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FACTORS AFFECTING THE COMPLIANCE OF MYANMAR NURSES IN PERFORMING STANDARD PRECAUTIONS

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ABSTRACT
Introduction: Exposure to pathogens is a serious issue for nurses. The literature explains that standard precautions have not been taken consistently in nursing. The purpose of this study was to analyse the factors affecting the compliance of nurses in Myanmar in taking standard precautions. **Methods**: This study used a cross-sectional design. Samples included 34 nurses in Waibagi Specialist Hospital (SHW), Myanmar. The independent variables were the characteristics of nurses, knowledge of standard precaution, and exposure to blood/body fluids and needle puncture wounds. The dependent variable was the performance of standard prevention. Data were analysed using descriptive analysis and logistic regression. **Results:** The results showed that almost respondents (91.18%) had a good knowledge of prevention standards and 73.5% of respondents had good adherence in taking standard precautions. However, in practice, nurses have not been consistent in closing the needles that have been used correctly. The results showed that nurse characteristics did not significantly affect adherence to standard precautions with statistical test results as follows: age (p = 0.97), gender (p = 1.00), religion (p = 0.72), education (p = 0.85), work experience at SHW (p = 0. 84), education training program (p = 0.71), knowledge (p = 0.76), and needle stick injury (p = 0,17). But, there was a significant influence between adherence to standard precautions and the incidence of injury due to needle puncture with p-value = 0.01. **Discussion:** The barriers to applying standard precautions by Myanmar nurses can be reduced by providing basic training, supervision, and improvement of standard operational procedures.

Keywords: Standard precautions, knowledge, obedience

INTRODUCTION

Health care worker (HCW) exposures and potential exposures to pathogens are widespread (Karmon, Mehta, Brehm & Dzurenko, 2013; Henderson, 2012). Globally, in 35 million HCWs, about 3 million receive percutaneous exposures to bloodborne pathogens each year, and about 40% of HBV and 40% of HCV infections and 4.4% of HIV infections in health care workers are attributable to occupational sharps exposure among health care workers (WHO, 2002). Almost all health care workers are at risk of exposure to these pathogens, but among those, nurses are the group that is most affected (Yang *et al*., 2013). It has been estimated that > 50% of nurses will experience at least one needle stick injury in their careers (Rhode & Dupler, 2013).

Compliance with standard precautions has been shown to reduce the risk of exposure to blood and body fluids (Parkin, 2012). However, some studies show that compliance with standard precautions among nurses is still sub-optimal and inconsistent (Efstathiou, Papastavrou, Raftopoulos & Merkouris, 2011a; Gebresilassie, Kumei & Yemane, 2014; Punia, Nair & Shetty, 2014; Eljedi & Dalo, 2014; Jackson, Lowton & Griffiths, 2014; Takimani, 2015; Abu Bakar, Haruna, Teryila, Hamina & Ahmadu, 2015).

In Myanmar, some studies show that most HCWs in Myanmar have high knowledge and a positive attitude, but compliance with universal precautions/standard precautions is inconsistent (Shwe, 2007). This is a similar finding to that of Thu (2012) who stated that knowledge of universal precautions already high, only (37.4%) of HCWs (including nurses) had a high compliance score at Yangon Orthopedic Hospital and Khine (2007). Thu also found that most nurses had good knowledge levels but only 49.2% of nurses had good adherence to universal precautions in 300 Beds Teaching Hospital, Mandalay, Myanmar.

In Specialist Hospital Waibagi (SHW), the results of an initial collection of data (preliminary study) on 7 to 8 December 2016, showed that around half of the nurses exposed to the blood and body fluids of HIV infectious patients (40%) and needle stick injury during recapping needle within one year was 12.5% among nurses. Through telephone interview with one of the nurses in SHW regarding compliance with standard precautions, it was shown that her experience of nurses' compliance with standard precautions was inconsistent and the major reasons were that they had forgotten to wear gloves and wash hands, available resource storage is a little far from where nursing care is provided, there are time constraints and emergency situations.

There is a very limited previous study analysing the factors affecting compliance with standard precautions among nurses in Myanmar. The results of this study will be applicable in determining a strategy for improving health behaviours and the development of an infection control program to prevent occupational exposure to pathogens. Therefore, the researcher aims to examine nurses' compliance with standard precautions and analyse factors affecting compliance with standard precautions.

METHODS

In this study, an explanatory research design was used to explain and explore the affecting factors of compliance with standard precautions. There were two phases with a cross-sectional study to formulate the strategic issues in the first phase of study. The sample size was 34 nurses who are working in SHW and, except for a nursing officer (Matron), they were recruited and this research was conducted during March 2016 to April 2016. The dependent variable was compliance with standard precautions, while the independent variables were characteristics of nurses, knowledge of standard precautions, experienced exposure to blood/body fluids and needle stick injury. The instruments used to measure the level of basic knowledge, and compliance with standard precautions was structured questionnaires. The data were collected and analysed using descriptive and logistic regression with a significance level of $\alpha \leq 0.05$.

Ethical Clearance

The study was approved for protection of human rights and welfare in medical research by the Ethical Committee of the Faculty of Nursing Universitas Airlangga, Surabaya, Indonesia No 120-KEPK and the Department of Health Professional Resource Development and Management, Department of Health, Ministry of Health and Sports Nay Pyi Taw, Myanmar. As this project was part of a Masters thesis, the protocol was reviewed, evaluated and approved by a supervisory committee. The completion of questionnaires was considered as informed consent for participation. The participants were free to participate in or withdraw from the study; anonymity and confidentiality of the participants' information was strictly maintained.

Data Analysis

The statistical package for the social sciences (SPSS) version 23.0 was used to analyse the data. In descriptive statistics, the scoring of knowledge involves 10 questions, with each question rated as giving 1 mark for the correct response and zero scores for incorrect and no response, and for the score of compliance with standard precautions, it was rated on a Likert scale (1=never, 2=seldom, 3=sometimes, 4=often and 5=always), while for negative statemeng were the conversely. The categories for knowledge for compliance with standard precautions were: low: ≤ 5.5, enough: 5.5-7.5, good: >7.5. For compliance with standard precautions they were: poor: ≤90, good: >90. In inferential statistics, logistic regression was used with a significance level of $\alpha \leq 0.05$.

RESULT

The Content Validity Index (CVI) was determined and all items were ≥ 0.98, evidence that a CVI of at least 0.80 is considered to be a good criterion for accepting an item as valid (Davis, 1992). Moreover, the Cronbach's alpha was also determined by the response to all questionnaires by using the Likert-type response format. It was found to be > 0.70, evidence that the questionnaires had an acceptable level of internal consistency (Bowling, 2009).

Demographic Characteristics of Nurses

Demographic characteristics of 34 participants were age, gender, religion, nursing education, working experiences at SHW, education and training. The mean age of participants ranged from 22 to 57 years and the majority of participants (50%) were in the 26–35 year age group. In terms of gender, almost all (97.1%) participants were females and only one was male. Most of the participants (85.3%) were Buddhist and the remaining participants (14.7%) were Christian. More than two thirds (67.6%) of them were bachelor degree holder and one third had a diploma degree. Total service of participants ranged from less than one year to 19 years and two thirds of participants had 5 to 10 years of service in SHW and only

20.6% attended educational training for infection control locally or internationally.

Compliance with Standard Precautions

For overall compliance with standard precautions, analysis data showed that 73.5% of participants had good compliance and 26.5% participants had poor compliance with standard precautions practice in this study. Specifically, all participants had good practice for hand washing and gloving as 100% of participants reported good compliance in each. On the other hand, practice of safety glases was very poor since 100% participants described poor practice and no participant always used an eye shield. In wearing a mask and following safety measures for sharp handling practice, only 8.8% and 17.6% responded positively indicating poor compliance (Table 3).

Major Reasons for Non-Compliance with Standard Precautions

Most reasons for non-compliance with standard precautions in this study were emergency situations, workload, recapping needles, that it is unusual to wear eye shields, that nurses forgot to wear gloves and wash hands, that it is uncomfortable to use personal protective equipment (PPE) and a poor fit, availability of resources storage is a little far from where nursing care is provided, and time constraints. Therefore, factors affecting compliance with standard precautions should be explored to improve nursing staff's compliance with standard precautions.

The Effects of Characteristics of Nurses, Exposure to Blood/BodyFluid, Needlestick Injury and Knowledge of Compliance with Standard Precautions

Statistical test results using logistic regression showed a significant value in exposure to blood/body fluids p=0.01, characteristics of nurses such as age p=0.97, gender p=1.0, religion p=0.72, nursing education p=0.60, working experience p=0.84, and educational training program p=0.71, knowledge of standard precautions p=0.76, and needlestick injury p=0.17, did not show a significant effect on compliance with standard precautions (Table 4).

Table 1. Level of Knowledge of Standard Precautions

No	Knowledge	Total frequency	Percentage (%)
1	High	32	94.11
2	Average	2	5.89
3	Low	-	-
	Total	34	100

Table 2. Experienced Exposure to Blood/Body Fluids and Needlestick Injury among Nurses in SHW

No	Structural variables	Category		Total F(%)
		Yes F(%)	No F(%)	
1	Exposure to blood or body fluids	15 (44.12)	19 (55.88)	34 (100)
2	Experienced needlestick injury	5 (14.71)	29 (85.29)	34 (100)

Table 3. Overall Compliance and Specific Compliance with Hand Washing, Gloving, Wearing Mask, Eye Wearing, Safe Sharp Handling

No	Compliance with SP	Good F (%)	Poor F (%)	Total F (%)
1	Overall compliance	25 (73.5)	9 (26.5)	34 (100)
2.	Hand washing	34 (100)	0 (0)	34 (100)
3.	Gloving	34 (100)	0 (0)	34 (100)
4	Wearing mask	31 (91.2)	3 (8.8)	34 (100)
5	Eye wearing	0 (0)	34 (100)	34 (100)
6	Safety sharp handling	28 (82.4)	6 (17.6)	34 (100)

Table 4 The Effects of variables on Compliance with Standard Precautions

Variables	B	S.E	Wald	df	Sig.	95% CI for odds ratio
Age	1.10	1.723	.000	1	0.97	1.01
Gender (male/female)	0 -19.91	40192.99	.000	1	1.00	.000
Religion	0.530	1.453	.133	1	0.72	1.70
Education	3.625	1.202	.271	1	0.60	.535
Service at SHW	4		.816	3	0.84	
Training (yes/no)	0-626	1.698	.136	1	0.71	.535
Exposure (yes/no)	2.559	.993	6.642	1	.010	12.929
Needle Stick Injury (yes/no)	-1.747	1.299	1.808	1	.179	.174
Knowledge (good/average)	-474	1.557	.093	1	.761	.622

DISCUSSION

In this study, regarding overall compliance with standard precautions, almost three-quarters (73.5%) of participants showed good compliance among Myanmar nurses in SHW. In Myanmar, this result compared favorably with other studies that reported 62.6% of nurses had good compliance among 92 participants in Yangon Orthopedic Hospital (Thu, 2012) and 49.2% of Myanmar nurses were found to have good compliance in Mandalay, 300 Beds Teaching Hospital (Khine, 2007). International studies reported that 59.4% of nurses presented a high mean score of adherence to standard precautions in a university hospital in Brazil (Toffan *et al*., 2011), HCWs (including nurses) had good compliance in Ethiopia (42.9%) (Gebresilassie *et al.,* 2014) In contrast, it is still lower than the rate of compliance reported by 32 hospital nurses in Cyprus (100%) (Efstathiou *et al*., 2011b), 120 nurses in Iran whose copmpliance was 97.5% and among 1444 clinical nurses from 18 hospitals in Hunan, China (95%) (Luo, He & Zhou, 2010).

Specifically, with regard to hand washing, all participants (100%) self-reported as having good compliance with hand washing, and only 5.88% participants self-reported that they seldom wash their hands before and after giving care to the patient. These findings strongly approve the statement that hand washing should always be carried out before and after the provision of care as it reduces the count of microorganisms on one's hands, protecting both healthcare professionals and patients from the spread of infection (Apostolopoulou, Raftopoulos, Terzis, Pissaki & Pagoni, 2010).

Regarding gloving in practice, there was also good compliance with gloving (100%) in this study. While drawing patient's blood participants (81.2%) always and only (8.8% of the time) sometimes wear gloves. These are not similar findings as one-third of participants reported that they did not always wear gloves when exposure was likely to happen (e.g. during the drawing of blood) among Cypriot nurses (Efstathiou *et al*., 2011a). However, it was consistent that gloves were used while drawing the blood (81.0%) and during instances when coming into contact with mucous membranes or non-intact skin of the patients (88.3%) (Punia *et al*., 2014)

In contrast, the practice of wearing safety glasses was very poor since all participants described compliance with safety glasses as there was poor compliance and no participant always used an eye shield during nursing caring procedures that may lead to the splashing of blood and body fluids. Similarly, Takimani (2015) found that only 5.6% of participants used eye protection and the most neglected personal protective equipment in a high-risk procedure is eyewear among nurses in Nairobi. Punia *et al.* (2014) also mentioned that only 22.2% of participants always wear eye protection in an emergency and Trauma Triage Centre from South India. This does not comply with the infection control manual, 2014 that protective eyewear must be worn while performing any procedure where there is a likelihood of splashing or splattering of blood or other body substances (Infection Control Manual, 2014). This practice leads to the greatest hazard in terms of the possibility of splash or splatter to nurses' eyes that can increase occupational exposure.

With regard to wearing a mask, most participants reported satisfactory good practice (91.2%). They may believe that a face mask can prevent the inhalation of air-transmitted micro-organisms and they are highly recommended when the exposure to such microorganisms is anticipated (Siegel & Rhinehart, 2007).

Safety sharp handling practice also showed good compliance (82.4%) among nurses in this study. When at work nurses always disposed of all potentially contaminated materials in a red (and/or labeled) bag for disposal as biomedical waste and they always discarded the sharp objects in puncture resistant sharps containers (73.5%). Similarly, the majority (95.7%) of participants answered that nurses always discarded used sharp objects into a sharps container among Cypriot nurses (Efstathiou *et al*., 2011a) This behaviour is in accordance with the requirements of standard precautions, which require such action to prevent the risk of danger of injury for the safety of all healthcare workers. However, Punia *et al*. (2014) reported improper disposal of sharps among the healthcare workforce in a trauma care setting in South India.

A used needle poses a serious danger from needlestick injury (Schmid, Schwager & Drexler, 2007). Used needles should never be recapped, as this could lead to a needlestick inury. Statistical test results using logistic regression showed significant value in exposure to blood/body fluids $p = 0.01$, ($p \leq 0.05$). Unfortunately, two thirds of participants self-reported that nurses always recapped needles before discarding them in this study.This finding agreed with other studies in Myanmar; it was surprising to find that a significantly large proportion of respondents (94.9%) recapped the needle after use (Shwe, 2007) and 89% recapped and more than half of the respondents had experience of needlestick injury (Thu, 2012).

Some studies from other countries, Punia *et al*. (2014) reported inadequate needle safety precautions among the healthcare workforce in a trauma care setting in South India. Before they discarded needles, 43.7% of the respondents did not always avoid recapping a used needle according to the study of Cypriot nurses (Efstathiou *et al*., 2011a) and Reda *et al.* (2010) also demonstrated needle recapping (46.9%) by healthcare workers (including nurses) in Ethiopia.

In contrast, the practice of recapping used needles was uncommon, (94.4%) amongst participants disposing of the syringe and needle immediately into puncture resistant containers without recapping among nurses in Nairobi (Takimani, 2015). Abubakar *et al.* (2015) also found that among nurses working at the Federal Medical Centre Gumbo, Nigeria, the majority (76.25%) of the respondents did not recap the needle after use and most respondents (80%) disposed of used syringes and needles in the safety box.

In this study, the practice of recapping needles was not satisfactory. It causes a very dangerous situation for HCWs. Used needles should never be recapped, as this could lead to a needlestick injury. Consequently, it is apparent that recapping a used needle poses a high risk of needlestick injury among nurses in SHW.

The Effects of Characteristics of Nurses on Compliance with Standard Precautions

This current study reported that there was no significant effect between compliance with standard precautions and characteristics of nurses in terms of age, gender, religion, years of experience, nursing education and education training. Osborne (2003) in Australia, Demir (2009) and Hosoglu *et al*., (2011) in Turkey found that there was a relationship between the low compliance rate and the participant's demographic characteristics in terms of age, gender and religion. This is consistent with Ayed, Equait, Fashafsheh and Ali's (2015) study in Palestine and Fashafaheh *et al*.'s study in Egypt (2015) according to age, gender, years of experience, nursing education, education training but is inconsistent with Ayed *et al.* (2015), Efstathiou *et al*.'s, study (2011a) and Mortada & Zalat's (2013), in terms of gender. Moreover, inconsistently, Abubakar *et al*.'s (2015) study in Nigeria and Efstathiou *et al*.'s (2011a) study in Cyprus showed that the longer years of experience nurses had working, the more frequently they would follow standard precautions.

In addition, Efstathiou *et al*. (2011a) showed that educational programs can influence nurses' compliance levels and persuade them to use standard precautions more frequently. According to Luo *et al.*, (2010), the education and health promotion needed to make nurses comply with standard precautions are constant

training and provision of continuous seminars especially if these training sessions become a compulsory requirement for nursing staff in hospitals.

CDC (2013) also asserted that education on the basic principles and practices for preventing the spread of infections should be provided to all heath care professionals. Furthermore, the CDC (2014) stressed that education and training should be conducted on a regular basis (e.g., annually) to maintain competency. In this study, only less than one-fifth of participants received educational training about infection control workshops. This is a very small amount of education programs for nurses in SHW who are caring for patients with HIV and AIDS, with opportunistic infections such as Tuberculosis, Hepatitis B, Hepatitis C and other contagious diseases.

Concerning Effect of Knowledge, Exposure and Needlestick Injury

Almost all (91.18%) of the participants were found to have a high level of knowledge, and this satisfactory knowledge was found to be higher than the similar report before. A study by Thu (2012) in Myanmar revealed that 68% of participants were reported to have high knowledge of standard precautions. Ayed *et al*. (2015) in Palestine found about three quarters (76%) of the respondents had good and fair knowledge of standard precautions. And Abu Bakar *et al.* (2015) in Nigeria reported that 28.75% of the participants had good knowledge of the components of standard precautions.

This study also demonstrated that knowledge of compliance with standard precautions and needle stick injury were not statistically significant on compliance with standard precautions. In contrast, different studies have indicated that a high level of knowledge of standard precautions was a significant predictor of better compliance with standard precaution practices (Hinkin & Cutter, 2014; Mitchell, Say, Wells Wilson, Cloete and Matheson, 2014). The influence of knowledge and training were the predictors for nursing students' compliance with standard precautions among nursing students in China (Cheung *et al*., 2015). Moreover, it should be the nurse who has experienced needlestick injuries, the fear of lethal infection who is more frequently willing to follow the precautions and more careful to protect their life from hospital infections. It is urgently necessary to improve nurses' behaviour that is at high risk of getting exposed to blood-borne infections (HIV, HBV and HCV).

The results of parameter estimations indicated that there is a statistically significant effect of exposure to blood/body fluids on compliance with standard precautions ($p = 0.01$, $p \leq 0.1$). Inconsistently, Efstathiou *et al*. (2011) and Mortada & Zalat (2014) also stated that their study detected a high level of self-reported exposure to blood and body fluids that was significantly different among noncompliant compared with compliant participants. In agreement with another study among HCWs in Ethiopia (Reda *et al*., 2010) the regression model indicated that HCWs who regularly apply standard precautions reduced their exposure to incidents by 20%.

In this study, almost half of the nurses in SHW had exposure to blood/body fluids. Even though nurses were exposed to infected blood/body fluids, nurses still attributed risk perceptions. Nurses did not always use PPE and focused on work accomplishment rather than their own safety.

However, there are some limitations that dictate caution in the interpretation of the results of this outcome data. Even though the samples size is strongly and completely representative for all nurses in Specialist Hospital Waibagi, it cannot be generalised to all hospital settings. While collecting the data, there were some nurses leaving for vacation and going back home, causing separate data collection which leads to a possibility of data collection bias.

CONCLUSION

The results of this study showed that nearly all respondents had a good knowledge of the standards for prevention and the majority of respondents had good adherence to standard precautions, but the prevention of injuries from needle puncture still low among Myanmar nurses in SHW. The characteristics of nurses such as age, gender, religion, nursing education, working experience and educational training programs, knowledge of standard precautions and needlestick injury did not significantly affect compliance with standard precautions. Nurses who have experience of being exposed to a needle prick when performing nursing actions provide significant results in terms of compliance.

Nurses should always be alert for infections, prohibited from recapping used needles, anticipate all personal protective equipment and need to take part in continuous education and advance knowledge.

Nurse managers and senior nursing officers need to continuously remind HCWs to follow compliance with standard precautions and update information on CNE (continuing medical/nursing education) about infection control and get feedback from all nurses every month.

Health authorities should provide adequate human and material resources, mandatory seminars/workshops and internal and external motivations for quality health care, a safe occupational environment and reducing identified standard precaution barriers. Assessment of exposure, and checkup for all HCWs needs to be introduced at SHW.

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THE EFFECTIVENESS OF MANGOSTEEN PEELS EXTRACT AGAINST THE TOTAL OF T LYMPHOCYTES IN HIV PATIENTS

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ABSTRACT

Introduction: The Province of West Java is one of the highest HIV sufferers in Indonesia that has increased accumulatively in 2013 to 2014. This condition was proven that in 2014 West Java ranked 4th among the provinces with the highest HIV sufferers in Indonesia. HIV has main target to infect a cell that contains of receptor, CD4. CD4 examination routinely is very important to decide HIV replication process. Meanwhile, CD4 test in the laboratory is quite expensive and not always available in every health facilities. Mangosteen peels extract contains of xanthones as an antioxidant, which is needed for body as a prooxidant that can inhibit the replication of HIV and the activity was seen from the total number of lymphocyte. **Method:** The human experimental research has been done by Randomized Control Group Pretest-Post Test Design. There were 20 patients sample for each group. In group 1, HIV patients with ARV therapy were given mangosteen peels extract and in group 2, they were given placebo capsule. Wilcoxon Smith test and Mann-Whitney U test were used to determine the difference between group 1 and group 2. **Result:** There is no significant difference between lymphocytes (p: 0.102) to HIV patients with ARV in each group examination. Discussion: The ineffectiveness is caused by the phagocytosis and cytoxity of TNF through the increasing of free radicals in HIV patients.

Keywords: Mangosteen peels extract, lymphocytes

INTRODUCTION

Nowadays, one of the major public health problems for the world is an epidemic of Human Immunodeficiency Virus /HIV infection (Swity et al. 2016). In Indonesia, the number of HIV sufferers is increasing every year. West Java got 4th rank with the highest HIV sufferers among the provinces in Indonesia with the cumulative number of HIV cases: 9340 people, while the number of AIDS patients were reported until 2013 amounted to 4131 people (Spritia Y & KPA Central Java, 2014). Then, an increasing number of HIV/AIDS people were reported till September 2014 are 13.507 and people with HIV: 4.191.

This retrovirus changes ribonucleic acid (RNA) into deoxyribonucleate acid (DNA) after enter to the host cell. Viral genetic material inserted to the infected DNA cell. The main target is CD4, the cells that have receptors (Nakatani et al. 2002). Therefore, the ARV therapy and CD4 examination routinely in patients are very important to detect HIV viral replication process. Health services such as BJPS has helped people with HIV to get a free CD4 examination, but not all of them get these services (Swity et al. 2016). The CD4 examination is classified into expensive laboratory tests, especially if the examination is required as a routine examination. Moreover, it is not always available at each health facilities. The previous study by Swity (2016) reported that there was a significant correlation between the total numbers of T cell lymphocytes in patients with HIV in Hasan Sadikin Hospital, Bandung. It shows that the examination f immune cells (T cell lymphocytes) is also important when health facilities are limited (Swity et al. 2016). The reports from previous researchers informed that the elevation of T lymphocytes total count depicts the level of the immune system (Ghate et al. 2011). It has reported that the total number of T lymphocytes associated with the level of human body immunity, but the total number of T lymphocytes in immune relate to HIV patients are still rare. The number of T lymphocytes can replace in monitoring the treatment for HIV patients is not clear enough, but logically the total count of T lymphocytes had a scientific base in HIV patients immune monitor.

Mangosteen fruit is one of the diversity floras from Indonesia that has a potential to be a medical plant. The skin of mangosteen fruit contains of xanthones as an antioxidant that is needed in human body as a prooxidant balance (reducing radicals, oxidizing radicals, carbon entered, UV light, metal, etc.) that can inhibit the replication of HIV and the activity T lymphocyte as immune

cells play a role in balancing prooxidant (Chen et al. 1996). The medicinal plants can be adjuvant treatment. Researchers hope mangosteen peel extract as an antioxidant can be used as a complementary medicine jointly with the provision of antiretroviral drugs/ARV. The expectation from this study, there is an effectiveness of mangosteen peel extract to the total number of T lymphocytes in HIV with ARV therapy, to improve CD4 cell and also improve health services, especially to decrease the risk of co-infection in people with HIV.

METHODS

Experimental research in human used Double Blind Randomized Pretest-Post Test Control Group Design (HIV patients with antiretroviral therapy in RSUD Gunung Jati, Cirebon, West Java). The total number of respondents were 40 patients, chosen by inclusion and exclusion criteria. 40 patients were divided into 2 groups, treatment group and placebo group. Treatment group was 20 patients who got 90 capsules of mangosteen peel extract for each patient and placebo group was 20 patients who got 90 placebo capsules for each patient. Grouping was done by simple randomized sampling technique. All respondent consumed the capsule 3 times a day (in the morning, in the afternoon, and at night). Researchers also did the blood test twice for both groups. It was before and after getting the treatment for 30 days. The blood test was used to know the total number of lymphocyte differences between treatment group and placebo group.

The results of a descriptive analysis will be presented in tabular form.For identifying the differences between treatment and placebo group, the researcher used Mann-Whitney test and for pre and post test used Wilcoxon Smith test. Data is considered as a significant difference when the value ($p < 0.05$) with 95% confidence level. The study was conducted after obtained approval from Health Research Ethics Committee of Medicine Faculty, University of Diponegoro and dr. Kariadi, Semarang.

RESULTS

The basic characteristics of research subjects as shown in table 1 describes the same starting point in each group (treatment and placebo).

After determining the data equality and got the result of pre-post test examination, the changes of median value were presented from each group. The data was presented in median value because the data distribution was not normal. Table 2 showed that there was a decline median value in treatment group and placebo. Changes of this data will be the basis for comparative tests between pre and post-test in each group, as well as a comparison between the treatment and placebo group in pre-test and post-test.

Table 1. Characteristics of Basic Research Subjects

Characteristics	The total number of research subjects (n=40)	Treatment (n=20)	Placebo (n=20)	Difference test (*p*)
Age (±SD)	34,10+5,93	33,25±5,17	34,95±6,63	0,464
Sex (%)				0,744
Male	62,5	60	65	
Female	37,5	40	35	
The average of CD4 (mm3) (±SD)	406±148	373 ± 28	438 ± 36	0,172
Time using ARV (tahun) (±SD)	3,55+2,3	3,1±2,31	4,0±2,27	0,135
Weight (kg)	58,23±11,11	58,3±10,6	58,15±11,87	0,828
The number of T Lymphocite (cells/mm^3)	2066±728	1958±591	2175±844	

Table 02. Median Total Lymphocyte Total

Groups	*Pretest*	*Post Test*
Treatment	1879.50	1721
Placebo	2035	2025

The comparative test conducted using Wilcoxon Smith test because the data were not normally distributed and it was tested in pairs. The result after comparative test between pre test and post test in treatment and placebo group confirmed that there was not a significant difference.

Table 3. Wilcoxon Smith Test (The Pre Test-Post Test of Treatment and Placebo Group)

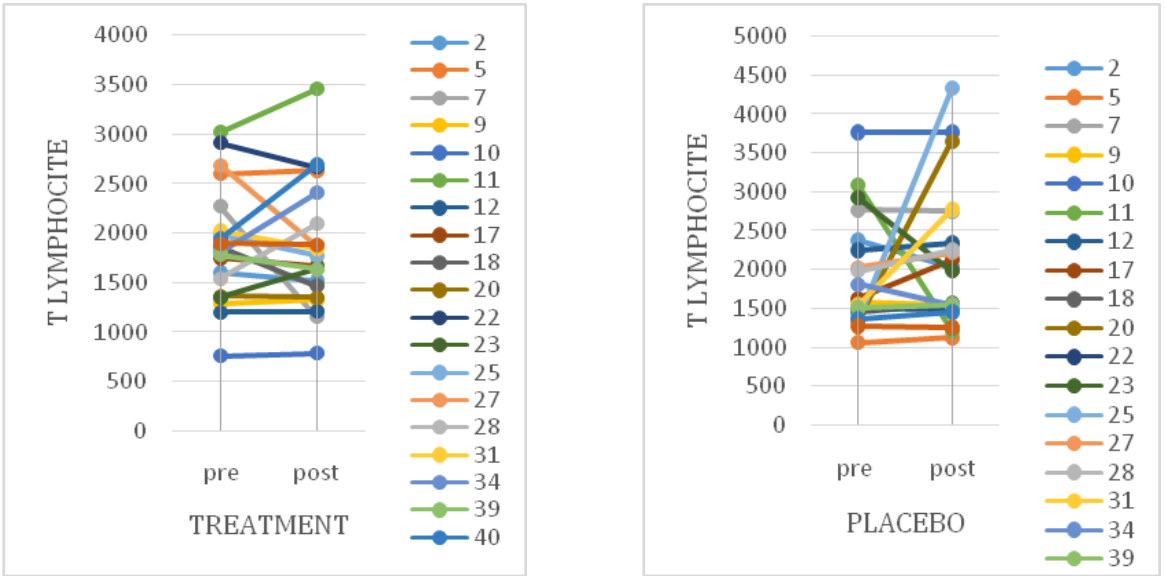
Groups		n	*p*
Treatment	Pre Test	20	*0.370*
	Post Test	20	
Placebo	Pre Test	20	*0.794*
	Post Test	20	

After comparative test using Wilcoxon Smith in pre test and post test examination was done, the researcher did comparative test using Mann-Whitney to identify the difference between treatment and placebo group as shown in Table 4.

Table 04. Different Mann-Whitney test (Treatment group and placebo)

Groups		n	*p*
Pretest	Treatment	20	*0.478*
	Placebo	20	
Posttest	Treatment	20	*0.102*
	Placebo	20	

It was also necessary to describe the partial distribution of the data from each sample in the following graph. Graph 1 showed that the total lymphocytes count variation changed in each sample. As a result, the fluctuations of each individual in both group changed. It happened because the sample or individual had different multifactor, so the effect of total lymphocytes changing was different from each other.



Graph 1. The total of Lymphocytes Individual Graph in Treatment and Placebo Group

DISCUSSION

The process of HIV infection is T lymphocytes express CD4 as a surface marker and immune regulation system. CD4 monitoring is commonly done in clinical because it will help to begin giving the ARV and or change different types of antiretroviral

drugs for patients with HIV. Consuming the ARV correctly will help patients to improve their health status. Moreover, health status will be monitored by immune cells indicators and it will be checked routinely. Delaying on consuming ARV can cause decreasing of CD4 lymphocyte number and it may increase the risk of opportunistic infection (Kaufmann et al. 2003). Besides ARV therapy, the subjects from this study were given mangosteen peel extract as an antioxidant and the researcher hoped that mangosteen peel extract could be as an adjuvant therapy jointly with the provision of antiretroviral drugs. After being given to HIV patients for 30 days, the total lymphocyte examination of pre-test and post-test was not significantly different in the treatment group, by non-parametric Wilcoxon Smith test: p = 0370 (p> 0.05).

In addition, there was no significant difference in the post-test examination after 30 days consumed mangosteen peel extract between two groups: the treatment and placebo group. This result was shown in Mann-Whitney analysis Table: p= 0478 (p>0.05). Thus, in this case the mangosteen peel extract was not effective against the total lymphocytes in HIV patients with antiretroviral therapy. The antioxidant in body should be able to contribute or protect against TNF cytokine. This ineffectiveness was possible due to the increasing of free radical production that occurs in people with HIV (Jaruga et al. 2002). The production of free radical increases in HIV patients because phagocytosis process that is done by phagocytic cells and TNF was mediated by target cell. Then, when free radical induced TNF toxicity, it could increase HIV viral replication and destroy CD4 T cells (Kameoka et al. 1993). Unbalancing redox happens because superfluous amount of pro-oxidants or antioxidant reduction that affect normal physiological (Kameoka et al. 1993).

In previous study, there was a positive correlation between total lymphocytes with T CD4 cells in HIV patients: r= 0.68 (Swity, 2013).However, in this study, there was no positive association for the results of CD4 T cells increased significantly: p = 0.001 (p <0.005). The result of this study showed that many factors could affect the total of lymphocytes count and complete blood test was needed to know the factor that affect of lymphocytes cell. In this study, the subject sampling was human where we know that people have a lot of factor that affect the total of lymphocytes. Although the subject of this study had equal basic characteristic or same starting point based on the statics, but many factors such as daily meal that they consumed, the different daily activities from the research subject were different, the difference of environment, RNA. These factors will have an effect on the general state of the patient. In contrast, if this study was conducted in confounding experimental animals, the factors can be controlled and minimized. As a result, further research is needed with intensity control in general so there are fewer factors that influence the assessment results of research variables. The result of this study could be much better with longer period of treatment and also more research subjects, as well as to minimize other factors that affect the total of lymphocytes.

From HIV form that was provided the researchers also got subjective responses from respondents. Some positive responses that the respondents felt were their appetite increased and they also felt their body healthier. Motivation, support, and attention from others about their feelings and actions can be considered to next study.

CONCLUSION

Mangosteen peel extract (Garciana mangostana) is not effective against the total lymphocyte count in HIV patient group treated with ARV therapy.

Further research is needed to learn about the development of mangosteen peel extract (Garcinia mangostana) and it is important to study about all of immune cells that contribute to HIV replication, like cytokines, immunoglobulin, CD4 and etc.

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QUALITY IMPROVEMENT MODEL OF NURSING EDUCATION IN MUHAMMADIYAH UNIVERSITIES TOWARD COMPETITIVE ADVANTAGE

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ABSTRACT

Introduction: Most (90.6%) nursing education quality in East Java is still low. That is because the quality improvement process in nursing education generally has been conducted partially (*random performance improvement*). A solution which might be help would be to identify a proper quality improvement model in nursing education toward *competitive advantage.* **Method:** This research used a survey to gain the data. The research sample was 16 Muhammadiyah Universities chosen using simple random sampling. The data were collected with questionnaires of 174 questions and a documentation study. Data analysis used was Partial Least Square (PLS) analysis technique. **Result:** The nursing education profile in Muhammadiyah Universities in Indonesia showed of 10 years establishment, accredited B and the competition level in one city/regency was averagely more than three Universities becoming the competitors. The quality improvement model analysis of nursing education towards competitive advantage in Muhammadiyah Universities was directly affected by the focus of learning and operational process through human resources management improvement; on the other hand information systems also directly affected quality improvement and quality process components: leadership, human resources, focus of learning and operational process. Improving human resources would directly influence proper strategic planning. Strategy planning was directly influenced by leadership. Thus, in improving the quality of nursing education, the leadership role of the department, proper information systems, and the human resources management improvement must be implemented. **Discussion:** A quality improvement model in nursing education was directly determined with learning and operational process through human resources management along with information systems, strategy planning factors, and leadership. The research findings could be developed in the quality analysis application program.

Keywords: Quality, Nursing Education, Competitive Advantage

INTRODUCTION

Education for health care professionals, especially nurses, has to be improved to prepare the professional to face the rapid challenge of the healthcare services worldwide (Frenk *et al.*, 2010). An appropriate education must be capable preparing competent alumni who can compete whether nationally or internationally (Altuntaş and Baykal, 2017). In facing these challenges, most nursing education institutions are failing to provide a high-quality standard in responding to the demand from patients and society (Horton *et al.*, 2010). Based on the Indonesian National Accreditation Agency for Higher Education (BAN-PT), 90.6% of nursing schools in Indonesia got a C grade (fair) in accreditation, some of which were nursing schools under Muhammadiyah Universities (BAN-PT, 2012).

Several things that caused the problem include that most nursing education institutions have not comprehensively conducted a quality improvement model and are still conducting it partially (Pepin *et al.*, 2017). According to the evaluation of the quality assurance systems of the universities, from 384 universities in Indonesia, only 68 universities (17.7%) had a good internal quality assurance system (Dikti, 2008). Moreover, the rate was lower in the nursing schools with only 7.14% with a qualified internal quality assurance system (Dikti, 2008).

Based on the background, the nursing schools need a proper quality improvement model that is heading towards competitive advantage (Kuspijadi and Sudarso, 2009; Hidayat, Supriyanto and Nursalam, 2015). Moreover, based on the prior study, the quality improvement model of nursing education for competitive advantage has not been studied.

METHODS

The method used in this study was cross-sectional. The samples of the study were the Muhammadiyah universities in Indonesia – as many as sixteen universities chosen by simple random sampling. The data were collected by collecting questionnaires, which included 174 questions and performing a documentation study over three months. The data sources

were obtained from primary and secondary sources. Primary sources were obtained from the respondents through questionnaires and direct interview, while the secondary data was taken from the accreditation results of BAN-PT. The data analysis technique applied in this study was Partial Least Square (PLS).

RESULTS

This study found that there were several characteristics of nursing schools selected as the samples. As many as 62.5% (n = 10) of the schools were established more than ten years ago. The accreditation status of the nursing schools based on BAN-PT in Health Education showed that 87.5% (n = 14) of the nursing schools had a B grade (good) in accreditation, while 12.5% (n = 2) obtained an A grade (excellent). For the competitiveness, every nursing school had more than three competitor universities within the city (Table 1).

Regarding the components of the quality process in each nursing school, the results of the analysis showed that the nursing education in Muhammadiyah universities possessed a level of competitive advantage as follows: 25.0% in leadership (n = 4), 75.0% in strategy planning (n = 12), 50.0% in customer focus (n = 8), 25.0% in human resource focus (n = 4), 50.0% in both learning process focus and information system (n = 8) (Table 2).

Turning these into the components of the quality results, the results of analysis showed that nursing education in Muhammadiyah universities had an average of competitive advantage as follows: 50.0% (n = 8) in leadership, strategy planning achievement, and customer focus; 100% (n = 16) in the learning process and financial; while 75.0% (n = 12) in facilities and infrastructure. on the other hand, 87.5% (n = 14) of the samples had not shown competitive advantage in the human resource component (Table 3).

The results indicated as significant if the T-statistic was higher than the outer value loading T-statistic more than 1.96 (Table 4), and the quality development model of nursing education is visualised in Figure 1.

Table 1. Profile of nursing schools under Muhammadiyah universities in 2016

Study department profile	n	%
Period of existence		
- < 5 years	0	0
- 5-9 years	6	37,5
- ≥ 10 years	10	62,5
Accreditation status		
- A (Excellent)	2	12,5
- B (Good)	14	87,5
- C (Fair)	0	0
- Not accredited (Poor)	0	0
The number of similar programs in a city		
- 0-3	0	0
- > 3	16	100

Table 2. The components of the quality process in nursing schools under Muhammadiyah universities towards competitive advantage

No	Process Component	Competitive advantage			
		Yes		No	
		n	%	n	%
1	Leadership	4	25,0	12	75,0
2	Strategy planning	12	75,0	4	25,0
3	Focus on customer	8	50,0	8	50,0
4	Human resource focus	4	25,0	12	75,0
5	Learning process focus	8	50,0	8	50,0
6	Information system	8	50,0	8	50,0

Table 3. The components of the quality results in nursing schools under Muhammadiyah universities towards competitive advantage

No	Result Component	Competitive Advantage			
		Yes		No	
		N	%	N	%
1	Leadership result	8	50,0	8	50,0
2	Strategy planning achievement	8	50,0	8	50,0
3	The result of focusing on customer	8	50,0	8	50,0
4	Management of human resource result	2	12,5	14	87,5
5	The result of student process and learning	16	100	0	0
6	Finance	16	100	0	0
7	Facilities and infrastructure	12	75,0	4	25,0

Table 4. The test of the influence of variables with Partial Least Square (PLS) test

No	The influence of variables	Sample mean	T-Statistik	Complement
1	Leadership to strategy planning	0.7423	15.8450	Significant
2	Strategy planning to human resource	0.3199	3.3465	Significant
3	Strategy planning to the learning process	0.2725	3.9500	Significant
4	Human resource to the learning process	0.0693	1.9940	significant
5	Human resource to quality improvement with a competitive advantage	0.0570	1.1403	Not significant
6	Learning process to quality improvement with a competitive advantage	0.0900	8.9493	Significant
7	Information system to leadership	0,6947	22.0510	Significant
8	Information system to human resource	0.4193	4.4300	Significant
9	Information system to the learning process	0.5477	7.7140	Significant
10	Information system to quality improvement with competitive advantage	0.2186	13.9950	Significant

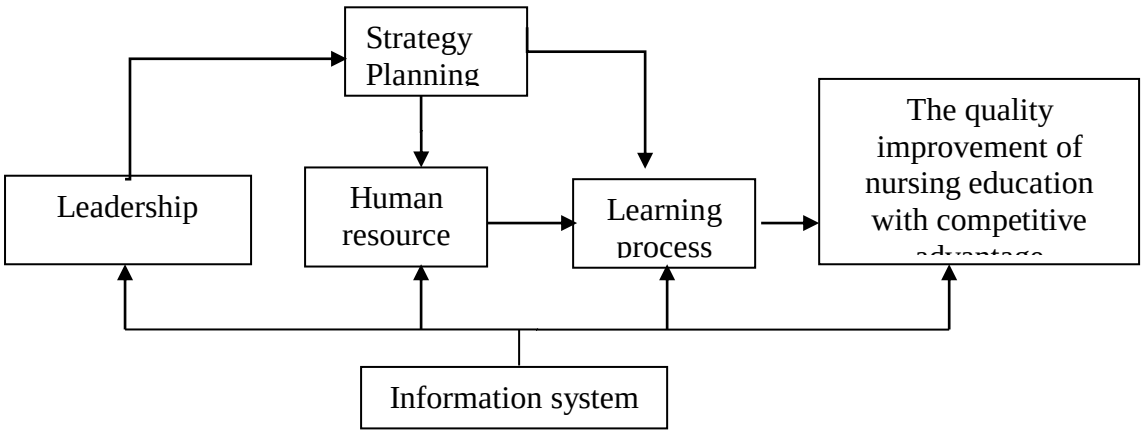

Figure 1. Quality development model of nursing education in the University of Muhammadiyah towards competitive advantage

DISCUSSION

The output of this study was the quality development model of nursing education towards competitive advantage. The model emphasised the component process and result of leading indicators, strategy planning, and information systems. It was in line with the study conducted by Teoman and Ulengin (2016) which stated that leadership was the key to success in quality management. In addition, based on the study of Gunasekaran, Subramanian and Papadopoulos (2017), the information technology also became a key role towards competitive advantage.

In this model, the process components which directly influenced quality development

were the component of the learning process and operational management as well as an information system. The process components were significantly influenced by human resources, while human resources were influenced by strategy planning which was influenced by leadership. In addition, all of the process components were influenced by the information system. Thus, the information system played a role in boosting quality development for every quality indicator (Semuel, Siagian and Octavia, 2017).

Based on the findings of the model developed according to the *Higher Education Long Term Strategy* (HELPS) 2003–2010 (DIKTI, 2004), to improve the quality of higher education and strengthen the nation's competitiveness required human resource management integrated with institutional management, and human resource management based on competence and performance (Istanto, 2012). Furthermore, the development of a model is directed to making the organisation into a customer-driven model based on a customer's needs and expectations towards competitive advantage, and the implementation of knowledge management through a knowledge sharing culture (Abdul-Jalal, Toulson and Tweed, 2013).

It is consistent with the model strategies developed by Kenichi Ohmae with a model of a strategic triangle, known as model 3C (corporation, customer, and competitive), which states that in achieving competitive advantage an organisation must develop a strategic business-focused corporation, customer, and competitive base (Ohmae, 1991). An organisation that wants to succeed and survive has to market what is required by the customer and remain in the competition; it needs to be superior to its competitors, and be able to create competitiveness by implementing a value creation strategy (Hitt *et al.*, 1999).

Kenichi Ohmae states that strengthening the position of the strategy can be through the utilisation of human resources allocation, by using a relative advantage by finding the difference with competitors, using an aggressive strategic initiative to build an edge compared to other organisations, and using the strategy to innovate (Ohmae, 1991).

