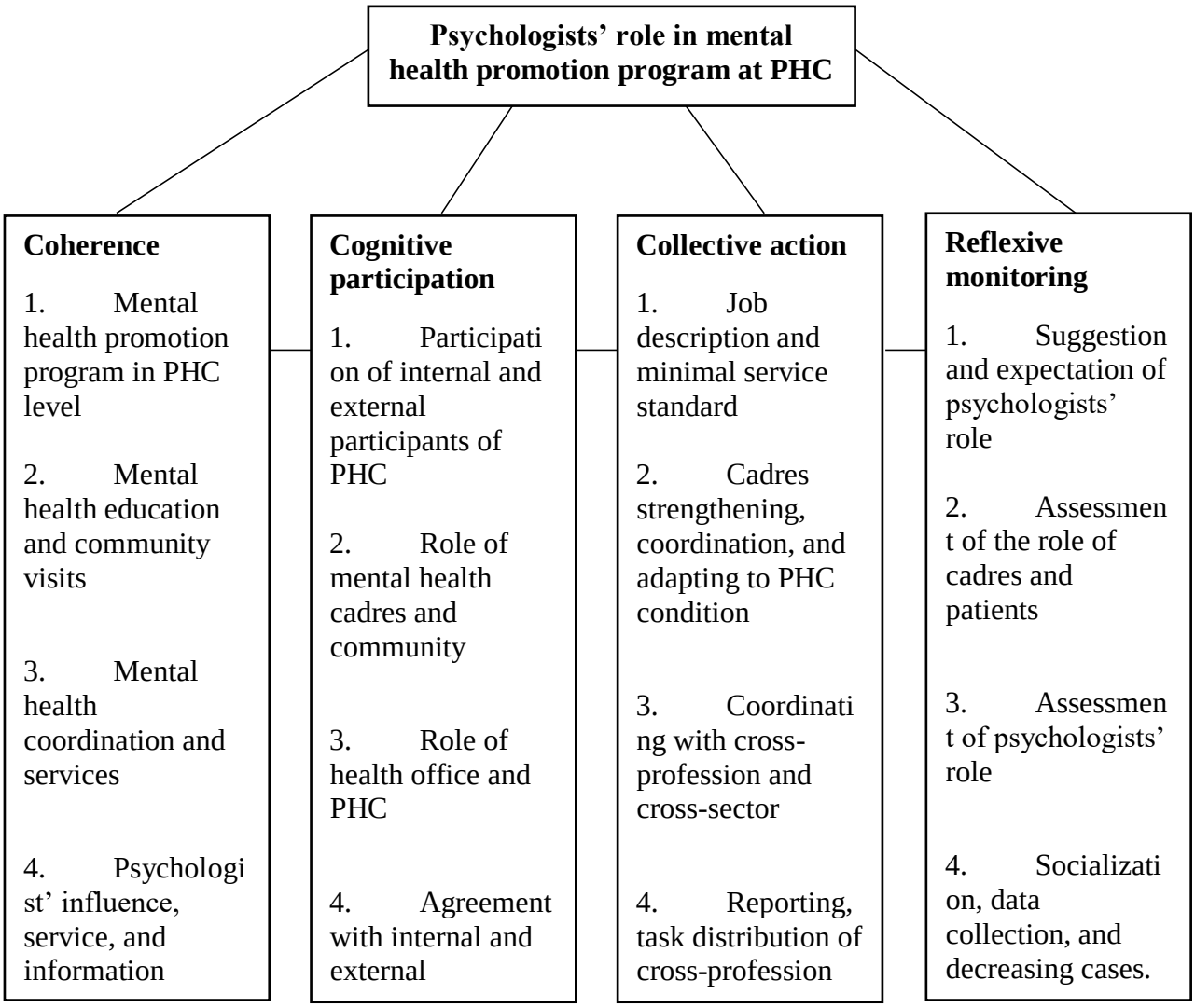

Figure1. Psychologists' role on mental health promotion program in PHC based on NPT.

The implications of this study are given a description and being reference related to psychologists' role in mental health promotion program at PHC based on the NPT. Integrating healthcare providers or professions is necessary for primary health services (Hall et al., 2015). NPT can pprovide explanations on some aspects of psychologists' role in mental health promotion efforts (Nilsen, 2015). Besides, practically, this study is one of PHC analysis due to psychologists' achievements in mental health promotion program all this time especially in Sleman District related to the policy of psychologist placement at PHC.

The strength of this study is to take a fairly varied data source from policymaker, program implementer, and program recipient. In addition, this study is implementation research, so as to know the current real conditions. Meanwhile, the weakness of this study is that the main research location is only in two PHCs. So, it can't describe the conditions in Sleman District comprehensively, but explain the role of psychologists in mental health promotion programs in accordance with the context on their respective PHCs.

CONCLUSIONS

Psychologists providing education, community visits, and services related to mental health promotion programs in PHC. There was participation from internal and external of PHC. Besides, there was a coordination of psychologists in cross-profession and cross-sector in PHC. Assessment of a psychologist is coming from internal or external of PHC. Meanwhile, the suggestions based on this study i.e. (1) The Health Office of Sleman District can initiate the addition of psychologists in PHC, increase the interpersonal communication of psychologists, and upgrading knowledge of psychologists; (2) The PHC of Sleman District can initiate a mental health forum; (3) The psychologist can optimize the ability in technical training and follow the other seminar and training; (4) The community can maximize psychological services. 5. Other researchers can continue this study with more variation of informants, or do the same study in another location.

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