In winning the competition, the organisation also takes control of the management of intellectual assets; this is based on a model that can be developed in this research for the implementation of knowledge management through a knowledge sharing culture. The model is supported by Ikujiro Nonaka's SECI model that describes the life of the knowledge which undergoes a process described in a spiral shape, consisting of socialisation, externalisation, combination, and internalisation. The externalisation process is the change to explicit knowledge. The process of combination, utilising existing explicit knowledge that is implemented in another area. This process is very useful for developing skills and self-productivity. The internalisation process is changing the coming of inspiration of explicit knowledge as tacit knowledge. The socialisation process changes tacit knowledge into other tacit knowledge (Sangkala, 2007; Mulyanto, 2008).

CONCLUSION

The profile of Nursing Education at the University of Muhammadiyah in Indonesia showed on average that it was established more than 10 years ago, with a B accreditation status and a level of competition in the program study in a city being from an average of more than three universities that are the main contenders.

The model of quality improvement in the University of Muhammadiyah towards competitive advantage is to emphasise the components process and outcome from indicators of leadership, strategy planning, focus on customer, human resource focus, the focus of the learning process, and information systems. The model components which directly affect quality improvement are the component of the learning process and operational management and information systems. Process components are strongly influenced by human resources, and human resources are influenced by strategy planning, and strategic planning is influenced by leadership.

Quality improvement models can be used in courses that have the same indicator if you want to make universities have a competitive advantage, besides the results of research which can be developed to compile the application program to analyse the quality improvement of nursing education based electronics, to accelerate identification of the findings of the weak components of quality to be improved.

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NURSE BEHAVIOR IN IMPLEMENTATION OF DIABETES MELLITUS EDUCATION BASED ON THEORY OF PLANNED BEHAVIOR

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ABSTRACT

Introduction: Education is the important component in self-management of Diabetes mellitus patients. Nurse as one of the health care provider should take an active role in giving adequate education. The aim of this study was to analyze factors influencing nurse's behavior in implementation of Diabetes mellitus education based on the theory of planned behavior. **Method:** This study used cross-sectional design. Population in this study were all nurses in the medicinal public hall whose were assigned to give education toward patients in 62 public health center in Surabaya city in 2016. Sampling technique used total sampling and 112 nurses obtained as samples. Variables in this study consist of attitude, subjective norm, perceived behavioral control (PBC), intention and practice in DM education. Data collection was using questionnaire and observation sheet and also analyzed using Spearman rho with α 0,05. **Result**: Statistical analysis result shows there is a significant relationship between attitudes, subjective norm, perceived behavioral control (PBC) toward intention with p-value of 0,022; 0,048; and 0,000 respectively and there is no significant relationship between intention and practice of Diabetes mellitus education with p-value 0,194. Nurse's attitudes, subjective norm, perceived behavioral control (PBC) had a positive effect toward intention of Diabetes mellitus education, but intention had no effect toward practice of Diabetes mellitus education in public health center. **Conclusion**: Theory of Planned Behavior (TPB) stated that individual behavior occurred because of intention that could be affected by attitude, subjective norm, and perceived behavioral control (PBC). The future study was expected to use a qualitative approach and related study regarding development of education media in public health center.

Keywords: Education, nurse, Diabetes mellitus, Theory of Planned Behavior

INTRODUCTION

Diabetes mellitus commonly referred to DM type 1 and DM type 2, is a chronic metabolic disease which requires complex patient involvement in management (Powers et al. 2015). Self-care for DM sufferer plays an important role in preventing and reducing complications, morbidity, and mortality of patients (Rahim-Williams 2011). One of the core components to improve the self-care of Diabetes mellitus is education (Formosa et al. 2012). Education is a basic tool which is crucial to maintain the metabolic control in DM effective care (Irons et al. 2007). Inadequate patient education is the most influential factor to the lack of knowledge and skills of self-care management of patients (Golchin 2008), which the former has an impact on the increased risk of complications and disruption of the economic aspects (Parvaneh & Abazari 2012).

Surabaya, which is divided into five regions, has 62 community health centers (Public health center) with high number of diabetes sufferers visiting Public health center, based on the report of Health Department of Surabaya. The report shows those number in 2012, 2013 and 2014 as many as 21606, 16069 and 13513 people respectively. It indicates the rate of visitor for getting DM treatment declined sharply from 2012 to 2014. However, Surabaya is still at the top of the city with the highest DM case in East Java which reached twelve thousand cases per year, followed by Bangkalan, Malang, And Lamongan (Pranoto 2015).

In Indonesia, Education modules has been developed for public and people with diabetes by Health Department of Surabaya and PERKENI in which the former contains the guidelines to educate DM. Socialization for PERKENI consensus book has been done, but the implementation of these recommendations is 2-45% only. Based on reports from the International Diabetes Management Practice Study (IDMPS), there is only 36.1% of DM sufferer who obtained the education (Soewondo 2011). Nurses in primary care settings only organize diabetes education in general with the unstructured format in a short time even this is conducted with a variety of other chronic diseases (Onuoha & Ezenwaka 2014).

Based on preliminary studies conducted by researchers at one of Public health center in Surabaya through observation, DM education implemented in Public health center only gave suggestion to restrict eating, take medication

regularly, and control every month to check up. Moreover, educational materials given was same for all patients. Not only the same method for all sufferer but also educational process did not use any media so that there was no simulation. The sufferer's family also was not involved in that method. The nurse did not assess an evaluation of the education provided and did not observe the patient's ability to perform self-care. It represents that the nurses at Public health center have not provided education in accordance with the standards set in Indonesia referring to the Health Ministry and PERKENI.

There are causes of implementing education according to standards, such as the lack of preparation and plan of the organization or health service, interpersonal relationship is not effective, and lack of training program on DM (Santos & Torres 2012), lack of knowledge about guidelines for education (Odili & Eke 2010; Jansink et al. 2010; Santos & Torres 2012), the educational ability of nurses (Jansink et al. 2010), and limited of time, so many activities have short visit. Facility for the implementation of education is also an obstacle of DM education.

Nurses as part of health workers are also required to have a general requirement to provide care and diabetes education, namely knowledge, attitudes, and skills (Rodrigues et al. 2009). Nurse has a key role with primary health care for type 2 in which nurses should help patients to understand the process disease during attack and possible complications so they can teach patients to be able to apply self-care (Macdonalds et al. 2013), so it is necessary to do research related to the behavior of nurses in the application of DM education.

The theory that can be used in analyzing the behavior of nurses is the Theory of Planned Behavior. Theory of Planned Behavior (TPB). This theory has been proved to significantly predict the intention and improvement of behavior (Wahyuni 2012), applying hand hygiene (White et al. 2015), observing the behavior of nurses related to patient safety (Jayadi et al. 2013), treatment for SARS patients (Ko et al. 2004) and also doing counseling and prescription of emergency contraception (Hauselt 2007). Nevertheless, these studies have not explained the behavior of the nurses in application of DM education.

Several researches are also conducted by some nurses for inpatient which they have not applied yet. The study, focused on nurses in primary care or Public health center related to the behavior for application of education DM, needs to be done considering the important role of nurses as health care providers and 90% of type 2 provided by the Public health center (Widyahening & Soewondo 2012; Barbara & Bruce 2015). So, that can be relied upon in making the concept of the solution to address the needs of nurses in primary care or Public health center in order to implement diabetes education effectively and properly

METHODS

This research used observational analytical research with cross sectional approach. The population was all nurses at Public health center around Surabaya to provide education for patients in 62 Public health center in 2016. The sample of this research were all nurses at public health center to provide education for patients in 2016. The total amount of those populations and samples were 112 nurses. The sampling technique was total sampling. The independent variable were attitudes, subjective norms, and perceived behavioral controls. The dependent variables were the nurse's intentions and practice in the implementation of Diabetes mellitus education.

Attitude, subjective norm, perceived behavioral control (PBC), and the intention are measured by using a questionnaire while the practice of DM education is measured by using observation sheet when DM education applied by nurses. The questionnaire for data collection has been tested for validity and reliability and has been declared valid and reliable.

According to the public health center head, an educator role is the responsibility of the nurse in charge of the assessment and anamnesis of patients, so the researchers decided to make the nurse in charge of conducting studies and histories as respondent. Filling out the questionnaire is made after researchers conducted observations. The collected data is processed and analyzed. Normality test results indicates that the attitudes, subjective norms, and perceived behavioral control (PBC) normally distribute while intention and practice of distribution are abnormal thus bivariate analysis has been used by using Spearman correlation test with α 0.05.

RESULTS

The results of the study includes background factors, attitudes, subjective norms, perceived behavioral control (PBC), the intentions and nurses actions in implementing education Diabetes mellitus, the influence of main factors (attitudes, subjective norms, perceived behavioral control) to the intention and its effects to the nurse action or practice of applying education.

Table 1 illustrates the personal information and background of respondents which are divided to ages, gender, education, work experience, respondent's salary, religion, tribe, and Knowledge about DM.

Table 1. Personal information and background the study of Nurse Behavior in Implementation of Diabetes Mellitus Education Based on Theory of Planned Behavior in Public health center around Surabaya in 2016

Respondent characteristic	n	%
Age		
21-30 year-old	26	23,2
31-40 year-old	42	37,5
41-50 year-old	34	30,4
>50 year-old	10	8,9
Gender		
Male	36	32,1
Female	76	67,9
Education		
Sekolah Perawat Kesehatan	4	3,6
Diploma of Nursing	76	67,8
Bachelor of Nursing	32	28,6
Work Experience		
<1 year	1	0,9
1-5 year	28	25
6-10 year	50	44,6
>10 year	33	29,5
Salary		
1.000.000-2.999.900	11	9,8
3.000.000-4.999.900	66	58,9
>5.000.000	35	31,3
Religion		
Islam	100	89,2
Katholik	3	2,7
Kristen Protestan	7	6,3
Hindu	2	1,8
Tribe		
Jawa	102	91,1
Madura	7	6,2
Lain-lain	3	2,7
Knowledge		
Baik	91	81,3
Cukup	20	17,8
Kurang	1	0,8

The most participating category of respondents are 31-40 year-old for age, female for gender, diploma of nursing for education, 6-10 years for work experience, 3-5 million rupiahs for salary, moslem for religion, Javanese for tribe, and good understanding of knowledge about DM.

Most of the respondent's attitudes during implementation of educational have majority in positive category with a percentage of 55.4%, subjective norms in moderate category with a percentage of 74.1%, Perceived behavioral control (PBC) in moderate category that is equal to 97.3% and the majority of respondents (52.7%) have good intentions. Most respondents (96.4%) included in the category are less action in DM education.

Statistical analysis using Spearman correlation with p value=0.048 (<0.05) means there is a significant relationship between subjective norms and intention in the implementation of Diabetes mellitus education. Spearman correlation at 0.187 states that direction is a positive correlation with weak correlation. Perceived behavioral control (PBC) and intention in the implementation of Diabetes mellitus education also had a significant correlation (p-value = 0.000). Spearman correlation at 0.558 indicates the positive correlation direction with moderate correlation. However, there was no relationship between the intention with practice in the implementation of Diabetes mellitus education (p value=0.194).

Table 2. Cross Tabulation between attitude and intention In Implementation of Diabetes Mellitus Education Based on Theory of Planned Behavior in Public health center around Surabaya in 2016

Attitude	Intention				Total	
	Good		Less			
	n	%	n	%	n	%
Positive	35	56,5	27	43,5	62	100
Negative	24	48	26	52	50	100
Total	59	52,7	53	47,3	112	100
Spearman correlation coefficient r_s=0,216 (p=0,022)						

Table 3. Cross Tabulation between subjective norm and intention In Implementation of Diabetes Mellitus Education Based on Theory of Planned Behavior in Public health center around Surabaya in 2016

Subjective Norm	Intention				Total	
	Good		Less			
	n	%	n	%	n	%
Good	11	64,7	6	35,3	17	100
Moderate	44	53	39	47	83	100
Less	4	33,3	8	66,7	12	100
Total	59	52,7	53	47,3	112	100
Spearman correlation coefficient r_s =0,187 (p=0,048)						

Table 4. Cross Tabulation between perceived behavioral control (PBC) and intention In Implementation of Diabetes Mellitus Education Based on Theory of Planned Behavior in Public health center around Surabaya in 2016

Perceived Behavioral Control	Intention				Total	
	Good		Less			
	n	%	n	%	n	%
Good	1	100	0	0	1	100
Moderate	58	53,2	51	46,8	109	100
Less	0	0	2	100	2	100
Total	59	52,7	53	47,3	112	100
Spearman correlation coefficient r_s =0,558 (p=0,000)						

Table 5. Cross Tabulation between intention and practice In Implementation of Diabetes Mellitus Education Based on Theory of Planned Behavior in Public health center around Surabaya in 2016

Intention	Practice				Total	
	Good		Less			
	n	%	n	%	n	%
Good	3	5,1	56	94,9	59	100
Less	1	1,9	52	98,1	53	100
Total	4	3,6	108	96,4	112	100
Spearman correlation p=0,194						

DISCUSSION

Statistical analysis showed a significant relationship between attitude and intention which means that the attitude of nurses about DM education affects their intention in implementing DM education. These results are consistent with research conducted by Kortteisto et al. (2010) which states that the attitude is an important factor associated with the intention of health workers for using clinical practice reference. Good intention tends to be influenced by the positive attitude of nurses. Ko et al. (2004) also proved that a positive attitude contributes significantly in predicting the intention of nurses to perform maintenance on SARS patients. This is in accordance with the Theory of Planned Behavior stating that attitudes toward the behavior are a determining factor for the formation of intentions (Ajzen 2005).

Attitude can affect a person intention to perform a behavior. An individual will intend to behave in certain ways when he/she vote positively. The attitude of nurses in the educational application of DM influenced by belief or conviction that a good and corresponding recommendation education DM will result in a good outcome for the patient. Nurses also believe that DM education will be able to help the patients to perform self-care management well.

Good intention tends to be influenced by a positive attitude, but there are respondents who have a positive attitude have less intention, and also respondents who have a negative attitude have good intentions. This could be caused by subjective norms and perceived behavioral control, and every individual. They have its perception of factors which is affecting their intentions. In some situations, one or two factors can be used to explain the intention, and most of these three factors play a role in explaining the intention. In addition, every individual has consideration to decide what the most influential individuals in behavior is (Ajzen 2005).

The statistical test result shows a significant relationship between subjective norms and intention. Intention nurse education in the application of DM is influenced by subjective norms (related parties) in implementing DM education at Public health center. These results are consistent with research conducted Kortteisto et. al. (2010) which states that the subjective norm is an important factor associated with health worker's intention to use clinical practice reference.

The results showed that most respondents had medium subjective norms for implementation of Diabetes mellitus education at Public health center. This may be caused by reference or party getting involved on individuals. The nurses would assume that the related parties did not show their hope to educate well and did not motivate nurses to educate as well as recommendations so that the nurses did not believe that other people or reference would approve or support their actions in implementing the education according to recommendations. Nurses did not have a subjective norm that put pressure on themselves to educate DM. For example, there was no written regulations in detail and binding set the nurse's responsibility of educating DM according to the recommendations, none of the patients or families who asked for education, no demands, motivation, and recognition from colleagues and other health professionals.

Good intention tends to be influenced by good subjective norms, but there are respondents who have a good subjective norms

while they have less intention. This could be caused by the attitudes and perceived behavioral control. In addition, lack of motivation, demands, monitoring, and evaluation from third-parties, such as the Health Department Surabaya, Public health center head, colleagues, or even other health professionals, make nurses think that the related parties do not want them to apply DM education as recommendation and not a problem for nurses if they do not apply DM education. Therefore the nurses do not intend to educate DM based on recommendation.

Statistical analysis showed a significant relationship between perceived behavioral control (PBC) to the intention, which means the perceived behavioral control (PBC) affects to the intention of nurses in implementing Diabetes mellitus education at Public health center. The results are consistent with research conducted (Wahyuni 2012) which states there is significant influence between the PBC and intention of nurses behavior. This indicates that the better PBC on individual, the better his or her intention because PBC has a motivational effect to the intention.

The results showed that most respondents have perceived behavioral control (PBC) in medium category of Diabetes mellitus education at Public health center. Perceived behavioral control tends to produce good intentions.

Some respondents had a good PBC but their intention is less or more. According to (Azwar 2010) that in some situations, PBC is not realistic, as the condition when people faced the available resources changing or when a new element appears in that situation. Such conditions is clearly seen there are internship students of nursing at public health center that have certain competencies demands including anamnesis and educate the patient so that the nurses have to adjust the current conditions as supervising students and not directly involved in nursing care to patients. This is predicted when the PBC is not directly proportional with the intention possessed.

Statistical analysis showed that there is no significant relationship between intentions and actions in the implementation of Diabetes mellitus education, which means intention does not affect the actions of nurses. This research relates to another research Kortteisto (2010) which states that primary care has a negative effect on the variable intention characterized by low rate of primary care health workers to run standard operational procedure rather than hospital health workers.

The results of studies pointed out that there is no relationship between intentions and actions in implementing Diabetes mellitus education. This relates to Ajzen opinion (2005) that the accuracy intention in predicting the behavior is not certainly unconditional since it was found in some studies that intentions do not always produce that behavior. According to Ajzen (2005), although many experts who have shown a strong relationship between intention and behavior, the study sometime also found a weak correlation between both of them.

Azwar (2010) stated that according to the theory of planned behavior, among the various beliefs, the availability of opportunities and resources are the reason to determine intention and attitude. This belief can be derived from the experience, and also it can be influenced by indirect information about the behavior, for example by looking at the experience of a friend or someone else, it is also be influenced by several other factors that reduce or increase the effect the difficulty committing acts.

CONCLUSION

A positive attitude of nurses for implementation of diabetes mellitus education will lead good intentions in implementation of diabetes mellitus education. A good subjective norm will lead intentions in implementation of diabetes mellitus education. A good perceived behavioral control will lead to good intentions in the implementation of diabetes mellitus education. Intention has no effect on the action of diabetes mellitus education implementation at public health center.

It needs an association's standing for diabetes sufferer from every area or Public health center in order to facilitate nurses to accommodate the DM education program and also activities based on patient empowerment and community to help the role of health professionals in diabetes management.

Need to do research with a qualitative approach to understand and obtain the information deeper about the weakness pf implementing DM education. It needs to do research related to the development of media education at Public health center.

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CONSUMPTION OF FRUIT AND VEGETABLE WITH RISK OF OBESITY IN SCHOOL-AGE CHILDREN

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ABSTRACT

Introduction: The problem of obesity in children aged 5-12 years in Indonesia is still high, East Java is one of the provinces that have higher prevalence of obesity than the national average (Riskesdas 2013). Consumption of fruit and vegetables affects the level of obesity's risk, but nowadays fruit and vegetable consumption in school-age children are low. This study was aimed to determine the correlation between consumption patterns of fruits and vegetables with the risk of obesity in school-age children in Ketabang I Surabaya elementary school. **Method:** This research uses the descriptive correlation method with cross sectional approach. The population of this research is students in grade 4 and 5. Purposive sampling technique used to select 69 respondents as samples. The independent variable in this study is the consumption pattern of fruit and vegetable, while the dependent variable is the risk of obesity. The data were analyzed with chi-square test. **Result:** The results of this research showed that most of respondents consume less fruit and vegetable (52%). The number of respondents who are obese is 20%, while the number of respondents who have high risk is 13%. Statistical analysis showed that the consumption pattern of fruits and vegetables has a correlation with the risk of obesity (p = 0.009). **Discussion:** There was a significant relationship between the consumption patterns of fruit and vegetables with risk of obesity in school-age children in Ketabang I Surabaya elementary school. Further studies should examine the appropriate interventions to overcome the problem of obesity in school-age children.

Keywords: consumption pattern of fruit and vegetables, risk of obesity, school-age children.

INTRODUCTION

Obesity in children is a serious medical problem that affects children in the developed and developing countries because obesity potentially cause comorbidities and increased the risk of some chronic diseases (Vash, 2015). The prevalence of overweight and obesity in children and adult increased at the end of the 20th century spread evenly in all over the countries in the world (Bray & Bouchard, 2014). Nowadays, children tended to prefer fast food with the reason that it feels good, and a tendency consumption of fruit and vegetable is low that can cause fatness on child, whereas on the childhood period is really important to consume fruits and vegetables because it can help the children to apply a healthy food consumption pattern to controls and organizes weight (Dewi 2013). Fruits and vegetables can minimize the risks of obesity in children, because fruits and vegetables can burn fat without makes many calories (CDC 2011).

In Indonesia, problems of fatness in school age children (5 to 12 years) are still high (18.8%), consisting of overweight 10.8% and obese 8.8%. East Nusa Tenggara have the lowest prevalence of overweight (8.7%) and the highest prevalence is in Jakarta (30,1%). There are 15 provinces with prevalence of obesity that above the national average, that provinces are Central Kalimantan, East Java, Banten, East Kalimantan, Bali, West Kalimantan, North Sumatra, Riau, Jambi, Papua, Bengkulu, Bangka Belitung, Lampung and Jakarta (Riskesdas, 2013). Research by nutrition institutions survey and National Health about prevalence of obesity in 2008 to the children in primary schools and play group in ten cities in Indonesia consecutively from the highest are Jakarta (25%), Semarang (24,3%), Medan (17.75%), Denpasar (15.7%), Surabaya (13.4%), Palembang (12.2%), Padang (7.1%), Manado (5.3%), Yogyakarta (4%) and Solo (2.1%). Mean prevalence of overweight in ten cities has reached 12.7% (Wahyu, 2009).

Obesity can cause the various diseases, such as heart disease, hypertension, diabetes type 2, metabolic syndrome, hipercolesterol, asthma, sleep disorder, orthopedic complication, and mental disorder (Paxon, 2010). Obesity also has adverse indirect effects to the decline in cognitive function most likely due to the impact of illnesses that suffered by the obese children (diabetes, obstructive sleep apnea syndrome (OSAS), problems of respiration), problem related to psychosocial (inferiority, self isolation, and depression) and also social maturity (Wendt, 2009).

Researcher did a survey to 586 students in SDN Ketabang I Surabaya and obtained the results of 3.75 % high risk to obesity and 14.6 % are obese. The results of the interviews from 20 students known that 25% did not like to eat vegetable, 5% did not like to eat fruit, and 5 % did not like to eat fruits and vegetables. Among 25 % of children that does not like ate vegetables, two children are having nutritional status of belonging to the obesity, whereas 18 students who have been were interviewed has low risk category. The reason of the students who was not like to eat fruit or a vegetable is because it has bad taste.

Based on that background, the purpose of this study is to investigate the correlation between consumption pattern of fruits and vegetables with the risk of obesity in school-age children in Ketabang I Surabaya elementary school.

METHOD

This research using descriptive correlational design with cross sectional approach, where the data was taken in the same time. This method chosen to define the relationship between consumption patterns of fruits and vegetables with risk of obesity in school age children.

This study was conducted in Ketabang I Surabaya elementary school. The affordable population on this research are the students from 4th and 5th grade in Ketabang I Surabaya elementary school as much as 218 students. The students from 4th and 5th grade were chosen to be samples because the obesity prevalence from that grade is the highest among al of the grades in Ketabang I Surabaya elementary school. The number of respondents that needed as samples for the research is 75 respondents. The number of the respondents were taken from the classroom with the highest prevalence of risk to obesity and obesity among 4th and 5th grade in Ketabang I Surabaya elementary school. Students who selected to be sample are 29 students from 4b class, 8 students from 4a class, and 38 students from 5b class.

Sampling techniques that used in this research is purposive sampling. To minimize the bias, the inclusion criterias were: 1) 4th and 5th grade of Ketabang I Surabaya elementary school. 2) Students that able to understand and answer the written questions. 3) Students who has been approved by their parents / teachers to be respondents in this study. The exclusion criterias are: 1) students who have allergic to particular fruit and vegetables. 2) students who is sick while the data being collected

The independent variable in this research is consumption patterns of fruits and vegetables, while the dependent variable in this research was risk of obesity that known from the BMI (Body Mass Index) according to age. The instrument that used in this research is semiquantitative food frequency questionnaire that adapted and modified from NHANES (2005-2006), the eating pattern questionnaire used to obtain data relating consumption patterns fruits and vegetables qualitatively, adapted and modified from Eating Pattern Questionnaire Prochildren (2003) for measuring consumption patterns of fruits and vegetables over a week, and WHO Anthroplus to know the BMI of the children according to age.

Primary data that gathered through questionnaire such as identity, attitude and consumption of fruits and vegetables. The data about consumption frequency of fruits and vegetables obtained through Food Frequency Questionnaire. The data about nutritional status were known through measurement of the height and weight, and calculation of body mass index according to age. Secondary data that needed were description of the school like the number of the students, the names of students, class, sex, and school overview that obtained from the administration staff in Ketabang I Surabaya elementary school.

Data collection was done by conducting anthropometry measurement, structured interview using food frequency questionnaire, and deploy eating pattern questionnaire to the students. This activity was conducted alternately from one class to another class. The researcher explain about the research to the prospective respondents, provides informed consent to the teacher of the respondents. The teacher considered to be agree that the student become the respondents of this research after signed the informed consent. After filling the informed consent, researcher doing the measurement of height and weight, body mass index according to age calculated by using application WHO Anthroplus. After that researchers conducted interviews on child to know the frequency and the amount of consumption of fruits and vegetables by using

semiquantitative food frequency questionnaire. The interviews were conducted alternately on every respondents. At the time of interview researchers used simple daily conversation so easy to understand by the respondents. The time that needed to interview every student is about 5-10 minutes.

Next, researchers share a questionnaire that contained about risk of obesity analysis on children and consumption patterns of fruits and vegetables, respondents were accompanied by the researchers while filling the questionnaire. The data that obtained from the answer of the questionnaire during was put into tabulation then analyzed use Chi Square statistical tests. After the data collected processed, so the next stage is to do the interpretation of the results.

RESULT

At Ketabang I Surabaya elementary school there is a canteen that sells foods for the students, but the kind of food that sold there contain high calories. In front of the schools gate there are also many food retailer, kind of food that sold also contain high calories and unhygienic. This situation makes the students had no choice to buy a healthy and nourishing food at school because of the lack of availability of nutritious food at school, eventhough school-age children need a balanced nutrition to support optimal development and growth.

Table 1. Distribution of demographic characteristic of the respondents

No.	Demographic Data	Category	f	%
1	Sex	Male	33	48%
		Female	36	52%
	Total		69	100%
2	Age	10 years	17	25%
		11 years	31	45%
		12 years	21	30%
	Total		69	100%

The number of respondents based on sex are 33 male students (48 %) and 36 female students (52 %). Respondents in this research is aged 10-12 years, and the respondents who was 11 years old has the most frequency, 31 students (45%).

Table 2. Distribution of the respondents based on fruits and vegetables consumption

No.	Consumption of fruits and vegetables	f	%
1	Less	36	52%
2	Good	33	48%
	Total	69	100%

Consumption of fruits and vegetables are categorized as good if the number of fruits and vegetables consumed are ≥ 400 grams per day. Consumption of fruits and vegetables are categorized as less if the number of fruits and vegetables consumed are <400 grams per day (WHO 2007). The consumption of fruits and vegetables was calculated by using semiquantitative food frequency questionnaire, from 69 respondents, there are 52% consumed less fruits and vegetables, and 48% have good consumption of fruit and vegetables.

Tabel 3. Distribution of the respondents based on risk of obesity

No	Risk of Obesity	f	%
1	Low risk	46	67%
2	High risk	9	13%
3	Obesity	14	20%
	Total	69	100%

Most of the respondents included in a low risk category (67%), followed by obesity (20%), and the lowest is high risk category (13%).

In table 4 can be seen that consumption of fruit and vegetable in the good category be greater among respondents who have low risk to obesity, namely 40.6 %. In the majority of respondents with high risk to obesity show consumption of fruits and vegetables is low, namely 10.1 %. Among the respondents who was obese consumption of fruits and vegetables that categorized as less as many as 15.9 %. The results of statistical tests shows the p value is 0.009, so it can be said that there was a meaningful relationship between consumption patterns of fruits and vegetables with the risk of obesity.

Tabel 4. Coreelation Fruits and Vegetables Consumption with Risk of Obesity using Chi Square test

Fruits & Vegetables Consumption	Risk of Obesity						P value
	Low risk		High risk		Obesity		
	f	%	f	%	f	%	
Less	18	26.1	7	10.1	11	15.9	0.009
Good	28	40.6	2	2.9	3	4.3	
Total	46	66.7	9	13	14	20.3	

DISCUSSION

The mean of daily fruits and vegetables consumption among students in Ketabang I Surabaya is enough to fulfill suggestion from the WHO namely ≥ 400 grams per day, but if considered from the individual consumption, the majority of respondents consumed less fruits and vegetables. Lack of fruits and vegetables consumption in children can be influenced by many factors, one of them is preference to fruits and vegetables. In this research, preference of fruits and vegetables means pleasure of the respondents towards fruits and vegetables. Respondents's preference of fruits and vegetables most affected by a taste. Negative preference of vegetable quite high compared with negative preference of fruit. The respondents that like all fruits and vegetables said that their parents provide fruits and vegetables everyday at home, while the respondents that does not like fruits and vegetables did not specify the reason why they do not love fruits and vegetable, they only reason that fruits and vegetables have a bad taste.

The research's results show that students in Ketabang I Surabaya elementary school mostly love fruit than vegetable. Researchers thought that taste and the availability of fruit at home impact on the consumption patterns of fruit and vegetable.This is corresponse with the results of the study conducted by Kronel (2011) that concludes that the main reason for the children and teenage dislike to consume fruits and vegetables is the taste, also the availability and access of fruits and vegetables at home affect consumption patterns of fruits and vegetables.

Table 3 shows that the respondents with the low risk has the highest frequency, followed by obesity, and the high risk has the lowest frequency. There were few respondents with high risk and obesity, nevertheless attention must be given to them because it can be bad for health. The impact that appear as the of effect obesity are heart disease, hypertension, diabetes type 2, metabolic syndrome, hipercolesterol, asthma, sleep disorder, orthopedic complication, and mental disorder (Paxon, 2010). The incidence of high risk to obesity in Ketabang I Surabaya elementary school has the potential to raise incidence obesity if it is not done by appropriate treatment and precautionary.

Data from the research results known that there is meaningful relations between consumption patterns of fruits and vegetables with the risk of obesity in school age children in Ketabang I Surabaya elementary school. This result is in accordance with the research of Sartika (2011) which indicates the presence of meaningful relations between consumption patterns of fruits and vegetables with risk of obesity on 5-15 years children in Indonesia. The same with the research of Nuraeni (2013) indicates that school age children who obese are rarely and consume less fruits and vegetables compared with the child who is not obesity in Yogyakarta and Bantul. Children that rarely and consume less fruits and vegetables can increase the risk of obesity.

Fruits and vegetables are the food that contain low density of energy that can manage an ideal weight. Fruits and vegetables are the source of various essential nutrient, as potassium, vitamin c, folic acid, fiber, and many phytochemical (CDC, 2008). Fruits and vegetables also content high amounts of fibers. Fibers play an important role in the process of digestion. Fibers fill the place in gaster and give satiety and decrease intraluminal pressure of the intestines. Soluble fibers can slow down the intestines absorption of fat and glucose (Mustofa, 2015). Water-soluble fibers as pectin and several hemiselulose having the ability to hold water and may form a viscous liquid in the gastrointestine tract, so that the high fibers foods having longer time to digest in the stomach. Then fibers will pull the water and give satiety longer so that can prevent to consuming more food. Food that contain higher raw fiber usually contain low calories, low sugar, and low fat that can help to reduce

the risk of obesity (Ichsan et al., 2015). This is in accordance with the results of the study of Santoso (2011) explained that water-soluble fibers can control weight or overweight (obesity).

The enhancement in public consumption of fruits and vegetables inversely proportional to the changes in weight, the results of substitution examination sensitivity analysis suggest to replace 5% calories over the other food to 5% calories over the fruit or vegetables (Bertola et al., 2015). Replacing high density foods ith low density food in the same amount can produce lower calories, while in the same amount of calories a person can consume more low density food compared with high density food (HSS, 2010). It can be concluded that by consume more fruits and vegetables, risks to be obese will be lower.

The research results that shown in table 4 can be known that the respondents who consume less fruits and vegetables mostly having low risk to obesity. Consumption patterns of fruits and vegetables are not the only cause of obesity in school-age children, but there are various factors that cause obesity. This is also expressed in the results of the study of Sartika (2011) who showed that risk factors of obesity in children aged 5-15 years in Indonesia are characteristic of the child, smoking habit and sports, consumption of fruits and vegetables habits, intake of energy and protein, and the history of obesity parents. According to the Ministry of Health (2012) the main cause of fatness and obesity is environmental factors of the imbalance between food consumption pattern, eating behavior, and physical activity. Bad eating pattern as consume large portions (more than need) , high-energy food, high fat , high carbohydrates , and low fiber is the main cause of the fatness and obesity. The research of Guo (2013) said that a short duration of sleep, passing breakfast, and parents who obese are the risk factors of obesity in school age children. Factors that related with the occurrence of obesity are consumption of high calories food that increased the risk to be overweight, consumption of sweet snacks, less physical activity, and spare time that often used to watch television and playing video games (Aballa, 2010). The research result of school age children in Bangladesh explained that the factors that related to obesity in school age children is the obesity history of the parents, less physical activities at home, and high sedentary activities (Zaman & Ahmed, 2013). Some factors that can cause obesity in school age children are biologic factors and genetic, physical factors include activity pattern and diet, environment factors including social, economy, culture, and physic (Solomon et al. , 2014).

CONCLUSION

The respondents in Ketabang I Surabaya elementary school partially consumed fruits and vegetables less than the recommendation from WHO, ≥400 gram per day. The majority of respondents in Ketabang I Surabaya elementary school has low risk towards obesity. Consumption pattern of fruits and vegetables related to the risk of obesity in school age children. Fruits and vegetables that contains fibers can help to maintain weight.

The school is expected to supply fruits and vegetables in school by selling foods and drinks in the canteen. The school also can held a program to eat fruits and vegetables at certain event to motivate the students on consuming fruits and vegetables. Parents can introduce various kind of fruits and vegetableless to children since young age. Parents should also provide fruits and vegetables at home everyday to support the increasement of fruits and vegetables consumption in children. Nurse can do routine examination to monitor nutrition status of the children trough health unit in school. The nurse are expected to give education towards the students and parents, and informed about the recommendation of fruits and vegetables consumption. Further studies should examine the appropriate interventions to overcome the problem of obesity in school-age children.

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DETERMINANT FACTORS OF VASECTOMY METHOD SELECTION

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ABSTRACT

Introduction: The level of male participation in family planning by choosing vasectomy in East Lampung region Pekalongan health centres is still low, although the success rate of vasectomy as a family planning method is very high. This study aims to explain the factors related to men's choice of vasectomy in the Pekalongan health center East Lampung. **Methods**: This study used an analytical study design with a cross-sectional approach. Samples were 117 men of reproductive age gathered using purposive sampling. The independent variables were knowledge, attitudes, parity, age, availability of health resources and infrastructure, health education, attitude and behaviour of health care workers and family support. The dependent variable was the men's participation in vasectomy as a family planning method. Data were retrieved using questionnaires and statistically analysed using the Chi-Square test. **Results**: Factors affecting the selection of vasectomy as a family planning method amongst men of reproductive age were attitude (p=0.020), parity (p=0.022), age (p=0.021), the availability of health resources and health infrastructure (p=0.018), and family support (p=0.011). However, the knowledge, health education, and the attitudes and behaviour of health workers did not affect the selection of vasectomy as a family planning method. **Conclusiom**: Public health centres are expected to build family planning services, especially for vasectomies, through, for example, the provision of vasectomy facilities which can reach the community and the establishment of cadres for male birth control.

Keywords: family planing; vasectomy; Lawrence Green

INTRODUCTION

Population problems in Indonesia include a large population with a relatively high rate of population growth. The Indonesian Population and Family Planning Agency (BKKBN) has a role in increasing the use of contraception (Badan Kependudukan dan Keluarga Berencana Indonesia (BKKBN) 2016). Some family planning institutions are oriented towards contraceptive use in women rather than in men, but the results of contraceptive method surveys in various countries show that 50% of couples use condoms and vasectomies as contraceptives (Anderson & Baird 2002). Some women cannot use contraception due to their health condition, so many men take over to use contraception to prevent unintended pregnancies (Amory 2016).

Male participation is one of the indicators of success for a contraception program in creating a small family with qualities. The participation of the male/husband could be direct or indirect. Direct participation is using a contraception method such as a condom, vasectomy, coitus interruptus, or the periodic abstention method (BKKBN 2005).

In Indonesia, the achievement of family planning goals for participants with long-term contraception methods (vasectomy, tubectomy, implant and Intra Uterine Device (IUD)) in 2015 is very high, exceeding the target that has been set at 103.9% (BKKBN 2016).

Males who actively followed the contraception program and preferred to choose a vasectomy were 148,560 persons in total (11.9%), and there were 1,099,380 other persons (89.1%) using a condom as contraception (BKKBN 2015). Data from BKKBN (2014) in Lampung Province show that 86 persons have chosen a vasectomy from a total of 47,268 males who joined the active contraception program, while the number of males who used a condom as contraception reached 20,068. Based on these data, it was revealed that the East Lampung Regency had the lowest number of males using vasectomy – three persons out of 10 members who were eligible for vasectomy contraception.

Pekalongan has the highest number of men of reproductive age in the East Lampung Regency, but the presentation of vasectomy contraceptive participation was only 2.3% of the total number of men using contraceptives. The majority of those were located in Sidodadi, part of a community health centre at Pekalongan (Pekalongan, 2015).

Vasectomy is one effective method of contraception, as seen from the high success rate, that it is safe and has no long-

term side effects (Chang et al. 2015). The cost for vasectomy is relatively cheap and affordable, and, additionally, many men are eligible to use vasectomy. However, men still prefer to use other contraceptive methods such as condoms (BKKBN, 2015).

Men who use condoms argue that condoms are simpler and require no action from medical staff, are available in stores, pharmacies, leave them free to choose, and do not interfere with sexual intercourse. But, in fact, condoms can not be used in the long term, there is still a risk of leakage, discomfort during sex, and they can reduce the sensitivity of the penis (Tejo, 2009). Factors related to the use of vasectomy are still not known. Based on that phenomenon this study aims to determine the factors related to the selection of vasectomy as a contraceptive method amongst men of reproductive age in Pekalongan East Lampung.

METHOD

This study was an analytical study with a cross sectional design. The population in this study were men of reproductive age who actively use contraception in Puskesmas Pekalongan East Lampung Regency. Samples were 117 respondents selected using a purposive sampling technique, often called judgment sampling. The independent variables in this study were the knowledge, attitudes, number of children, age, availability of health resources and infrastructure, health education, attitude and behaviour of health care workers, and family support. The dependent variable was the selection of vasectomy.

The research instrument used questionnaires that were composed based on the theory dependant on the study variables. The questionnaire's validity and reliability were tested first before they were used for data collection. Data obtained were then processed using a descriptive analysis and Chi- Square data analysis with 95% significance ($\alpha \leq 0.05$). This study has been through the ethical clearance test at the Faculty of Nursing Universitas Airlangga with a serial number 287-KEPK.

RESULTS

The number of men who chose vasectomy as a method of contraception in this study was lower when compared with the number of men who chose another male contraceptive method. The correlation between knowledge and vasectomy selection amongst the men is described in Table 1. The majority of respondents had a sufficient level of knowledge. The Chi-Square analysis test demonstrated that there was no correlation between knowledge and vasectomy selection.

The attitude of the respondents either in the vasectomy and non-vasectomy group were mostly in a positive category. Respondents who participated as vasectomy acceptors had a positive attitude; it was higher than in the non-vasectomy group. Non-vasectomy respondents had a negative attitude. This means that there was a correlation between attitude and vasectomy selection as shown by the statistical test (Table 2).

The number of children was usually a factor that could be a consideration in choosing the contraceptive method. Most respondents had more than three children (69.2%). This statement was supported by the Chi-Square statistical test which was obtained showing that there was a correlation between the number of children and vasectomy selection (p=0.022) (Table 3).

Table 1 The correlation of knowledge and vasectomy selection using a Chi-Square Test

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Knowledge	Good	15	12.8%	10	8.5%	25	21.4%
	Sufficient	36	30.8%	37	31.6%	73	62.4%
	Low	10	8.5%	9	7.7%	19	16.2%
Total		61	52.1%	56	47.9%	117	100%
Statistical test *Chi-Square* p=0.652							

Table 2 The correlation of attitude and vasectomy selection using a Chi-Square Test

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Attitude	Negative	37	31.6%	21	17.9%	58	49.6%
	Positive	24	20.5%	35	29.9%	59	50.4%
Total		61	52.1%	56	47.9%	117	100%
Statistical test *Chi-Square* p=0.020							

Table 3 The correlation between the number of children with vasectomy selection

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Parity	2 children	25	21.4%	11	9.4%	36	30.8%
	More than 3	36	30.8%	45	38.5%	81	69.2%
Total		61	52.1%	56	47.9%	117	100%
Statistical test *Chi-Square* p=0.022							

Table 4 The correlation of age with vasectomy selection

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Age	Less than 30	15	12.8%	4	3.4%	19	16.2%
	More than 30	46	39.3%	52	44.4%	98	83.8%
Total		61	52.1%	56	47.9%	117	100%
Statistical test *Chi-Square* p=0.021							

Table 5 The Correlation of health resources and infrastructure availability with vasectomy selection

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Health resource and Infrastructure	Negative	35	29.9%	19	16.2%	54	46.2%
	Positive	26	22.2%	37	31.6%	63	53.8%
Total		61	52.1%	56	47.9%	117	100%
Statistical test *Chi-Square* p=0.018							

Table 6 The correlation of health education with vasectomy selection

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Health Education	Never	47	40.2%	36	30.8%	83	70.9%
	Ever	14	12.0%	20	17.1%	34	29.1%
Total		61	52.1%	56	47.9%	117	100%
Statistical test *Chi-Square* p=0.188							

Table 7 The correlation of attitude and behaviour of health workers with vasectomy selection

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Attitude and Behaviour	Negative	18	15.4%	9	7.7%	27	23.1%
	Positive	43	36.8%	47	40.2%	90	76.9%
Total		61	52.1%	56	47.9%	117	100%

Statistical test
Chi-Square p=0.133

Table 8 The correlation of family support with vasectomy selection

		Participation in contraception				Total	%
		Non Vasectomy	%	Vasectomy	%		
Family Support	Negative	35	29.9%	18	15.4%	53	45.3%
	Positive	26	22.2%	38	32.5%	64	54.7%
Total		61	52.1%	56	47.9%	117	100%

Statistical test
Chi-Square p=0.011

The most common age of respondents who participated in choosing a vasectomy as contraceptive method was more than 30 years old (44.4%), while in the non-vasectomy group the number of respondents who were older than 30 totalled 39.3%. The results of the correlation analysis using the Chi-Squaresquare statistical test revealed the significant value of p=0.021, which means that there was a relationship between age and vasectomy selection (Table 4).

The availability of health resources and infrastructure both in the vasectomy and non-vasectomy group were in a positive category (53.8%). Respondents who participated in the vasectomy group had positive health resources and infrastructure (31.6%), while in the non-vasectomy group the percentage was only 22.2%. The results of the Chi-Square test obtained the significant value of p 0.018, which means there was a relationship between health resources and infrastructure, and vasectomy selection (Table 5).

Based on Table 6, the majority of respondents (70.9%) never received health education about contraception, especially vasectomy. However, the number of respondents in the vasectomy group who did totalled 47.9%. This indicates that health education did not have a significant effect on the selection of contraceptive method as shown by a statistical test using Chi-Square which had p=0.188.

The majority of health workers already had a positive attitude and behaviour (76.9%). However, this fact was not the dominant factor affecting the decision of the respondents to choose a particular contraceptive method. It can be seen from the results of a statistical test using Chi-Square that there was no correlation between attitude and behaviour of health workers with vasectomy selection with p=0.133 (Table 7).

The last factor considered in this study in correlation with vasectomy selection method was family support. Table 8 showed that 35 (29.9%) respondents mentioned that they had negative family support in choosing a contraceptive method, in the non-vasectomy group, while 38 (32.5%) respondents in the vasectomy group had positive family support. This number indicated that respondents who had selected vasectomy as their contraception had higher positive family support than those in the non-vasectomy group. By using a Chi-Square test, the p-value was 0.011, meaning that family support was a contributory factor in respondents choosing to participate in a vasectomy or not.

DISCUSSION

The knowledge level of respondents about vasectomy was at an insufficient level. This might be due to the level of education of many respondents who had junior and senior high school levels of education. The vasectomy method is usually used by men who have a good level of education (Wespes 2014). The results of a study in Taiwan showed that men who chose vasectomy had a high education (68,5% had graduate degrees) (Chang et al. 2015).

According to Mubarak (2007) the higher level of education could mean the information is more easily transferred and received, and ultimately the more knowledge could be gained. Conversely, if the level of education is low, it will hinder the development of one's attitude to receiving information and newly introduced values. However, the number of non-vasectomy respondents was higher than respondents who participate actively by using vasectomy and there were still some respondents who had good knowledge but did not participate in vasectomy. This means that the level of knowledge does not guarantee a person will commit an act or demonstrate a type of behavioural health. Skinner (1938) in Notoatmodjo (2012) stated that behaviour is a person's reaction to a stimulus from the outside, but in responding, it depends on the characteristics or other factors of the person concerned. This means that even though the stimulus is the same for some people, the response of each person is different. This can also be caused by misunderstandings and negative rumours about vasectomy that causes a person to be reluctant to choose a vasectomy (Bunce, A., Guest, G., Searing, H., Frajzyngier, V., Riwa, P., Kanama, J.,Achwal 2007).

There were respondents who had a low level of knowledge who participated actively in vasectomy. This can occur as a result of a persuasive family planning program from the government, so that whoever participates in using a vasectomy will be given money, so even though respondents have less knowledge, they still participate in a vasectomy program. From the analysis, there was no correlation between knowledge and the selection of vasectomy. This means that a good knowledge of vasectomy does not affect a man’s decision to choose a vasectomy. The results of this study are supported by other studies which suggest that income, knowledge, age and attitude of public figures does not affect the use of vasectomy contraception (Muklison 2015).

The results of the study in the distribution frequency of attitudes towards vasectomy selections showed that more respondents had a positive attitude than a negative one. A positive attitude towards vasectomy is determined by respondents' votes for vasectomy themselves. A positive attitude arises from positive beliefs. The total number of respondents who had a positive attitude mostly used vasectomy rather than non-vasectomy, but those who had a negative attitude mostly did not participate in using vasectomy. Attitude is a reaction or response which was still closed from one to a stimulus or object (Notoatmodjo 2012). According to Allport in Notoatmodjo (2012) components that are built into attitude are: 1) faith (belief), ideas and concepts, to an object; 2) the emotional life or evaluation of an object; 3) the tendency to act. Thus, a person's belief or conviction about an object affect the action to be performed.

The analysis of attitude in relation to vasectomy selections showed that there were respondents who had a positive attitude but did not use vasectomy, as well as respondents who had a negative attitude but participated actively in vasectomy. This happens as a result of the government's program on vasectomy in East Lampung. There are two kinds of community participation methods according to Notoadmojo (2012): participation by coercive means to force the public to contribute to the program (through legislation, regulations or verbal commands), then, secondly, participation by persuasion and education. Positive trust will form a positive attitude. Furthermore, a positive attitude develops a person's tendency to act positively as well. If someone has negative beliefs or a negative concept, it will form a negative attitude then create a difficulty to act positively.

On the other hand, the number of children could be one of the factors that affected men’s decisions to participate in vasectomy selection. In Indonesia, the number of children is often related to economic status.

Most respondents worked as farmers and had a low income per month. Pratiwi in her research (2011) mentioned that family income was an indicator of economic factors, and affects the number of children born to a family. Respondents who have more than three living children have a tendency to more actively participate in vasectomy than respondents who have two children. This is because vasectomy is more effective than other types of contraceptive method for men so that respondents prefer to choose vasectomy to terminating a pregnancy. The effectiveness of vasectomy is in the range between 99.6%–99.8%; it is very safe and has no long term side effects, only once it is applied, it is effective in the long term, and cost efficient (Saifuddin et al. 2010).

There was a correlation between the number of children and vasectomy selection. This means that respondents who had more than three children had more of a tendency to participate in the selection of vasectomy, than those who had two children. The results of this study are supported by Arsila's research (2014) which stated that there is a relationship between the number of children and the decision to use birth control. In another study, couples with a low number of living children had a tendency to use contraceptive methods with low effectiveness, while couples with many living children had a tendency to use high effectiveness contraceptive methods (Purwoko 2000). This is supported by the research results that the increasing use of vasectomy is due to the increasing number of children and increasing age (Sharma et al. 2013).

The other factor that had a correlation with the selection of a vasectomy was age. There were respondents who had two children and used vasectomy; this is probably due to the age of the respondents. According to Manuaba (2009), the age of 35 or more is the time for terminating reproduction. This statement is also concordant with the age range of the vasectomy group for this research. Participants who are 30 years old or more tend to use the long-term effectiveness of contraception.

The frequency distribution of health resources and infrastructure availability showed that more respondents positively assess health infrastructure. This indicates that most respondents have easy access to a vasectomy. But from the questionnaire, analysis showed that more respondents answered that there is no place to get a vasectomy around their home, as well as a few respondents who get explanation about vasectomy. The availability of health resources and health infrastructure affects the tendency to participate in vasectomy. It was common that the respondents did not participate in vasectomy due to the unavailability of resources and infrastructure. Healthcare is one of the parameters for determining the health status of the community (Tangkilisan et al. 2015); also, Ariyanti (2016) in her study said that the availability (quantity and distribution) of health resources contributes towards achieving family planning programs. Lawrence Green (1991) in Nursalam (2013) also stated that one of the factors that influences health behaviour is the availability of health resources and infrastructure. So, the quality of access to family planning services is one important element in achieving reproductive health services (Saifuddin 2010).

Another fact obtained through this study is that the majority of respondents did not ever receive health education about contraception or vasectomy. This is because the majority of respondents worked as farmers, with most of their time spent on agricultural land when health centre services were open so that most respondents could not get health counseling. Respondents who had no health education about vasectomy showed a lack of information about vasectomy, which causes the respondents to tend to avoid vasectomy. However, based on the result, a high level of knowledge about birth control and vasectomy after getting health education does not guarantee a person will participate actively in vasectomy. The expected outcome of health promotion is a change in health behaviours, or behaviour to maintain and improve health levels (Notoatmodjo 2012).

Although many respondents said that they never got health education, the majority agreed that health workers already had a positive attitude and behaviour. The attitudes and behaviours response of the health workers was reflected in the questionnaire in which most respondents said that health workers are kind to explain vasectomy. Attitudes and behaviour of health workers affects whether

the client follows the advice given by health workers (Notoatmodjo 2003). But, the statistical result showed something different. It showed that health care attitude and behaviour had no correlation with vasectomy selection. This might indicate that the most important things to come out of the performance of a health care provider are real action, how to stimulate awareness of health among the community, not just exhibiting a kind attitude and behaviour.

The last factor obtained as a factor that affects a man's decision to use vasectomy was family support. Based on the answers to the questionnaire, respondents agreed that planning the number of children was part of the family's emotional support. Men who still had minimal support from the family cited informational support. Lack of information support was given by the families because they lacked knowledge and there were many respondents from a low social economic level. According to Putri et al. (2016) family support was affected by a family's ability to cover what they need. The family fulfillment capabilities related to income level or a family's socioeconomic level, where families from a higher socio-economic level give better family support. Family support, according to Friedman (2010), is an attitude, a family perception towards other members, with information, appraisal, instrumental and emotional support. These types of support are what categorise family support received by respondents.

This study found that respondents who get good support from families participate more actively in vasectomy. If the respondent does not get the support and consent from his wife, vasectomy is not done. Family support is indicated by a form of interpersonal relationship which includes attitudes, actions, and acceptance of family members so that the family members feel comfort (Friedman 2010). The results of this study are supported by previous studies conducted by Widoyo (2010) and Muklison (2015) where there is a significant correlation between family support (wife) and vasectomy selection. Limitations of this study are that most of the respondents are people who participate in government programs. The program is a mass vasectomy program that aims to launch the vasectomy program in the East Lampung Regency.

CONCLUSION

Attitude, the number of children, age, health resources and infrastructure availability and family support are factors that affect men's decisions to select vasectomy, while knowledge, health education, attitude and behaviour of health workers are not factors for someone to participate in vasectomy.

Nurses are expected to arrange interventions to increase men's interest and motivation to participate in vasectomy actively. The intervention also needs to be complemented with affordable facilities and active cadres engagement.

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MODELING PARTICIPANT TOWARD SELF-CARE DEFICIT ON SCHIZOPHRENIC CLIENTS

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ABSTRACT

Introduction: Schizophrenia is a disease which affects the brain, causing impaired perception, thought, emotion, movement, and behavior, such as self-care deficit. Self-care deficit is an impaired ability to bathing, dressing, eating and toileting. Modeling participant is a technique required to address the problem of self-care deficit where clients are taught and trained to meet the needs of self-care. The purpose of this study was to analyze the influence of participants modeling on self-care ability in schizophrenic clients with self-care deficit. **Method:** This study used quasi-experimental design. Sampling was carried out with total sampling to all affordable population comprising 20 respondents in Dr. Radjiman Wediodiningrat Mental Hospital, Lawang. This study analyzed by Wilcoxon Signed Rank Test and Mann-Whitney Test with a significance level of $p \leq 0.05$. **Result:** The results showed the influence of participants modeling on self-care ability in schizophrenic clients with self-care deficit. Wilcoxon Signed Rank Test in treatment group showed $p = 0.005$ and control group showed $p = 0,206$. Mann-Whitney Test showed $p = 0.030$. Modeling participant improved self-care ability in schizophrenic clients with self-care deficit. **Analysis:** Modeling participant will improve cognitive, self-confidence and motivation of schizophrenic clients so that their ability to bathing, dressing, eating and toileting will increase. **Discussion:** Modeling participant can be applied as a technique to improve self-care ability in schizophrenic clients with self-care deficit. For further research can be explored further implementation of the modeling of participants in the group activity therapy.

Keywords: modeling participant, self-care, schizophrenia.

INTRODUCTION

Schizophrenia is a disease which affects brain, causing impaired perception, thought, emotion, movement, and behavior (Videbeck 2008). Symptoms of schizophrenia include delusions, hallucinations, affective flattening or blunt, poor of speaking or meaning, blocking, self-care deficit, low motivation, and self-withdrawal from social (Sadock & Sadock 2010). Schizophrenic client disorders such as behavior derangement, perceptive, cognitive disability will cause the client can't take care of himself adequately. The inability to care for himself will emergence of self-care deficit problem. Self-care deficit is a common problem in schizophrenic clients, both being treated at hospital and community. Direja (2011) states that the self-care deficit is an impaired ability to perform self-care activities (bathing, dressing, eating, toileting). Inability to perform self-care activities without intervention by the nurse, the schizophrenic client will get a higher risk of social isolation or low self-esteem. General nursing interventions addressing self-care deficit problems are taught and trained the client to meet the needs of self-care includes bathing, dressing, eating and drinking properly and also bowel or urinate correctly (Rochmawati et al. 2013). Those nursing actions are implemented through nursing care, but it still found a schizophrenic client with self-care disorder.

Schizophrenia affects approximately 24 million people worldwide (World Health Organization 2014). The prevalence of severe mental disorders (psychosis/schizophrenia) in Indonesia is 1.7 per mil. The prevalence of severe mental disorders in East Java was 2.2 per mil (Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI 2013). Base Health Research (Riskesdas) in 2013, the prevalence of people with mental emotional problem in population over 50 years old found approximately 6%, or about 16 million people, People with severe mental disorders about 400 thousand and 57 thousand people with severe mental disorder have been deprived by the family (Kemenkes 2014). Schizophrenic client with social isolation about 72% and 64% experiencing decreased ability to take care themselves (eating, bathing and dressing) (Surtiningsrum 2011). The percentage of nursing problems by deficit self-care in February 2008 at Marzoeki Mahdi Hospital Bogor reaches 80% (Perendrawati 2008). Initial data has retrieved by researchers from Medical Record of Dr. Radjiman Wediodiningrat Mental Hospital Lawang, the data shown the schizophrenic client who was treated at 28 inpatient room in October 2014 were 567 clients, 70% were male, and 30% were female.

Preliminary studies conducted by researchers at the Kenari room obtain data that 17 out of 41 clients or 41% of clients who were treated had self-care deficit, while in Kakak Tua room were 31%. Nursing interventions for schizophrenic clients with self-care deficit in Kenari room Dr. Radjiman Wediodiningrat Mental Hospital Lawang is nursing care and behavioral therapy. Nursing care includes self-care teaching and motivating clients to perform self-care, but still found schizophrenic clients with impaired ability to take care of themselves.

Self-care deficit is a situation where experiencing barriers to perform self-care activities, such as bathing, changing clothes, eating and eliminating. Barriers/interference ability to take care of themselves at schizophrenic client caused by cognitive or perceptual disturbances (Wilkinson & Ahern 2013). Several disturbance were experienced by the schizophrenic client such as behavior derangement, perceptive, cognitive disability and it will cause the client can't take care of themselves. Clients can be very preoccupation with delusions or hallucinations idea until they fail for carrying out daily activities (Videbeck 2008). If self-care deficit is not treated immediately, it will lead to some new problems and worsen. Teaching techniques required to improve self-care ability through demonstrations by the model. Ormrod (2009) states, as humans we have the ability to imitate others since we were born. A schizophrenic client experiencing cognitive, perceptive and behavior impairment, so it will be easier for them to improve self-care ability by mimicking models in modeling participants. According to Bandura in Ningsih & Sutjiono (2011), modeling participants accelerate behavior changes level, attitudes facing of alarming stimuli.

Modeling technique was done by a therapist/nurse through demonstration to the client about what to do (Nasir & Muhith 2011). Modeling technique has several kinds; live models, symbolic models, multi-model (dual characterizations), self-model, modeling participants (Junaedi & Nursalim 2011). Modeling participants is a way to learn new behaviors through observation from a model, add information through cognitive processes to get output appropriate behavioral changes were modeled (Iswanti 2012). Iswanti Research (2012), shown differences in medication adherence in the intervention group who received behavior therapy of modeling participants, whereas the control group was no differences in medication adherence. Ningsih and Sutijono (2011) research concluded that modeling participant strategy influence improve students skill in class. This indicates that the participant modeling can be used as a therapy to improve the ability of the client. One of nursing intervention in self-care deficit consists of knowledge and ability improvement to perform self-care (Wilkinson & Ahern 2013). Main element of modeling participants consist of rational, modeling, guided participation and strengthening is needed as a technique to implementing the nursing interventions. Client knowledge can be enhanced through rational, clients are taught how to care themselves through modeling and guided participation. Bandura states that learning can be obtained through direct experience, indirectly by observing the behavior of others and their consequences (Corey 2009). Lastly, clients will be motivated to perform self-care activities through strengthening elements. Participants are expected to change behavior from maladaptive become adaptive through modeling participant and increase self-care ability. Based on these, researchers want to know the influence of modeling participants in a schizophrenic client with self-care deficit in Dr. Radjiman Wediodiningrat Mental Hospital Lawang.

METHOD

This study analyzes the influence of modeling participants in a schizophrenic client with self-care deficit. The research design is Quasi-Experiment design. The affordable population in this study are 29 respondents of schizophrenic clients with self-care deficit in Kenari and Kakak Tua room at Dr. Radjiman Wediodiningrat Mental Hospital Lawang. The sampling technique in this study is nonprobability with total sampling technique. The sample consists of affordable population taken by inclusion and exclusion criteria were 20 respondents then divided into treatment group and control group. Independent variables in this study are modeling participants. The dependent variable is self-care ability.

Data was analyzed by Wilcoxon Signed Rank Test to compare client's self-care ability in a schizophrenic client with self-care deficits before and after modeling participants,

significance level established p <0.05. Mann-Whitney is used to determine differences in self-care ability of schizophrenic client with self-care deficit in treatment group and control group with significance level established p <0.05.

RESULTS

Self care ability before modeling participant treatment

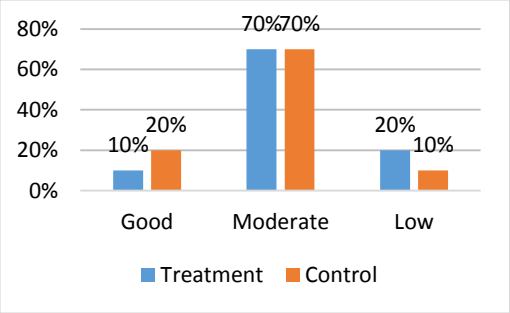

Figure 1 Self Care Ability Before Modeling Participants Treatment.

Figure 1 shows self-care ability of schizophrenic client with self-care deficit before modeling participants intervention, both in control group and treatment group was 70% in enough category. Although they can take care of themselves, respondents still need help in caring for their activities.

Majority bathing ability of respondents need help such as prepare necessary equipment (towels, soap, adequacy of water), watering all the body, rub whole body with soap thoroughly, showering water and rinse entire body until clean, and dry off with a towel. Some respondents independently have the ability to enter and out from the bathroom. This is because some equipment for bathing include towels are often lost or discarded by respondents or taken by other clients who are less cooperative. Respondents are just soaking and scrubbing front part of the body only, while the back and legs are not wetted and rubbed with soap. Some respondents did not bathe with soap and did not wear a towel after have bathed.

Respondent's self-care ability in dressing, need assistance while preparing necessary dressing equipment, gain or change clothes, choose appropriate clothes, cleaning whiskers, and retains appearance at a satisfactory level. Respondents tend to be assisted in dressing and rarely given an opportunity to do it independently. In eating ability of respondents require assistance in preparing equipment and food. The ability of respondent's bowels/urinate need help to go to the toilet, wipe after a bowel/urinate with clean water, and flush toilets cleanly and not smell. Many respondents are urinated no in the bathroom, not wipe and flush the toilet after a bowel /urinate. Respondents argued lazy to do so.

Self-care ability after modeling participant treatment

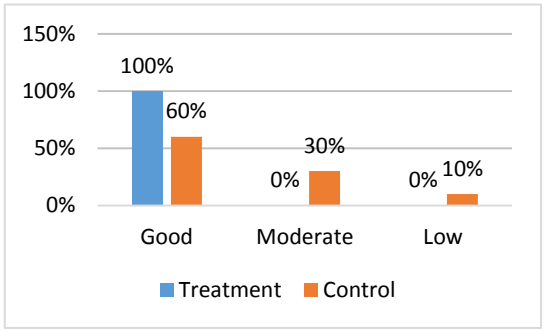

Figure 2 Self-care ability of respondents after Modeling participant treatment

Figure 2 shows that self-care ability of control group after given the treatment was 60% in good level. Whereas treatment group was 100%.

Modeling participant effect in self-care ability.

Based on table 1 the results of Wilcoxon Signed Rank Test showed an increased self-care ability in treatment group before and after modeling participant with p = 0.005 means p <α, then H1 accepted which means modeling participant effect was significant to self-care ability. The different result obtained in control group amount p = 0.206 means p> α> 0.05, then H1 rejected which means modeling participants effect was not significant to self-care ability in the control group. Mann-Whitney Test results showed p = 0.030 means p <α <0.05, thus self-care ability level after treatment shown significant differences between control and treatment group so it can conclude that modeling participant influence self-care ability in the schizophrenic client.

Table 1 Self-care ability level before and after given modeling participant treatment in control and treatment group at Dr. Radjiman Wediodiningrat Mental Hospital Lawang

No	Criteria	Treatment				Treatment			
		Before		Before		Before		After	
		Σ	%	Σ	%	Σ	%	Σ	%
1	Good	1	10	10	100	2	20	6	20
2	Moderate	7	70	0	0	7	70	3	70
3	Low	2	20	0	0	1	10	1	10
	Total	10	100	10	100	10	100	10	100
Statistics		p = 0.005 Wilcoxon Signed Rank Test				p = 0.206 Wilcoxon Signed Rank Test			
		p = 0.030 Mann-Whitney Test							

DISCUSSION

Schizophrenia is a disease affecting brain causes strange and disturbing of perceptions, thoughts, emotions, movement, and behavior (Videbeck 2008). Symptoms of schizophrenia include delusions, hallucinations, affective flattening or blunt, poor speech or meaning, blocking, self-care deficit, lack of motivation and social withdrawal (Sadock & Sadock 2010). Clients can be very preoccupation with delusions or hallucinations and failed to carry out basic activities in daily life (Videbeck, 2008). Schizophrenic disturbance such as behavior disorders, perceptual, cognitive disability will cause client can not take care of himself adequately. It can be seen from negative and positive symptoms. Clients did not care about individual, events, and activities. The client was not happy in joining life and activity, including self-care activities. Clients also experience loss of motivation and did not have the willing. Inability to take care of himself will emergence of self-care deficit problem.

Respondents with self-care in enough and less level were 41% aged 36-45 years. According to Mariner level of self-care ability of person affected by age, stage of development, life experiences, socio-cultural background, health, and available resources (Andayani 2012). States age is related to experience in dealing various kinds of stressors, the ability to use support resources and skills in coping mechanisms (Stuart & Laraia 2005; Perendrawati 2008). Stressor encountered in adulthood age is more complex than other age ranges, but adulthood is better selecting their basic needs and make a decision or take action which can improve their condition.

The education level of all respondents with less self-care ability are elementary school level. Factors affecting hygiene is knowledge. Personal hygiene knowledge is very important because a good knowledge can improve health level (Potter 2006; Kozier 2010). Clients also need motivation to maintain self-care. Person with higher education will get more knowledge about self-care so the motivation to care for themselves higher. Stuart & Laraia (2005), stating that education becomes a benchmark of client's ability to interact effectively. Education affects client's ability to make decisions, utilize surrounding information, receive feedback and skills, and motivation to solve problem itself.

Respondents with enough and less self-care ability in this study 82% were not working. Townsend (2005) in Parendrawati (2008) suggest that low socioeconomic is one of the social factors lead to high rates of mental disorders including schizophrenia. Work problems related to poverty, inadequate facilities, inadequate need of food, and housing, low health care quality of family members will trigger to limited coping on stressful situations. Respondents were not working have economic problems or low economic status. Economic problem was leading risk of developing schizophrenia. Economic conditions also affect to the fulfillment of daily needs, including needs their care.

All respondents with less self-care ability level were unmarried status. Dantas et. al. (2011) suggest that the incidence of schizophrenia is most occurs in not married status. The family role is very important to help and to support of client’s self-care, so clients with not married status possible get the support from family to resolve their health problems.

Most respondent amounts 76% with enough, and less self-care ability level were 1-2

times treated. Research of Andayani (2012) concluded that there is a significant correlation between frequency of respondents treated and self-care ability. Stuart and Laraia (2005) states that timing and duration of schizophrenic client exposure by stressor impact in the independence of self-care. A new schizophrenic client while first time exposing stressor require intensive efforts as primary prevention. Respondents with 1-2 times treated require intensive effort involving backup sources which owned by individuals, preventing self-care deficit becomes more difficult to overcome.

Respondents with enough and less self-care ability level as many 82% are schizophrenia hebephrenic clients. Schizophrenia hebephrenic characteristic is irresponsible and unpredictability behavior, mannerism, tendency to be alone, hollow and empty feeling. Affective, encouragement impulse, and thought processes disorders prominent (Amin 2009). These symptoms will influence to client's self-care ability.

As many as 66% of respondents with less self-care ability receive combination therapy of typical and atypical antipsychotics. Typical antipsychotic overcomes positive signs of schizophrenia such as delusions, hallucinations, thought disorder, and other psychotic symptoms, but does not have a visible effect on negative signs. Atypical antipsychotics can reduce psychotic symptoms and useful to reduce negative symptoms such as not having the wish and motivation, social withdrawal and anhedonia (Videbeck, 2008). Schizophrenia handling is not only by psychopharmacy but also by nursing care. The goal of nursing care in self-care deficit client is improving client's knowledge and self-care ability.

The majority of client's self-care ability before given modeling participant treatment are enough level and adequate enough to take care of them, but should be helped and motivated by the nurse. This is due to client's condition who are still experiencing positive and negative symptoms of schizophrenia such as hallucinations, fragmented thoughts or ideas, careless feeling of people, activities, events, tendency to be very little speaking or poor meaning, unenjoyment living, activities, or relationships, loss of motivation to act or perform the tasks, lack of desire, ambition or motivation, dull or limited circumstances emotional feeling, social withdrawal.

All respondents of treatment group after modeling participant treatment has increased to be a good level of self-care ability. The age range respondents of treatment group are 18-55 years or adulthood. According to Siagian (1995) in Parendrawati (2008), the older person related to technical maturity, psychological maturity which shows the soul maturity, it means more wisdom, able to think rationally, control emotions and considerate of others. Respondent age affects to decision-making ability and take action for self-care improvement.

As many as 90% of respondents in the treatment group with good self-care ability ever get one time of care frequency. Stuart and Laraia (2005) states that timing and duration of stressor exposure influence the achievement of self-care independent in schizophrenic clients. A new schizophrenic client when first time exposed stressor requires intensive efforts as primary prevention. Modeling participant is one of intensive efforts to prevent self-care deficit problems from becoming more complex. The treatment group was trained intensively to take care for themselves as bathing, dressing, eating, and bowel/urinate and trained to practice these capabilities. Self-care ability of control group in enough and less level have 2-3 times treated frequency and unmarried status. This indicates the client tendency to relapse due to lack of family support. Unmarried respondents lived with their parents, but the case is the parents too old, so an intensive effort to overcome self-care deficit problems at home are less than optimal.

As many as 70% of respondents in the treatment group with good self-care ability have elementary school education level. Ajzen and Fishbein (1980) in Parendrawati (2008) suggests the 'theory of reasoned' which cognitive process is people basis to decide or take appropriate behavior, systematically using nearby available information. The nurse duties as an educator are providing self-care knowledge on the schizophrenic client. In this study, respondents were taught how to take care of themselves well so that respondent can improve their self-care ability.

Self-care ability in treatment group increases significantly at 20% respondents, which previously in less ability level to be good ability level. Type of drugs taken by respondents is typical and atypical combination therapy. Typical antipsychotic overcomes positive signs of schizophrenia such as

delusions, hallucinations, thought disorder, and other psychotic symptoms, but does not have a visible effect on negative signs. Atypical antipsychotics can reduce psychotic and negative symptoms such as low motivation, social withdrawal, and anhedonia (Littrell & Littrell, 1998, in Videbeck, 2008). The main goal of combination therapy is improving the effectiveness of antipsychosis and treatment outcome in resistant patients, strengthen antipsychosis potential effect, reducing the risk of side effects in certain combinations (Revenger 2010). Giving antipsychotics may reduce negative symptoms and positive symptoms, moreover support a better understanding of modeling participants.

In the control group are found 10% respondents who experience decreased self-care ability. These respondents get typical antipsychotic. Typical antipsychotic overcomes positive signs of schizophrenia such as delusions, hallucinations, thought disorder, and other psychotic symptoms, but does not have a visible effect on the negative signs (Littrell & Littrell, 1998, in Videbeck, 2008). Atypical antipsychotics are better in improving the performance of client function than typical antipsychotics because it affects larger negative symptom improvement (Revenger, 2010). Antipsychotic treatment affects schizophrenia symptoms, so it will influence respondents to understand the modeling participants.

In general, self-care ability of the treatment group and the control group had increased. It because both treatment group and control group respondents get nursing care and psychopharmacy therapy. Increasing self-care ability in the control group was not significant compared treatment group.

Modeling participants in the treatment group were given two times in meeting for each topic as bathing, dressing, eating, and bowel/urinate. Every topic is given in a single day. Models in this study is schizophrenic clients with independent self-care ability and one same room with respondent. Researchers also conducted demonstrations to re-strengthening of topics were taught. The main focus of nursing care in self-care deficit client consists of two things: increase client's self-care knowledge and ability, and assist clients on their limitations and give caring which client can't do (Wilkinson & Ahern 2013). Purwanto (1999) in Parendrawati (2008) characteristic of learning is the change in people who learn, changes appears from not capable to be able. Modeling participants is a technique used in the treatment group to improve knowledge and ability. Researchers the model who have similarity characteristics with respondents so can motivate treatment groups to perform self-care independently, and changes in self-care ability became significantly.

Modeling participant implementation purpose improving cognitive, self-confident, and motivation through implementing basic components of modeling participant such rational, modeling, guided participation and successful experience/reinforcement. Modeling participants as techniques used to form a new behavior, improve skills and minimize avoidable behavior. In this study, new behaviors and skills which improved is the self-care ability (Iswanti 2012). Modeling participants also help clients performing a new behavior which obtains through appropriate way and time (Junaedi & Nursalim 2011). Researchers are applying modeling participants to change the maladaptive behavior of respondents to be more adaptive.

Modeling participants consist of four topics; bathing, dressing, eating, toileting. One topic is given in one day, and every topic is repeated twice. In practice, researchers explain the benefits of proper self-care (bathing, dressing, eating, and toileting) also related tools which needed. It makes respondents get a better understand about the importance of self-care. Furthermore, Independent schizophrenia model demonstrates self-care ability and respondent are giving attention. Researchers also demonstrate self-care ability again as reinforcement. The model who has to resemble character with respondent increase respondent motivation. These explanation and demonstration improve respondent-cognitive ability as knowing benefits and proper self-care manner.

Respondent is practicing self-care ability such as bathing, dressing, eating, bowel/urinate guided by researchers. Researchers also give positive feedback when respondents successfully practice self-care ability properly. Some respondents get difficulties when practicing self-care ability, but researchers continue to guide and motivate them by the state that model which respondent friends can do. It increases respondents self-confidence and motivation to try again.

Increased self-care ability in treatment groups after given modeling participant was appropriated with Iswanti study (2012), which indicates differences adherence medication in the treatment group who received behavior therapy as modeling participants, whereas no differences in the control group. Research of Ningsih & Sutjiono (2011) concluded modeling participant strategy increase student opinion ability in class.

Bandura (1969) in Corey (2009), states that learning can be obtained through direct experience, also can be obtained indirectly by observing other person behavior and consequences. There are two types of learning through observation, first learning through observation can be occurred by other people circumstances/conditions. Second; learning through imitate observation by model behavior (Boeis 2007; Winarto 2011). Respondents are schizophrenic clients with cognitive and perceptions disorder, so it will be easier for respondents to learn by watching and imitating. In modeling participants, respondents learn to observe model behavior who schizophrenic client with independent self-care performance.

The most efficient model was using the therapist as a model, but bigger advantage gained when use model who similar with the client (Ningsih & Sutjiono 2011; Junaedi & Nursalim 2011). The using of collaborative models by researchers and schizophrenic client give greater advantage such motivation and confidence, respondents prefer imitate their friends whose schizophrenic in the same room. In this research, there were two models who have gone home before the research end. These improve respondent motivation indirectly, motivation to improve their self-care ability because if they have independence as a model then will go home quickly.

Implementation of modeling participants affects self-care ability through the learning process. Gibson stated that ability is something learned, allows a person to do something as well, both in intellectually and physically (Syarifuddin 2012). Respondents were taught self-care as well. Thus self-care ability both physically and cognitively were increased.

Modeling participants are one form of modeling which the key element in modeling process (Winarto 2011). While according to Bastable (2002) modeling participants is attention, recall (retention), reproduction of motion (reproduction), and motivation. Attention means before imitating the model, respondent should pay attention or observe model behavior to learn. Recall (retention) is the ability to retain information is essential for the learning process. Clients must record this event in their memory. Reproduction of motion (reproduction) means after client knows and learn a behavior, clients can show their ability or produce which stored in the form of behavior. Mental exercise, direct application, and corrective feedback reinforce this behavior imitation. Motivation; motivation is important as client's driving to continue doing something. Vicarious reinforcement and punishment influence this process. Learning process in modeling participants improves self-care ability in the treatment group.

CONCLUSION

There are significant differences of respondent self-care ability in treatment group before and after given modeling participants.

Modeling participants can be used as supporting therapy to improve self-care ability in a schizophrenic client with self-care deficit problem.

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DEVELOPMENT OF TRANSACTIONAL COMMUNICATION MODEL FOR MIDWIFE AND POSTPARTUM MOTHER ON EXCLUSIVE BREASTFEEDING

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ABSTRACT

Introduction. Exclusive breastfeeding has become a major issue in Surabaya because the number of exclusive breastfeeding coverage are less than 80% which is below the national target. The purpose of this study was to develop a transactional communication model based on management between midwife and postpartum mother on exclusive breastfeeding. **Method**. The design used in this study was cross-sectional with 175 postpartum mothers in public health center Surabaya as the samples that recruited by purposive sampling. Questionnaires were used as instrument and data were analyzed by using descriptive statistical test and *Partial Least Square (PLS)*. **Result.** The result showed that predisposing factors and enabling factors were able to improve the practice of exclusive breastfeeding directly or indirectly by transactional communication with t-table (>1.96). However, reinforcing factors could not directly improve the practice of exclusive breastfeeding. This study indicates that practice of exclusive breastfeeding could be improved with transactional communication based on human interaction theory. **Discussion and conclusion**. The implementation of transactional communication between midwife and mother would be able to optimize the predisposing factors, enabling factors, and reinforcing factors on the practice of exclusive breastfeeding.

Keywords: transactional communication, practice of exclusive breast feeding.

INTRODUCTION

The Indonesian health law number 36, 2009 in article 128 explains that every baby is deserved to get exclusive breastfeeding from birth to six months, except on medical indications. As part of the government's commitment to increase breastfeeding rates, Indonesia has set up Indonesian Government Regulation number 33 of 2012 about exclusive breastfeeding. The regulation makes it possible to create an environment in which empowers women to exclusively breastfeed for the first six months and continue breastfeeding for two years or more. But this effort has not fully implemented by health worker and society. The most reasoning used are not enough breast milk, sick baby, mother's condition and various other reasons. In the end, the best solution is infant formula milk. The regulation of rooming in at the hospital, maternity clinics, and private midwives can not be implemented properly because of the limited space. Thus the mother and the baby is treated separately and might inhibit exclusive breastfeeding.

Based on data from Riskesdas on 2013 and Ministry of Health, exclusive breastfeeding coverage could not reach the Indonesian government target by 80%. Those caused by the high number of pre-lacteal feeding, working mother, and infant formula milk. Pre-lacteal feeding at the age of 0-5 months is an indicator of exclusive breastfeeding failure. The percentage of pre-lacteal feeding at 0-5 months is 44.7%. While the percentage of exclusive breastfeeding based on Surabaya City Health profile in 2012 was 60.52%, then increase slightly in 2013 become 62.67% and 64.33% in 2014. For the East Java province, the percentage of exclusive breastfeeding was 64.08% in 2012 and 68.48% in 2013. Although there was an increasing number, those indicate that the exclusive breastfeeding coverage, both in Surabaya and East Java still on the below of Government's target.

Based on Afifah's research in 2007, there were 11 out of 12 subjects failed to provide exclusive breastfeeding because most of them had given pre-lacteal feeding and there was only one subject who had been success giving exclusive breastfeeding until the baby was older than four months. The predisposing factors of the failure of exclusive breastfeeding are the lack of knowledge about exclusive breastfeeding and their beliefs about pre-lacteal feeding, hence encourage low motivation to provide exclusive breastfeeding. The enabling factors are a lack of counseling

or guidance about exclusive breastfeeding and unavailability of the rooming-in facility in clinical settings. The reinforcing factors are the lack of direction from midwife about breastfeeding and the strong influence of the mother (grandmother) for infants care in non-exclusive breastfeeding (Afifah 2007). One effort to improve the coverage of exclusive breastfeeding is their transactional communication between health worker and mother by adopting the behavior theory of Lawrence Green. The purpose of this research is to develop a model of transactional communication between midwife and patient on exclusive breastfeeding by postpartum mothers at health center in Surabaya.

METHODS

This study design was a cross-sectional (observatory). Samples were postpartum mother treated at health centers in Surabaya city. The sample size was determined by rule of the thumb formula. In this study, the number of the parameter was 37, so the samples were 175 respondents taken by multi-stage random sampling technique. There was 11 health center chosen by proportional random sampling. Respondent were determined by purposive sampling. Data analysis techniques used inferential analysis techniques to test the empirical model and the hypothesis proposed by the researcher. Inferential analysis using Structural Equation Modeling (SEM) was based on variance, called Partial Least Square (PLS). The research location was at the health centers in Surabaya which provided normal childbirth service. There was 21 health centers hospitalization.

RESULT

According to table 1, good knowledge, positive attitude, intermediate education, low socio-economic and support tradition were the dominant number of predisposing factors. Among enabling factor (table 2), good worker behavior, support infrastructure, and positive attitudes revealed the highest percentage. Among reinforcing factors namely good and positive public figure and understand legislation (table 3). The highest percentage of good seci 1 and good seci 2 was found within transactional communication factor (table 4).

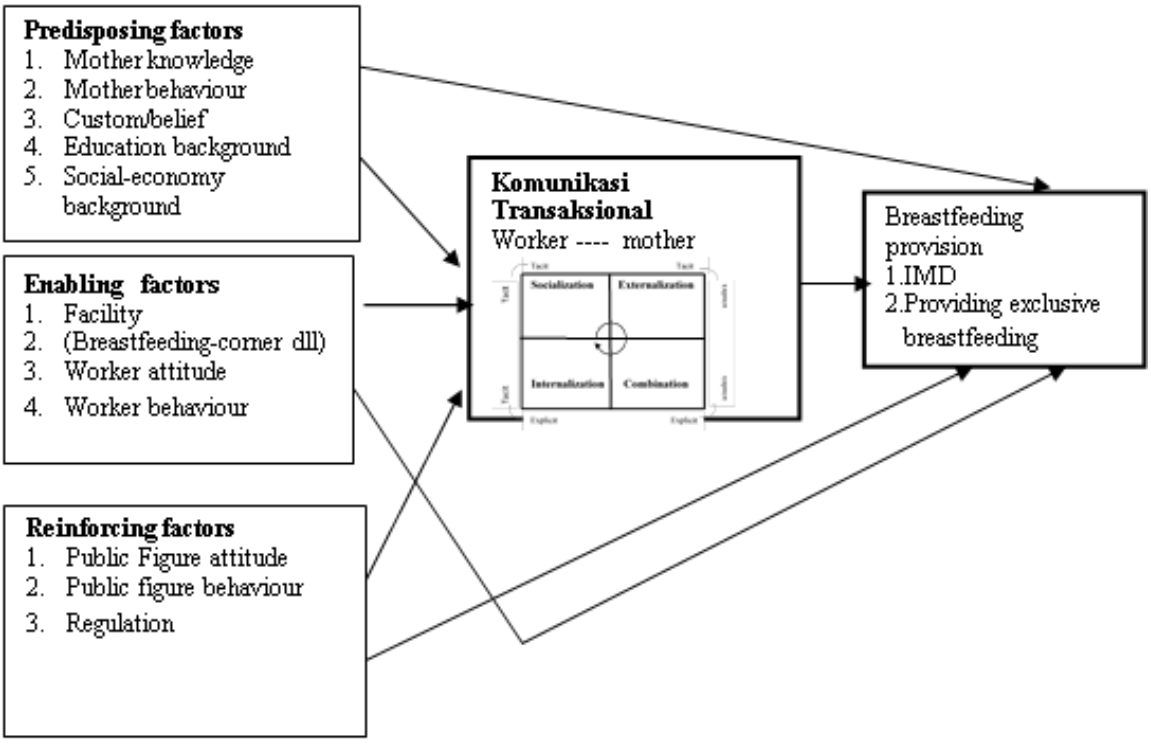

Figure 1. Model of Transactional Communication between Midwife and Patient based on Knowledge Management on Exclusive Breastfeeding Provision by Postpartum Mother

Table 1. Distribution Respondent based on Variable of *Factor predisposing*

No.	***PredisposingFactor***		**Frequency**	**Percentage**
	Dimension	**Category**		
1	Knowledge	Low	49	28.0
		Moderate	41	23.4
		Good	85	48.6
2	Attitude	Negative	20	11.4
		Positive	155	88.6
3	Education	Basic	66	37.7
		Intermediatte	87	49.7
		High	22	12.6
4	Socio-economic	Low	86	49.1
		Moderate	61	34.9
		High	28	16.0
5	Tradition	Does not support	32	18.3
		Support	143	81.7

Table 2. Distribution of Respondent based on *Enabling Factor* at Puskesmas, Surabaya, 2016

No.	***Enabling Factor***		**Frequency**	**Percentage**
	Dimension	**Category**		
1	Worker Behavior	Less	23	13.1
		Good	152	86.9
2	Infrastructure	Does not support	58	33.1
		Support	117	66.9
3	The attitude of worker	Negative	19	10.9
		Positive	156	89.1

Table 3. Distribution of respondents based on *Reinforcing Factor* at Puskesmas, Surabaya, 2016

No.	***Reinforcing Factor***		**Frequency**	**Percentage**
	Dimension	**Category**		
1.	Public Figure behavior	Less	78	44.6
		Moderate	0	0
		Good	97	55.4
2.	Legislation	Missunderstand	63	36.0
		Understand	112	64.0
3.	Public Figure attitude	Negative	33	18.9
		Positive	142	81.1

Table 4. Distribution of Respondent based on Transactional Communication Factor

No.	**Transactional communications**		**Frequency**	**Percentage**
	Dimension	**Category**		
1.	Seci 1	Less	28	16.0
		Moderate	60	34.3
		Good	87	49.7
2.	Seci 2	Less	30	17.1
		Moderate	58	33.1
		Good	87	49.7

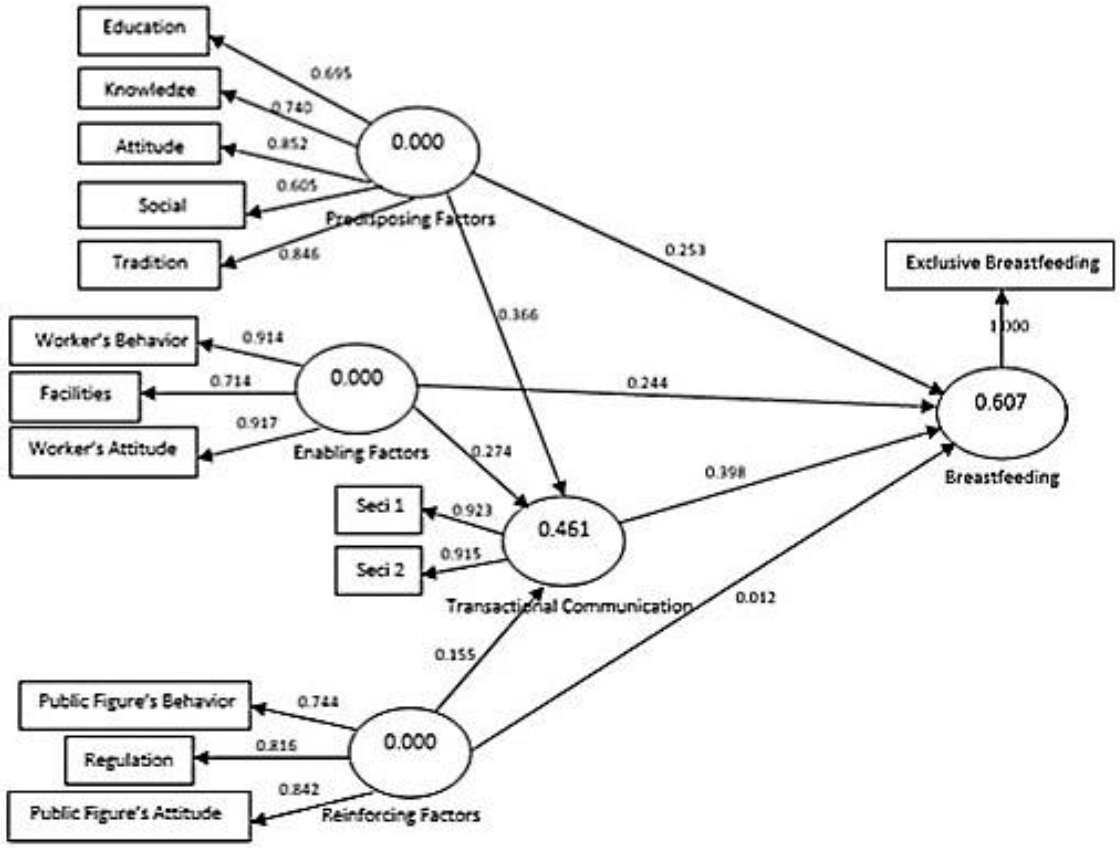

Figure 2. Result of Outer Model with Loading Factor Value using Partial Least Square (PLS)

The calculation shows predisposing factor variables, which were education, knowledge, attitude, socio-economic, and tradition, showed five dimensions had a *loading factor* value over 0.5 and t value was greater at 1.96. Among those five dimensions, which the greatest *loading* value was the attitude. Therefore, the attitudes, including the most influential dimension on the *predisposing factor*.

The enabling factor variable, which consists of worker behavior, infrastructure, and worker attitude showed three dimensions had loading factor value over 0.5 and t value was greater than it at 1.96. Among those dimensions, the worker attitude was the highest at 0.9170. Therefore, the worker attitude was the most influential dimension on *enabling factor.*

Moreover, reinforcing factors, such as public figure attitude, public figure behavior, and legislation, showed loading factor value at 0.5 and t was higher than the former at 1.96. Among them attitude of public figure was the highest at 0.8417. So, Public figure attitude was the most influential dimension on *reinforcing factor.*

Transactional communication variable shows that the dimensions of the first and second Seci had loading factor value over 0.5 and the greater value was t at 1.96. The greatest loading factor value was Seci 1 at 0.9231. Thus, the Seci 1 was the most influential dimension of transactional communication.

In breastfeeding variable, the number of dimensions was only one. So the value of loading factor for variable breastfeeding was 1. All variable constructs showed all variables had AVE value over 0.5. So that, the entire latent variables had good validity. Results of Cross loading for education, knowledge, attitudes, socio-economic, and tradition had a greater value on predisposing factor than other variables. Thus, the dimensions of a predisposing factor were different with another dimension.

Cross loading value of worker behavioral dimension, infrastructure and worker attitude were bigger than other

variables. So, the dimension of enabling factor was different with another dimension. Cross loading which was public figure attitude, public figure behavior, and legislation were higher than another variable. Therefore, the dimension of the reinforcing factor was different with another dimension. Cross loading value for Seci 1 and Seci 2 was greater than other variables. So, the dimension of transactional communications was different dimension with another dimension. The test results indicate that the constructs (variables) had a composite reliability value over 0.7. So it is reliable.

Inner Model Testing Stage (Structural Model Stage)

This structural model phase aims to determine whether there is influence between variables or not. The test is carried out by using t-test.Variable will have influence if t value is greater than t table. T table was at 1.96. Likewise, if the relationship among variables are negative, t value is smaller than t table. The calculation result can be seen in figure 3.

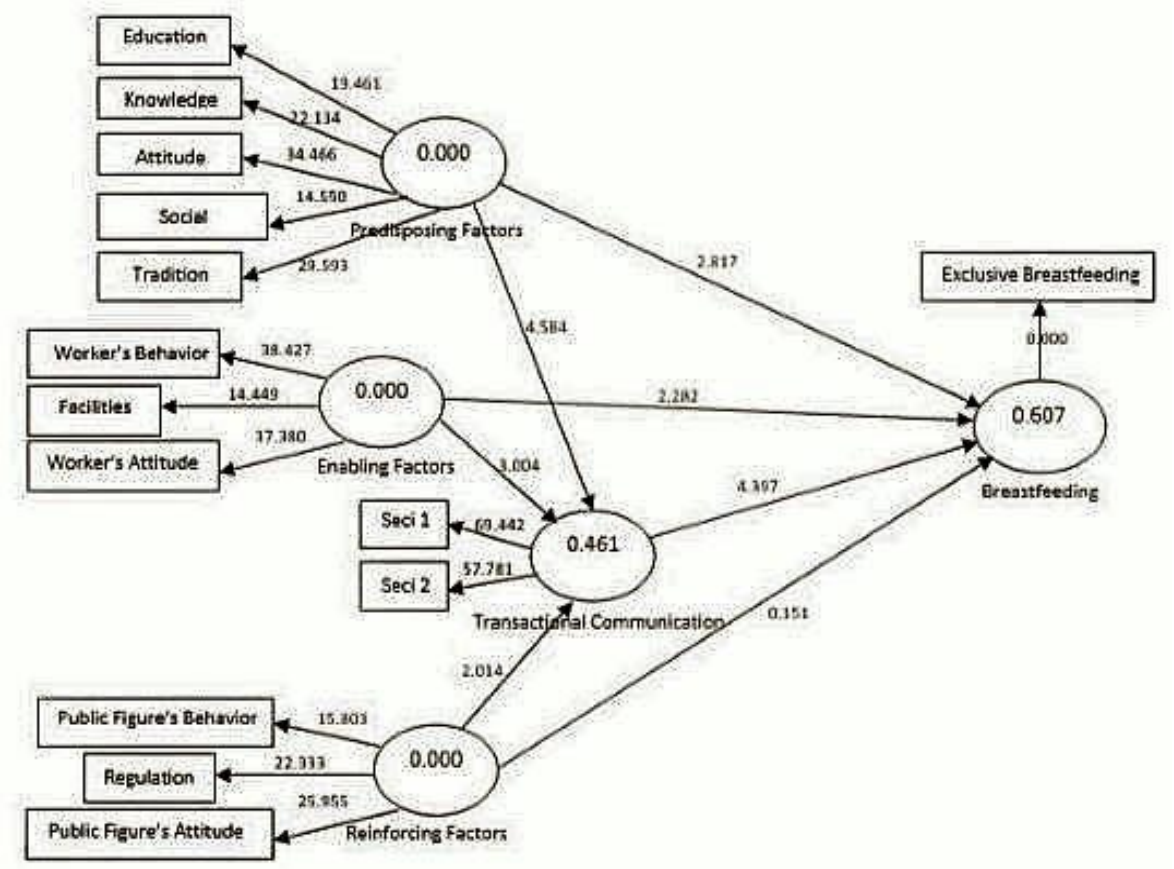

Figure 3. Result of Inner Model Test (Structural Model Stage)

Table 5. Path coefficient value and the t-Test among Variable

Relationship between Variables	path coefficients	t Statistics	Information
Predisposing factor → Communication Transactional	0.3660	4.5837	Ho rejected
Enabling factor → Communication Transactional	0.2740	3.0040	Ho rejected
Reinforcing factor → Communication Transactional	0.1553	2.0144	Ho rejected
Predisposing factor → Breastfeeding	0.2534	2.8172	Ho rejected
Enabling factor → Breastfeeding	0.2444	2.2818	Ho rejected
Reinforcing factor → Breastfeeding	0.0119	0.1505	Ho accepted
Transactional Communications → Breastfeeding	0.3981	4.3971	Ho rejected

Based on table 5, coefficient estimation of predisposing factors, reinforcing factors, and enabling factors for transactional communication had a positive value. It means the more improvement of those factors will increase the transactional communication. While the coefficient estimation of predisposing factors, reinforcing factors, and enabling factors for breastfeeding also had positive value, means that breastfeeding will be enhanced if those factors are increased. The positive value also seen on the coefficient estimate for transactional communication on breastfeeding, it means that transactional communication will lead to enhancement of breastfeeding.

T-test aimed to observe whether there was a direct influence or not. Based on t test on table 5, it showed that predisposing factors, enabling factors, and reinforcing factors had to influence to transactional communication. While the factors which had influenced to breastfeeding were predisposing factors, enabling factors, and transactional communication. Reinforcing factors did not had influence the breastfeeding behavior.

Testing Goodness of Fit

Test on the structural model was conducted with looking at the value of R-Square which is a test for the *goodness-fit model*. Testing of the model can be seen through R-square value on equality among latent variables. The value R^2 explains that how large exogenous (independent/free) in the model can explain the endogenous variables (dependent / dependent).

R square shows that predisposing factor, enabling factor, reinforcing factor influenced communication transactional which was at 0.4610 or 46.10%. Meanwhile, the influence of predisposing factor, enabling factor, reinforcing factor and communication transactional on breastfeeding was at 0.6069 or 60.69%.

In addition, the R-square model is also evaluated with the value of Q-square. The value of the Q-square can be calculated with: $Q^2= 1 - (1 -0.4610) (1 -0.6069) = 0.788$. Based on the result, it can be seen that the Q-square value was at 0.788. Because the value Q2 > 0, it can be concluded that the variables of a predisposing factor, enabling factor, reinforcing factor to the transactional communication had a good prediction of the breastfeeding.

The result of the AVE average was 0.7569 while the average of $R^2$was 0.5340 so that the Goodness of Fit Index (GOF) value was 0.6358. This value was good or great category. According to Tenenhau (2004), the value of GoF small = 0.1, GoF medium = 0.25 and GoF great = 0.38.

Table 6 indicates that the indirect relationship which was greater than the direct relationship was indirect relationship reinforcing factor against breastfeeding. However, other relationships in its direct influence were greater than its indirect influence, the namely direct relationship between predisposing factor and breastfeeding, and also enabling factor and breastfeeding.

Focus Group Discussion (FGD)

FGD conducted to get feedback from the coordinator of the health center, midwife, and postpartum mother at a health center in Surabaya about the strategic issues. The results and recommendation of FGD described in table 7.

Table 6. Indirect Relation and Its Comparison to Direct Influence

Indirect relationships	Originally coefficient	IndirectCoefficient	direct coefficient
predisposing factor➔breastfeeding	predisposing factor➔Transactional communications➔breastfeeding	0.3660x0.3981=0.1457	0.2534
enabling factor➔breastfeeding	enabling factor➔Transactional communications➔breastfeeding	0.2740x0.3981=0.1091	0.2444
reinforcing factor➔breastfeeding	reinforcing factor➔Transactional communications➔breastfeeding	0.1553x0.3981=0.0618	0.0119

Table 7. The result and recommendation of FGD

No	Theme	Recommendation
1.	The lack of commitment in providing exclusive breastfeeding her baby	• Personal counseling on exclusive breastfeeding had to be given from commencing pregnant to childbirth. • Improving maternal commitment to keep providing her breast milk by emphasizing on disadvantages of no giving exclusive breastfeeding and the benefits of breastfeeding, especially for health and child development.
2.	The lack of parent in-law (grandmother of the baby) support	• Socialization to grandmother about exclusive breastfeeding • Involving grandmothers in implementation of exclusive breastfeeding counseling • Class formation for grandmother that is focused on the material of exclusive breastfeeding and newborn care

Table 8. Development of Transactional Communication Model between midwife and postpartum mother

Structure	Standard	Development
Low practice/ behavior of mother in exclusive breastfeeding	1. Breastmilk is given from newborn to 6 months, and it continues to breastfeed until the child is 2 years old. 2. Personal counseling to a mother with transactional communication approach starting from pregnancy to childbirth.	1. Personal counseling on exclusive breastfeeding with transactional communication approach. 2. Increasing commitment to exclusive breastfeeding mother to her baby 3. Improving knowledge of grandmother about exclusive breastfeeding 4. Transactional communication is not only for mother but also for grandmother. Grandmother formation focuses on exclusive breastfeeding

DISCUSSION

The predisposing factor can improve transactional communication. Predisposing factor consists of education, knowledge, attitude, socioeconomic and tradition. Good knowledge, good education background, positive attitude of mother who support exclusive breastfeeding, proper learning, and positive tradition/culture that supports exclusive breastfeeding are factors that help health professional (midwife) to perform transactional communication based on knowledge management. Only a few mothers who still believe that breastfeeding will deform the breast and mothers are not allowed to eat certain food like egg, fish, chicken, and meat during breastfeeding. Those indicate only a few mothers had poor knowledge and attitude about breastfeeding.

Transactional communication can be delivered by socialization, counseling, and guidance on breastfeeding, information, and education about the benefit of breastfeeding, mother nutrition during lactation, and the negative consequences of infant formula. This communication can be done to the mother since the pregnancy until the period of exclusive breastfeeding. This is in accordance with Government Regulation No. 33 of 2012 about exclusive breastfeeding (Indonesia n.d.).

The *enabling factor* can improve transactional communication. *Enabling factor* consists of worker behavior, infrastructure, worker attitude, and communication media. In health care settings, personal communication occurs between health worker and client. In this study, interpersonal communication carried out between midwife and pregnant or postpartum. Interpersonal communication is effective communication between health worker and client. The most important media in interpersonal communication is language, both spoken and writing (Notoatmodjo 2007).

There are still some health centers not supporting to facilitate exclusive breastfeeding such as breastmilk storage because of limited

funds. The condition is not a significant problem because the mother usually returns 24 hours postpartum. On the other hand, midwives have been providing information to mothers about the importance of exclusive breastfeeding as well as the attitude of health worker who supports exclusive breastfeeding. It needs a commitment from all health workers, especially midwives to the success of exclusive breastfeeding. It has been stated in the regulations about breastfeeding, organizers of health care facilities are required to provide information and education about exclusive breastfeeding to mother and family member since her pregnancy.

The reinforcing factors also have an influence on transactional communication. Reinforcing factor consist of public figure attitude, public figure behavior, and regulation. The reinforcing factor is an amplifier for someone to change behavior such as public figure, law, regulation, and decree. Lawrence Green, 1984 in Notoatmodjo (2007) stated that health promotion is any combination of health education and interventions related to economic, political, and organizations designed to ease behavioral and environmental changes for health.

The attitude and behavior of public figures who support exclusive breastfeeding make easier the implementation of transactional communication based on knowledge management. The public figure will be easier to affect the surrounding community. Their attitude and behavior are role model for society. This condition makes easier the midwife to socialize public about the importance of exclusive breastfeeding. Figure support will improve community empowerment in health.

A predisposing factor which consists of knowledge, attitude, socioeconomic and tradition affects on improvement the exclusive breastfeeding. According to the theory of Lawrence Green in Notoatmodjo (2007) states that a person's behavior or public about health is determined by the knowledge, attitude, belief and tradition of the person or people concerned. Knowledge is an essential aspect to determine a person's behavior to realize and decide their behavior. Knowledge is one of the predisposing factors to behavior. Mother's knowledge about breastfeeding is one of the important factors in the success of breastfeeding. Research in Bangkok, Thailand on 221 mothers using questionnaires gave good result but the behavior of providing exclusive breastfeeding was low because there were other influential factor, namely: (1) the mother was busy as career woman; (2) the influence of other people / families who care for babies; (3) the absence of exclusive breastfeeding during antenatal; and (4) the provision of infant formula after childbirth in the hospital or health facility (Li et al. 2003).

The most contributing socioeconomic variable was a mother with incomes below the minimum wage and not providing exclusive breastfeeding. Purnamawati research (2003), there is a relationship between socio-economic and breastfeeding. The result also explains the low socioeconomic will have more chance (4.6 times) to breastfeed than mothers with high socio-economic. However, Yefrida cited by (Purnamawati 2003) said there was no relationship between socioeconomic and breastfeeding practice.

Socio-economic status of the family can affect a family's ability to produce or purchase the food. A mother from a low-income family is mostly less educated and access to health information is more limited than the mother with a high-income family so that their understanding of exclusive breastfeeding is low (Suyatno 2000).

The habit has two aspects, namely knowledge and practice. In fact, the practice is influenced by knowledge. If the traditional knowledge still exists, the practice will be still running. Therefore, the socialization does not only include activities providing new knowledge to the mother. What is more important is to convince the mother that the wrong habit can harm the baby's nutritional and health status (Maas n.d.).

Enabling factor affects to breastfeeding. Enabling factor consists of worker behavior, infrastructure, and worker attitude. The important role of health workers is to protect, promote, and support breastfeeding seen by their involvement in the social aspect. As an individual who has an important role in infant nutrition and health care, health worker have a unique position to influence the organization and function of mother's health services, in before, during, and after pregnancy and childbirth. Knowledge, attitudes, and behavior

of health workers in providing health services is crucial for breastfeeding.

Breastfeeding implementation by postpartum mother, health workers can provide a positive influence by demonstrating attitude to the mother and her family so that they see pregnancy, childbirth, and breastfeeding as an enjoyable experience gained in a friendly and supportive environment (Perinasia 1994).

Place of birth can also give effect to the provision of exclusive breastfeeding in infants because it is the starting point for mothers to choose whether to continue providing exclusive breastfeeding or give a formula given by health workers and non-health prior to her breastmilk come out.

The result of FGD has been agreed with the control of pregnant women to the health center, they will be given personal counseling on exclusive breastfeeding preparation and all aspects associated with exclusive breastfeeding. It is held with starting at trimester and continuing until after giving birth. Inadequate infrastructure such as breastfeeding corner, leaflet, and breastfeeding kit are obstacles for a counselor. It is same as a previous study showing that a breastfeeding counselor with good facilities and equipment has a tendency to have good performance when compared with a breastfeeding counselor that is not supported by complete facilities and equipment (Amirudin 2008).

There is no influence of reinforcing factor to breastfeeding. Reinforcing factor consist of public figure attitude, public figure behavior and regulation. Regulation or policy is a series of concept and principle guide to conduct a certain work. The policy is a guideline for action likely to get the desired result. A policy is a written rule that a formal decision of the organization which are binding and regulates behavior to create a new value system in society. If the policy at health center supports exclusive breastfeeding program, breastfeeding will be easier for six months during implementation. But if there is no policy, despite the knowledge and attitudes of health workers has been good to practice exclusive breastfeeding, it will still be an obstacle.

FGD concluded that health center does not provide or does not impose any infant formula with no excuse. The health center has imposed the rule that the child's birth will do the IMD and followed by exclusive breastfeeding and continued breastfeeding until the child is two years old. There is no effect of this regulation in improving exclusive breastfeeding behavior caused by a misunderstanding of client or mother. Or it could be due to the client merely know about the rules of exclusive breastfeeding. But do not understand the content of the regulation. Therefore, the rule which supports a policy should be socialized for client and society.

Transactional communication improves the mother’s behavior to implement exclusive breastfeeding. Transactional communication model emphasizes sending and receiving messages that continue over time in an episode of communication. Communication is a cooperative process, in which the sender and receiver of the message, the midwife and mother/patient, have a responsibility to the impact and effectiveness of communication (Komala 2009).

Transactional communication assumes that we are continually sending and receiving messages, dealing with verbal and non-verbal elements. In other words, communicant conducts on the negotiation process about the meaning of communication. Transactional communication has been done by the midwife with mother since the pregnancy, giving birth and post-partum. Personal communication aims to improve the knowledge, attitude, and practice of mother in breastfeeding (Rohim 2007).

Breastfeeding counseling is an effective way to enhance exclusive breastfeeding (Qureshi et al. 2011). The availability of breastfeeding counselor in a facility of health services is expected to provide information about the benefit, the way to breastfeeding well, and problem-solving in breastfeeding. Mother gets completely and intensively breastfeeding counseling or get counseling at least 5 visits which are more likely to provide exclusive breastfeeding until six months (Nankunda et al. 2010).

Transactional communications model between midwife and patient is based on knowledge management. It used analysis of measurement model and structural model and then compared with the initial model. The result of the structural model is described on figure 4. Exclusive breastfeeding behavior can

be improved by improving the quality of transactional communication. It also needs to consider predisposing factors, enabling factors and reinforcing factors. The effective transactional communication between midwife and mothers will be able to optimize the behavior of exclusive breastfeeding.

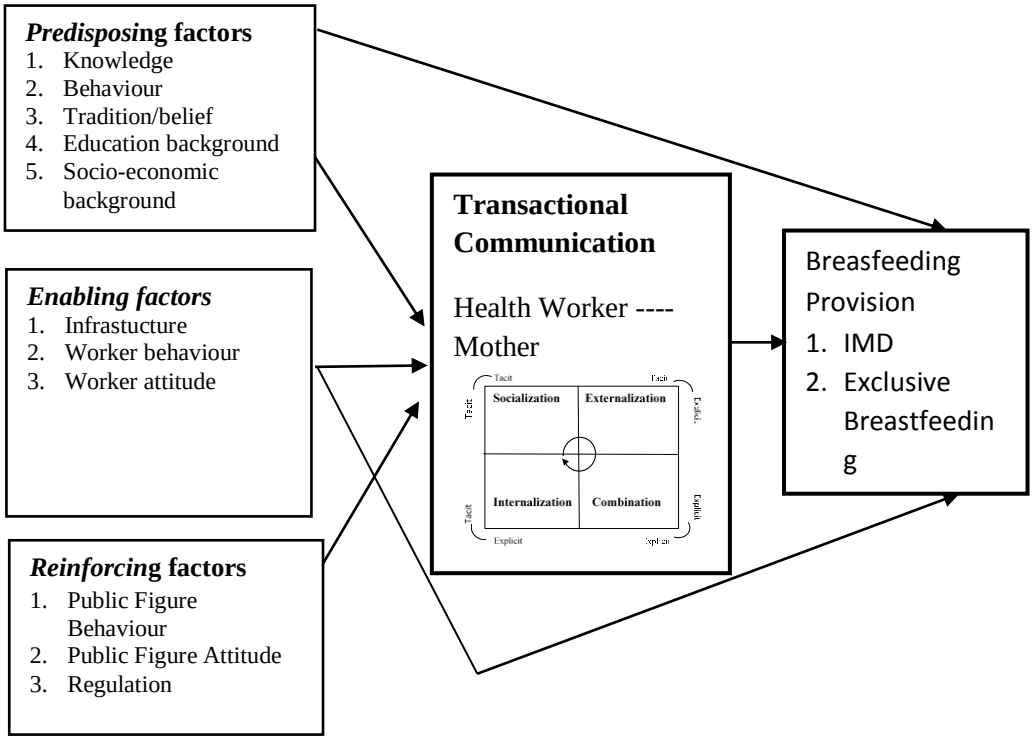

Figure 4. Research Finding of Transactional Communication Model between Midwife and Post-partum in providing exclusive breastfeeding

CONCLUSION

Predisposing factor, enabling factor, the reinforcing factor can improve the process of transactional communication and improve the behavior of mother to give exclusive breastfeeding. Transactional communication between the midwife and the client can improve the behavior of mother in exclusive breastfeeding. *Reinforcing factor* can improve the transactional communication between midwife and client, but can not increase directly to the mother's behavior in exclusive breastfeeding. *Reinforcing factor* will be able to improve the behavior of mother in exclusive breastfeeding if there has been an effective communication between the midwife and client. Transactional communication between the midwife and client has an important role to improve mother's behavior in increasing exclusive breastfeeding provision.

It needs further studies related to mother's behavior in exclusive breastfeeding by testing a model of transactional communication between midwife and client in health improvement, both of mother and baby's health. The midwife needs to improve transactional communication between midwife and client.

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PSIKONEUROIMUNOLOGY APPROACH TO IMPROVE RECOVERY MOTIVATION, DECREASE CORTISOL AND BLOOD GLUCOSE OF DM TYPE 2 PATIENTS WITH DHIKR THERAPY

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ABSTRACT

Introduction: Blood glucose levels are controlled when the management of diabetes success. Positive perception of the strength of the spiritual aspect will improve the motivation of patients with type 2 diabetes to control it. The purpose of this study was to determine the effect of dhikr based on psychoneuroimmunology (PNI) on blood glucose levels of patients with type 2 diabetes. **Methods**: This study used *quasi-experiment* with *pre-test and post-test control group design*. Samples were taken from the population of patients with type 2 diabetes who were hospitalized in the Internal Medicine Rumkital Dr. Ramelan Surabaya with purposive sampling techniques. Data taken include the general characteristics of respondents, cures motivation, cortisol levels and fasting blood glucose levels. Collecting data using questionnaires and laboratory test, then analyzed using paired t-test and independent t-test, with α value <0.05. **Results**: Statistical test showed that the motivation to recover increased (p = 0.001), cortisol levels fall (p = 0.058) and a drop in blood glucose levels (p = 0.028) after administration of dhikr therapy in patients with diabetes mellitus type 2. There was a significant difference in increased of recovery motivation between patient conduct zikr therapy and patient cared (p = 0,000). **Conclusion**: Dhikr therapy increases the motivation of patients with type 2 diabetes by strengthening awareness and spirituality belief in Allah make positive stress perception. Positive stress perception will affect the stress response and improved regulation of blood glucose through the HPA axis to suppress the secretion of CRH, ACTH, and cortisol.

Keywords: dhikr, diabetes mellitus type 2, recovery motivation, cortisol, blood glucose.

INTRODUCTION

A preliminary study that has been given to 5 patients with type 2 DM being treated in disease room in Navy Hospital of Dr. Ramelan in Surabaya reveals that two patients of them are found to have been doing dhikr every day during treatment period resulting in blood glucose level decreasing from >300 mg/dl when initially admitted to the hospital to < 200 mg/dl in average. Three other remaining patients have never been doing dhikr during the treatment period with blood glucose level of > 200 mg/dl in average. DM patients are aware of DM management principles, yet many of them still have uncontrolled blood glucose level. Several factors found to affect blood glucose level directly include diet, physical activities, and antihyperglycemic drugs. Meanwhile, factors indirectly affecting include cognition, perception, spirituality and motivation (Ariani 2011). Currently, blood glucose level reduction in patients with type 2 DM doing a spiritual activity (dhikr) is yet to explain.

According to data provided by WHO (2010), Indonesia is the fourth country with most people with DM in the world. Research made by DiabCare in Indonesia reveals that 47.2% patients with type 2 DM in Indonesia have poor control to blood glucose level with fasting blood glucose level >130 mg/dl (Soewondo, et al. 2010). Navy hospital of Dr. Ramelan Surabaya has ranked type 2 DM on the second position from top 10 diseases treated with inpatient treatment, which is 951 cases in 2015 (2015 recapitulated data from Navy hospital of Dr. Ramelan Surabaya). Chronic diabetes mellitus and potentially leading to serious complication often result in both financial and psychological problems as well as degrading life quality (Coffey et al. 2002). Patients with DM frequently suffer from several psychological problems including boredom, desperation, frustration and depression (Schumacher & Jacksonville 2005).

Change in lifestyle is a necessity for patients with type 2 DM to maintain their life quality. Many types of research have been conducted about management of patients with type 2 DM with various approaches, including, among others, cognitive approach to lecturing/education, effective approach by teaching compliance with diet control and physical activities, psychomotor approach with

diabetic exercises (Schumacher & Jacksonville 2005; Sousa & Jaclene 2005), unfortunately, those interventions, however, won't be lasting since patients will have boredom, even pessimism (Yuana 2013). Human is a holistic creature that consists of biological, psychological, sociocultural and spiritual dimensions that have interrelationships among those dimensions (Potter & Perry 2009). Imbalance occurring in one dimension will be compensated with the enhancement in another dimension. Psychospiritual aspect plays an equally important role compared to other aspects of maintaining individual health. Self-Determination Theory mentions that individuals intrinsically motivated, which can make a choice of their needs will be able to adapt and treat themselves directly and maintain their health (for example, blood glucose level control and complication prevention) (Adam 2012);(Ariani 2011). One aspect found to be able to improve individual perception to their ability is spirituality aspect (Baldacchino 2008). Spirituality significantly helps patients in adapting to changes caused by various chronic diseases. Spiritual healing technique held with good regularity and continuity may helpfully support conventional therapy. Spiritual healing in Islam refers to the spiritual belief that affects psychological, physical and spiritual aspects (Ibrahim et al. 2011).

Dhikr is one type of spiritual therapy that is easy to do (spoken, recited silently within the mind and through deeds) and affects cognition by improving perception, positive motivation and effective coping (Sholeh 2009). Psychologically, dhikr provides comfortable feeling and spiritually result in closer feeling with Allah (Khan 2009). Positive perception will then induce hypothalamus to secrete hormones that modulate immunity system. The modulation, in turn, results in lowered HPA axis activity leading to lowered cortisol level. Lowered cortisol level affect metabolism that decreases insulin resistance (improving blood glucose uptake into cell and tissue) and prevents glucogenesis. Therefore blood glucose level is controlled (Brown 2012; Putra 2011).

METHOD

This study used quasi-experiment (pre and post test control group design). This research was conducted in Dr. Ramelan Navy Hospital Surabaya after getting ethical clearance from the ethical commission of Dr. Ramelan Navy Hospital. Population were patients with type 2 diabetes mellitus who hospitalized in Rumkital Dr. Ramelan Surabaya in June 2016 (37 patients), samples were patients according to criteria of inclusion and exclusion using purposive sampling technique, there were 19 patients, that divided into two groups, 10 patients in intervention group, and 9 in control group. Independent variable in this study was dhikr therapy. The dependent variable in this study was the recovery motivation, blood glucose and cortisol level of type 2 DM patients. The research instruments include: dhikr therapy was given based on the guidebook, recovery motivation was measured using a questionnaire that combines from Stroke Rehabilitation Motivation Scale (SRMS) and The Ironson-Woods Spirituality Index. There were 30 questions in the questionnaire, fasting blood glucose and cortisol level was measured using laboratory test. The data has been analyzed using paired t-test, Wilcoxon test, and independent t-test.

RESULT

Table 1. Analyze result deferent test (pre-post) recovery motivation, cortisol and blood glucose level in intervention group

	Mean	SD	P-value
Recovery motivation pre-intervention	88,3	5,69	T-test 0,001
Recovery motivation post-intervention	98,6	5,04	
Cortisol level pre-intervention	26,91	8,67	T-test 0,058
Cortisol level post-intervention	19,24	8,25	
Blood glucose level pre-intervention	257,6	69,26	Wilcoxon 0,028
Blood glucose level post-intervention	201,3	47,01	

Table 2. Analyze result deferent test (pre-post) recovery motivation, cortisol and blood glucose level in control group

	Mean	SD	P-value
Recovery motivation pre-intervention	88,3	5,69	T-test 0,001
Recovery motivation post-intervention	98,6	5,04	
Cortisol level pre-intervention	24,87	6,64	Wilcoxon 0,260
Cortisol level post-intervention	25,15	8,11	
Blood glucose level pre-intervention	257,6	69,26	Wilcoxon 0,028
Blood glucose level post-intervention	201,3	47,01	

Table 3. Analyze result different (post-post) delta recovery motivation, delta cortisol level and delta blood glucose level in intervention group and control group

	Mean	SD	P-value
Recovery motivation post-intervention in intervention group	98,6	5,04	T-test 0,000
Recovery motivation post-intervention in control group	86,7	4,06	
Cortisol level post-intervention in intervention group	-7,66	11,16	T-test 0,115
Cortisol level post-intervention in control group	0,28	9,49	
Blood glucose level post-intervention in intervention group	-56,3	69,38	T-test 0,592
Blood glucose level post-intervention in control group	-39,0	68,30	

DISCUSSION

Difference in motivation to recover in patients with type 2 DM between treatment and control groups

Table 3 reveals that difference in motivation to recover in patients with type 2 DM between treatment and control groups after receiving intervention for the period of five days is significantly different. The finding is also clarified by figure 1 showing positive average delta value of patients doing dhikr, while patients in control group showing negative average delta value.

In the concept of PNI, stressor received by an individual will be responded by two responses, including stress perception and stress response. Stress perception comes in the form of the learning process to produce a positive response. When the response is positive, the resulting response will be adaptive. This is in accordance with research by Hardhiyani (2013) stating Islamic spiritual guidance may improve motivation of patient with DM to recover. Prayitno (2015) suggests that prayer and dhikr may be used as a method to lower depression of those with chronic diseases, where lowered motivation is a preliminary sign of depression. Motivation is a process that simply occurs, rather underlined by certain requirement (motive) that drive the motivation. Motivation occurring within oneself is highly affected by his/her perception. Perception is transaction process of judging an object based on individual's previous experience, attitude, expectation, values, and spirituality (Hardhiyani 2013).

Dhikr in this research serving as stressor consists of three types, including jahr, sir and fi'ly. Dhikr of jahr that is spoken will be captured by the organ of hearing passing to the brain through temporal lobe (God spot), which is a tiny nerve able to respond to religious and divine aspects (center of spirituality) and then continued to prefrontal cortex. Dhikr's of jahr and sirr (recited silently within the mind) are then fused in prefrontal cortex in the form of the deliberative learning process through processes of selection, organization and interpretation to a stressor (recitals and meanings of dhikr verses) received that result in positive perception. In order to optimize the learning process in patients with type 2 DM, an emphasis should be given to meanings of each recital of dhikr's, so with the help of cognitive understanding, will help awareness rising from learning wisdom to controlling temper and improving motivation of patients with type 2

DM. The forming of positive perception is then strengthened by dhikr of fi'ly that integrates between mind, feeling and attitude into one single entity to obtain God blessings. Therefore, a perception developed with the improvement of spirituality aspect (dhikr) will affect the psychological reaction, which is motivation to recover and visible behaviors.

Difference in blood glucose level in patients with type 2 DM between treatment and control groups

Table 3 reveals that no significant difference is observed in cortisol level between treatment and control groups. The finding is clarified by figure 2 showing patients doing dhikr have changing negative cortisol level (lowered) in comparison to control groups, despite slight difference.

This is according to research (Satiti 2013) that the dhikr can calm down, reduce stress and depression, as well decrease cortisol levels. (Sholeh 2009) Suggest that tahajud praying therapy by approaching psychoneuroimmunology shows that prayer is humility can increase endurance, reduce the risk of heart disease and increase life expectancy for this therapy can lower cortisol levels. Antoni et al. (2006) mention the emotional and spiritual response were controlled by providing materials and training of remembrance and focus praying in some nurses can decrease cortisol levels than the average nurse 181.14 ng / ml to 88.43 ng / ml.

Dhikr which done with awareness and sense of sincerity including the integration and relationship of body and soul can improve healthy by setting breathing gently, surrender, voiced jahr and sirr, concentration to maintain the balance of the unification of the self, both physically and spiritually to an object that is God (Wilcox 2003). The psychological dynamics through spiritual activities (meditation, remembrance, prayer, prayer) will make a person feel a closeness with God and experience the relaxed state (relaxation), quiet and peaceful (Istiqomah 2011). When remembrance (relaxation) occurs activation response relaxation areas such as the amygdala and hippocampus. Another effect is influenced by the remembrance race molecular signal. Molecules such as nitric oxide, endocannabinoids, endorphin or enkephalin role in the placebo response that causes a feeling of comfort and relaxation as well as have the capacity antagonist to stress. Effects of the relaxation response and the molecular signals that cause repose of the respondents who followed the standard intervention room with reme of the respondents group who followed the standard intervention room with dhikr.

Besides other lines is due dhikr causes relaxation therapy is expected to activate brain structures such as the frontal lobe and limbic areas, indicating the important role of emotions and beliefs, will also improve the immune system and decrease cortisol levels.

In the concept of psychoneuroimmunology, dhikr as a stressor affects the stress perception and stress response that occurs in the body. Stress response occurs through setting nervous and endocrine systems in producing neurotransmitters and hormones that modulate the immune system, one through the HPA axis. Emotions which are controlled in amygdala can affect the hypothalamus in reducing the secretion of CRH, a decline of CRH will be responded by the adrenal to reduce secretion of ACTH, it can decrease cortisol secretion in the adrenal cortex, so that the stabilization of emotional and spiritual states can be observed from the adrenal hormone fluctuation.

Difference in blood glucose level in patients with type 2 DM between treatment and control groups

Table 3 reveals that no significant difference is observed in blood glucose level between treatment and control groups. The finding is clarified by figure 3 showing patients doing dhikr have changing negative blood glucose level (lowered) in comparison to control groups, despite slight difference.

One channel playing a role in regulating blood glucose level is HPA axis through modulated cortisol (Sherwood 2011). Modulated cortisol through dhikr therapy as discussed earlier will affect metabolism process in the body, through the suppression of catalyst enzyme production in the process of glycogenesis in liver (glucose 6-phosphatase enzyme), thus leading to lowered protein decomposition rate to become glucose. Another metabolism effect of the lowered cortisol level in the long term is to increase cellular sensitivity to insulin which is the main

issue patients with type 2 DM (Black & Hawks 2009). (Yanti 2012) Has proved that dhikr therapy for the period of five (5) days (conducted twice a day) has higher effectiveness in reducing blood glucose level in patients with type 2 DM in comparison to Benson relaxation. Research by Sofia (2012) shows that combination of Fluoxetine and Self Surrendering Practices can improve blood glucose level control, inflammation degree and life quality of diabetic patients suffering from depression.

Meanwhile, blood glucose of control group measured after intervention shows reduction as well, yet not significantly different. Reduction observed in blood glucose in control group mostly due to effect of diabetes mellitus medication in the disease room, which is insulin-giving therapy not followed with improvement in perception (proven with lowered motivation to recover), thus lowering blood glucose level not significantly different as with treatment group. This clarifies the importance of providing treatment to patients with type 2 DM starting with improvement in perception about his/her illness condition, therefore leading to higher effectiveness in other therapies involved, in this case including medical therapy (curing) in order to maintain controlled blood glucose.

Diabetes is considered multifactor disease since many factors have influence and to control them, good management is required from various aspects, including, knowledge, understanding, attitude and behavior. Fluctuation in blood glucose of patients with type 2 DM is affected by several factors, including diet, physical activities, physical and emotional stress as well as antidiabetic drugs or insulin (Ariani 2011). Taken those factors into account, one can say that to maintain controlled blood glucose, a synergistic relationship is required to exist between the state of mind affecting body's physiological process and the establishment of positive behavior. Observing those factors, then dhikr of jahr, sirr and fi'ly have an influence on emotional stress controlling factor as an initial response in perception process. It is then visible in patient motivation to recover. In the next stage, it will impact physiological response in the body through neurohormonal regulation in this case HPA axis (cortisol level), while to obtain positive behavior response in the form of compliance in diabetic management (diet, physical exercise) requires longer time with higher intensity (Ariani 2011); (Fishier et al. 2010) In research by Aini et al. (2010), motivation and education given through home visit for the period of one (1) month (once in a week) may improve patient behavior in DM management. Cortisol regulation therefore is one of many factors that affects blood glucose level in patients with type 2 DM.

CONCLUSION

Psychoneuroimmunology approach using dhikr therapy improve blood glucose regulation through increased recovery motivation, decreased cortisol and blood glucose level.

Improve stress perception to repair stress response is needed to increase health quality level. Nurses can improve patient's perception through giving an understanding about the purpose of life (worship God) and instill positive thinking on everything, especially in patients with chronic diseases.

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HEALTH CARE-SEEKING BEHAVIOUR OF COASTAL COMMUNITIES IN BANYUWANGI, INDONESIA: RESULTS OF A CROSS-SECTIONAL SURVEY

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ABSTRACT

Introduction: Improving health care-seeking behaviour of the coastal communities is a pathway to improving their health. This analysis aims to explore the health care-seeking behaviour of coastal communities in Banyuwangi District to recommend room for improvement for health promotion and health service improvement for these communities. **Method:** Data from a cross-sectional survey of metabolic syndrome and mental health conducted in coastal communities in Banyuwangi were used for analysis. Randomly selected participants from a list of members of the Family Welfare Development Group (Pembinaan Kesejahteraan Keluarga/PKK) were asked for an interview at corresponding village offices in Ketapang, Bangsring, Bulu Agung, Grajagan and Kampung Mandar village. Distribution of health care-seeking behaviors was analysed individually and where possible segregated by gender and age. **Results:** More than half of the coastal communities in Banyuwangi District went to health care services to seek health and 7 out of 10 turned to health care services to seek health for their family members. Women more than men turned to health care services when they or their family members fell ill. Private doctors rather than Puskesmas were more popular. Private midwives were the most popular service for antenatal care (ANC) and delivery. Although there was not a clear increase in health care service utilisation over time, we found that contraceptive utilisation increased with time. **Conclusion:** The utilisation of health care services in Banyuwangi needs to be further promoted especially for men's health.

Keywords: health care-seeking behaviour, health care services, maternal health care, coastal communities

INTRODUCTION

As an archipelagic country, Indonesia has a long coastline and abundant marine and coastal resources (Hutomo & Moosa 2005). Under Joko Widodo's government, Indonesia is currently focusing its efforts on developing its marine and coastal resources to build an independent, advanced and strong maritime country (Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional 2014). In addition, the government of Indonesia also has a mission to create a high and advanced quality of life for Indonesians (Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional 2014). Consequently, development of human resources in the coastal communities is an obvious pathway to take. However, the health of the coastal communities, as one important factor for quality human resources, is yet to be optimally improved.

Understanding health care-seeking behaviour is an important factor in providing for the needs of community (Musoke et al. 2014). Coastal communities in Indonesia are usually poor and have low education (Cahaya 2015). These two factors alone may affect their health care-seeking behaviour in a way that will eventually affect their health. Basic Health Research 2013 reported that only 88.5% of farmers and fishermen access antenatal care service (ANC) and 71.2% went for ANC at least 4 times. It was also reported that 25% of people from these groups of the population give birth without assistance from health professionals (Kementerian Kesehatan RI 2013a).

Banyuwangi, a district located in East Java, has ten coastal subdistricts and 176 km of coastline (Badan Pusat Statistik Kabupaten Banyuwangi 2015). Banyuwangi district government is rapidly developing its tourism industry throughout the region including in coastal areas (Pemerintah Kabupaten Banyuwangi 2011). Banyuwangi government also set improving health and access to healthcare as one of its development strategies (Pemerintah Kabupaten Banyuwangi 2011). Therefore, health care-seeking behaviour is expected to change either through specific targeting of health improvement or the growing economy of the district. However, studies on health care-seeking behaviour of Banyuwangi's coastal communities and the change over time is scarce. This study aims to

explore health care-seeking behaviours of the coastal communities in Banyuwangi to discover room for improvement in health services and health promotion in this area.

METHODS

The analyses used data from a survey of metabolic syndrome and mental health conducted in coastal communities in Banyuwangi in September – November 2016. A permit for the survey was obtained from Banyuwangi's Badan Kesatuan Bangsa dan Politik and Banyuwangi District Health Office. Ethical clearance was approved by the Ethical Committee of the Faculty of Public Health of Universitas Airlangga in Surabaya, Indonesia no 521-KEPK.

The original cross-sectional survey was conducted on 100 women and 51 men randomly selected from members of the family welfare development groups (Pembinaan Kesejahteraan Keluarga/PKK) in five randomly selected villages.

The selected villages were Ketapang in Kalipuro Subdistrict, Bangsring in Wongsorejo Subdistrict, Bulu Agung in Silir Agung Subdistrict, Grajagan in Purwoharjo Subdistrict and Kampung Mandar in Banyuwangi Subdistrict. The respondents were requested to come to their corresponding village office for an interview and health checks. The interview was conducted one on one with trained data collectors after the consent process.

For the analysis of overall health care-seeking behaviour, we included from the dataset men and women of productive age (aged 15–64 years old). For maternal and child health care-seeking behaviour we limited our analysis to women of reproductive age (15–45 years old). Distributions of health care-seeking behaviours were analysed individually and where possible were segregated by gender and age. Descriptive analysis was conducted using Stata 11.

RESULTS

There were 97 women (66.4%) and 49 men (33.6%) in the analysis of overall health care-seeking behaviour. Most respondents were 40–49 years old (43.2%) and the mean age was 44.04 ± 10.21).

Table 2 shows that most respondents reported going to health care services (55.2%) when they fell ill. Slightly more women (58.3%) than men (48.9%) preferred to go to health care services. Men preferred to purchase medicine over the counter when they were sick. For those who went to health care services, most respondents reported they went to private doctors (48.1%), followed by Community Health Centres (Puskesmas) or Auxiliary Community Health Centres (Pustu) (29.1%).

When their family members became sick, most respondents also reported taking their family members to health care services. The proportion of respondents who took their family members to health care services was greater than when they were sick (70.4% vs. 55.2%). More women reported taking their family members to health care services. The top three choices for health services for family members were private doctors (40%), Puskesmas/Pustu (31%) and private midwives (23%). We did not find a clear increase in health care service utilisation with decreasing age.

Women were involved in all decisions regarding their health, including going to health services for a cure or health checks or for purchasing medicine or vitamins (Table 2). Most men reported that their spouse was not involved in the decisions regarding men's health. In fact, only 36,2% of men reported that their spouse alone or together with him made decisions to go to health services when he had fallen ill; 38.6% reported that their spouse was involved in the decisions to go to health service for disease prevention or health checks, and 40.8% reported women's involvement in purchasing medicine for their spouse.

Nearly 70% of women of reproductive age went to a private midwife for ANC for her youngest child. The utilisation of private midwives tended to reduce with time. Village level services such as Posyandu, Polindes or Poskesdes were accessed more by women aged 30–39 years old. For delivery, 67.2% of women chose maternity clinics or health professionals' private practices, followed by hospital birth (23%). Although most women breastfed their children, only 48.4% of women exclusively breastfed their children. However, younger women exclusively breastfed their children (63.6%) compared to older women (54.6% for 30–39 years old and 37.9% for 40–

45 years old), showing an increase in the practice over time (Table 3).

Seventy percent of women reported using contraception currently. There was an apparent increase in trends towards birth control use with time. Younger women used contraception more commonly compared to older women (Figure 1). Most women used injectables (48%) followed by pills (20%) and Intrauterine devices (IUDs) (17%). There was an increasing trend towards the use of pills and implants as more younger women used pills and implants than older women (Figure 2).

We found a similar tendency when we limited our analysis to maternal health care-seeking behaviour amongst women with children under five years old (n=27). In this subset of women, 51.8% went to private midwives for ANC, 51.9% went to maternity clinics or private health professionals followed by 40.7% who went to hospitals for delivery, and 48.2% exclusively breastfed their children. More women currently used contraceptive methods in this subset of women (89%), with birth control injectables and pills remaining the top two favourite contraceptive methods.

Table 1. Health care-seeking behaviour of male and female respondents aged 15–64 years old

Questions and Categories	Women		Men		Total	
	n	%	n	%	N	%
What do you do when you are sick?						
Nothing	1	1.0	2	4.3	3	2.1
Buy medicine in shops	25	26.0	16	34.0	41	28.7
Buy medicine in pharmacies without prescription	4	4.2	3	6.4	7	4.9
Go to health care services	56	58.3	23	48.9	79	55.2
Other	10	10.4	3	6.4	13	9.09
If you go to health care services which health care services do you go to?						
Community Health Centre (Puskesmas) / Auxiliary Puskesmas	17	30.4	6	26.1	23	29.1
Private midwife	10	17.9	2	8.7	12	15.2
Private nurse	3	5.4	2	8.7	5	6.3
Private doctor	26	46.4	12	52.2	38	48.1
Private hospital	0	0.0	1	4.4	1	1.3
What do you do if a member of your family is sick						
Nothing	1	1.1	0	0.0	1	0.7
Buy medicine in shops	17	17.9	12	25.5	29	20.4
Buy medicine in pharmacies without prescription	3	3.2	3	6.4	6	4.2
Go to health care services	69	72.6	31	66.0	100	70.4
Other	5	5.3	1	2.1	6	4.2
If you take your family members to health services which health care services do you take them to?						
Community Health Centre (Puskesmas) / Auxiliary Puskesmas	21	30.4	10	32.3	31	31.0
Private midwife	17	24.6	6	19.4	23	23.0
Private nurse	1	1.5	3	9.7	4	4.0
Private doctor	30	43.5	10	32.3	40	40.0
Private hospital	0	0.0	2	6.5	2	2.0

Table 2. Women's involvement in household decision-making

Type of Decisions	Women		Men		Total	
	N	%	n	%	N	%
To go to health services when sick						
Women not involved	21	22.3	30	63.8	51	36.2
Women involved	73	77.7	17	36.2	90	63.8
To go to health services for disease prevention or health checks						
Women not involved	12	15.2	27	61.4	39	31.7
Women involved	67	84.8	17	38.6	84	68.3
To purchase pharmaceutical medicine, herbal medicine, or vitamins						
Women not involved	18	19.0	29	59.2	47	32.6
Women involved	77	81.1	20	40.8	97	67.4

Table 3. Maternal and child health care-seeking behaviour for the last pregnancy in women aged 15–45 years old

Type of care	Age Groups (Years)							
	<30		30 - 39		40 - 45		All Age	
	n	%	n	%	n	%	n	%
Place for antenatal care								
Village level service (Posyandu, Polindes or Poskesdes)	1	9.1	1	4.6	1	3.5	3	4.8
District level service (Puskesmas atau Pustu)	2	18.2	7	31.8	1	3.5	10	16.1
Hospital, clinics, private doctor or OBGYN	1	9.1	4	18.2	2	6.9	7	11.3
Private midwife	7	63.6	10	45.5	25	86.2	42	67.7
Place of birth								
Hospital	5	50.0	5	22.7	4	13.8	14	23.0
Birth clinic/clinic/private health professional	5	50.0	15	68.2	21	72.4	41	67.2
Puskesmas or Pustu	0	0.0	2	9.1	0	0	2	3.3
Home or other place	0	0.0	0	0	4	13.8	4	6.6
Ever breastmilk								
No	1	9.1	1	4.6	1	3.5	3	4.8
Yes	10	90.9	21	95.5	28	96.6	59	95.2
Exclusive breastfeeding								
No	4	36.4	10	45.5	18	62.1	32	51.6
Yes	7	63.6	12	54.6	11	37.9	30	48.4

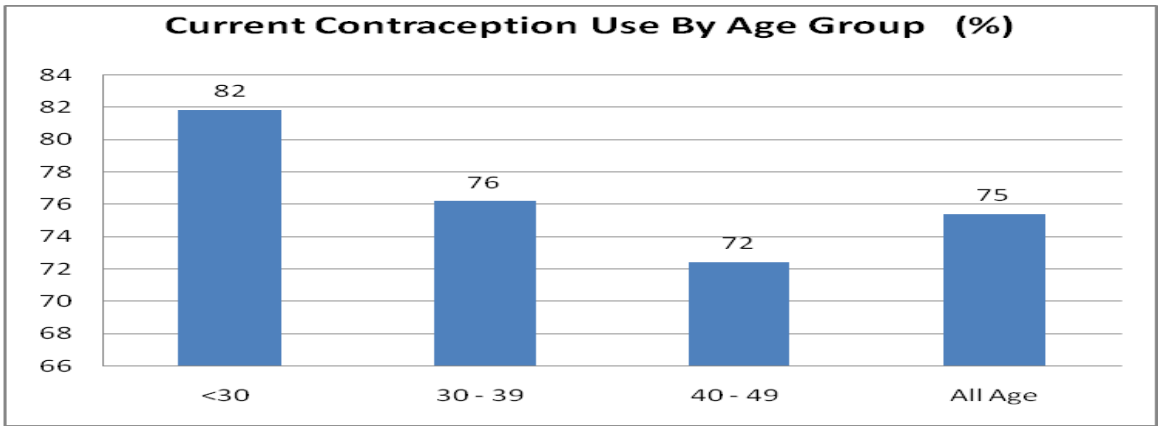

Figure 1. Current Contraception Use Among Women Aged 15–45 Years Old by Age Group

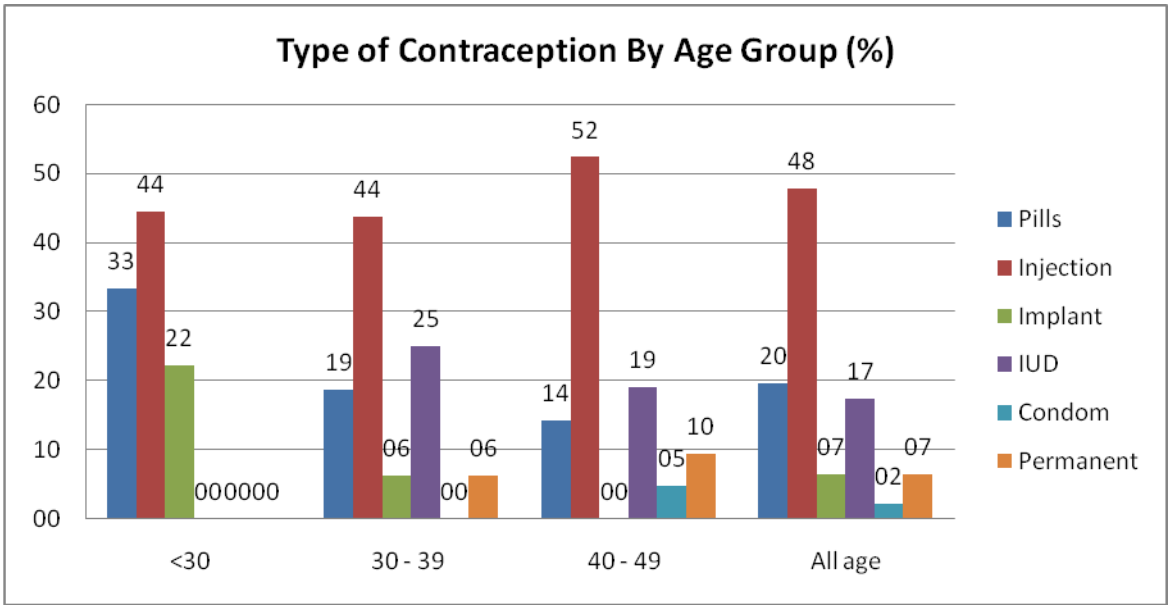

Figure 2. Type of Contraceptive Methods Used by Women Aged 15–45 Years Old by Age Group

DISCUSSION

Our study found that more than half of the coastal communities in Banyuwangi District went to health care services to seek health and 7 out of 10 turned to health care services to seek health for their family members. Women more than men turned to health care services when they or their family members fell ill. Interestingly, they chose to go to private doctors more than Puskesmas. In these communities women took part in household decision-making for their health and men reported that women were less involved in the decision-making for men's health. Private midwives were the most popular service for ANC and delivery.

We found that these coastal communities accessed health care services more than traditional coastal communities such as in South East Sulawesi or East Kalimantan where traditional healers remained the primary providers of health care (Martiyana and Handayani 2015; Nurrachmawati and Anggraeni 2010). More women than men in our study went to seek help from health care services. This fact is also reported for other countries especially for cases of sexually transmitted diseases (Cornell 2013). That men's health care seeking behaviour is lower than that of women for any disease in Indonesian coastal communities is an interesting finding. In fact, a study on gender inequalities in health care-seeking behaviour in Indonesia and globally are rarely conducted (Cornell 2013), and this finding contributes to the knowledge of gender differentials in health care-seeking behaviour. Our study found that most women in our study area (67.2%) gave

birth at maternity clinics or private health professional practices, followed by hospital births (23%). Our findings are similar in trend to the results from Basic Health Research in 2013 in Banyuwangi. The 2013 survey reported that most mothers (76.1%) in Banyuwangi went to maternity clinics or private health professionals to give birth, followed by hospital births (10.7%) (Kementerian Kesehatan RI 2013b). Although similar in trend, compared to the general Banyuwangi population, there is a lower proportion of women who gave birth in maternity clinics, or private practices and more women gave birth in a hospital in our study population. Our estimate was slightly lower for women's involvement in decision-making on their health compared to an estimate for East Java from a national survey that found 82% of women in East Java were involved in decision-making for their health (Statistics Indonesia 2013). Current contraceptive use in our study area was 75% which was higher than the reported current contraceptive use for all Banyuwangi subdistricts (63%) (Kementerian Kesehatan RI 2013b).

The fact that more women went to seek health care services than men may indicate that health care services were more popular for women as they provided more maternal and child care than specific men's health care. Lower access by men to health care services can partly be explained by less involvement of women in the decision-making for men's health. Although we did not find a clear increase in the proportion of health care service utilisation over time, there was an increase in contraception utilisation over time. The fact that private doctors were more popular than Puskesmas can be explained by the fact that we randomly selected respondents from PKK members who usually come from middle-upper socio-economic status.

Studies have shown that availability of health insurance improved formal health facility utilization (Fenny et al. 2015), especially among the low-income groups (Paek et al. 2016). However, despite the availability of national free delivery program (Jampersal) and national health insurance program, access of Puskesmas for birth in these communities has not increased with time. This, however, needs to be further studied as the number of women with children under five years old in this study, that can represent maternal health care-seeking behavior in the last five years, was limited. Although most women accessed institutionalized service for ANC and delivery, the quality of health care services received, however, may not be enough to impact exclusive breastfeeding. This supports the fact that although the trend of exclusive breastfeeding increased, the number was still low at 63.6% for women <30 years old.

The strength of this study was that we randomly selected respondents from five different subdistricts and as such we covered all the major and minor ethnic groups in the coastal areas including Javanese, maduranese, osing and other ethnic groups. Although the sample size was not balanced between men and women, we were able to present segregated analysis of health care-seeking behavior. Our samples were randomly selected from PKK members. Although PKK members usually represent the upper middle class of the communities, we were still able to find that access to health care service in this community was low (55.2%). Another weakness of the study was that the number of PKK members who had under five-year-old children was limited and thus our estimates of maternal and child health care-seeking behavior must be interpreted with caution.

Our study suggests the need for promotions on the utilization of health care service especially Puskesmas in coastal communities of Banyuwangi. There is especially need to focus on improving men's access to health care. In Indonesia and many other developing countries, health care has been promoted more on providing health care for women and children as they are considered to be more vulnerable compared to men. Health promotion with a specific message for improving access to health care utilization among men is very scarce. Brotherhood system in which men become a member of the male group may also be utilized to create peer pressure towards health care service utilization (Grande et al. 2013). The programmatic implication above may be applicable not only to Banyuwangi's coastal communities but also to other coastal communities in Indonesia. However, studies for other coastal communities are needed to assess how culture affect health care seeking differently.

There need to be further studies on gender inequalities in health care for men. Further studies are also needed to assess the

changes in health care-seeking behavior about the utilization of national health insurance scheme in coastal communities. As teen pregnancy in Banyuwangi is still frequent, this study should include factors affecting maternal health care-seeking behavior of adolescent mothers at the individual, interpersonal and family, community and social as well as organizational and health systems level (Shahabuddin et al. 2017).

Our findings also implied the need for promotion of exclusive breastfeeding in these coastal communities. In addition, there also needs to be more studies on the quality of available health care services in these coastal communities. There are 12,827 coastal villages in Indonesia (Badan Pusat Statistik 2015). Health care-seeking behavior in other coastal villages in Indonesia may differ from Banyuwangi. Therefore, more studies need to be done in other coastal villages to help design appropriate health promotion strategies for coastal communities.

CONCLUSION

Slightly half of the community members in the coasts of Banyuwangi accessed health care service for themselves and 7 out of 10 accessed it for their family members. Private midwives were the most popular service for ANC and delivery. The utilization of health care service needs to be more promoted in coastal communities, especially for men's health.

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THE ADAPTATION MODEL OF CAREGIVER IN TREATING FAMILY MEMBERS WITH SCHIZOPHRENIA IN KEDIRI EAST JAVA

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ABSTRACT

Introduction: Schizophrenia is a severe mental disorder that is characterized by impaired reality (hallucinations and delusions), inability to communicate, affect unnatural or blunt, cognitive disorders (not capable of abstract thinking) and had difficulty doing daily activities. Normally, the family is most affected by the presence of people with schizophrenia in their families. The purpose of this study was to develop an adaptation model of the caregiver in caring for family members with schizophrenia in Kediri. **Methods**: This study used cross-sectional design with nature explanatory research. Data were collected using a questionnaire on 135 respondents in nine health centers in the city of Kediri region. The sampling technique used simple random sampling. For data analysis and test, the feasibility used a test model of SEM with AMOS program 19. **Results:** The results showed self esteem caregiver (-0.25 <0.05), community resources (0.24 <0.05), self-efficacy (0.22> 0.05) , caregiver coping effort (12:17 <0.05), and the perception of caregiver about the family situation at this time (0:19 <0.05), which means that adaptation of caregiver in treating patients with schizophrenia is influenced by the characteristics of the family, namely community resources, self-efficacy, caregiver coping effort, self-esteem and perception of family caregiver to the conditions experienced at this time. Perception of caregiver about the condition of today's families is affected by stress, which appears on a caregiver stress due to stressor for caring for people with schizophrenia, especially the aggressive behavior of schizophrenics. **Discussion**: Adaptation of caregiver was highly influential in the care of people with schizophrenia because in this case becomes one of the important points to be able to sustain the process of treatment and prevent relapse of schizophrenics.

Keywords: *Schizophrenia, caregiver, adaptation*

INTRODUCTION

Mental Disorder is a condition in which the process of physiological or mental poorly functioning properly so interfere with the functioning of daily life. This disorder is often also referred to as a psychiatric disorder or mental disorders, and the general public is sometimes referred to as a nervous breakdown. Mental disorders experienced by a person can have a variety of symptoms, both obvious and only when they exist in his mind. Starting from the avoidance behavior of the environment, do not want to touch or talk to other people and would not eat until the raging with no apparent reason. Starting from the silent ones to the speaking ones is not clear. Some can talk to and others are not attentive to her surroundings. From the above condition makes the client must be hospitalized to recover her mental condition (Hawari 2009).

Most people with mental disorders have schizophrenia. Schizophrenia is a severe mental disorder that is characterized by impaired reality (hallucinations and delusions), inability to communicate, affect unnatural or blunt, cognitive disorders (not capable of abstract thinking) and had difficulty doing daily activities (Keliat 2006). Schizophrenia is a brain disease that leads to persistent and serious psychotic behavior, concrete thinking, and difficulty in information processing, interpersonal relationships, and solve the problem (Stuart 2013)). Schizophrenia is a form of psychotic disorders (severe mental illness) which is relatively frequent. The lifetime prevalence of nearly 1%, the incidence annually about 10-15 per 100,000 and schizophrenia is a syndrome with a variety of presentations and one variable, the disease course is long term, and often suffer relapses (Davies 2009).

Schizophrenia is the most severe functional psychosis, and pose the greatest personality disorganization; the patient has no reality. The incidence of schizophrenia was 0.1 per million in the world regardless of their socio-cultural status (Varcarolis 2000). 2009 based on data from 33 psychiatric hospitals in Indonesia noted that patients with severe mental disorders reached 2.5 million people (Alert Online 2010). Based on data from 2013 Riskesdas known that the average people with

severe mental disorders in all provinces in Indonesia was 1.7 per million, with the highest prevalence was in DI Yogyakarta and Aceh which is 2.7 per million and for the province of East Java 2.2 per million, and based calculation Riskesdas 2013 in the province of East Java possible economic losses arising from severe mental disorders is based on the loss of productivity of patients and their families who become caregiver is as much as 22.5 billion (Riskesdas, 2013). Kediri City Health Department in 2012 said the number of people with mental disorders in health centers increased. According to the City Health Office Kediri, the increasing rates of up to 15 percent of people with mental disorders in the clinic Kediri. As the research findings, data on the number of people who experience mental disorders has increased approximately 15 percent. The latest data from Kediri City Health Department in 2013 showed the number of people with schizophrenia in the town of Kediri reached 200 people, spread over nine health centers in the city of Kediri.

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From the preliminary study, researchers found that the city of Kediri has nine health centers covering three districts. Of the nine health centers in Kediri have no mental health program in Integrated Health Post (Posyandu). Mental health programs that exist now only to the rehabilitation process in the form of regular checks for the treatment of patients with schizophrenia, but there is no special program for families in their participation in the care of people with schizophrenia after the return from the mental hospital. Results of interviews with 9 Public Health Centers (puskesmas) officers who are responsible for the reporting of mental health in health centers Kediri city, all stated that they had been doing duty in checking the administration of antipsychotic drugs in patients with schizophrenia in the city of Kediri, while for families attendant health centers only provide health education about schizophrenia and drugs must be taken by the patient. Public Health Centers - Puskesmas officers had never been taught to families how to prevent the family could have done relapse of schizophrenic patients using behavior therapy and the implementation strategy in patients with schizophrenia as the primary caregiver of schizophrenics. The result of research interviews with seven families of schizophrenics in the town of Kediri, all stated that they frequently experience anxiety and confusion in caring for a family member who has schizophrenia, especially if the schizophrenic patients had a relapse. In addition to a recurrence of the problem for the family, the financial condition of the family also becomes impaired because of family financial income also decreased due to caregiver who cares for family members of schizophrenics confusion devote time to work for a living by caring for their family members who suffer from schizophrenia. Another problem that arises from the family is confusion families how to care for and how to adapt to families with a schizophrenic who had been suffering from schizophrenia especially the decades and repeatedly experienced a relapse.

People With Schizophrenia handling process (ODS) in length, ranging from hospitalization, administration of drugs, to social support, families, and communities, became a multi-factor for ODS recovery process. Suppose a patient is already getting the drug properly, the process of recovery in the hospital running good, but if the house is not supported by the family and the environment, it could be the patient will relapse. Not given the role at home, then the negative stigma of society will make the ODS recur; therefore the recovery process of this disease takes many years. As a result of the healing process is long, it takes perseverance and patience of families. During this time, many families go into the pit of despair, which ultimately makes ODS stocks. Government data, in Indonesia there are approximately 18 thousand ODS stocks. Many families that include members of the family who ODS to a mental hospital, clinic, foundation treatment of

mental illness, brought to the shaman, a special boarding school madman, or poorhouse (Taufik, 2014).

One with mental disorder schizophrenia causes suffering not only for the individual sufferer but also for people who are closest. Normally the family is most affected by the presence of people with schizophrenia in their families. In addition to the high cost of care, patients also require more attention and support from the community, especially families, in the treatment of mental disorder schizophrenia one of which requires a relatively long time, when patients discontinued treatment will have a relapse (Arif 2008). Once clients go home, the client should perform follow-up care at Public Health Centers - pukesmas in its territory who have mental health programs, and the role of the family is needed in the healing process in the client's home (Yosep 2009).

METHODS

This study uses survey research methods, the research implemented by taking a sample from a population and using questionnaires as the main data collection instrument. The design of this study uses cross-sectional design with the nature of the research studies explanation (explanatory research), based on the perception of respondents, which explains the causal relationships between variables based on the answers of respondents through hypothesis testing. Independent variables consist of family characteristics, stressors, and Community Resources. Intervening variables consist of caregiver perceptions of family members who suffer from schizophrenia, stress on the caregiver, self-efficacy, adversity quotient, caregiver coping effort and caregiver about perception of their current family situation. The dependent variable is the adaptation caregiver in caring for family members with schizophrenia.

The research was conducted on a sample of location research that month from February to June 2015 in the area of Kediri (includes 9 Public Health Centers Puskesmas Kediri). The population in this study is all the families who have family members with schizophrenia post treatment of the Hospital or Psychiatric Hospital in Kediri. The sample in this study is a caregiver who are family members of patients Schizophrenia Kediri to have the inclusion criteria for the Care Giver include: Caregiver lived one house with patients Schizophrenia, a "Care Giver" major, willing to become respondents, domiciled in the City of Kediri, while the family inclusion criteria include: the condition of the family structure is still intact, in one family only one who suffers from schizophrenia. For patients, inclusion criteria include: the schizophrenic ever been treated/be a mental patient / post-discharge.

The samples are taken by the formula Rule Of Thumb. The parameters used in this study amounted to 27 parameters, so the formula Rule Of Thumb obtained sample number: 27 x 5 = 135 respondents. Sampling was simple random. Analytic analysis done using SEM test is by AMOS program 19.

RESULTS

The results showed the majority of patients aged between 26-45 years, with 79 respondents (58.5%). Most of the patients were male, i.e. 88 respondents (65.2). Almost half of the patient's status was a child, namely 47 respondents (34.3%). For the caregiver, the results showed that most of the caregivers aged between 46-65 years are 65 respondents (48.1%). Most of the caregivers are female, i.e. 92 respondents (68.1%). Almost half of the care giver's status is the patient's mother, 49 respondents (36.3%) and educated past high school level, i.e. 58 respondents (43.0%).

Almost all the caregiver has knowledge of the treatment of schizophrenia in the poor category, ie 109 respondents (80.7%). For most of the economic status of the caregiver is the category High (> UMK), i.e. 83 respondents (61.5%). Caregiver portion has some family members of more than four people, namely 69 respondents (51.1%). Caregiver most have high self-esteem, that is 83 respondents (61.5%). Caregiver most have family members who have schizophrenia for more than ten years, namely 58 respondents (43.0%). For the stigma, some caregiver gets a stigma from the society in negative categories, namely 79 respondents (58.5%). The average score of aggressive behavior (48.04) is higher than the score of behavioral withdraw (43.98), it can be concluded that the behavior of patients with

schizophrenia in this study tended to behave in extreme aggression. The partial caregiver has a perception in the negative categories, namely 78 respondents (57.8%). The negative perception here is the interpretation caregiver includes feelings and images in caring for family members who have schizophrenia. Fraction caregiver has a lower stress level category, namely 52 respondents (38.5%). Low stress or light means the state experienced caregiver as a result of environmental changes that threaten, challenge when caring for family members with schizophrenia in conditions of low or mild. The most caregiver gets enough social support categories, namely 77 respondents (57.0%).

The most caregiver has a Collective Efficacy in positive categories, namely 72 respondents (53.3%). Collective Efficacy positive means that the ability of perception of family members and the public on the effectiveness of the relationship between tasks, skills, and role in caring for family members with schizophrenia to produce change towards a positive showing for the caregiver or schizophrenic. Most of the caregiver has a social network in enough categories, namely, 86 respondents (63.7%). Social network means enough communication and cooperation obtained caregiver and family while caring for a family member suffering from schizophrenia enough. It is obtained from the local community as well as from health workers in health centers. Almost all the caregivers have access to new contact and information in enough categories, namely 125 respondents (92.6%).

For most self-efficacy caregiver has a negative self-efficacy, which is 72 respondents (53.3%) and almost all the caregiver has adversity quotient in the category campers, i.e., 124 respondents (91.9%). Adversity Quotient campers' category means the caregiver feel quite satisfied or feel safe with what was achieved at this time in the care of family members who have schizophrenia. No effort or progress further to find other ways of caring for family members who have schizophrenia. The partial caregiver has a perception in the negative category, which is 69 respondents (51.1%).

For coping mechanisms, some caregiver has a coping effort in the category of problem-focused coping, i.e. 76 respondents (56.3%) and partial caregiver own adaptation in the negative categories, namely 70 respondents (51.9%). Adaptability caregiver (caregiver coping effort) negative means caregiver

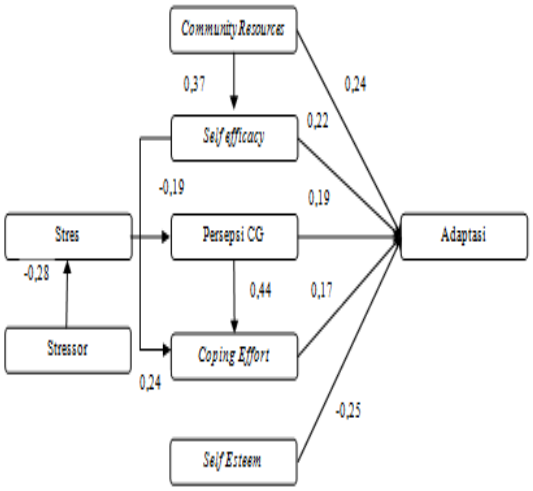

Figure 1. Adaptation Model of caregiver in treating schizophrenic Kediri

cannot adjust themselves well in business and shape their behavior to overcome barriers or problems that arise when caring for family members with schizophrenia.

DISCUSSION

Families of people with schizophrenia feel the stigma and discrimination surrounding environment. Conditions of their schizophrenic in the family will cause various problems, not only the patients themselves but also family particularly caregiver who treats the schizophrenic. One problem that arises is self-esteem disorder in caregiver. Impaired self-esteem or self-worth are disturbed, e.g., low self-esteem. This condition appears one reason is the emergence of stigma on people who think that schizophrenia is a disgrace in the family. It raises the shame of the caregiver, which could eventually create the perception of schizophrenia caregiver becomes less good. Awards and public acceptance of large families affect self-esteem, one caregiver that is part of the family because the family is the first place to interact in someone's life.

One of the signs of disorder such example is the self-esteem of the care giver's unwillingness to interact with others. (Warner R 2007) states that the family's reaction arising

from mental disorder suffered by their family members is to not talk to anyone about the mental disorder for years, sometimes even on their close friends. Ironically, the family is open and discusses the matter is getting abuse from the public. Family responds to these abuses by withdrawing socially, avoiding friends or even moving to a new residence. Although there is a tendency of family members to reject stigma, concealment and withdrawal are based on shame will bring them into social isolation.

The healing process in patients with mental disorders should be done holistically and involve family members. Without it, as well as common illnesses, mental disorders can recur. Family coping very important to participate in the healing process for the family is a major supporter in treating patients. Therefore, nursing care that focuses on the family not only restore the patient but aims to develop and enhance the ability of families to cope with mental health problems in the family (Syaifullah, 2005). The family is the unit closest to the patient and is the "primary caregivers" for patients. Families must have an adaptive coping in overcoming or dealing with people with schizophrenia to determine how or the necessary care of patients at home. The success of the nurses at the hospital will be useless if it is not passed in the house which then lead to patients should be treated back (relapse). The role of the family since the beginning of hospital care will increase the ability of families caring for patients at home so that the possibility of recurrence can be prevented.

The quality of Life a caregiver associated with the female gender is lower than in men (Awadilla, 2005). Data from this study showed that most sex of patients was male and caregivers were mostly women. The condition also can be a stressor itself for caregiver, especially woman as caregiver will usually involve feelings or emotions when the action or make a decision. There is a reciprocal relationship between the behavior of people with schizophrenia are disruptive to the emergence of a negative response to family members caring. The behavior of the sufferer can cause high emotion in the family, and then this condition will lead to negative behavior and lead to psychological stress both for patients and for the family, and psychological stress which appears in the patient can trigger or trigger a relapse. Comments and criticism from family members with high emotional expressions cause the emergence of more thoughts and unusual behavior of the patient and the thoughts and unusual behavior that will trigger an increase in comments and criticisms of the family. In addition it is depression, anxiety; self-confidence is low and less than optimal adaptability accompanied by a lack of adequate information about schizophrenia to be associated with high expression of emotions in the family.Expression of high emotion of the family is one of the significant stressors for people with schizophrenia. Stress that elicits emotional expressions of caregiver will affect the way caregiver in providing care for people with schizophrenia. The more stress caregiver can make the treatment process can not be the maximum, because the caregiver stress can also lead to physical and emotional complaints to the caregiver for example illness, so the ability to provide care to decrease.

The condition of self-efficacy caregiver when treating people with schizophrenia may also be influenced by community resources. The community itself can be divided resources form the two are psychologically in the form of collective efficacy, social and psychological support and none namely social contact and access to new contacts and information. Social caregiver support received in the form of support from the social community for example, from the neighbors, social contact with people, another family as well as with health care. Besides access to search information about schizophrenia and collective efficacy of the public and health workers around are also influential. Patients with schizophrenia and families need information about social situations that support recovery, the resources they can use to improve the quality of life and information about the management of the crisis. Patients with schizophrenia and families also need social support from the wider community (WFMH, 2009; Temes 2011).

The results showed 65 respondents have a negative self-efficacy and the adversity quotient on stage campers. Self-efficacy caregiver formed as a process of adaptation and learning that are in the situation they face when caring for family members who suffer from schizophrenia. The longer caregiver care

for family members who suffer from schizophrenia, the higher self-efficacy owned caregiver in carrying out their duties, but did not rule out the possibility that self-efficacy which is owned by the caregiver actually tends to decrease or remain as it has entered the stage of stagnant or in conditions of adversity quotient on stage campers, where the caregiver was already satisfied with what was achieved or was resigned to her condition during this time. It could be a family experiencing saturation in schizophrenia their care at home, should always control all activities of sufferers, have to face difficulties in the costs of care and treatment of patients in a long time.

The research found empirically that the adaptation caregiver the ability caregiver to adjust in treating patients with schizophrenia is influenced by community resources, self-efficacy, perceptions of caregiver about the condition of the family in caring for people with schizophrenia, coping effort (coping mechanism) and self-esteem or price self. Community resources in this regard include collective efficacy is the belief of society and the family in the care of people with schizophrenia, social support, namely the support obtained by the family of the surrounding community, a social network that is communication and cooperation that can be obtained and carried out by the family as they care for family members schizophrenic and access to new contact that is the ability of families in an effort to find resources to learn about schizophrenia and treatment processes families suffering from schizophrenia. Care giver's perception about the state of today's families is affected by stress, which appears on a caregiver stress due to stressor for caring for people with schizophrenia, especially the aggressive behavior of people with schizophrenia.

Theories about the adaptation of the family in the care of people with schizophrenia did not exist before. The theory that there had existed only said about the adaptation of the family in general in the face of problems or difficulties in the family, one of them when there are family members who experience pain conditions. Previous theories, in general, is the theory ABCX Hills (Rice, 2000) which states that an event (A) interact with family members, will create a crisis (B) and bring up interpretation of the family about the incident (C). What distinguishes the theory of the results of the development of the model here is the adaptation of the family in caring for people with schizophrenia are not only influenced by stress and perceptions of the family but is also influenced by the self-esteem of the caregiver, community resources, caregiver coping effort (coping mechanism) and the perception of caregiver of family conditions experienced at this time.

CONCLUSION

Adaptation of caregiver is the ability to provide welfare care in people with schizophrenia. This is influenced by community resources, self-efficacy, caregiver perception about the family condition in caring for schizophrenia, coping mechanism, and self-esteem or self-esteem. Community resources are the beliefs of people and families in the care of people with schizophrenia, a social support obtained by families from the surrounding communities, social networks of communication and cooperation that can be obtained and carried out by families, and access for families to find resources that support the care of patients with schizophrenia.

The care giver's perception of family circumstances is currently influenced by stress, which is apparent in the stress of caregiver because of the stressors to treat people with schizophrenia, mainly due to the aggressive behavior of schizophrenics.

The model required criteria and parameters of mental health and rehabilitation of standardized, measurable and easy-to-implement mental rehabilitation of schizophrenic patients upon return from hospitalization, enabling maximum families to assist schizophrenic healer recovery, and preventing recurrence, one of which is the establishment of Integrated Health Services. In addition to providing training for Public Health Centers about rehabilitation therapy for people with schizophrenia especially the holder of the mental health program at puskesmas.

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COPING MECHANISM OF CAREER WOMEN WITH BREAST CANCER

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ABSTRACT

Introduction: Patients with cancer may experience psychological disorders such as depression, anxiety, anger, helplessness, and unappreciated, so in certain situations require defense mechanisms (coping mechanism) to oppose or resist feelings of anxiety, fear or stress that haunt her. The aim of this study was to know the coping mechanism of career women with breast cancer reviewed by phenomenology in Palembang 2016. **Method:** Type of this study was a qualitative study with a phenomenological approach. Total samples were 8 participants with inclusion criteria: career women, productive age range, health physic and physiologic. Independent variable was a coping mechanism, and the dependent variable was breast cancer. The instrument used the voice recorder, and interview guides. Data analyze used verbatim transcript with credibility, dependability, and confirmability. **Result:** The results showed that working women who have breast cancer have a coping strategy that is adjusted to the psychological condition and physical reactions of the therapy in progress. Psychologically, the coping mechanism is in the form of rejecting, drawing closer to Allah SWT, seeking the opinion of other health workers, discussing conditions with spouse and family, seeking alternative treatment and asking for doctor's direction. The coping mechanism of the body's reaction to therapy is done by taking medicine according to the rules and remember Allah SWT. **Conclusions:** Need the support of the coping mechanism in patients with breast cancer and nursing care approach with the pattern of coping mechanisms with the involvement of the family.

Key Words: Coping Mechanism, Breast Cancer, Career Women

INTRODUCTION

Cancer is the third cause of death globally in 12.5%. This amount exceeds the combined death toll of HIV / AIDS, tuberculosis and malaria. 7 million of deaths caused by cancer (Depkes 2015). At least 1.2 million US residents diagnosed with cancer each year, but the incidence rate is higher in developing countries, including Indonesia (Smeltzer & Bare 2009).

In Indonesia, the prevalence rate of cancer was quite high. In Asean, Indonesia was on second ranks after Vietnam with 135 thousand cases of cancer each year (WHOdalam Kemenkes 2014). The data from Information Health Ministry Center showed the prevalence of cancer was 100 thousand each year (Kemenkes 2014)

Breast cancer was the most experienced by women after cervical cancer and other cancers. Breast cancer was the height cause of death followed by cervical cancer in the second. An estimated 1.2 Million women diagnosed with breast cancer and more than 700thousand died, besides every year seem to be more than 250thousand new cases of breast cancer and ranks first among cancers in women with other cancers (Siswono 2007). In Indonesia, breast cancer was the first ranks cause of death for women followed by cancer of the cervix (cervical) with an incidence of 26 per 10 thousand women (Depkes 2015). Data from (IPKSI 2011) showed that Indonesian women on range 40-45 had cervical cancer each day.

General Hospital of Dr. Mohammad Hoesin Palembang is a Type A hospital and the referral hospital for South Sumatra Province. Based on data from the last visit to patients with cancer was 965 patients covering all types of cancer, especially breast cancer and cervical cancer (RSMH 2015).

Since the last decade of action towards cancer were surgery, radiation, and chemotherapy. The purpose of chemotherapy is healing, control, and palliative used to establish medication used for the aggressiveness of plan therapy (Prawiroharjo 2008). All measures of treatment cause physical changes that indirectly affect psychosocial changes.

Based onSutandyoin (Fachlevy et al. 2013), patients with chemotherapy treatment will experience physical complaints, followed by an emotional setback, social relations disorder, and reduced of communication

between husband and wife. Besides the action of cancer (chemo, radiation, and surgery) will give effect on the esteem, role and body image, identity, sexuality, and the well-being of the patient. Besides of it, the patient will stress with a diagnosis of cancer that was potentially life-threatening. The changes were very burdensome for the patient, because of that, the treatment of patients with cancers should be done multidiscipline formulated comprehensive in science, and provide a variety of support facilities so that patients can adapt to the conditions and the changes.

The possibility of psychological disorders such as depression, anxiety, anger, helplessness, and unappreciated experienced by 23% - 60% of patients with cancers (Lubis & Hasnida 2009). The situation may cause more severe suffering, weaken the function of organs and can be demoralizing to undergo a series of treatment regimens (Duanne & Ellen 2013).

Patients with cancer in certain situations require coping mechanisms to oppose or resist feelings of anxiety, fear or stress that haunt her. One of the Conceptual Model affecting nursing is the Roy Adaptation Model. The main idea of Roy Adaptation Model was a system of human adaptation as a bio-psycho-social. Humans respond holistically to the changes in their environment. Roy considers patient has an adaptability in addressing the problem. Nurses in Roy Adaptation Model were required to assess the adaptability of the patient through the regulator or cognator coping mechanisms and recognize the inability of patients who need help.

In Roy Adaptation Model external and internal environment, Human was a stimulus (stimuli adaptation level) that would provide a response through a mechanism of coping (coping mechanism) in the form of coping regulator and cognator which will give effect (effectors) on physiological function and cognition (psychosocial) include self-concept, function role, and dependence, it will generate (output) whether the patient can adapt to the changes that occur (adaptive) or failure to adapt (ineffective).The nurse's role in facilitating the patient in order to adapt is to optimize the social support that exists around the patient. According to (Sheriden & Radmacher 1992) and (Taylor 1999) divided support into five consists of an instrumental support, informational, emotional, support self-esteem and social support groups.

Based on the above considerations, a qualitative research with descriptive phenomenology method is needed to answer questions about how the response of women career during the experience of cancer; how was the journey of cancer is perceived by women career, how the experiences of women career during therapy and coping mechanisms for women experiencing cancer.

METHOD

This type of this study was a qualitative research with a phenomenological method. This research was conducted in the house participants domiciled in Palembang, November 2016 Instruments used in this study was a voice recorder, interview guidelines, and field notes.

Participants of this study were women career were diagnosed with cancer in Palembang, with purposive sampling technique, which was in qualitative research was often referred to as judgmental, theoretical or purposeful sampling. The total sample in this study were eight participants. Criteria inclusion for participants in this study includes women career, productive age, patients with good physical and mental health condition.

The independent variables in this study were coping mechanism, and the dependent variables in this study were breast cancer. The data analysis methods from a verbatim transcript based on (Colaizzi 1978) in (Fain 1999).

RESULTS

Knowledge of breast cancer

The patient's baseline knowledge of breast cancer chemotherapy was important information for determining the treatment that chosen by the participants. Participants have heard about breast cancer before they undergo treatment. The statements of participants:

"ever, ummm breast cancer was malignant bumps that grow in the breast" (P3).

The knowledge that obtained by participants come from sources that less accurate. Knowledge usually obtained from

friends, family, neighborhood, and online media. The statements of participants:

"I saw on the internet, and searching on Google…" (P2)

The source knowledge that inaccurate can lead to a negative perception. The results of the interview participants describe that breast cancer is a disease that frightening disease. The statements of participants:

"breasts were throbbing, the feels like was shocked, I felt it like between life and death ..." (P5)

Coping mechanism

Coping mechanism carried by patients vary widely starting from the first time the cancer was diagnosed in the face of distress they experienced until it had gone through therapy. The coping strategies include refuse, draw closer to Allah, seek the opinion of other health personnel (second opinion), to discuss the situation experienced by couples/families, looking for a wide variety of alternative treatments, ask for referrals doctor who diagnoses related actions to be carried out.

a. Denial

Denial response occurred in patients in the form of crying, worried thinking about the impact of treatment, embarrassed.

"when doctors explained about my disease, I felt there was wrong..." (P8).
"…sometime when I remembered about my disease, how about the prognosis, sometimes my tears drop, because of the disease…" (P1).
"…afraid, because this disease was death…." (P6)
"…no, I embarrassed, but now is not, this disease was not disgraced…" (P2).

b. Closed to Allah SWT

"Everything has arranged by Allah SWT. I am grateful to Allah to tell in advance to me about my age limit, which may not all people get the information" (P4)

c. Seek the opinion of other health professionals

"…after the doctor said I had cancer, I did not immediately believe what the doctor said, I see a doctor and then another while wondering also with a midwife that I know" (P8).

d. Discuss the conditions experienced towards couples and families

"…The first time that I give to know is my husband. I do not have kids ... I sincere after my husband knows about my disease, he wants to get married again. But my husband did not want (P5).
"This disease, never made me desperate, it seems to want to die... then my children said if I death whit who I will stay?" (P7).

e. Looking for an alternative treatment

"I think if I took chemotherapy, would definitely bother to manage .... family will bother, I should be in the hospital ... while my private employees, if not present, can not be a salary. Although I have insurance, fees for hospital fro more it costs, so ... I wondered alternative" (P1).

f. Request a referral doctor

"…I immediately wrote to follow what the doctor's advice... as already explained everything, stages, and effects…." (P7).
"doctor advised me to chemo, directly yes I follow it... although I heard it was many side effects of chemotherapy, all depended by my body" (P6).

The side effects of treatment

The impact of treatment that experienced by the participants, depending on the type of therapy and therapy stages undergone by participants. Physical side effects are generally perceived in advanced breast patients with cancers who undergo chemotherapy are: nausea, vomiting, anorexia, hair loss, fatigue, bone marrow suppression such as anemia. Psychological side effects feeling trauma therapy. The statements of participants:

"when I came home, my body warm..." (P3)
"emmm how to explain it. I felt my body sick, aches, weakness, and difficult to walk...." (P5)
"always nausea until my appetite loss...." (P7)
"when the sick cam, ouughh I felt that I won't chemo anymore..." (P4)

Coping mechanisms do participants experience a reaction time of therapy done by

taking medicines according to the rules and the remembrance of Allah:

"*to solve it only by that way, drink medicine, and ask to doctor for the same medicine...*" (P5)

"I preferred to istighfar, and surrendered to Allah..." (P6).

Family's support

The entire family of the patient to provide support to patients, tailored to the capabilities of each family, from the moral and material support. From each of the support obtained, a positive impact on participant to continue his life.

"My husband loved me, he always accompanied and fulled my daily needed. My husband told that I couldn't work because of sick, so he will handle to work." (P5).
"my children hug me when I look to take a rest because of sickness, their action that I strength… I must be tough for them" (P7).

Expectations towards family and closest people

Participants express to have hope for the family to be able to help him continue the task of surrogate mother for her children and her husband to get a good wife.

"sometimes… I want surrogate women to take my position as mother and wife"(P8)

The hope of participant

The Hope of participants with this illness that can get through this disease properly. If she should die because of the illness, she wanted to die in the midst of the family.
"I want to heal as normal…" (P5)
"I felt… all effort I have done… if I was gone, I want besides my family" (P2).

DISCUSSION

Based on the results which have been mentioned in the previous section, the individual experiences when first diagnosed with cancer can lead to changes and actual or potential problems in various aspects. Problems that arise can be either physical or psychological aspect. The problems associated with the physical aspects of the disease may be related complaints such as pain, bleeding, sleeplessness, physical discomfort, and limitations in performing daily activities. While issues related to psychological aspects may be the emergence of negative emotions such as shock, sadness, fear, and anger, and also appeared despair even to suicide. There are also issues related to financial and job changes. It is also in line with previous research which states that at the time of the first diagnosis, the patient will have problems with daily living activities, financial problems along with employment problems, in addition to issues related to physical (Pascoe et al. 2004) and then based on (The Royal Marsde Hospital 2014), person with cancer may experience one or more of the following problems: anxiety, the uncertainty about the future, anger, difficulty of adjustment, the problem of family communication, changes in body image, depression, difficulty making decisions, taboo for a balance the demands of the condition of his illness and treatment for a patient.

Various problems experienced by the patient underlying them to find a way out of the problem. To obtain these solutions, patients need the various aspects of support. In this study identified a variety of patient needs related to their efforts in solving the problem. The needs include family support, social environment support, the support of health professionals, disease-related information, a desire to be able to regulate emotion existing instrumental needs, spiritual needs and responsibilities of the role.

The spiritual aspect was the domain that considered the important and a source of strength that was most often mentioned by the subjects in this study. (Gockel et al. 2007) Explained that the spiritual aspect was an important part of the counseling dimension. Then (Gockel et al. 2007) also explained that patients with cancer looked at the spiritual aspect can improve recovery and improve the condition of 7-stage cancer. Stage include: (1) transparency, (2) changing / shifting spiritual perspective, (3) accept the conditions / going within (4) connects to the spirit (5) clarify (6) setting the intention of healing and (7) follow a guide to a restoration of the condition.

Patients coping towards problems that faced by patients with cancers also mentioned.

Coping performed by different patients, but it also evident there was some similarities. Schetter, Feinstein and (Taylor et al. 1997) explained that the coping performed patients with cancer would be different depending on the issue or cancerous conditions are experienced. For example, if the patient had no complaints or physical discomfort, then coping adaptive to the type of coping focused on a problem (problem-focused), while for the problems associated with the ambiguity of the future, coping adaptive coping focused on emotions by regulating emotions such as diverting or avoid negative thinking.

There were two factors that become the main determinant in the coping selection of patients with cancer, there was the cancer situation that experienced, and a factor of patient perception towards stress factors encountered. Thus, the more the situation experienced, the more forms of coping performed by patients with cancer (Taylor et al. 1997). Beside of that, there were several factors that can determine the patient's coping taken as socioeconomic level, gender, age, and religious beliefs (Billing & Moos 1984). Socio-economic levels were associated strongly and consistently against certain coping methods that taken, they tend to choose to cope focused on a problem (problem-focused coping) rather than avoiding everyday problems. In this study, the majority of participants come from socio-economic and low education levels. In this group, they were more likely to accept the condition without digging deeper coping variations that can be taken.

In this study also explained that participants were individuals who live in a family community, which was attached to their roles as wives or partners for a husband and as the mother of the children whose age varies. The role as spouse and mother are also known to impact individual lives of cancer. Spousal support, child, and family can strengthen the patient in dealing with cancerous conditions. Participants many say that the spousal support was very meaningful and give strength to continue to live a life with cancer and its treatment often leaves them tired and painful. (Hagedorn et al. 2008) in their study explained that the spousal could be a key role in helping make decisions about treatment should be performed, providing emotional and instrumental support, in addition to the pair also affect the adjustment of the patient toward cancer. (McClure et al. 2010) Stated that patients with cancer in the early diagnosis, however, will experience depression due to the disease, however, if an individual who has cancer it has a partner who has a positive belief in solving the problem, then that patients with cancers tend to have very low levels of depression. Beside of this, the role of partner to patients with cancers, otherwise patients may also affect the emotional life and also the welfare of his partner. So, the patient and her partner will influence each other in dealing with the impact of cancer on their lives both emotionally and practically everyday activities.

Besides the implications of the spouse, child figure also plays an important role for cancer patients. There were a few participants in the study who had no spouse, they look at the key role in a child and the other support system such as close family or other relationships that are already considered family as a child living in the boarding house boarding house belongs to the patient. Related to the impact on children, cancer conditions can have an impact on the welfare of children. The main factors that cause an impact on children's age and sex of the child (Ohayon & Braun 2010). Potential impact showed psychological distress, anxiety, loneliness, lack of assistance, and guilty, and children tend not to declare his attention directly but to express it through their behaviors cause difficulties in school and problems with friends (Ohayon & Braun 2010)

Furthermore, participants express also that they feel have hope again after hearing the experience of other patients who have same cancer and managed to survive and live a daily life well. Group of patients with the same cancer experience can be a great encouragement to continue to be optimistic on medication for that group to give a real picture of the success of cancer treatment.

Hagedorn, et al (2008) explained that support informal and formal social group was the force that most affect patient adaptation to the diagnosis and treatment of cancer. Informal support from other patients who have the same diseases, family members, and health care team may influence adaptation to the

conditions of his cancer patients, especially in patients with breast cancer.

Informal social support among the same patient have breast cancer influence positively on mobility after mastectomy and may increase perceptions of health and body image, and has been proven to reduce the negative feelings. Then in his research concluded that women who followed a formal group therapy with other cancer patients were found to survive longer than those who do not follow the group therapy session (Van den Borne et al. 1986).

CONCLUSION

There were seven coping strategies that develop in cancer patients newly diagnosed in this study was among others refused, denial, draw closer to Allah, seek the opinion of other health professionals (second opinion), to discuss the situation experienced by couples/ families, looking for various kinds of treatment alternatives, ask for referrals doctor who diagnoses related actions to be carried out. Copying mechanism while the therapy consists of drink medicine as routine and remember of Allah SWT.

Need the support of the coping mechanism in breast cancer patients and nursing care approach with the pattern of coping mechanisms with the involvement of the family.

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PROLANIS IMPLEMENTATION EFFECTIVE TO CONTROL FASTING BLOOD SUGAR, HbA1c AND TOTAL CHOLESTEROL LEVELS IN PATIENTS WITH TYPE 2 DIABETES

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ABSTRACT

Introduction: Diabetes mellitus (DM) is a global disease endemic and cause of 4.6 million deaths in the world. The Indonesian government and health insurance *[BPJS Kesehatan]* formulate a Chronic Disease Care Program *[Program Pengelolaan Penyakit Kronis (PROLANIS)]* for type 2 diabetes that aims to control the glycemic status and the risk factors of macro and microvascular complications. The purpose of this study was to analyse the correlation between the implementation of *PROLANIS* and fasting blood sugar, HbA1c, and total cholesterol levels in patients diagnosed with type 2 diabetes at Antang and Pampang community health centres, Makassar, Indonesia. **Methods:** This study used a descriptive correlation design with a cross-sectional study approach. Subjects were 40 patients diagnosed with type 2 diabetes who joined *PROLANIS* at PUSKESMAS Antang and Pampang, Makassar, and the sampling technique used was total sampling. The data were analysed using a correlation test to assess the significance *(p*), the direction (+/-), and the strength of the correlation (*r*). The implementation of *PROLANIS* was measured by using the observation sheets developed based on *BPJS Kesehatan* criteria, while the laboratory checked the fasting blood sugar, HbA1c, and total cholesterol levels. **Results:** The mean of the implementation of *PROLANIS* was 15.05 (SD ± 5.62), while the mean levels of fasting blood sugar, HbA1c, and total cholesterol were as follow: 191.80 mg/dL (SD ± 85.15); 8.4% (SD ± 2.08); and 192.87 mg/dL (SD ± 45.07). Using the Spearman's rho test, the study result showed that there was a significant and negative correlation between the implementation of *PROLANIS* and the levels of fasting blood sugar (p= 0.001; r= -0.724), HbA1c (p= 0.001; r= -0.870), and total cholesterol (p= 0.029; r= -0.35) in patients diagnosed with type 2 diabetes at Puskemas Antang and Pampang, Makassar. **Conclusions:** The optimal implementation of *PROLANIS* is very effective for controlling the levels of fasting blood sugar, HbA1c, and total cholesterol in patients with type 2 diabetes.

Keywords: Fasting Blood Sugar, HbA1c, PROLANIS, Primary Health Centre, Type 2 Diabetes.

INTRODUCTION

Diabetes mellitus (DM) can be defined as a group of metabolic diseases characterised by hyperglycemia resulting from defects in insulin secretion, insulin action or both. Chronic hyperglycemia in diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels (Abdel-Rahman 2011). Besides being a metabolic disease, diabetes is also a global disease endemic. The incidence of diabetes globally, it is estimated, will increase from 366 million to 552 million in 2030 and will present itself as a major health challenge that can be shown by the data of global DM (Shaw, Sicre & Zimmet 2010).

If no action is taken, it is estimated the number will rise to 552 million in 2030 and will be the cause of 4.6 million deaths (Federation 2011). In Indonesia, the number of people with diabetes is as many as 292,715 people, or about 1.8% of the total participants in Social Health Insurance (BPJS Kesehatan 2015).

The number of cases of diabetes in the province of South Sulawesi in 2014 (282 patients) consisted of reported DM (207 patients), unreported DM (160 patients) and Dependent DM on insulin (72 patients) (Sul-Sel 2014). Increasing cases of diabetes occurred in Makassar. In 2012, DM was ranked the fifth leading cause of death with 191 deaths (Dinkes Kota Makassar 2012), while in 2013 it rose to fourth with 217 (Dinkes Kota Makassar 2013). Data for DM patients at Puskesmas Antang Makassar, from January to December 2015 showed 725 patients so that the average number of patients with type 2 diabetes per month was estimated at 61 people, while in January and February 2016 there were at least 136 people and the average number of patients per month was 68 people (Rekam Medik Puskesmas Antang Kota Makassar 2016).

Prevention of chronic complications is not only through controlling blood glucose levels itself but needs good diabetic control. Control of diabetes should be done thoroughly, including

blood glucose, HbA1c, lipid (cholesterol Low-Density Lipoprotein (LDL), high-density lipoprotein (HDL), and triglycerides (Semiardji, 2003). Therefore, the development of new strategies to improve diabetes control and its complications would be very helpful (Bianchi, Miccoli, Daniele, Penno & Del Prato 2009). In Indonesia, one of the new strategies developed is the management program of chronic diseases (PROLANIS). PROLANIS was developed by BPJS. The main objective of PROLANIS is to reduce the risk of complications and achieve a better quality of life with the use of cost-effective and rational measures. The PROLANIS program is a system of governance of health services and health education for social health insurance participants who suffer from hypertension and type 2 diabetes mellitus to achieve the optimal quality of life independently (Idris 2014). The implementation of PROLANIS in Indonesia took place in 2010. This program helps chronic disease management with an integrated promotive and preventive action format. One of the chronic diseases handled at this time is type 2 diabetes mellitus (Idris 2014).

The activities of PROLANIS itself consist of a medical consultation for PROLANIS participants: consultation schedules agreed between participants with health facility managers, high-risk educational clubs (PROLANIS Club) which are an activity to improve health knowledge in an effort to restore the disease and prevent a resurgence of the disease and improve the health status of PROLANIS attendees, reminders or activities to motivate participants to make regular visits to health facilities through a consultation schedule reminding them to go to the health facilities manager, and home visits such as service activities of home visits of PROLANIS participants for the provision of information /self health education and the environment for PROLANIS participants and their families (BPJS Kesehatan 2015).

Previous research (Alexander 2012) has confirmed the effectiveness of the PROLANIS program. Nonetheless, a PROLANIS effectiveness evaluation in health centers is still limited. Therefore, this study aimed to analyse the correlation between the implementation of PROLANIS with fasting blood sugar, HbA1c and total cholesterol in patients with type 2 diabetes mellitus in Puskesmas Antang and Pampang Makassar. It can be concluded that PROLANIS is very effective in controlling health status and improving the quality of life of patients with type 2 diabetes mellitus.

Based on the explanation, researchers were interested in analysing the correlation of PROLANIS implementation with fasting blood sugar, HbA1c, and total cholesterol in type 2 diabetes mellitus at Antang and Pampang community health centres Makassar.

METHODS

This study was a quantitative study with a descriptive correlational design, using a cross-sectional study approach for the collection of data. The study was conducted during one month at Antang and Pampang community health centres Makassar. The population in this study was made up entirely of patients with type 2 Diabetes mellitus, male and female who were PROLANIS participants in Makassar, as many as 66 (37 patients in Antang community health centres and 29 patients in Pampang community health centres). Calculation of the number of samples shows 64 people, but the samples obtained in this study were 40 people. 24 patients dropped out due to the complications of coronary heart disease (CHD) and as many as 12 persons were referred to the hospital, five people refused to respond and seven people were never present during the study.

The samples in this study were patients with type 2 diabetes, PROLANIS participants at Antang and Pampang community health centres Makassar who met the inclusion criteria: male or female ≥ 35 years old, suffered no injuries from diabetes and were willing to participate in this study and signed the informed consent. The exclusion criteria: patients with concomitant diseases such as acute renal failure or chronic renal failure, heart failure/cardiac arrhythmia, chronic liver disease/acute lung tumours or other malignancies, gastrointestinal disease, and patients who were not willing to participate in the study.

Data were analysed using univariate and bivariate analysis. For numerical data in the form of respondent characteristics such as age,

diagnosed with type 2 diabetes, the duration of being a participant in PROLANIS, and the research variables, namely, the implementation PROLANIS, fasting blood sugar, HbA1c and total cholesterol levels using the mean and standard deviation (± SD), whereas categorical data such as gender, occupation and education are presented in the form of n (%). Data normality test was done using the Shapiro-Wilk test. Bivariate analysis used the correlative method. If the types of data are numerical data and normally distributed, the Pearson Correlation test was used, whereas when the data type is not normally distributed the Spearman's test was used (Dahlan 2015).

This study has received ethical approval from the Ethical Comission of the Faculty of Medicine Universitas Hassanuddin with number 1048/H4.8.4.5.31/PP36-KOMETIK/2016, in September 20th, 2016.

RESULTS

Out of 40 respondents, most respondents were women (67.5%), did not work or were house wives (65%), had a level of education of junior high school (27.5%), senior high school (25.0 %) and university (27.5%). The average age of respondents was 55.83 years (± SD 8:04), old diagnosed with Type 2 diabetes mellitus is 10.85 years (SD ± 4.63), and the duration average following PROLANIS program that is 17.55 months (SD ± 11.64) (Table 1).

The average score of PROLANIS implementation was 15.05 (SD ± 5.62), fasting blood sugar 191.80 mg/dl (SD ± 85.15), HbA1c was 8.36% (± SD 2:08), and total cholesterol 192.87 mg/dl (SD ± 45.07). This distribution was based on the implementation of PROLANIS, fasting blood sugar, HbA1c and total cholesterol as can be seen in Table 2.

Table 1 Distribution of Individual Characteristics

Variable	Frequency (n = 40)	Percentage (100%)
Age (years) mean (± SD)	55.82	8.04
Gender		
Male	13	32.5
Female	27	67.5
Employment		
Farmers/ Labour	1	2.5
Enterpreanurer	6	15.0
Civil Servant / TNI-Police / Retired	7	17.5
Unemployed/ House Wife	26	65.0
Education		
No School / Not completed primary school	1	2.5
Elementary School	7	17.5
Junior High School	11	27.5
Senior High School	10	25.0
University	11	27.5
Old diagnosed with type 2 diabetes (years) mean (± SD)	10.85	4.63
Duration Following PROLANIS (months) mean (± SD)	17.55	11.64

Table 2. Distribution of respondents by the Implementation of PROLANIS, Fasting Blood Sugar, HbA1c, and Total Cholesterol in Patient with Type 2 Diabetes Mellitus (n = 40)

Variable	Mean	± SD
PROLANIS implementation	15.055	62
Fasting Blood Sugar	191.80	85.15
HbA1c	8.37	2.08
Total Cholesterol	192.87	45.07

Table 3. Relationship of PROLANIS Implementation and Fasting Blood Sugar, HbA1c and Total Cholesterol in Patients with Type 2 Diabetes Mellitus

Variable	Fasting Blood Sugar		HbA1c		Cholesterol	
	r	*p*	*R*	*p*	*R*	*p*
PROLANIS Implementation	-0.72	0,001	-0.87	0.001	-0.35	0,029
Medical Consultation	-0.66	0,001	-0.77	0,001	-0.34	0,031
Activity Group	-0.68	0,001	-0.82	0,001	-0.33	0,037
SMS Gateway	-0.7	0,001	-0.81	0,001	-0.37	0,021
Home Visit	-0.39	0.047	-0:49	0:01	-0:36	0062

Based on the Spearman rho test in Table 3, the data showed that there is a relationship between PROLANIS implementation with fasting blood sugar in patients with type 2 diabetes mellitus at Antang and Pampang community health centres Makassar, with a significance value of (*p*) 0.001 with a negative correlation direction (r = -0724) and the strength of a strong correlation (r2 = 0.52). The correlation between the activity of PROLANIS, namely in terms of medical consultation, group activities, SMS gateway, and home visit with fasting blood sugar also showed a correlation (p = 0.001; 0.001; 0.001; and 0.047) with the negative correlation direction and the strength of strong and moderate correlation (r = - 0.66; -0.68; -0.70; and -0.39). This means that with the maximum implementation of PROLANIS the lower the levels of GDP with diabetes mellitus type 2. This relationship can be seen in Figure 1.

Based on the Spearman rho test in Table 3, the data showed that there is a relationship between the implementation of PROLANIS with HbA1c with a significance value of (*p*) 0.001 with a negative correlation direction (-0.87) and the strength of strong correlation (r2 = 0.76). The correlation between the activity of PROLANIS was namely in terms of medical consultation, group activities, SMS gateway, and home visits with HbA1c also showing a correlation (*p* = 0.001; 0.001; 0.001; and 0:01) with a negative correlation direction and a strength of strong and moderate correlation (r = - 0.77; -0.82; -0.81; and -0.49). This means that with the maximum implementation of PROLANIS the lower the levels of HbA1c with type 2 diabetes mellitus. This correlation can be seen in Figure 2.

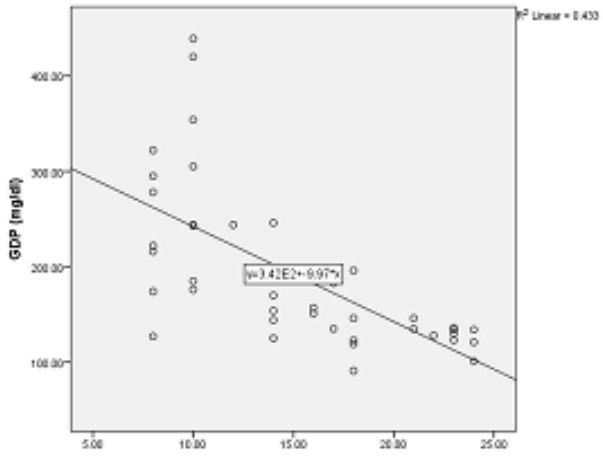

Figure1. Correlationof PROLANIS Implementation and Fasting Blood Sugar

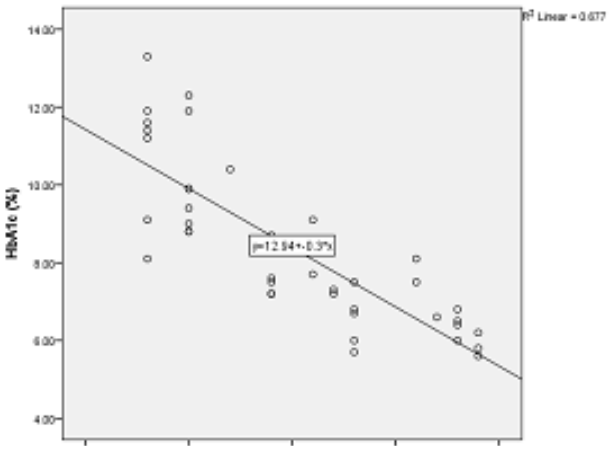

Figure 2. Correlation of PROLANIS Implementation and HbA1c Levels

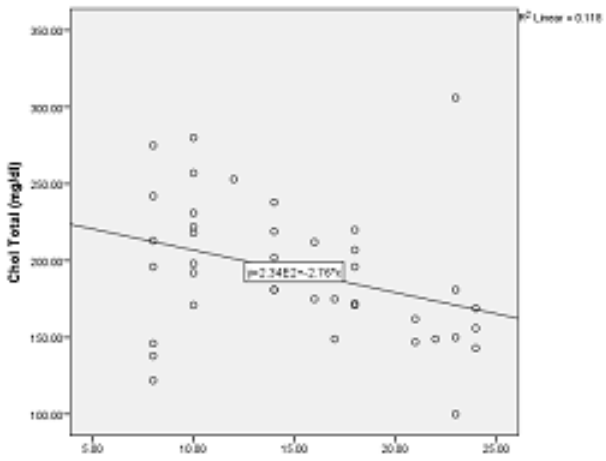

Figure 3. Correlation Implementation PROLANIS and Total

Based on Table 3, the spearman's rho test data showed that there is a relationship between the implementation of PROLANIS with total cholesterol levels with a significance value of (*p*) 0.029 with a negative correlation direction (r = -0.35) and the strength of a weak correlation (r2 = 0:11). The correlation between the activity of PROLANIS was namely in terms of medical consultation, group activities, and SMS gateway with total cholesterol also showing a correlation (p = 0.031; 0.037; and 0.021) with a negative correlation direction and the strength of moderate correlation (r = -0.34; -0.33; and -0.37). However, there is no correlation between a home visit with total cholesterol levels with *p* = 0.062. This means that with the maximum implementation of PROLANIS the lower the total cholesterol with type 2 diabetes mellitus. This correlation can be seen in Figure 3.

DISCUSSION

PROLANIS Implementation is one of the government programs cooperating with BPJS to encourage participants with chronic illness to achieve optimal quality of life so as to prevent complications of the disease (BPJS Kesehatan 2015). PROLANIS activities are carried out at Antang and Pampang community health centres Makassar, held every week on Saturday mornings. According to researcher observations, PROLANIS activity is ongoing and offers routine activities and is strongly supported by the clinic by providing the facilities needed for these activities and often making activities to strengthen kinship between participants and the public health centres such as holiday activities together. The clinic crew was there as a participant in PROLANIS so that it became an example or model for other participants. According to Green, & Kreuter (1999) the habit, model, and the support of the environment, in this case the health care facilities, forms a positive attitude for an individual. The positive behaviour of patients with type 2 diabetes mellitus leads to an awareness of the importance of maintaining a diet, control treatment and regular physical activity, medical consultations and all of that could be obtained if the participants are active in following PROLANIS activities.

In addition, according to the theoretical concepts of precede proceeds say that the individual behaviour is influenced by several predisposing factors, enabling and reinforcing. Predisposing factors reflected in the characteristics of respondents, supporting factors described by the infrastructure support in implementing PROLANIS and reinforcing factors reflected in the attitudes and behaviour of health centre officers who became a model for the implementation of PROLANIS. Good behaviour or lifestyle will both improve an individual's health status (Green & Kreuter, 1999). Health status refers to the control of blood sugar levels and risk factors for complications. This study shows that there is a strong negative correlation between the implementation of PROLANIS and fasting blood sugar in patients with type 2 diabetes mellitus which means that with the maximum implementation of PROLANIS the lower the fasting blood sugar levels of type 2 diabetic patients.

Activity in the implementation of PROLANIS activities includes medical consultations/education, home visits, reminders, club activities and monitoring of health status. Medical consultation exercises undertaken by participants along with health facility managers began with a contract time with medical personnel. Consultation includes a prognosis of disease, complaints about the health problems of participants and drugs control (BPJS Kesehatan 2015). This study shows there is a strong negative correlation between medical

Consultation with fasting blood sugar levels of respondents with a value of $p<0.05$ which means that with the maximum value of the medical consultation exercise the lower the fasting blood sugar in type 2 diabetic patients by Salistyaningsih. Previously Salistyaningsih, Puspitawati & Nugroho (2011) showed a link between adherence in consuming the oral hyperglycemia drug (Obat Hiperglikemi Oral (OHO)) with blood glucose levels in patients with type 2 diabetes mellitus in PuskesmasUmbulharjo II Yogyakarta where patients were wayward in drinking OHO 86 times at a risk od increasing blood sugar levels compared with patients who obeyed.

Hapsari (2014) also examined the treatment of type 2 diabetes Mellitus. Research results indicate a negative and weak correlation with p <0.05d and r = -0064, $r^2 = 0.004$ between compliance in taking the drug with blood sugar levels. This means that the higher value of compliance in taking the drug, the lower the blood sugar level which indicates the success of the therapy. Besides Mona, Bintanah & Astuti (2012) also examined the association of frequency of nutritional consultation with compliance diet and blood sugar levels in people with diabetes mellitus type 2 at the outpatient hospital Tugerejo Semarang which showed a significant correlation between the frequency of nutritional counseling and compliance with diet, and there is a correlation between diet compliance with the patient's blood sugar levels.

Club activity is an activity to improve health knowledge to restore the disease and prevent the return of disease and improve the health status of PROLANIS participants with physical activity (BPJS Kesehatan 2015). Physical activity is held every week on Saturday mornings and health education on diet and type 2 diabetes treatment is carried out two times a month. Based on the results of research conducted there is a strong negative correlation between the activity and the group with a blood sugar value of $p = 0.001$ and $r = -0.68$, which means that the higher the value of the implementation of PROLANIS the lower the fasting blood glucose of type 2 diabetic patients.

Other studies conducted by Putri & Isfandiari (2013) which aim to determine whether there is a correlation between the application of the 4 pillars controlling diabetes with the average of blood glucose levels indicate that there is a relationship between absorption education (p = 0.031), diet control (p = 0.002), sport (p = 0.017) and medication adherence (p = 0.003) with the average of blood sugar levels.

Reminders or SMS gateway is an activity to motivate participants to make regular visits to the health facility through a recall schedule (BPJS Kesehatan, 2015). SMS gateway activity at Puskesmas Antang and Pampang Makassar includes recording mobile numbers of participants, enabling a communication network (JARKOM) between participants and health centres, and evaluation of the activity of participants in a communication network and enabling the participants to understand the content given. Hopefully, by the communication network formed, PROLANIS participants with type 2 diabetes are able to access information about the PROLANIS activities to be carried out whether medical consultations, drug taking schedules or group activities that are held every week. Based on the results of the research conducted there is a strong negative correlation between the SMS gateway with fasting blood sugar for type 2 DM patients at Antang and Pampang community health centres Makassar with $p = 0.001$ and $r = -0.68$, which means that the higher the value of the implementation of PROLANIS the lower the fasting blood sugar of people with type 2DM.

A home visit is a service activity visitation to the home of PROLANIS participants for the provision of information/self-health education and the environment for PROLANIS participants and their families. Terms of these activities include home visits for patients newly enrolled, patients who were not present at PROLANIS activities for three months in a row, and those who have recently completed in hospitalisation. The results of the home visit are recorded in the book of health monitoring and reported to the clinic and BPJS (BPJS Kesehatan 2015). From the data obtained during the study, the implementation of the home visits conducted at Puskesmas Antanghas have largely been carry out from the 24 patients with type 2 diabetes: 22 participants had received home visits and only two people never got home visits. Of the 22

participants, only three people who get a home visit of new participants registered and been hospitalised because of the deteriorating health and the 19 other participant visitations were to enroll a new patient in PROLANIS. But the problem is that for every home visit, there was no record of activity or actions taken by health officers; information was only presented in the report form such as ever or never visited and dates of visits for the evaluation report.

In contrast to the Puskesmas Antang, PROLANIS participants with type 2 diabetes at Puskesmas Pampang only occasionally get a home visit. Out of 16 patients with type 2 diabetes only five people ever got a home visit and that too was for newly registered participants. The rest (11 participants) never got home visits, and no record of the activities carried out at home visits are available in the patient health monitoring book. This is what underlies the fact that despite the results obtained there is a negative correlation between home visits with fasting blood glucose levels of type 2 diabetes patients in Antang and Pampang community health centres Makassar with p = 0.047, but very weak correlation obtained, namely r = -0.39 and r^2 = 0:15. This means, only 15% of the variation in home visits affects fasting blood glucose levels of type 2 diabetes patients at Antang and Pampang community health centres Makassar.

Hemoglobin HbA1C test results are a highly accurate single examination to assess long-term glycemic status and are useful for all types of DM. This examination is beneficial for patients who need glycemic control. Increased levels of HbA1c> 8% indicate uncontrolled diabetes and risk of long-term complications such as nephropathy, retinopathy, or cardiopathy (Soewondo, 2005). The research data showed that average A1C type 2 DM patients at Puskesmas Antang and Pampang Antang uncontrolled Makassar City are 8.37%. A 1% decrease in HbA1c will reduce complications by 35% (Soewondo, 2005).

This research was also supported by research conducted by Alexander (2012), which aims to analyse the effectiveness of the PROLANIS in order to control the health status of patients with type 2 diabetes mellitus, who found that there are differences in cholesterol reduction, blood pressure systole and diastole, HbA1c, and improved quality of life significantly in the intervention group compared with the control group (p <0.05), but there is no significant difference in BMI reduction between the intervention and control groups, with p> 0.05. Syuadzah (2015) aimed to examine the association between adherence to following the activities of PROLANIS with HbA1c levels in patients with type 2 diabetes mellitus in Surakarta and showed a significant association (p = 0:04). It can be concluded that PROLANIS is very effective in controlling health status and improving the quality of life of patients with diabetes mellitus type 2 (Burns& Grove 2011).

Behaviour that is promoted is awareness of the importance of keeping your diet, medication control and regular physical activity, medical consultations and all that could be obtained if a participant is active in all the activities PROLANIS follows. The research done showed that type 2 diabetes patients at Antang and Pampang community health centres Makassar actively carry PROLANIS with an average value of 15.05 or over half of the total value of a maximum observation sheet which is 25. The activity in PROLANIS implementation includes activities in the medical consultation/education, home visits, reminders, club activities and monitoring of health status. The partners in the medical consultation exercise that led to the consultation activities undertaken by participants along with health facility managers in this case are Antang and Pampang community health centres which began with a contract time with medical personnel. These activities include consultation regarding the prognosis of the disease, consultation regarding other complaints about the health problems of participants and the most important is control of drugs (BPJS Health, 2015)

Based on research done there is strong and negative correlation between medical consultation with HbA1c levels in diabetic patients with type 2 in Antang and Pampang community health centres in Makassar with p<0.05 which means that with the maximum value of the implementation of a medical consultation, the lower the HbA1c levels in type 2 diabetic patients. The research was also supported by research conducted by Mona,

Bintanah and Astuti (2012), which aims to examine the relationship between frequency of nutritional consultation with compliance diet and blood sugar levels in people with diabetes mellitus type 2 at an outpatient hospital Tugerejo Semarang, which showed a significant relationship between frequency nutrition consultation with diet adherence and a relationship between diet compliance with patient's blood sugar levels.

Another study about the treatment of diabetes type 2 was also performed by Yoga, Julianti & Pramono (2011), aimed at assessing the relationship between the application of the 4 pillars of control of DM with the successful management of patients with diabetes type 2, where the success of the measure of HbA1c levels of patients indicates that medication adherence regularly provided statistically significant results with $p = 0.05$.

Group activity is an activity of physical activity and health education to improve patients' knowledge to restore the disease and prevent the return of disease and improve the health status of participants PROLANIS (BPJS Health, 2015). Research by testing using Spearmen's rho shows that there is a negative and strong relationship between the activities of the group with blood sugar levels in diabetic patients with type 2 at Antang and Pampang community health centres Makassar with p = 0.001 and r -0.68, which means that the higher the value of the implementation of PROLANIS the lower the HbA1c in type 2 DM patients.

Physical activity is held every week on Saturday morning at Antang and Pampang community health centres Makassar implemented in the form of gymnastic fitness for the elderly. The results of research conducted by Yoga, Julianti & Pramod (2011) aimed to assess the correlation between the implementation of the 4 pillars of control of DM with the successful management of patients with diabetes type 2, where the success of the measure of HbA1c levels of patients showed that the regularity of exercise has a significant influence on the success of management of type 2 diabetes with a significant value of p = 0.00; and research by Ramadhanisa, Larasati, & Mayasari (2013) aimed to determine the relationship of physical activity with the HbA1c of people with type 2 diabetes mellitus in dr. H. Abdul Moeloek Bandar Lampung; this showed a significant association between physical activity levels of HbA1c, with p = 0.001. It can be concluded that physical activity is very good for controlling blood sugar levels which can be viewed through an HbA1c.

In addition to physical activity in group activities education about diet and treatment of patients with diabetes type 2 were also included which, according to the results of research conducted by Harum, Larasati, & Zuraida (2013) aimed to show the relationship between high dietary fibre with levels of HbA1c in patients with DM type 2 in a hospital clinical pathology laboratory Dr.Hi.AbdulMoeloek Lampung province using the chi-square method; it showed a significant relationship between a high fibre diet with HbA1c levels (p-value 0.001).

Total cholesterol level is the amount of cholesterol found in the blood which includes LDL, HDL, and TGL. Cholesterol levels are closely linked to fatty deposits in the human body. If in the inside of the body a person has a lot of fat it is likely to cause various diseases such as heart disease and diabetes. For patients with DM, the amount of fat in the body of excess will aggravate the situation and accelerate the onset of complications due to fat being very easily broken down into glucose in the blood due to insulin resistance. Based on the results of research conducted by Ekawati (2012) there is a significant correlation between fasting blood sugar and cholesterol levels of triglycerides in the blood in patients with DM which is not well controlled in Clinical Hospital Jombang.

As is already known, cholesterol is strongly influenced by physical activity and the food intake of a person. According to research conducted by Anam (2010) regular dietary interventions and physical activity or sports as often as 3 times a week for 8 consecutive weeks can lower LDL cholesterol levels in the blood to 13.5 mg/dl and boost levels of HDL to 7.5 mg/dl. Research conducted by Sari (2014) with pre-post design for 6 weeks showed a difference in total cholesterol before and after aerobic exercise (p= 0.009). According to the analysis of the researchers, the underlying average total

cholesterol levels of PROLANIS participants with type 2 diabetes patients at Puskesmas Antang and Pampang Makassar is within the normal range of 192.87 mg/dl because the average length for which these participants have followed PROLANIS activities is less over 18 months or for 72 weeks.

Physical activity and dietary interventions are one of the activities of PROLANIS. PROLANIS group activity is an activity to improve health knowledge to restore the disease and prevent the return of disease and improve the health status of participants of PROLANIS with physical activity (BPJS Health 2015). Physical activity is held every week on Saturday mornings and health education on diet and type 2 diabetes treatment is carried out twice a month. Based on the results of research conducted, there is a negative and weak relationship between activity with total cholesterol levels of Type 2 diabetes patients at Antang and Pampang community health centres Makassar with p = 0.037 and r -0.33, which means that the higher the value of the implementation of PROLANIS the lower the total cholesterol levels in patients with type 2 diabetes.

In addition to group activities, other activities included in the PROLANIS implementation are medical consultations, reminder or SMS gateway and home visits. The medical consultation exercise where the consultation activities are undertaken by participants along with health facility managers in this case are held at the health centres and Pampang Antang which began with a contract time with medical personnel. These activities include consultation regarding the prognosis of the disease, consultation regarding other complaints about the health problems of participants and most importantly the control of drugs (BPJS Health 2015). Physical activity is held every week on Saturday mornings and health education on diet and type 2 diabetes treatment is carried out twice a month. Based on the results of the research conducted there is a negative relationship between activity and weak group with total cholesterol levels of type 2 diabetes patients in primary health centres and Pampang Antang Makassar City with p = 0.037 and r -0.33, which means that the higher the value of the implementation of PROLANIS the lower the total cholesterol levels in patients with type 2 diabetes.

Reminders or SMS gateway are activities to motivate participants to regularly visit the health facility through a recall schedule (BPJS Kesehatan, 2015). SMS gateway activity at Puskesmas Antang and Pampang includes recording mobile numbers of participants, enabling a communication network (JARKOM) between participants and health centres, and evaluation of the activity of participants in JARKOM and enabling participants to understand the content of the communication network used. Hopefully, through the communication network formed, PROLANIS participants with type 2 diabetes are able to access information about the activities to be carried out either through PROLANIS in terms of medical consultation, drug taking schedules and group activities that are held every week. Based on the results of research conducted there is a negative correlation between the weak and SMS gateway with total cholesterol levels of type 2 diabetes patients at Antang and Pampang community health centres Makassar with a value of p = 0.021 and r = -0.37, which means that the higher the value of PROLANIS implementation the lower the total cholesterol levels in patients with type 2 diabetes.

Home visits at Puskesmas Antang and Pampang, based on the previous explanation, have not run optimally. According to the researchers, this is why the assumption based on the Spearman's rho test found that there is no correlation between home visits with total cholesterol levels in patients with type 2 diabetes mellitus at Puskesmas Antang and Pampang Makassar with p = 0.062.

The Fourth PROLANIS activity shows that this event is a program that is highly complex and integrated as it includes activities associated with cholesterol levels in patients with type 2 diabetes. This is what underlies the fact that the Spearman's rho test showed that, although weak, there is still a negative relationship between PROLANIS implementation with total cholesterol levels. The higher the value for implementation of PROLANIS the lower total cholesterol levels in

patients with type 2 diabetes mellitus and at Puskesmas Antang and Pampang Makassar.

CONCLUSIONS

Maximum PROLANIS implementation is very effective in controlling fasting blood sugar levels, HbA1c and total cholesterol in patients with type 2 DM thus indirectly preventing complications. Therefore, it is suggested that PROLANIS should be implemented in each community health centre and primary health centre and comply with the standards set by government health insurance. The evaluation process of PROLANIS focused on the quality of implementation; the results can be seen from the impact and benefits to the target group in terms of the glycemic status of patients with type 2 diabetes in the form of measurable data.

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ENCULTURATION IN THE LIFE PATTERN OF BREAST CANCER PATIENTS: AN ETHNO-NURSING STUDY ON SUNDANESE WOMEN

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ABSTRACT

Introduction: Death of breast cancer remains the highest position in the totem of incidents not only in Indonesia but also in the world. Its treatment process, which in fact brings huge impacts to the life quality of breast cancer patients regarding physique, psychology, and social life, shapes some behavioral patterns throughout their life. The aim of this research is thus to explore patterns of breast cancer patients in sustaining their lifespan. **Method:** This research is designed using ethno-nursing qualitative approach. The sampling technique is done purposively to 6 informants, all of whom are breast cancer patients in Garut District, West Java, Indonesia. Data collecting is done through interviews and participatory observation. Data transcription is analyzed using ethno-nursing analysis method. **Results:** The result of the research shows four domains occurring as a pattern of inculturation of breast cancer patients in Sundanese culture, namely 1) dedication as wife and mother of Sundanese breast cancer patients, 2) medicine seeking for the rest of their life, 3) factors affecting to breast cancer patients adaptation for daily routines, and 4) family gathering as a meaning for *end of life*. **Discussion:** The result of this research shows an interconnected cultural pattern in the life of these patients. It is thus advised that nurses provide service to breast cancer clients by applying nursing care inherent to their cultural values.

Keywords: life-pattern, breast cancer, ethno-nursing.

INTRODUCTION

Any diagnosis is a life-changing experience for some people; breast cancer is no exempt. It is considered the road to death by some people in general. This consideration might more or less destabilize life quality of breast cancer clients and their family. Upon being diagnosed with breast cancer, the client must undergo several medical procedures that obviously takes a long time or even for the rest of their life, during which many changes will emerge in their daily routines. The resulting condition of this process brings impacts to their life regarding physique, psychology, and social life. Changes of role, perception, coping mechanism and behavior of seeking healthcare have come to be seen as a response to the meaning of cancer itself. Furthermore, trauma and indeterminacy of breast cancer diagnosis can affect the client's psychological and spiritual prosperity (Lopez-Class et al. 2011).

Some cultures believe that, for women, having breast cancer is a heavy burden to carry. However, the state of ill and healthy is highly relative due to some relevant factors. The term "ill" *per se* contains many different meanings regarding culture, social, and occupation. It is the fundamental aspect in determining illness, for it is a social recognition with which someone can play their normal role as people expect them to. Therefore, many social and cultural factors do affect the life of these clients.

Such social aspects of illness as physique, mental, and medics will shape illness behavior. It is understood, as Lambert & Loiselle (2007) puts it, as ways to which symptoms are responded, evaluated, and played by an individual is subjected to that illness, feels uncomfortable or reads other mal-bodily signs. Having that in mind, she can act out his normal roles partially or entirely. Illness behavior is highly affected by such factors as social classes, ethnics, and cultural differences.

Humans, as we all know, cannot live alone, for they are interdependent to each other, which applies the same way to breast cancer's clients. They have a lot of needs to fulfill and maintain their health and life quality. However, due to their powerlessness, not all of those needs could be fulfilled on their own. This is exactly

why they are exceptionally dependent on their family members and the environment.

The family is the closest part of the life of breast cancer clients. As social theory claims it, it is defined as a group of people unified by marital, blood, or adoptive bond, in which they belong to the same house and place to live, interact and communicate to each other, play their roles as either husband, wife, mom, dad, son, daughter, brother, sister. In other words, families attempt to create and sustain general culture (Khakbazan et al. 2014).

In maintaining life quality, these clients must be able to not only receive holistic care from nurses but also nurse themselves. Leininger (2005) mentions several factors of a social and cultural dimension such as technology, religion, and philosophy, social and intimacy, cultural values, belief, ways of life, laws, and politics, economy and education. All of them affect and are affected by, how someone would be able to nurse herself. All those factors will enable the breast cancer clients to make a decision in undergoing the process of treatment and therapy.

Regarding social life, Garut district of West Java is one of the districts that embrace the Sundanese culture, which grows and lives in Sundanese society. This explains why the majority of Garut people are of Sundanese descent, although recently many ethnics have come to coexist. Sundanese is the mother tongue passed for many generations and thus becomes the main language for communication amongst Garut people. It is also known with politeness culture, enabling their characteristics to be easygoing, amiable (*someah*), smiley (love to smile), and highly respectful of the elderly. The people in West Java or, broadly speaking, *Tatar Sunda*, including Garut, are known as soft-spoken, religious, and spiritual. As the proverb *silih asih, silih asah and silih asuh*, meaning be passionate to yourself (*welas asih*), guide, self-improve, and protect yourself and other people through education and many other fields. In Sundanese culture, religious harmony is maintained by rituals while social harmony by *gotong royong* (mutual cooperation) (Ekadjati 2014).

The familial system in Garut is bilateral, in which the descendant line is drawn from both the father and the mother. Therefore, the right and position of a family member are linear. The meaning of family for Sundanese people is seen as a shelter not only for wife and husband but also between families. A strong familial bond and Islamic teachings do affect the customs of Sundanese ethnic, or more ubiquitously known as *Pancakaki*.

In Sundanese family, the husband holds the position of head of the family responsible for the prosperity of all its members. Meanwhile, the wife has the duty to manage the household and take care of the children. As for widows, the chance of becoming the head of the family is bigger than wives. In Sundanese culture also, particularly in the village areas, there is a tendency for men to make decisions due to his high status in the familial hierarchy. This happens not only inside the family institution but also in the society in general.

Levels of Sundanese familial bond based on generational differences become paramount. Such difference is divided into three compartments, namely (1) the elderly (*sepuh*)—that is, grandfather, grandmother, father, mother, and upper-age generations, (2) siblings (*sadulur*): spouses and stepsiblings, or also known as *lanceuk* if older in age and *adi* or *rayi* if younger, (3) children—that is, the descendants. The elderly (uncle, aunt, *ua*—those younger in age than one's mother or father) in Sundanese are considered as "The Old", even when they have passed away. They still have the right to be involved in a familial discussion. They must be respected, for it is their obligation to guide The Young.

The role of illness for a Sundanese woman pesters herself, especially those who are married and have children. The duty of a wife is that she must fully submit fully to her husband (*dulang tinande*). However, her role as a mother is deity-like, cognizant that her child must respect her because she endured pregnancy and the inevitable pain and struggled to carry (*indung anu ngandung*). The illness, undoubtedly, brings significant impacts to the change of role and social status for breast cancer clients, in their relations to their role as Sundanese women.

The role of nurses as health provider is crucial in resuscitating the society of the danger of breast cancer, as well as advantages from the

actions done to prevent breast cancer itself. In creating plans and implementing those plans, communal nurses must balance cultural values, universal human experiences, and general needs of every person. Having that in mind, they need to understand important cultural aspects of nursing, which will foster community health through skill improvement.

Although the management of breast cancer has rapidly grown, the reality says otherwise. Only a few scientific studies have observed what these breast cancer clients do throughout their life. In the framework of ethno-nursing methodology, the focus of this research is on experiences and daily events of breast cancer clients in maintaining their life quality, as well as their perceptions and meanings of those experiences. Their life patterns, thus, becomes the main focus of this research.

METHOD

In the practice of nursing, the ethnographical approach is more commonly known as ethno-nursing. In other words, the nurses utilize ethnography as the basis of nursing care. Furthermore, such approach enables them to study explicitly nursing phenomena from cross-cultural perspectives.

The method of ethno-nursing research, designed by Leininger, proves helpful to use, knowing that it is a unique and essential qualitative method to study nursing and treatment practice, beliefs, and varying cultural and environmental values. Leininger (2005) also shows that this method is used to understand the meaning of the daily life of those who work in the field of nursing, healthcare, and human prosperity, in a different or similar environmental context.

The number of informants in this qualitative research is previously indeterminable, meaning the sampling might escalate throughout the research. According to Leininger (2005) and Wanchai et al. (2010), when doing a macro ethno-nursing study, 12 to 15 key informants and 24 – 30 general informants have great daily needs to fulfill. On the other one, when doing micro ethno-nursing, the researcher needs 6 – 8 key informants and 12 – 16 general informants. However, the majority of informants cannot be the parameter, for it can lead to skewing perspective and limited reasoning of how the treatment of special phenomena is carried out. Therefore, the aim of this research is to reach the proper number of key, general, and participatory informants, from which the data reaches its vantage point.

In this research, data saturation or no new information is reached at the 6th informant, meaning the number of the informants for this research is limited to 6 people only. Meanwhile, participatory informants include family (2 husbands as two key informants, one child as a key informant, as well as one friend as a key informant).

Research Instruments

Interview

The guideline for interviews focuses on the mundane life of breast cancer clients. This is done by trying to understand daily phenomena in the effort of maintaining their life quality. The open-ended interview is applied and probes are used and prepared by the researcher. Main data are obtained based on probing question used in the interview, during which researcher gives zero limits to clients' responses. However, supposing the informants digress in their answers, the researcher will lead them back to the main discussion. The theme of the interview includes informant's life experience from their diagnosis to their attempts to maintain their life quality. This is done in between informant's activities, as far as the researcher observes.

Participatory Observation

This research uses three observatory steps, as Leininger would put it, namely observation, participation, and reflection. The observation is done on daily activities of breast cancer patients in maintaining their life quality. Its goal is to observe behaviors and interactions among individuals of those groups in their social life. The behaviors include acts demonstrated both verbally and nonverbally.

Documentary Study

This study provides information regarding unobtainable information from (in) direct interviews. It hugely concerns both written and unwritten documents. While the former includes breast cancer client's medical records, therapy,

and treatment, the latter includes photos taken by researcher during observation. However, not all informant's activities are documented through pictures due to some ethical reasons. One of the results is an unabridged medical record of each informant. By using medical record, it is easier for researcher to identify at which stage of cancer. Besides, it helps identify kinds of therapy and treatment that these informants have done or are doing.

Tape Recorder

The tape recorder is used as one of data-collecting equipment. Some information to be recorded are impressions of experience, thought, and feeling as contemplated by these informants. It is only used during the first interview only.

Field Note

Much of this research applies field note as data-collecting equipment. It is used throughout the interview and during observation to some informant's activities.

Researcher as Instrument

The researcher attempts to fulfill his competence as a researcher in digging out the informants' experiences. For some observatory activities, researcher mingles with the patients. This includes cooking, taking part in *posyandu* (maternal and child health center) activities as well as in therapy and treatment activities.

Data Analysis

This research is done by involving detailed description about the setting or individual with breast cancer, followed by data analysis through 4 steps according to Leininger (2005), as drawn in Diagram 1.

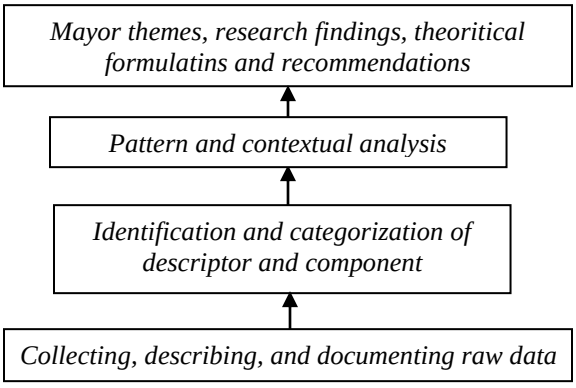

Diagram 1. Research data analysis (Leininger, 2005)

Research Ethics

This research is done with permission from Ethical Committee of Medicine Faculty Universitas Padjadjaran.

RESULTS

Based on the result there are four domains: 1) dedication as a wife and mother from Sundanese woman with breast cancer, 2) medicine discovery throughout the life of Sundanese woman with breast cancer, 3) factors affecting adaptation patterns of breast cancer clients in their routine and 4) gathering with family as the meaning before their life ends. The resulting category and domain will be discussed separately to reveal the meaning of breast cancer patient's life. However, those categories are interdependent in construing and describing the meaning of life in maintaining their life quality in this research. The schematic elaboration on research results of life pattern of breast cancer clients in maintaining their life quality based on a transcription of interview data and participatory observation shown in diagram 2.

DISCUSSION

Living life as breast cancer clients is not an easy thing. Naturally, someone will have to adjust to harmonize her life based on the culture she believes in. However, the behavior could only be done by studying and learning it as a culture of life. Koentjaraningrat (2009) states that humans could walk because of his fundamental nature to walk, and it happens as is. On the other hand, walking like a soldier or a model could only be learned using brain. Thus, it is called "culture" defined by all thoughts and actions functionally and non-functionally determined by the society.

The illness in life will bring about different response and meaning to each individual. Transcription of the interview and participatory observation describe that illness is seen as the life cycle of breast cancer patients. The awareness of life passage is based on the role she has to play, which is a woman. For a particular culture, being a woman means carrying a huge responsibility in their life, enabling her to view illness not as a problem but a cycle to undergo.

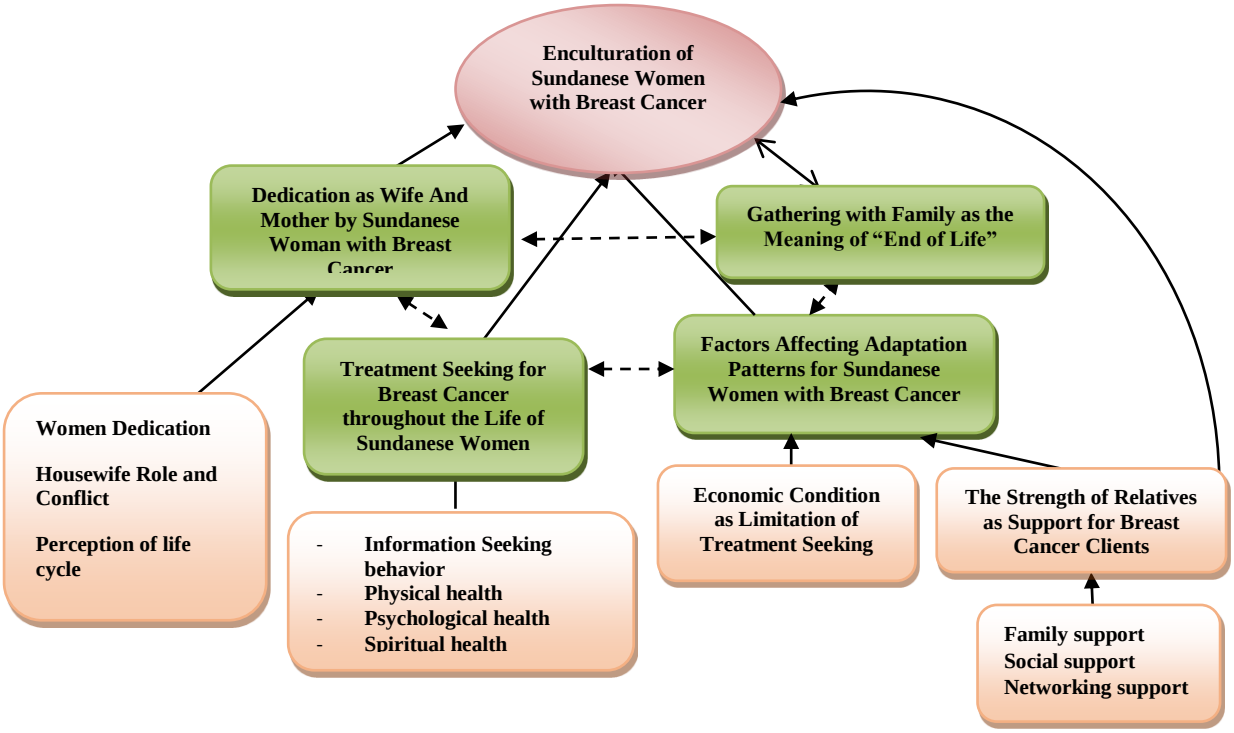

Diagram 2. Life Pattern of Breast Cancer Patients

Saefullah (2008) claims that, in Sundanese culture, different views on Sundanese women are affected by traditional values growing in Sundanese culture and Islamic teachings, which are the most adhered to religions in Sunda. Thus, a role of a woman is highly respected and holds a high position in life, as the proverb says it: *indung tunggul rahayu bapa tangkal darajat* (safety, happiness, and prosperity lie on mother's and father's prayers), which goes to the next expression: *indung anu ngandung bapa anu ngayuga* (there will be no child without the affection of mother and father). Those expressions explain the importance of women's role to their children and husband.

The view of illness and death as illness becomes a pattern drawn in breast cancer clients. Thus, many attempts are made to overcome those adversities. The life pattern to endure by breast cancer clients is different from many people, which encourages them to try many things to balance life with culture. Helman (2007) describes the proposition of illness as follows: (1) not all social or cultural groups respond to illness with the same way, (2) the way people see and respond to their illness, whether it is on their own or others, could be affected by their cultural background, (3) the way and the kind of communication of their illness for health professionals and other people, are also affected by cultural factor.

The interval between healthy and ill undergone by breast cancer clients need treatment and therapy attempt to prosper their life quality. It is learned, understood, and applied in their life, to map out as a form of "inculturation." Koentjaraningrat (2009) claims that the process of inculturation is a learning process and adapting to mind, behavior, and custom, norm systems, and all existing laws related to a particular culture. Much of the same way with what Sadono (2016) has to say: inculturation has two meanings. The first refers to the attempt of inculcating a value, behavior, feeling, view, or knowledge growing and developing in society to the members. The second refers to value aspects, norms, and behaviors under the consent of any living member of a community, which controls and

directs the behaviors with specific objectives. Thus, inculturation might as well be called as "culturing."

Seeking behavior is a behavior constantly done by breast cancer clients throughout their life. Rankin (2011) demonstrates that, after the client being diagnosed, the family's first attempt is seek information regarding treatment of cancer. He goes on to say that problem solving and positive assessment is also positive and significant predictors from family's tendency to seek social support as caregivers.

In line with that, Jenkins et al. (2001) also claim that most patients want as much information as they could obtain about treatment and their illness. A very important finding from their research is that 98% of patients feel that they need to know what cancer is and 95% want to know the probability of their recovery. Therefore, information on prognosis does not need avoiding.

The awareness of cancer among the people and treatment system from doctor or alternatives are paramount. Thus, the information regarding diagnostic and treatment is a dire necessity (Pati et al. 2013). The individual will actively look for information on treatment and therapy (Case et al. 2005). This is linear with Balneaves et.al. (2007) in their qualitative research, claim that aftershock, anxiety, and fear of knowing their diagnosis, women with breast cancer will start to consider their choices in looking for treatment that exceeds the conventional one to maximize the benefit of treatment itself, and minimize possibility of cancer restoration.

The choice of kinds of medication done by the clients is not only that of conventional but also an alternative. Wanchai et al. (2010) claim that such choice is based on the perception that they could give benefits by fulfilling patients' need to return to Mother Nature and improving psychological and emotional recovery so that their mind becomes safe and peaceful. On the other hand, Koentjaraningrat (2009) claims that in every society, humans won't be able to ignore knowledge about others. Such knowledge on anatomy in cultures rarely touched by medical studies is surprisingly extensive too. The knowledge to cure illness in villages are done by witches or shamans and masseurs. Witchcraft typically uses much of dark magic. Besides, they also have broad knowledge about characteristics of human organs, their positions, and the structure of nerves and stuff.

Moreover, the improvement of physical health and psychological prosperity is another attempt constantly done by the clients. Eating pattern or diet as well as other nutrition fulfilling efforts are also included. This is relevant to what Ansa, et.al (2016) have to say: most respondents believe that obesity (52,7%), less physical activity (48.7%) and high-fat diet (63.2%) are related to cancer restoration. Another attempt is to minimize effect from symptoms of breast cancer, such as pain.

On the other hand, the attempt to maintain psychological prosperity is made by avoiding stressor and keep her mind calm. As (Livneh 2000) says that personal control or self/cognitive restraint is another strategy employed by cancer survivors to overcome stress by the illness. This is the predictor of positive psychosocial adaptation and relieves stress.

The attempt of psychological prosperity is based on a good belief about giving meaning about illness in spiritual terms. Koltko-Riverra (2004) and Vidal (2008) claim that the view based on someone religious, spiritual, existential, or natural, is the basis of mind and behavior of that person alone.

A chain of treatment and therapy attempts to balance her life with the existing culture becomes a continuous subject to learn and do for the rest of their life. Therefore, struggling to face breast cancer becomes a constant meaning event for a Sundanese woman, thus becomes part of her culture. The result of such inculturation is described in a mapped pattern in the life of breast cancer clients.

A life cycle will be seen and learned differently from the life of everyone else. It is necessary to have a positive coping mechanism in making that happen. Adaptation pattern in someone will determine how she will live her life. Those who live in a place with a particular culture will have to submit to several universal factors affecting their life. It goes the same way with breast cancer clients. From the result, the researcher describes two factors affecting adaptation patterns of breast cancer clients in living their life: economy and socio-relative.

Economic factors are one of the meaningful factors to the life of breast cancer clients. Change of economic conditions due to illness affects adaptation pattern of their life. Yan et al. (2016) in their research revealed that cancer is a high-class illness for patients and their health. Therefore, high income from family and health insurance plan could improve life quality of breast cancer. Lack of social and economic factors are main predictors of death among breast cancer patients (Walsh et al. 2014). In line with that, Pisu et al. (2010) claim that "out of pocket" money is a significant burden for survivors even after early treatment. Cancer economic burden is also complementary cost and psychosocial burden.

This cost, which is time value spent with illness, represents the time that could not be dedicated to common activities and considered the loss of productivity for patients and society. Meanwhile, psychosocial cost refers to the loss of life quality regarding cancer. This cost is related to anxiety, depression, cancer burden, marriage conflict, social negative change and family relation, and future indeterminacy. The total cost consists of that of productivity loss (89% of it) and health treatment cost (11%) (Broekx et al. 2011).

Besides economic factor, social factor and relative factors are paramount factors for breast cancer clients. Social support from family, relative, friend, bosses from work and government also affects the adaptation pattern of breast cancer clients in living their life. Yan, et.al (2016) mentions that available social support from family member, friend, and neighbor, related significantly to improve life quality of breast cancer patients. Mokuau & Braun (2007) concludes family as the most important source of emotional and concrete support for women with cancer. Therefore it is necessary to identify the needs to improve informational support for patients and family.

The family is the closest part of the life of breast cancer patients. They are defined as two individuals or interdependent for emotional and physical bond as well as economic support. Meanwhile, in social theory, family is a group of people united by marital, blood, and adoptive bond, where they live in one household, interact and communicate each other in their role as wife and husband, mother and father, child and daughter, brother and sister; and try to create and maintain general culture. Besides, family support is an interpersonal relation that protects someone from bad stress effect (Kaplan and Sadock, 2002).

The research of Livneh (2000), another strategy directed to relieve stress among people with cancer is to find support from other. The result of this research shows a positive relation between seeking and reporting satisfaction of social support an emotional digression and psychological restraints, psychosocial and subjective perception is higher than prosperity.

All life pattern and cycle ends up in a belief about the meaning of the end of life. It goes the same way with informants in this research. The meaning of "end of life" is described based on the life cycle of the clients as a manifestation of the illness. Many attempts to maintain life quality has been made, but there is one time where all that must stop. Izumi et al. (2012) define "end of life" as a wise period where one realizes that her life must end. It's not a period medically determined before death. The awareness of "end of life" could be raised by patient's own knowledge or result from medical assessment without patients' notice.

Breast cancer is one of death causes. This general stereotype goes all over patients with different kinds of cancer. Where attempts are made to maintain function well with illness or diagnosis that threatens life for the long term. It is then followed by extreme fizzling of condition for few weeks or months before death. This stereotype is relatively predicted after tumors become unresponsive to the medication and escalate (Izumi et al. 2012).

In other words, "end of life" becomes an inseparable meaning from life undergone by breast cancer clients. However, there is one final goal they want for the "end of life" phase—that is, gathering with family members before until their last moments. Such meaningfulness in a Sundanese culture highly affects the life of these clients up to their deathbed.

The life cycle of Sundanese women with breast cancer describes that there is one enculturation pattern in their life. Not only does it become a part connected directly to their life

but also to other domains therefore creating an inseparable unified pattern.

CONCLUSION

Based on the result of research and analytical observation of all emerging domains, it is concluded that there is a cultural pattern in the life of breast cancer clients in living their life. This pattern becomes the behavioral basis for them throughout their life, all attempts were made to support one another in maintaining their life. Based on the existing cultural patterns, the illness they possess brings them to give meaning to life cycle so that it makes them learn, study, and apply the characteristics of treatment and medication in between their illness period to become a culture, which might be different from other people.

There is no exempt from adaptation pattern for breast cancer clients in living their life. Some universal factors also affect such pattern, which is social and kinship as well as the economy. Both factors become paramount factors in their life.

Although the end of their life pattern will meet with the phase of the end of life, they have attempted to maintain their life quality from the beginning of diagnosis to the end of their life.

The result of this research shows an interconnected cultural pattern in the life of these patients. It is thus advised that nurses provide service to breast cancer clients by applying nursing care inherent to their cultural values.

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DEVELOPMENT OF PERFORMANCE ASSESSMENT INSTRUMENT FOR NURSES BASED ON *WEB* IN INPATIENT UNIT

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ABSTRACT

Introduction: Performance assessment instrument will be problematic when it is not representative in describing the competency because it is not obvious indicators and inappropriate performance standard to nursing's task. The purpose of this study is to develop nurses' performance assessment instrument based on the web from multi sources assessment inpatient unit at SMC Hospital. **Methods:** This study had two phases. The first phase was an explanatory overview of the performance assessment system using questionnaires completed by 53 respondents of nurses, selected by purposive sampling. Instrument development based on FGD with six decision makers in the hospital. Validity was tested by *Pearson Product Moment Correlation* and reliability of instrument's was tested by *alpha Cronbach*. The second phase was socialization and instrument test to observe the quality of instrument using a questionnaire by 47 respondents and recommendations made by 8 participants of FGD. The samples were selected by purposive sampling technique. Performance assessment system was moderate at 58.49%. All questions which aimed to measure the performance of nurses were valid and reliable. The quality of nurses' performance assessment instruments based on the web was a good category, which was functionality: 81.60; reliability: 78.16; efficiency: 80.85; usability: 81.70 and portability: 81.70. **Results:** The result was a web-based assessment format, scoring with Likert scale, resource assessment by the direct supervisor which was a multisource evaluator, the development of performance graph, and confidentiality of data on the database server. **Discussion:** Recommendations for hospital is to make policy based on the final value of the performance assessment by the supervisor which was multisource feedback and it needs a global writing on a form of performance assessment result.

Keywords: assessment instrument, nurses' performance, web

INTRODUCTION

Performance measurement is an important thing for the development of the health care system (Beyan & Baykal 2012). Performance assessment instrument will be a problem if it does not describe competencies (Kalb et al. 2006) and inappropriate performance standard to the nurses' task (Nikpeyma et al. 2014). Satisfaction of the performance assessment which is done by managers influences positive things to build and improve performance, if the employees are not satisfied and feel the unfair process, they are unlikely to receive and utilize the assessment (Keeping & Levy 2000; Giles & Mossholder 1990 cit. Dusterhoff et al. 2013).

Basic competency assessments for nurses at Samarinda Medika Citra hospital had the same characteristics with the assessment for the whole employees. The nurse's performance assessment was conducted by self-assessment – supervisor evaluation (SA-PA). Indicator assessment was in accordance with nursing profession, and the development of assessor resources have been expected to increase the satisfaction of the assessment process and the results of the assessment utilized. The purpose of this study is to develop nurses' performance assessment instrument with web-based in the inpatient unit of Samarinda Medika Citra Hospital.

The performance assessment will not increase productivity if there are biased, inaccurate and not accepted by users due to errors in the content evaluation, which are bias in the evaluation process, incompatibility between the needs of employees and the purpose of the assessment or there is not clear performance dimensions (Giangreco, et al. 2012 cit. Nikpeyma et al. 2014). Less objective assessment leads to a subjective value. Assessment which is not objective, unfair or unreliable (called bias such as Hallo effect, leniency or strictness, central tendencies, Matthew effect and the supervisor 's bias) causes distortion of the assessment process and will also be a source of frustration for employees who are discriminated (Nikpeyma et al. 2014).

Multisource assessment is proven as an alternative to conventional valuation methods to increase employee's satisfaction ratings (Manoharan et al. 2012). Development of information technology and communication may cause nurses to have a computer-based management information system to support decision-making. Data processing with computer assessment is easier, faster, more reliable and more organized to avoid human

error manually. People nowadays use the internet to obtain information, it is supported by the development of mobile devices such as tablets and smartphones which make people easier to perform Web-based activities (Richwandi 2015).

The concept of nurse performance assessment instrument using an approach is carried out by several sources. The assessment using the web aims to protect confidentiality and accessed restrictions reports. Graph of performance assessment is expected to map out the nurse work performance. The performance indicators in this research are developed with basic competencies (behaviors work and personal character) stated in Government Regulation Number 46 of 2011, and professional performance standard of nurses in the patient satisfaction views according to Nursalam (2014). Instrument's quality will be assessed by software standards of ISO 9126. Validity and reliability of the instrument are tested before it was put in the web application.

MATERIALS AND METHODS

This research design was an explanative survey to describe nurses' performance assessment and construct a development of performance instrument used with Focus Group Discussion (FGD). Validity was tested by Pearson Product Moment Correlation and reliability was tested by Alpha Cronbach. The second round was socialization, mentoring, and testing of the instrument by the user from the administrator, head of nurses, nurses, and patients. The final result of the instrument testing was evaluation instrument quality and recommendation based on the evaluation.

Sample and participant were selected by purposive sampling technique. The first round of this study was selected 53 samples and 6 respondents for discussion. The second round was 47 samples and six respondents for discussion.

RESULTS

Evaluation of the nurse performance assessment system was conducted by using a questionnaire to 53 sample of nurses in child care unit, maternal care unit, ICU, NICU/ PICU, a maternity room, surgery room and newborn nursery unit. Thirty-one nurses (58.49%) found had moderate performance, 20 nurses (37.74%) had good performance and 2 nurses (3.77%) still had poor performance in doing an assessment to patients. The component of the assessment performance described in Table 1.

Table 1. Evaluation of The Nurses' Performance Assessment Component in inpatient unit at Samarinda Medika Citra hospital (N=53)

No	Component	Categories			
		Good f (%)	Moderate f (%)	Poor f (%)	Total f (%)
1	Evaluation Criteria	37 (69,81)	6 (11,32)	10 (18,87)	53 (100)
2	Value of Performance Measurement	44 (83,02)	7 (13,21)	2 (3,77)	53 (100)
3	Performance assessment system	35 (66,04)	12 (22,64)	6 (11,32)	53 (100)
4	Assessment feedback	36 (67,92)	11 (20,75)	6 (11,32)	53 (100)
5	Performance report	30 (56,60)	22 (41,51)	1 (1,89)	53 (100)
6	Performance achievement determination	25 (47,17)	17 (32,08)	11 (20,75)	53 (100)
7	Assessor objectivity	34 (64,15)	19 (35,85)	0 (0)	53 (100)
8	Satisfaction of performance assessment system	46 (86,79)	6 (11,32)	1 (1,89)	53 (100)
9	Satisfaction of supervisor's evaluation	37 (69,81)	15 (28,30)	1 (1,89)	53 (100)
10	Supervisor's knowledge for true performance	31 (58,49)	20 (37,74)	2 (3,77)	53 (100)
11	Satisfaction of feedback	27 (50,95)	15(28,30)	11(20,75)	53 (100)

Table 2. Quality Value of Nurses Performance Assessment Instrument based on the web (N=47)

No	Component	Categories			Total f (%)
		Good f (%)	Moderate f (%)	Poor f (%)	
1	*Functionality*	38 (80,85)	9 (19,15)	0	47 (100)
2	*Realiability*	30 (63,83)	17 (36,17)	0	47 (100)
3	*Usability*	35 (74,47)	12 (25,53)	0	47 (100)
4	*Efficiency*	33 (70,21)	14 (29,79)	0	47 (100)
5	*Portability*	34 (72,34)	13 (27,66)	0	47 (100)

Focus group discussion was conducted by the policy makers to discuss the issue and make recommendations for the development of the instrument. Validity and reliability's instrument content tested, either the institution evaluation or the patient assessment, showed valid and reliable for all questions.

In the second round, socialization and mentoring during instrument testing in the adult patient unit 1, 2 and 3, conducted by the researcher to help user system, provide manual book user for the instrument based on the web, provide contact number which can be reached anytime if facing obstacles. During the trial, if an error occurred, the researcher would communicate to the web developer for instrument recovering.

The instrument was applied to 47 users (1 administrator, 3 nurse unit managers, 29 nurses and 14 patients). The result for all quality indicators was good with the functionality (81.60); reliability (78.16); efficiency (80.85); usability (81.70), and portability (81.70). FGD conducted by users did observe the evaluation during the instrument trial and made recommendations for its further development.

The development of nurses performance assessment instrument was basic competencies assessment indicator. The scoring system was originally used 1a, 1b, 2a, 2b, 3a, 3b, 4a and 4b (score 1-8) with a maximum value of the acquisition of 8, while the development of instrument using a Likert scale with scoring (1-5) according to the indicator denominator. SA-PA assessor source was developed with peer and patient assessment rating. The database was provided safely on the server. The web-based instrument could be modified according to hospital needs.

DISCUSSION

The majority of evaluation of the performance assessment system was a moderate category. The most contributing proportion of satisfaction with the system was good. The source of the assessment methods was self-assessment supervisor (SA-PA). Performance evaluation practices have a positive influence on employee performance (Gyensare & Asare 2012).

Development of instruments in this study was the structure of the instrument and the content of the assessment criteria. One of the main parts of the implementation was performance measurement. It was influenced by factors such as perspective assessment of decision makers, data source, the focus of measurement, the achievement of development targets, types of indicator, data and investigation types. Performance assessment using this web allows structures to start measurement and qualitative types of indicator that provide a view of the professional behavior performance of nurses, the development of each work behavior assessment indicator can be used as a material for the supervisor to supervise its nurse subordinates. The data type uses a Likert scale (1-5), which allows comparing the measurement values with the numerator and denominator defined. Three of the eight stages performance assessment according to Olabode et al. (2013) can be provided by a web-based performance assessment instruments: 1) Ratings. This stage involves documenting the performance by observing, reminding, evaluating, communicating, assessment and analysis of data. This stage is putting together a record of votes. The information technology-based applications usage enables the acceleration of the conventional paper-based assessment and mathematical calculation performance score manually; 2) Feedback. After the stage of formal assessment, feedback sessions is done as willingness. This session should involve verbal communication, listening, problem-solving, negotiation,

compromising, conflict resolution, and agreement; 3) Decision-making. Results of the assessment and feedback will lead many decisions made for example of the award (promotions, incentives, etc.) and penalties (e.g., demotion).

Web quality assessment instruments indicators are functionality, reliability, efficiency, usability, and portability. Good was the highest percentages of functionality (web capability assessment of performance in meeting user needs in its function to measure the performance of nurses). The concept of the instrument characteristics was in accordance with the characteristics of software quality by ISO 9126 (International Organization for Standardization), in this study are based assessment from the point of view (user's view). Functionality is the ability to provide the satisfaction of user needs. Reliability is the ability of the software to treat level of performance. Usability is the ability associated with the use of the software. Efficiency is the ability associated with physical resources that are used when the software is run. Portability is the ability associated with software capabilities that are sent to different environments. An instrument is a tool or a means by which to measure the level of scientific work, official documents and legal form, can be used for research tools and results of data collection used as an ingredient in achieving objectives or specific policy.

CONCLUSIONS

The conclusion of this study 1) Nurses performance assessment system in SMC hospital was in enough category, poor category was the most dominating proportion for job awarding and satisfaction determination of the assessment; 2) FGD recommendation is to develop assessor source with peer and patient assessment, and also assessment type consists of checklist, recording, and note assessment, time assessment, specific indicator assessment for nurse task and questionnaire for assessment. Nurse achievement started from getting scores in 80 for final score of performance, needing essay column to complete the assessment, legalization for the recording assessment and security assessment process in the instrument based on the web which is the regulation needed; 3) All of the question for assessor from head, peer and patients were valid and reliable; 4) Socialization and mentoring to users of instrument was based on the web during trial and there was manual book for application users; 5) Nurse performance assessment instrument was based on web assessed by all user levels (admin, head of the nurse, nurses, and patients), they showed good category for all indicators (functionality, reliability, efficiency, usability dan portability) 6) FGD with users made recommendations that needed socialization and training performance assessment instrument user who was specifically set by hospital, the registration should be done independently by entering nurse’s email which managed by administrator. In developing the content of assessment indicators, they did similar additional indicators with technical competence assessment.

Recommendations of this study for the hospital is to invest in IT engineering, and also it should involve another profession (doctor, physiotherapist, nutritionist, etc.) as an assessor, makes policies about the final score of nurse assessment from multi-sources and increase internet network bandwidth in the hospital. For managers and nursing committee, they should formulate a fair scoring in the assessment of the nurse's performance. For the head nurse, they should continue motivating nurses in using the web to provide its assessment evaluation instrument for the next development. For further research should develop the web with quantitative indicators for nurses assessment.

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RED ROSELLA TEA AND AVOCADO AS SIMVASTATIN THERAPY SUPPORT REDUCE TOTAL CHOLESTEROL

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ABSTRACT

Introduction: Hypercholesterolemia is a condition characterized by high levels of total cholesterol in the blood. Many studies have proven that steeping tea rosella and flesh of an avocado can reduce total cholesterol levels. This study was conducted to determine the effectiveness of therapy companion rosella tea and avocado in lowering total cholesterol levels in hypercholesterolemic clients. **Method:** This type of research is a quasi-experimental study with pre-post test control group design. The population study was a client with hypercholesterolemia in the working area of Menganti health centers. First sample group consisted of nine respondents received the drug Simvastatin 10 mg and rosella tea consumed as much as 2 g 1x/day. The second group consisted of nine respondents received the drug Simvastatin 10 mg and avocado meat weighing 330 grams were consumed 1x/day. The control group consisted of 11 respondents have a drug Simvastatin 10 mg oral 1x daily at night before bed. All groups examined total cholesterol levels before treatment and after treatment on day 15. **Result:** The results of one-way ANOVA test showed a significant difference between before and after treatment in the first group (p=0,001) and the second group (p= 0,005), and there is no significant difference before and after treatment in the control group (p= 0,248). The difference between the three groups showed p= 0.025. **Conclusion:** The conclusion of this study is giving rosella tea, and avocado has the same effectiveness in lowering total cholesterol levels so that health workers can suggest the use of rosella tea and avocado as a companion therapy to reduce total cholesterol level.

Keywords: Hypercholesterolemia, Rosella tea, avocado, simvastatin

INTRODUCTION

Progress in the field of health and technology utilized by the community at present. Health is very expensive, so for those who are trying to maintain good healthy and for the sick seeking treatment are not harmful to him. One of them with an effort to make the treatment go back to nature. The wider community is now beginning to switch from modern medicine (medical) into complementary medicine, even though modern medicine is also very popular among the people discussed. Non-conventional intervention is one of the alternatives or complementary medical interventions. Intervention complementary (complementary therapies) are all interventions used as an adjunct to conventional interventions recommended by the implementation of individual health services. According to the Health Profile of Indonesia in 2008, the national population morbidity rate is 33.24% of the total is 65.59% chose their treatment using modern and traditional medicine, the remaining 34.41% choose outpatient treatment to health centers, physician practices or to other medical facilities. This shows public interest in traditional medicine is quite high (Kiki 2013).

In connection with this traditional medicine governments to establish policies and laws that regulate complementary medicine among them is Law No. 36 of 2009 on Health Article 1 para 16 Healthcare is the traditional treatment or treatment in a manner and drugs that draws on the experience and skills of hereditary empirically accountable and applied in accordance with the norms prevailing in the community, Regulation of the Minister of Health, No: 1076/Menkes/SK/2003 on traditional medicine, and the Regulation of the Minister of Health, No: 1109/Menkes/Per/ IX/2007 on the implementation of complementary-alternative medicine in health care facilities.

At the policy and legislation, one health worker role is a nurse. Nurses participate in the effort to develop complementary medicine through research. According to the Health Profile of Indonesia in 2008, the national population morbidity rate is 33.24% of the total is 65.59% chose their treatment using modern and traditional medicine, the remaining 34.41% choose outpatient treatment to health centers, physician practices or to

other medical facilities. This shows public interest in traditional medicine is quite high (Kiki, 2013). The use of complementary interventions is also used for clients who have problems with cholesterol levels in the blood. Cholesterol is a fatty substance found in every cell of our bodies (Bull, E.& Morrell 2007).

Today many people are trying to use alternative treatments, such as with roselle tea consumption of plant Hibiscus sabdariffa and consume the flesh of an avocado. Both of these materials as an alternative option because both contain the active ingredient which has a benefit when consumed it regularly through the regulatory processes in the body can lower total blood cholesterol, triglycerides, LDL and HDL may increase.

Efforts to reduce cholesterol levels are necessary to remember the first Hypercholesterolemia can occur at the age of 50 years and over. But now, research in 2004 by the National Heart, Lung and Blood Institute showed that 9.3% of hypercholesterolemia occurs at a young age i.e., 25-34. Not surprisingly, the National Heart, Lung and Blood Institute in the United States advocated for routine check cholesterol levels sometime after the age of 20 years, the goal estimates the risk of heart disease. WHO reported in February 2012 and that the number of clients of heart disease in developing countries like Indonesia will increase by 137% in 2020, whereas in developed countries is only 48%. Research and Development of the Ministry of Health stated that the percentage of deaths from cardiovascular disease increased from 5.9% (2004) to 9.1% (2007) and 19.0% (2011). Hypercholesterolemia is also a risk factor for the cause of death at a young age, as reported by the World Health Organization (WHO) in 2002, there were 4.4 million deaths due to CHD are due to hypercholesterolemia or 7.9% of the total number of deaths at a young age (Yulinda 2015).

Based on these issues, the case needs to be handled hypercholesterolemia effectively. Efforts to reduce hypercholesterolemia, in addition to the provision of treatment with cholesterol-lowering drugs may be accompanied by efforts to alternatives to the use of herbs. Research on granting steeping red rosella flower petals already been done to lower blood cholesterol levels as well as the flesh of an avocado. It's just that until now has never been any studies to determine the effectiveness of the comparison between the tea Rosella flower petals dried red and fresh Avocados in a decrease in total cholesterol levels for clients hypercholesterolemia. Therefore, researchers wanted to examine the comparative effectiveness of tea Rosella with Avocado fruit in a decrease in total cholesterol levels in hypercholesterolemic clients.

METHOD

The design of this research is a quasi-experimental pre-posttest control group design. The treatment group consisted of group 1 who were given intervention of rosella tea and simvastatin, group 2 given the flesh of avocado and simvastatin, while the control group was group 3 which only given simvastatin.

The population in this study were all clients of hypercholesterolemia in Puskesmas Menganti Gresik. The sample in this study is part of hypercholesterolemia existing clients in Puskesmas Menganti Gresik. Sample inclusion criteria were aged 25-50 years, men and women with total cholesterol levels ≥ 200 mg/dl, can read and write. Exclusion criteria samples are client hypercholesterolemia with concomitant diseases such as stroke or cardiovascular disease, liver disease, diabetes mellitus, thyroid, gastritis, client hypercholesterolemia who have low blood pressure (hypotension), clients who are allergic rosella tea or avocado.

The tools used in this research are: questionnaire, observation sheets, food recall, scales for weighing cake dried rosella petals weighing 2 grams of avocado flesh and weighing 330 grams, the tool checks the blood cholesterol level is 100. Biolizer research material is dried petal tea red rosella obtained from PT Dita renowned, bacon avocado butter types derived from avocado farmers in Lumajang, and venous blood specimen taken from the respondents.

Rosella flower petals dried red and the flesh of an avocado is ripe given to the treatment group. Dried flower petals red rosella weighed weighing 2 grams are packed in small plastic wrap number 14 and a teaspoon of sugar are packaged in a small plastic wrap and some 14 drug simvastatin 10 mg was given to each of the respondents in the treatment group 1. Meat Avocado ripe weighed weighing 330 grams for one-time consumption given once daily for 14 days as well as drug

Simvastatin 10 mg were given to each respondent in the treatment group 2. in the control group given the drug Simvastatin 10 mg taken once daily consumed at night before bed.

At the end of the study, after the intervention for 14 days in the treatment group 1, 2, and control groups were then carried back to the measurement of blood cholesterol levels at day 15. The respondents in the evening before the examination is recommended to fast for at least 8 hours. Respondents to the clinic the next morning to do blood tests in the laboratory clinic. The results included in the observation sheet The collected data normality test. In the treatment group, 1 and 2 tested using the Shapiro-Wilk normality. In the treatment group 1 and 2 to analyze the decrease in total cholesterol levels using a paired t test. Based on the analysis using SPSS, the research data in the control group are not normally distributed, then the appropriate test is Wilcoxon. In the treatment group 1, 2 and control after the completion of the normality test are then performed statistical tests as follows:

1. Univariate analysis

Univariate analysis performed to obtain descriptive characteristics of each of the variables studied included demographic data as well as confounding variables. All demographic data described by the value of the number and percentage of each group then presented using tables and interpreted.

2. AnalysisBivariat

The bivariate analysis was performed on two variables to determine the relationship or not. Among the independent variables with the dependent variable characteristics of respondents in total cholesterol levels by the statistical test. Data in the form of nominal (gender, occupation, food recall, physical activity/exercise, and smoking was analyzed using contingency coefficient. Data education, long-suffering, body mass index (BMI) were analyzed using a categorical form spearman`s correlation test. Age Pearson statistical test.

The test that used to compare the two data before and after treatment for each group In the treatment group was paired T-test. ANOVA test was used to compare the decline in total cholesterol levels between treatment groups 1, 2 and the control group.

RESULTS

The test results of normality with Shapiro-Wilk test showed the treatment group 1 and 2 normal distribution of data so as to compare data before and after treatment using paired T-test. In control group, data is not normally distributed so as to compare data before and after taking the drug using the Wilcoxon test. The test results of a test of homogeny of variances, the three groups have the data shows the same variant as the value of $p = 0,404$ or $p > 0.05$. A further test is used Bonferroni test.

The results of paired t-test show that blood cholesterol levels of hypercholesterolemic client decreased significantly, This is evidenced by the value of significance $p=0,001$ or $p<0,05$ (table 1). Show that in group 2, the results if the test statistic Paired T-Test many reduce cholesterol levels of the total significant to client hypercholesterolemia who gets avocado meat and Simvastatin medicine. This is evidenced by the value of significance $p=0,005$ or $p < 0,05$ (table 2).

Table 1. Average total blood cholesterol levels before and after treatment in group 1

Group 1	Number f %	Total Cholesterol Levels (mg/dl)± Standart Deviation	pValue
Pre-Test	8 100	258,4 ± 31,464	0,001
Post-Test	8 100	193,9 ± 34,893	

Table 2. Average total blood cholesterol levels before and after treatment in group 2

Group 2	Number f %	Total Cholesterol Levels (mg/dl)± Standart Deviation	p-Value
Pre-Test	9 100	252 ± 31,941	0,005
Post-Test	9 100	179,3 ± 49,922	

Table 3. Average total blood cholesterol levels before and after treatment in control group

Group 3	Number f %	Total Cholesterol Levels (mg/dl)± Standart Deviation	p-Value
Pre-Test	11	221,5 ±13,779	0,248
Post-Test	11	205,5 ± 46,025	

Table 4 Effectiveness between treatment groups 1, 2, and control

Group	Mean ± Standart Deviation	p-Value
P1 (n=8)	64,50 ± 34,978	0,025
P2 (n=9)	72,67 ± 55,996	
K (n=11)	16,00 ± 46,052	

Information:
P1 = Group 1, Rosella tea by steeping 2 gr/hr and drug Simvastatin 10 mg
P2 = Group 2, given flesh of an avocado 330 gr/hr and drug Simvastatin 10 mg
K = The control group, given the drug Simvastatin 10 mg

The result of control group shows that giving only simvastatin medicine to a client with hypercholesterolemia reduce total blood cholesterol but not significant (p=0,248 or p>0,05) (table 3).

Table 4 showed ANOVA test result in a significant difference between first group, two group and the control group with p=0,025.

DISCUSSION

Results of research can be seen in the treatment group 1 and 2 found a significant decrease in total cholesterol levels between pre-test and post-test. This suggests that the companion therapy rosella tea and bacon avocado effective in lowering total cholesterol levels in clients with hypercholesterolemia. The results of the study in the control group there was no decrease in total cholesterol levels were significantly in hypercholesterolemic clients who received the drug Simvastatin. The results showed that when seen from the difference between each group, the treatment group 2, has the greatest difference is 72.6 mg/dl, it is supported by the results of ANOVA test showed no significant difference between treatment groups 1, 2 treatment and control groups.

The role of Rosella flower petals itself is as anti-cholesterol due to the effect of antioxidant compounds contained by rosella flower petals are flavonoids and polyphenols can reduce fat deposits (LDL) in the blood vessels (Mardiyah; Sarwani; Ashadi; Rahayu 2009). Flavonoids are one of the antioxidants and can capture free radicals. Flavonoids stabilize free radicals by lowering the energy activity and further inhibit the oxidation of LDL. Inhibition of oxidation of LDL cholesterol levels decreased. Substance anthocyanins can lower lipid profile, namely, cholesterol, triglycerides, and blood LDL cholesterol and raise HDL cholesterol levels. Also, the content of niacin in Rosella can degrade back triglycine (Totong 1993) ride synthesis. Niacin can also affect the activity of the enzyme lipoprotein lipase resulting in decreased production of LDL in the liver resulting in a decrease in total cholesterol, LDL, and triglycerides. Niacin can increase HDL. Rosella also contains vitamin C can reduce the absorption of triglycerides by acting as a laxative (Sotyaningtyas 2007), Vitamin C is in addition to reduce the absorption of triglycerides also plays an important role in the breakdown of cholesterol in the body.

In the treatment group, 2 showed that administration of the drug Simvastatin and flesh of an avocado could cause a decrease in total cholesterol levels. The results are consistent with results of previous studies (Setiawan 2015) which states Ethanol Extract Fruit Avocados can lower total cholesterol levels in male Wistar rats. Other research supports is research Anggraheny (2007) which states that the provision of avocado juice led to a decrease in total cholesterol levels were significant at all doses compared to the control group. The results of the study (Usman 2013) shows that there are differences in the average decrease cholesterol levels in the intervention group and the control group.

All three previous studies avocado flesh before being given processed first, there is presented in the form of juice or extracted. In this study conducted avocado meat supplied directly without being processed first. So that

the dose is given appropriate without an addition of other materials such as water when making juice. It also allows individuals to consume and retain the active ingredients contained therein to stay awake. According to (Sediatama, A. 2000) flesh of an avocado contains 72.2% Omega-9 oleic acid which is a phytochemical that demonstrate the ability to affect the availability of blood plasma cholesterol. Meat avocado also contains 90% unsaturated fatty acids which have a complex function that is as bioregulator endogenous, structural function, namely water barrier on the skin, nerve tissue as nerve stimulation conducting material, the cell membrane as signal transduction. Regulatory functions, including gene expression, growth factors, moisture membrane and the formation of eicosanoids. Also, the fruit flesh avocado contains beta-sitosterol which phytochemical compounds that serve to normalize blood levels of LDL, triglycerides and total blood fats.

According to Budiana, N.S. (2013) of approximately 90% content of fat in avocados is that 80% in the form of oleic acid, a monounsaturated fat which beneficial for health. The advantages include lowering LDL, total cholesterol, and triglycerides and stabilize blood sugar levels. Fiber and monounsaturated fatty acids along with vitamin C, E and glutathione, may protect arteries from damage due to deposition of LDL. The content of beta-sitosterol can reduce the absorption of cholesterol in the intestine. In the control group, there was no decrease in total cholesterol levels were significantly in hypercholesterolemic clients who received the drug simvastatin alone. Simvastatin is a drug indicated for lowering cholesterol on clients who have hypercholesterolemia. Simvastatin drugs are chemical modifications of the compounds produced by fungi. These drugs included in the HMG-CoA reductase inhibitors that may inhibit the formation of cellular cholesterol and causes a decrease in serum cholesterol and serum LDL, with a slight increase or no change in the levels of LDL (Karch 2010).

Performance Simvastatin drugs are cholesterol-forming enzyme thus inhibiting cholesterol levels in the blood is reduced. The effectiveness of these drugs would be even better when accompanied by the application of a healthy lifestyle such as exercise regularly and stay away from greasy foods.

CONCLUSIONS

Based on the results of the study showed that there are a significants decreases in total cholesterol levels before and after receiving treatment both of the rosella tea with Simvastatin medicine and avocado meat with Simvastatin medicine on hypercholesterolemia clients. There was a significant difference between three groups in reduction of total cholesterol in hypercholesterolemia clients. In conclusion, if they are only consuming Simvastatin medicine like in a group of controlled, without consuming Rosella tea or Avocado meat, the decreasing of total cholesterol in hypercholesterolemia patient is not too good or giving the non-significant result.

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FACTORS RELATED TO OPEN DEFECATION BEHAVIOR AMONG SCHOOL-AGE CHILDREN IN WEST LOMBOK

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ABSTRACT

Introduction: Open defecation behavior is one cause of poor sanitation, which can lead to various diseases. Open defecation behavior related with cultural factors that become a habit in the daily life in a society which was then followed by their children. This study aimed to analyze factors related to the parental behavior of open defecation in school-age children based on the theory of transcultural nursing in Marce, Sedau Community Health Center Area, West Lombok Indonesia. **Methods**: This was a descriptive research design with cross-sectional approach. Samples were taken by simple random sampling technique and obtained 95 parents of children aged 7-12 years. Independent variables were education level, economy level, cultural values and lifestyle, social and family values, religiosity, technology. The dependent variable was open defecation behavior of the parents in school age children. This research was analyzed using Spearman rho test with significance level $\alpha = 0.05$. **Results:** education level ($p = 0.000$; $r = 0.390$), economy level ($p = 0.003$; $r = 0.298$), cultural values and lifestyle ($p = 0.000$; $r = 0.555$), social and family ($p = 0.000$; $r = 0.444$), religiosity ($p = 0.000$; $r = 0.300$), technology ($p = 0.000$; $r = 0354$) has a significant relationship with the parents about the open defecation behavior in school age children. **Conclusion**: the intervention was needed on the factors that influence the open defecation behavior by nurses participating directly to communities to increase public awareness about the importance of healthy defecate in a closet to avoid the disease.

Keywords: parent's behavior, open defecation, school-age children, transcultural nursing theory

INTRODUCTION

The behavior of Open Defecation is one cause of poor sanitation. It can cause various diseases, and it is an example of unhealthy behaviors (Mukherjee 2011). Open defecation behavior is closely connected with a cultural factor which is a habit in daily life (Qudsiyah WA; Pujiati, RS; Ningrum 2015). Initial data retrieval conducted by the researcher showed a lot of people who do open defecation behavior has become a habit for the majority of people. They usually do defecation in the river, so their children follow this habit. Children are more likely to imitate the same model which can be reached by them, seeing other children or people around them (Latifah 2012).

Based on the United Nations International Children's Emergency Fund (UNICEF) data in 2015, Indonesia is the second country with open defecation behavior in the world. According to the Join Monitoring Program (JMP) of WHO / UNICEF 2015, approximately 51 million Indonesian have still been doing open defecation behavior. Based Health Research in 2013 (RISKESDAS) West Nusa Tenggara is the second province that has the largest number defecation in Indonesia. (Dinas Kesehatan Kabupaten Lombok Barat 2012), there was 52.48% of people have already used family latrines as places to defecate (BAB), 27.21% still used the river and the surrounding environment as a place to defecate. Open defecation behavior affects sanitation issues such as diarrhea, as shown by the data of the West Lombok Department of Health 2014, the incidence of diarrhea at Puskesmas Sedau West Lombok was extremely high with 1036 inhabitants.

The interview data conducted by Ahmad Hazrul Watoni on 29 September 2016 in children aged 7-12 years who live in Merca, Selat Village, where it was on of Puskesmas Sedau area, showed that there were 11 out of 20 people have defecation habit in the river even though 7 out of 11 children had latrines in their house, while the remaining has already used toilet. Those 11 people were from parents whose education in junior high school. According to research results, (Qudsiyah WA; Pujiati, RS; Ningrum 2015) explain that quality of latrine does not affect a person to defecate in latrines, this is caused by their habit that they are more comfortable to defecate in the river. Infrastructure is an enforcing factor for behavioral change, but the most dominating factor is the habit.

Theory of Transcultural Nursing with Sunrise model of (Leininger 2002) consists of

seven factors influencing the belief and practice of the individual or cultural group. It affects specific and universal nursing practice to health and welfare of the individual or cultural group (Leininger 2002) so that it can be used as a template to observe the factors relating to the behavior of open defecation. Various problems from these conditions will relate to the behavior of open defecation in children.Therefore researcher is interested in doing research on "Analysis of Factors Related to Open Defecation Behavior based on Theory of Transcultural Nursing at Children in Merca, Selat Village, West Lombok".

METHOD

This research design uses descriptive with cross sectional approach. The population in the study were all parents with school-aged children (7-12 years) in Merce, Selat village, Sedau Community Health Center area. In this study, the researcher used simple random sampling technique and obtained a sample of 95 respondents. Independent variables in this research are parent education, cultural values and lifestyle, social and family value, religiosity, and technology, while the dependent variable is open defecation behavior in school age children.

Data collection using questionnaire and implemented for three weeks in December 2016. Analysis of data used to determine the relationship factors associated with open defecation behavior is to use Spearman rho test.

RESULTS

Over half of respondents graduated from secondary education. It means education pursued by respondents were still lacking. Education has a significant relationship with open defecation behavior in children (Table 1).

Based on Table 2, the majority of respondents had a low economy status which was below the minimum wage of Lombok Barat (<1,500,000), these results indicate a significant relationship between economic status and open defecation behavior of school-aged children.

Table 1. The relationship between parent's education and parent's behavior about open defecation to school age children

Open Defecation Behavior	Education											
	Did not attend school		Elementary school		Junior high school		Senior High School		College		Total	
	∑	%	∑	%	∑	%	∑	%	∑	%	∑	%
Do not do	0	0	1	1.1	19	20	18	18.9	6	6.3	44	46.
Do	4	4.2	10	10.5	31	32.6	5	5.3	1	1.1	51	53.
Total	4	4.2	11	11.6	50	52.6	23	24.2	7	7.4	95	100
p = 0.000, r = 0.390												

Table 2. The relationship between economic background and open defecation behavior in school age children

Behavior Open Defecation	**Economic**					
	≤1500000		**≥1500000**		**Total**	
	Σ	%	Σ	%	Σ	%
Do not do	22	23.2	22	2 3.2	44	46.3
Do	40	42.1	1 1	11.5	51	53.7
Total	62	6 5.3	33	3 4.7	95	100
p = 0.003 , r = 0.298						

Table 3. The relationship between cultural value and lifestyle and open defecation behavior in school age children

Open Defecation Behavior	Cultural Value and Lifestyle					
	Negative		Positive		Total	
	Σ	%	Σ	%	Σ	%
Do not do	11	11.5	33	34.8	44	46.3
Do	41	43.2	1 0	10.5	51	53.7
Total	52	54.7	43	45.3	95	100
p = 0.00, r = 0.555						

Table 4. The relationship between social and family value with open defecation behavior in school age children

Open Defecation Behavior	Social and Family Value					
	Negative		Positive		Total	
	Σ	%	Σ	%	Σ	%
Do not do	9	9.5	35	36.8	44	46.3
Do	33	34.7	18	19	51	53.7
Total	42	44.2	53	55.8	95	100
p = 0.00, r = 0.444						

Table 5. Distribution of respondents by cultural value and lifestyle of parents associated with open defecation behavior in school age children

Open Defecation Behavior	Religiosity							
	Good		Moderate		Less		Total	
	∑	%	∑	%	∑	%	∑	%
Do not do	44	46.3	0	0	0	0	44	46.3
Do	51	53.7	0	0	0	0	51	53.7
Total	95	100	0	0	0	0	95	100
p = 0.000, r = 0.300								

Table 6 The Relationship between Technological factors and Open Defecation Behavior of school age children

Open Defecation Behavior	Technology							
	Good		Moderate		Less		Total	
	∑	%	∑	%	∑	%	∑	%
Do not do	34	35.8	8	8.5	22.1		44	46.3
Do	23	24.2	14	14.7	14	14.7	51	53.7
Total	57	60	22	23.2	1616.8		95	100
p = 0.000, r = 0.354								

According to the table 3, more than half of the respondents had negative cultural value and lifestyle. The relationship level between cultural value and lifestyle and open defecation behavior high was. This shows that the habit of open defecation was still very high.

The relationship level between social and cultural value and parent's behavior was moderate (Table 4), this indicates that the value of social and family supported hygienic and healthy behavior, especially Open Defecation was still very good.

According to Table 5, the majority of respondents had a good value to religiosity and level of religiosity with the behavior of open defecation was moderate. This shows that the people believe in their religion teach to maintain good hygiene.

The majority of respondents had a good Technology. The relationship level of technology with the behavior of open defecation was moderate (Table 6). This shows that the technology available has been good to support the behavior of the positive open defecation.

DISCUSSION

Based on the data showed that the majority education of respondents was junior high school. This indicates that respondents were less educated. Therefore, there is correlation proved by the test Spearman Rho between education and the parental behavior of open defecation.

Education is an important thing, high education is expected to make a person always to carry out the things that are important to themselves and those around them (Mahyudin, 2013). According to the theory of Leininger's Transcultural Nursing (2002) states that a healthy behavior is shaped by a variety factors that work together. The higher education, the wiser that person is understanding everything around them because they usually look for scientific evidence and rational mind. It makes easier to adapt culturally as well as their health condition. Formal education of mother is the impact of mother's knowledge which low education leads to be less education and vice versa. Knowledge is an important domain for the person's actions (Kharismawati 2014).

Respondents who studied high school and college also had the negative open defecation is caused by lack of knowledge and information in the use of a healthy toilet.The society's knowledge was high but still behave open defecation although already have their own latrines as defecating. It indicates that public's knowledge about healthy latrine is still lacking (Widowati 2015) and the participation of the family in the use of latrines is still lacking (Tarin, 2008). Also, well-educated parents usually have many activities outside, so they will leave their children (Syaltut 2016)(Syaltut 2016) so that the children is handed over to grandmother or neighbor. Thus, children are rarely given the knowledge of the proper place and manner of defecation to keep hygiene.

Education is an important factor for people to behave maintaining the health of family, but it will be useless if it is not accompanied by awareness and willingness to make changes and improvements in the family environment, as well as respondents with high education, such as graduated from high school and college,they do not build their own latrines for house because their house is close to the river without a septic tank.

The most respondents were less economic, which was under minimum wage of West Lombok (<1,500,000). Respondents who earned below minimum wage had negative open defecation behavior, so the Spearman rho indicates the relationship between the economic and parental behavior of open defecation children. The level of the relationship was a moderate level category. Family income determines the availability of good family health. A balance family income will affect in maintaining the cleanliness and provision of a health facility. So people with low income cannot afford good health facility because they are difficult in providing it (Ministry Of Health, 2006). Theory of Transcultural Nursing (Leininger 2002) explains that someone will take advantage of material resources owned to pay its pain to get well soon.

Widowati (2015) found that income is a factor associated with health program, which means people with sufficient income will defecate in latrines while others with low income mostly do open defecation in greater number than high income. Statistically, there is a significant relationship between income and open defecation behavior. A respondent with low income was likely to have 9500 times risk more than respondents with high income.

However, there were respondents with a good economy doing open defecation behavior.This is caused by several factors encouraging them to do open defecation, which was people living near the river were more at risk to defecate in the open area (Mukherjee 2011). Another study mentioned that the distance between home and the river affects 132 times not to build latrine (Salah, 2002). Another factor that could reduce the

influence of technology is culture open defecation in the community because they felt defecation be more convenient and practical, open defecation as community identity and inheritance - generation of the ancestor so that it becomes a habit (Murwati 2012).

Low economy status strongly supports the behavior of open defecation because people will set a priority on another need which is more fundamental than building their own latrines especially if the distance from the house to the river near. Moreover, limited of land-owner makes difficult to build latrines so awareness for has a healthy family latrine will be less.

Most respondents had the negative value of cultural and lifestyle, among them, there were people with negative behavior of open defecation. There was a significant relationship between the test Spearman Rho between cultural value and lifestyle and the parental behavior of open defecation children. The level of a relationship was high. Based on research (Qudsiyah WA; Pujiati, RS; Ningrum 2015), the behavior of open defecation is closely connected with the cultural factor that becomes a habit in daily life, they feel more comfortable if defecate in the river while facility and infrastructure are enforcing factor to change behavior, but the most dominating factor is the habit.

The tribe characteristics can be described by the tradition and culture which is formed in settlement and their local wisdom. It can be seen from the traditional settlement of Sasak Tribe, in Limbungan, East Lombok, who maintain their traditional house from any changes. The pattern of spatial development of the Sasak tribe in Limbungan is based on cosmology value-oriented with the belief system and tradition of culture-based society resulting in special space. Custom regulations about the settlement of indigenous Limbungan that if you want to build a permanent house, you should build outside the area neighborhood of custom, it is forbidden to alter and damage the residential custom, location, natural materials of the building, all of this should be in accordance with the custom rules, especially it is not allowed to build bathroom/toilet in custom residential neighborhood that washing activities carried out in the river (Sabrina, R., Antariksa, A., & Prayitno 2010).

Attitude and behavior of people who does not maintain environmental health have an impact on their next-generation behavioral patterns. Cultural elements learned in the early stages of the process of socialization are a habit formed since childhood. It will affect the habit of a person as an adult (Koentjaraningrat 2004).

Community with high cultural value will follow their tradition of the past and feel comfortable when they are in situation and condition where the present and the future can be predicted or have a secure while community with low cultural value will remain comfortable even if they are in a situation that is uncertain in the present and future, therefore they are not too oriented to regulation and better prepared to face the changes (Imelda 2002).

Based on Transcultural nursing theory Leininger (2002), the value of culture is defined and determined by the adherents of culture considered as good or bad. One of the factors that determine the health condition of the community is the people's health behavior itself, where several factors influence the process of formation of this behavior. Its factor socio-cultural factor, if these factor has been embedded and internalized in the life and activity of the community the tendency to change behavior been formed is difficult to do (Imelda 2002).

The value of the negative culture associated with a parental behavior of open defecation would be inherited by their children and will continue to inherit if the parents do not change a value of culture to be positive because children will imitate whatever is done by family environment.A custom which has been learned from childhood by family is a difficult thing to be changed because people prefer their lives as usual and trying to keep things comfortable so that the relationship between culture and parental behavior of open defecation to children were high.

Most respondents have good social value and family. It indicates there was the relationship between social value and family and parental behavior of open defecation to children. The level of the relationship was moderate.

Transcultural nursing by Leininger (2002), Social &family aims to be a support system for member and to improve health and

the adaptation process. Social and family supports the family's ability to provide time, attention, and support to meet the physical, mental, and social. There are three dimensions of family support such as emotional support, material support, informative support. Social and family factor have an important role in the medical management not only for children but also for the adult who can affect behavior.

There were 18 people who have positive social value and family doing open defecation. Low parental supervision can cause this behavior. Low family care causes parents had a negative characteristic in determining the way to care children (Syaltut 2016).

Parental care of children affects the care for children and forms of a family also affects parental attention to children. According to Feiring and Lewis (1984) in Friedman (2010), there is strong evidence that large family and small family qualitatively describe the experiences of development. Children who come from small family receive more attention than children from large family so that it becomes a factor supporting the behavior to do open defecation by children

Negative social and family factors are they rarely teach defecation in latrines since childhood. It means that family social factors still bound by habit, custom, and belief of the family, causing the children's behavior to follow the custom in a family. A family is the closest neighborhood where children can imitate whatever the family does.Not only does negative social and family factor encourage someone to do open defecation but also the society with positive value still do conduct open defecation because of parental attention that can be caused by large family and defecation habit.

The majority of respondents had good religiosity on the behavior of open defection.There is a relationship based on the test Spearman Rho between religiosity and parental behavior of open defecation children. The level of relationship's category was moderate. Religion is a symbol which makes people very realistic. Religion gives strong motivation to put the truth above others, even its life. Religion causes the person to have humility and opening (Leininger, 2002).

Religiosity is a core of human life. High religiosity is described by their belief in the existence of God as manifested in the process of studying knowledge and behavior by its religion. The behavior of obeying what is ordered and disobeying what is forbidden by the religion will make human closer to God, the sense that prayers are being said is always granted, a sense of calm, and so on. So that, the daily activity of individual truly reflects the teaching of religion (Purnamasari 2014).

In this study, all respondents had a good rate of religiosity, but some of them were a negative behavior of open defecation by 51 respondents (53.7%). People who did proper defecation is caused by the religiosity because it led to the observance of obligations as religious people and always maintain personal hygiene but still had to defecate in private place. It is affected by a habit of family and community in the understanding of open defecation inappropriate.

Mostly, respondents owned good technology, but among them, there still had the negative value of behavior open defecation. It showed that there was correlation bySpearman Rho between technology and parental behavior of open defecation to children with a moderate level category.

According to the theory of Transcultural Nursing by Leininger (2002), technology is a factor that influences individual behavior based on culture. Health technology is the infrastructure that allows individual to choose or get a bid to solve health care problem. Utilization of health technology is influenced by the attitude of health worker, the needs, and public interest (Giger 2013). Technology refers to all forms of technology used for creating, saving, modifying, and using information.

There were respondents who had good technology but did the behavior of open defecation, it means that the influence of technology on the behavior of open defecation could also be less influence if there were other factors explained on qualitative research (Mukherjee 2011), people living near the river are likely to defecate in the open area. Another study mentions that the distance between home and the river affects 132 times not to use latrine (Salah, 2002). Another factor that could reduce the technology's role was culture. The culture of open defecation in the open area makes people think that it is easier and simple, this defecation habit is community identity and inheritance - generation of the ancestor so that it becomes a habit (Murwati 2012).

The technology referred to in this research is health education about open defecation or a healthy family latrine and latrine ownership that meets the health requirements of the respondents. Respondents had had latrine but there were still many people who have not qualified healthcare equipped with septic tanks or have toilets and the lack of information about the benefits to defecate in latrines for health so that respondents still went to the river.

CONCLUSION

Parental education background factor, economic background, cultural value and lifestyle, social value and family, religiosity and technology is related to open defecation behavior in school-aged children. Further research is expected to provide the intervention of the factors that influence open defecation behavior to children, especially on factors such as cultural value and lifestyle of parents, social and family value.

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BULLYING BEHAVIOUR OF ADOLESCENTS BASED ON GENDER, GANG AND FAMILY

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ABSTRACT

Introduction: Bullying is a social problem which is characterised by aggressive violent behaviour done continuously and has an adverse impact on victims and its subject and happens at school. This study aims to find out the description of knowledge and adolescents' behaviour with regard to bullying based on their age, gang and family. **Methods:** This study used an analytic descriptive design with some samples – 246 adolescents from grade 1, 2, and 3 of senior high school which used stratified random sampling. Instruments of this study were a knowledge questioner and a modified version of The Bullying Prevalence Questionnaire in Guttman and Likert scale. Data analysis used cross tabulation. **Result:** Data show that adolescents have a good knowledge (93.9%) of bullying and less (6.1%). Bullying subjects were 93.9% and victims 94.7%. Forms of verbal bullying indicated the subjects (93.1%) and victims (92.3%). The majority of bullying subjects were males (94.1%), and the majority of victims were women (96.3%). Numbers of bullying subjects do not have a gang (94.5%), while those with a gang as victims (95.2%). There were five adolescents who live in stepfamilies who became subjects and victims of bullying. **Conclusion:** The majority of adolescents have good knowledge about bullying, the vast majority of cases of bullying were verbal bullying with subjects and victims of bullying occurring in all classes. The majority of bullying subjects do not have a gang, and the majority of victims have a gang. Almost all adolescents with different family types become subjects and victims of bullying. Therefore, an intensive educational and spiritual effort needs to be made to change the behaviour of adolescents so that they are adolescents with good character.

Keywords: Bullying, gender, gang, family.

INTRODUCTION

Bullying behaviour is a social problem that is part of the violent behaviour done aggressively with discrete hurt either physically, verbally, psychologically, through an intermediary and without an intermediary, violating the rights, the power difference between perpetrator and victim and which is repeatedly performed (Lai, Ye, & Chang, 2008). In recent years, the phenomenon of bullying has become a source of concern all over the world and it is constantly increasing and significantly mainly occurring in children and adolescents, especially at school age (Lai et al., 2008).

The World Health Organization (2012) reported that the health behaviour of school-age children in Europe ranges from 2% to 27% of girls becoming victims of bullying, and 5% to 32% of boys. According to statistics on bullying, the data also demonstrates that 70.6% of students in the United States (US) have watched bullying in their schools and more than 30% of students reported experiencing bullying (Bullying Statistic, 2015). Moreover, according to data from the National Center for Education (NCE) (2007), approximately 3.2 million youth aged 12–18 have reported experiencing some form of bullying, and more than 160,000 children missed school every day because of trauma as a result of the terror received in school (Santoyosep, 2013). According to Cokokinarto et al. (2013), cases of bullying that occur in Indonesia, including in the order of 2 ads highest in the world after Japan, followed by Canada and the US. This is also supported by the number of reports from the public to the Indonesian Child Protection Commission (KPAI) against bullying cases from 2011 to August 2014; there were 369 complaints which are about 25% of the total complaints in the field of education which has as many as 1480 cases (Setyawan, 2014).

The results of the study of the National Consortium Characters in the School Development Firmansyah (2014), showed that almost all schools in Indonesia experienced bullying. Based on this, the study stated that Indonesia was categorised as an emergency for bullying in schools. According to Edwards (2006) in Usman (2013), bullying is most common in high school because adolescence has a high level of egocentrism. Based on a survey conducted on 40 students of class XII in one secondary school (high school) in the city of Semarang, 32.5% of students had been a subject, victim, or witness of bullying; 27.5% had been a witness only, 10% were victims and

witnesses; 7.5% were subjects or witnesses; and 25% were the subject of bullying alone (Sugiariyanti, 2009).

According to Soedjatmiko, Nurhamzah, Maureen, & Wiguna) (2013), most victims of bullying will experience a negative impact in the form of barriers to actualising themselves, mental disorders and psychosocial disorders. This is because students feel they are in a state of distress, danger or insecurity and comfortable, have a sense of worthlessness, difficulty concentrating, find it difficult to socialise within their environment, have poor self-esteem, depression which affects academic performance and can even lead to suicide (Sejiwa, 2008). One of the effects of bullying is a decrease in the level of achievement in school. This is evidenced by the results of research by Dwipayanti & Indrawati (2014), that the higher the bullying experienced by victims of bullying, the lower the academic achievement.

Research on students 'knowledge about bullying', especially in the area of Makassar South Sulawesi has not been done, while the students' knowledge is very influential in bullying behavior before further action. Some studies say that to solve a case of bullying, the intervention must be carried out with the perpetrators and the victims. Effectiveness depends on the participants' knowledge, empathy, and adherence to the intervention (Chatters, 2012). Based on interviews with three students of SMA Negeri 1 Tanete Rilau, it was found that violence is very common, especially during student orientation periods (MOS) occurring between seniors and juniors. Also, the Coordinator of Counseling (BK) said that violence has occurred from year to year and the data recorded that several students had been threatened with expulsion from school. This study aims to describe the knowledge and behaviour of adolescents' bullying based on gender, gang and family.

METHODS

The study design is descriptive analysis with cross tabulation between the variables gender, having a gang and type of family with adolescent bullying behaviour. Research was conducted at SMAN 1 Tanete Rilau, District Tanete Rilau, Barru, South Sulawesi in October–November 2015. The population in this study were all adolescents in the 1st, 2nd, and 3rd grade of senior high school (SMA Negeri 1 Tanete Rilau). In the 2015–2016 school year, there were 638 adolescents, with a sample of 246 adolescents selected by using a stratified random sampling technique. The samples for each class were obtained by selecting students who have an odd number on their student identification in each class. The inclusion criteria were teens at a research site for the study with a signed informed consent sheet.

The variable in this study concerning the knowledge of adolescents about bullying included definitions, characteristics, causes, impacts and forms of bullying consisting of verbal bullying, physical, psychosocial/mental, and cyberbullying; variable bullying behaviour can be identified as subjects and victims of bullying, obtained from respondents through a modified version of The Bullying Prevalence Questionnaire (physical, verbal, psychological/ mental and cyber), gender variable, gang variable, and family variable in terms of the biological family (living with parents and siblings), stepfamilies and non-biological families.

The instrument used in this study was to test the validity and reliability of knowledge about bullying including a questionnaire with the value of Cronbach's Alpha equalling 0.959 and a Corrected item-Total Correlation > r table (0.361), with 12 questions using the Guttman scale; The Bullying Prevalence Questionnaire was modified by researchers with the value of Cronbach's Alpha equalling 0.921 and Corrected item-Total Correlation> r table (0.361), with 32 questions containing subjects and, for victims of bullying, using a Likert scale; and biodata respondents.

The data were processed and analysed descriptively and presented in a frequency distribution table. Furthermore, bullying behavior was analysed in cross tabulation with the variables gender, gang and family type.

RESULTS

The frequency distribution based on the characteristics of the respondent can be seen in Table 1, based on the knowledge and behaviour of bullying in Table 2, and forms of bullying in Table 3. Table 1 shows that most respondents were female adolescents (65.4%), in grade 3, totalling 87 (35.4%), and only 63 respondents

Table 1. Frequency Distribution of Respondents by Gender, Class, Gang and Family type (n= 246)

Characteristics of Respondents	n	%
Gender		
Male	85	34,6
Female	161	65,4
Grade		
I	81	32,9
II	78	31,7
III	87	35,4
Having Gang		
Yes	63	25,6
No	183	74,4
Family Type		
Biological Family	203	82,5
Step Family	5	2
Non-Biological Family	38	15,4

Table 2. Frequency Distribution of Respondents by Knowledge and Bullying Behaviour (n = 246)

Knowledge	n	**%**
Good	231	93,9
Not Good	15	6,1
Behaviour		
Doing Bullying	231	93,9
Not Doing Bullying	15	6,1
Victims of Bullying	233	94,7
Not Victims of Bullying	13	5,3

Table 3 Frequency Distribution of Respondents by Forms of Bullying

	Subjects	Victims
Form of Bullying	%	%
Subjects of Physical	74	83,7
Non-Subjects of Physical	26	16,3
Subjects of Verbal	93,1	92,3
Non-Subjects of Verbal	6,9	7,7
Subjects of Psychosocial/ Mental	73,6	67,4
Non-Subjects of Psychosocial	26,4	32,6
Subjects of Cyber Bullying	24,7	28,3
Non- Subjects of Cyber Bullying	75,3	71,7

had a gang. The majority of respondents lived with a biological family, namely 203 adolescents (82.5%).

Table 2 shows that the majority of the 246 respondents had a good knowledge of bullying – 231 adolescents (93.9%). While the number of bullying subjects was 231 adolescents (93.9%) and 233 adolescents (94.7%) as victims of bullying. Table 3 shows that of the 231 bullying subjects, as many as 74% (171 adolescents) did the physical bullying, 93.1% (215 adolescents) did the verbal bullying, 73.6% (170 adolescents) did the bullying psychosocially/ mentally, and 24, 7% (57 adolescents) did cyber bullying. From the 231 respondents who became bullying subjects, there were some adolescents who became actors in more than one form of bullying. Of the 233 victims of bullying, as many as 83.7% (195 adolescents) were victims of physical bullying, 92.3% (215 adolescents) were victims of verbal bullying, 67.4% (157 adolescents) were victims of bullying psychosocially/mentally, and 28.3% (66 respondents) became victims of cyber bullying.

Cross tabulation results of subjects and victims of bullying based on gender are shown in Table 4, having a gang in Table 5, and the type of family in Table 6. Table 4 shows that

Table 4. Frequency distribution of subjects and victims of bullying by sex (n=246)

Sex	Subjects	Non Subjects	Victims	Non Victims
	%	%	%	%
Male	94,1	5,9	91,8	8,2
Female	93,8	6,2	96,3	3,7

Table 5.Frequency distribution of subjects and victims of bullying according to gang group (n=246)

Gang Group	Subjects	Not Subjects	Victims	Non-Victims
	%	%	%	%
Having Gang	92,1	7,9	95,2	4,8
Non-Having Gang	94,5	5,5	94,5	5,5

Table 6. Frequency distribution of subjects and victims of bullying by family type (n=246)

Family Type	Subjects	Not Subjects	Victims	Non-Victims
	%	%	%	%
Biological Family	92,6	7,4	94,1	5,9
Step family	100	0	100	0
Non-Biological Family	100	0	97,4	2,6

the distribution of bullying behaviour by gender of 85 male adolescents showed 80 bullying subjects (94.1%) and victims amounting to 78 adolescents (91.8%). While the teenage girls' category of bullying subjects showed 151 (93.8%) and the category for victims included 155 (96.3%) of 161 girls.

Table 5 shows the distribution of bullying behaviour by gangs amongst 63 adolescents who have a gang, with categories of bullying subjects numbering 58 (92.1%) and the victims numbering 60 adolescents (95.2%). Amongst the 183 adolescents who did not have a gang, numbers of bullying subjects as well as victims were respectively 173 adolescents. (94.5%).

Table 6 shows that the distribution of bullying behaviour by family of 203 adolescents who live with their biological families, included 188 bullying subjects (92.6%) and 191 victims (94.1%). There were five adolescents who lived with stepfamilies, showing that all adolescents (100%) became bullying subjects or victims of bullying, while 38 adolescents lived with no biological family, and all of these adolescents (100%) became bullying subjects and 37 adolescents were victims (97.4%).

DISCUSSION

Data shows most adolescents have good knowledge about bullying. This is in line with research by Fajrin (2013) which shows a high percentage in terms of student knowledge about bullying at SMK PGRI Semarang. Knowledge of bullying is very closely related to the information that has been obtained by respondents from various sources. One source of information that is important for this knowledge is the mass media. Also, information can be derived from a teacher through the learning process. Based on Notoatmodjo (2010), people who have more resources will have a broad knowledge. Adolescent knowledge is based on indicators of knowledge about the definition of bullying, the characteristics of bullying, forms of bullying, bullying causes and effects of bullying. The results of the evaluation questionnaire on each question showed that more than half of the respondents answered wrongly the question about the forms of bullying. This could have been caused by information obtained by adolescents that bullying is confined in general to a form of violence. However, adolescents' information about forms of bullying is still lacking.

Bullying is a problem that occurs among children and adolescents and continues to receive attention from researchers. Based on the results of the categorisation of subject scores of subjects and victims of bullying it is known that as many as eight adolescents very often become bullying subjects, often (14 adolescents) and sometimes become subjects (80 adolescents). While very often the victim

of bullying as much as 7 adolescents, often (20 adolescents) and 81 adolescents sometimes become victims of bullying. Thus, it shows that adolescents sometimes become subjects and victims of bullying. This is according to research conducted by Usman (2013) which indicates that the student encounters moderate bullying behaviour . But keep in mind also the subjects and victims of bullying in the category very often will have an impact on their adolescent psychology. This is supported by research KPAI (2013) which recorded 181 cases of bullying that led to a death. One of them is the case of a child aged 13 years in Bekasi who committed suicide in 2005 triggered by a sense of inferiority and frustration because he was often derided as a son of a chicken porridge seller by his school friends (Sari, 2015).

Results of identification about forms of bullying found that the highest form of bullying is verbal bullying. This was according to research conducted by Olweus (1994) and Kshirsagar (2007) in Nurhamzah et al. (2013) which said that the form of bullying which most often occurs in schools is verbal bullying. The results of our analysis showed that of 96.5% (223 adolescents who became subjects as well as victims of bullying among other things as much as 87.1% experienced the physical form (149 adolescents), verbal 91.6% (197 adolescents), psychosocial/mental 70,6% (120 adolescents) and cyber bullying 64.9% (37 adolescents). This incident caused by a history of being bullied and to respond with violence also against his friend. In accordance with the theory of Harris & Petrie (2003) the subjects of bullying who also became victims of bullying were adolescents who were bullied, and later also found ways to do the bullying to others as an expression of pleasure, revenge or a wish to be praised.

Bullies in adolescent males made up a higher percentage than girls. This is in line with the results of research by Aluede & Oyaziwo (2006) and research by Magfirah & Rachmawati (2009) which showed that adolescents were more often subjects as well as victims of bullying. The reason why adolescent males tend to be more aggressive psychologically is related to their need to show physical strength and adolescent males are also often exposed to games that have violent elements (Cerni Obrdalj & Rumboldt, 2008). As the victims of bullying, adolescent girls make up a higher percentage than adolescent males. This is consistent with the theory of the Green et al. (2010) and research by Nurhamzah et al. (2013) which said that women were more likely to be bullied than men.

In a gang takes compactness starting of attraction which encouraged him to continue to be a member of the group and met intense and behave in line with the group members are commonly referred to conformity (Leviani, 2008). Research conducted by Nation et al. (2008) amongst 4386 middle school students and high school students from 151 middle and 92 high schools in Italy and the USA found an association between bullying behaviour and peer pressure to be accepted into a group. This study shows different results, with adolescents who do not have a gang making up a higher percentage of bullying subjects, while adolescents with a gang have a higher percentage as the victims of bullying. It can be influenced by several factors, among others, personal factors such as personality, attitudes, genetic predisposition and situational factors in the form of provocation, frustration, and drugs according to Anderson and Bushman (2002) in Usman (2008). In addition, a study reveals that high school students are no longer dependent on the pressures or decisions of their peers to do bullying behaviour, because, at such a time, high school students are able to think objectively about what to do and have increasing values of morality themselves (Eisenberg & Aalsma, 2005).

Several studies have shown that families, especially parents, play an important role in children who commit acts of bullying. Rigby (2005) in a study of middle school students (200 students) and high school students (200 students) in Adelaide in South Australia revealed that bullying behaviour is caused by a lack of support from parents to children to do so and also found that students who did the bullying behaviour come from families with broken homes. The results showed that the respondents who were living with stepfamilies and not biological families all became bullying subjects, even though biological families also showed a high percentage. For the victims of bullying, all the adolescents who lived with stepfamilies became victims of bullying. According to Wiyani (2012), bullying subjects are usually the children of authoritarian parents, with

violent behaviour, or those who are too permissive towards the aggressive behaviour of children. Thus, this study showed that although the respondents live with their biological parents, if they have parents who are authoritarian and often do violent behaviour this will form a distinct personality with respondents who lived with stepfamilies or not the biological parents who are educated without showing violence, so bullying behaviour does not occur. Apart from the family, the cause of bullying could come from the environment, especially the school environment. The school environment can be seen as a community ecosystem that connects between context and individual identity in a balanced manner so that a small change both in attitudes and behaviour at school can affect the behaviour of adolescents.

CONCLUSION

The majority of adolescents have good knowledge about bullying, but most adolescents do not know the forms of bullying. Forms of bullying in adolescents are mostly verbal bullying with subjects and victims of bullying occurring in all classes. The majority of bullying subjects do not have a gang, and the majority of victims have a group. Almost all adolescents with different family types become adolescents and victims of bullying.

The importance of an intensive educational and spiritual effort should be recognised to change the behaviour of adolescents to help them become adolescents with good character and conduct regular monitoring of the students and impose sanctions so that their awareness is raised to always behave well towards their peers.

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PREVENTING MEDICATION ERROR BASED ON KNOWLEDGE MANAGEMENT AGAINST ADVERSE EVENT

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ABSTRACT

Introductions: Medication error is one of many types of errors that could decrease the quality and safety of healthcare. Increasing number of adverse events (AE) reflects the number of medication errors. This study aimed to develop a model of medication error prevention based on knowledge management. This model is expected to improve knowledge and skill of nurses to prevent medication error which is characterized by the decrease of adverse events (AE). **Methods:** This study consisted of two stages. The first stage of research was an explanative survey using cross-sectional approach involving 15 respondents selected by purposive sampling. The second stage was a pre-test experiment involving 29 respondents selected with cluster sampling. Partial Leas square (PLS) was used to examine the factors affecting medication error prevention model while the Wilcoxon Signed Rank Test was used to test the effect of medication error prevention model against adverse events (AE). **Results:** Individual factors (path coefficient 12:56, t = 4,761) play an important role in nurse behavioral changes about medication error prevention based in knowledge management, organizational factor (path coefficient = 0276, t = 2.504) play an important role in nurse behavioral changes about medication error prevention based on knowledge management. Work characteristic factor (path coefficient = 0309, t = 1.98) play an important role in nurse behavioral changes about medication error prevention based on knowledge management. The medication error prevention model based on knowledge management was also significantly decreased adverse event ($p = 0.000$, $\alpha < 0.05$). **Discussion:** Factors of individuals, organizations and work characteristics were important in the development of medication error prevention models based on knowledge management.

Keywords: Medication error, knowledge management, adverse events (AE)

INTRODUCTION

Medication error is one type of error that gets the most attention effort to improve the quality and safety of healthcare because it can increase the cost of health care in large numbers. Some of the most common medication errors are misconduct, incorrect dosages, and incorrect intervals (FM Hurtsey, 2007). Nurses and other health professionals involved in the Management and Use of Drugs (Medication Management and Use/MMU) have a responsibility to create an environment and working practices that prioritize the patient safety. Medication error is deemed to occur if drug chart of patients showed any of the following: illegible handwriting, medication name and dosage error, medication admission, and access, discharge medication (Wei, Shrestha, Williamson, & Morgan, 2011). Efforts should be made to improve safety in drug delivery include national efforts, education, and training for nurses and system changing (Roterman, 2014).

Studies related to the causes of medication errors have been done and the result shows that lack of knowledge dissemination, especially 22% of the doctors who constitute the cause of error, insufficient information about the patient as well as laboratory data test and possibly the cause of dosing error is 10% does not obey the standard operational procedure and forgot 9% as the cause of medication errors. Another causes related to misreading the prescription, wrong interpretation and abbreviations commands of prescription, misunderstanding verbal commands, confusing the nomenclature of labeling and packaging, wrong storage of medicine, standard and distribution problem, error delivery when purchasing and using drug for example chemotherapy drug infusion, disruption of tension and work environment; unknowledgeable patients (Roterman, 2014).

Based on the report of Hospital Safety Committee in 2010, incidences of medication errors during January-April 2010 reached 16.67%. Nationally, 36% of medication errors occur in the administration phase (Paparella, 2011). In the period of May until August 2010, there was 11.1% incidence of medication errors or third ranks incident after incident errors in clinical procedure and patient falls. The high incidence of medication errors due to patient safety needs serious attention from health professionals, especially nurses who play a role in the administration of drugs

(medical administration). Medication errors can cause serious adverse effect and potentially to evoke the fatal risk of the disease (Perwitasari, Abror, & Wahyuningsih, 2010).

A preliminary study conducted on April 16, 2016, at RSUI Malang found that the number of patients with uncontrollable drug reactions and the medication error in January - December 2015 were 30 cases with the majority of patients are allergic to analgesic, antipyretic and antibiotic drugs. Quality Improvement of Patient Safety Team of RSUI Malang has conducted risk grading including medium risk, simple investigation to the incident at the longest two weeks and the leadership commitment to manage the risk in preventing medication error. From the observation, it is found that there were still errors in drug injection and delivery medication schedule. While on the documentation aspect, the nurse only wrote down the activity of medication that has been done without a report or wrote the patient's response to the medication that has been given.

Medications are classified based on potential risk for medication errors/adverse drug events: high risk, moderate risk and low risk (Swinkey & Manthey, 2001; Zafar, 2007). Adverse event occurs due to the negligence of the nurse and medication errors. This fault happens because of high workload and a high number of inpatient. Knowledge management in the institution to organize knowledge and facilitate employee to access information so that employees are informed and can apply it and affect employee performance. Most knowledge can be obtained from some factors that include education, experience themselves or other people, the mass media and the environment. Domain knowledge is very important for the formation of a person's behavior (W. Maalej, 2013). To prevent adverse event cause of medication error, The supportive strategies for improving perception for the use of IT-based systems would add to system construction, and positive error management climate would be more easily promoted (Kim, 2012)

Knowledge management approach will be used in the prevention of medication errors (Gasik, 2011). Knowledge management according to Gasik (2011) is a development of the concept of knowledge management by Nonaka and Takeuchi (1995). Knowledge management has 7 stage, there are identification; knowledge acquisition, knowledge creation, knowledge application, knowledge transfer, knowledge sharing, knowledge documentation. The advantages of this model are on the data processed through collecting, classifying and grouping, so that it changes the shape and nature of their intended use, interpret the data, data storage, data delivery to the user, and its usefulness in supporting the interests of the organization. This model is based on the traditional model of quality and excellence so that there is a very strong relationship between knowledge management processes and organization with the expected results. The role of knowledge management as a whole is positioned as a tool that helps organizations to achieve the goal. Knowledge management approach is the concept of managing knowledge that has been established to be applied to practice by the knowledge that has been gained and reflected in the performance of a nurse so that unexpected events related to the administration of drugs can be minimized.

METHODS

The first stage was explanative survey using cross-sectional and second stage was pre-experiment, the purpose was to prepare a model of medication error prevention-based on knowledge management model including to raise strategic issues of nurses. Respondents in the first stage are 31 nurses in the ICU, Firdaus and Mina rooms which selected by purposive sampling. The purpose of the second stage was a trial of medication error prevention-based model of knowledge management against unexpected events. Data were collected using questionnaires, observation and analyzed by using Partial Least Square (PLS). PLS results and strategic issues then lifted into the Focus Group Discussion (FGD) with the aim to develop a medication error prevention module-based knowledge management. Participants of FGD were 15 respondents consists of team Patient Safety, Nurse Unit Manager (NUM), the nursing committee selected by purposive sampling. Nurses implemented a module that resulted by FGD in the second stage of research. Respondents of the second stage are 29 in room Safa - Marwah, Mumtazah and Arofah which collected by using cluster sampling. Respondents of the second phase were observed in implementing the module of

medication error prevention - based on and the data were analyzed using the Wilcoxon Signed Rank Test

RESULTS

The results of the first stage described the causes of medication error (individual factors, organizational factors, job characteristic) and prevention of medication error based on knowledge management to the adverse event management (assessment, planning, implementation, evaluation). The distribution of respondents' answers can be seen in table 1 and table 2.

Table 1 shows the cause of medication error including individual factors, organizational factors, and respondent's work characteristic.

Table 1. Distribution Causes of Medication Error

No	Indicator	Good f (%)	Moderate f (%)	Low f (%)	Total f (%)
Individual Factors					
1	Knowledge	0	24 (77%)	7 (23%)	31 (100%)
2	Ability and skill	0	31 (100%)	0	31 (100%)
3	Psychological	0	30 (97%)	1 (3%)	31 (100%)
Organizational Factors					
1	Organizational Comitment	1 (3)	30 (97)	0	31 100%)
2	Structur & Organizational culture	0	27 (87%)	4 (13%)	31(100%)
Respondent's Work Characteristics					
1	Objective performance	0	31 (100%)	0	31 (100%)
2	Feedback	7 (23%)	24 (77%)	0	31 (100%)

Tabel 2. Prevention of medication error based on knowledge management

Indicator	Category			Total
	Good f (%)	Moderate f (%)	Low f (%)	
Assessment				
Knowledge identification	-	23 (74%)	8 (26%)	31 (100%)
Knowledge application	1 (3%)	26 (84%)	4 (13%)	31 (100%)
Knowledge Sharing and Transfer	2 (6%)	17 (55%)	12 (39%)	31 (100%)
Knowledge repository	0	27 (87%)	4 (13%)	31 (100%)
Intervention				
Knowledge identification	-	25 (81%)	6 (19%)	31 (100%)
Knowledge application	-	29 (94%)	2 (6%)	31 (100%)
Knowledge Sharing and Transfer	5 (16%)	21 (68%)	5 (16%)	31 (100%)
Knowledge repository	1 (3%)	22 (71%)	8 (26%)	31 (100%)
Implementation				
Knowledge identification	-	30 (97%)	1 (3%)	31 (100%)
Knowledge application	-	31 (100%)	-	31 (100%)
Knowledge Sharing and Transfer	2 (6%)	26 (84%)	3 (10%)	31 (100%)
Knowledge repository	2 (6%)	21 (68%)	8 (26%)	31 (100%)
Evaluation				
Knowledge identification	2 (6%)	21 (68%)	8 (26%)	31 (100%)
Knowledge application	-	25 (81%)	6 (19%)	31 (100%)
Knowledge Sharing and Transfer	2 (6%)	20 (65%)	9 (29%)	31 (100%)
Knowledge repository	4 (13%)	22 (71%)	5 (16%)	31 (100%)

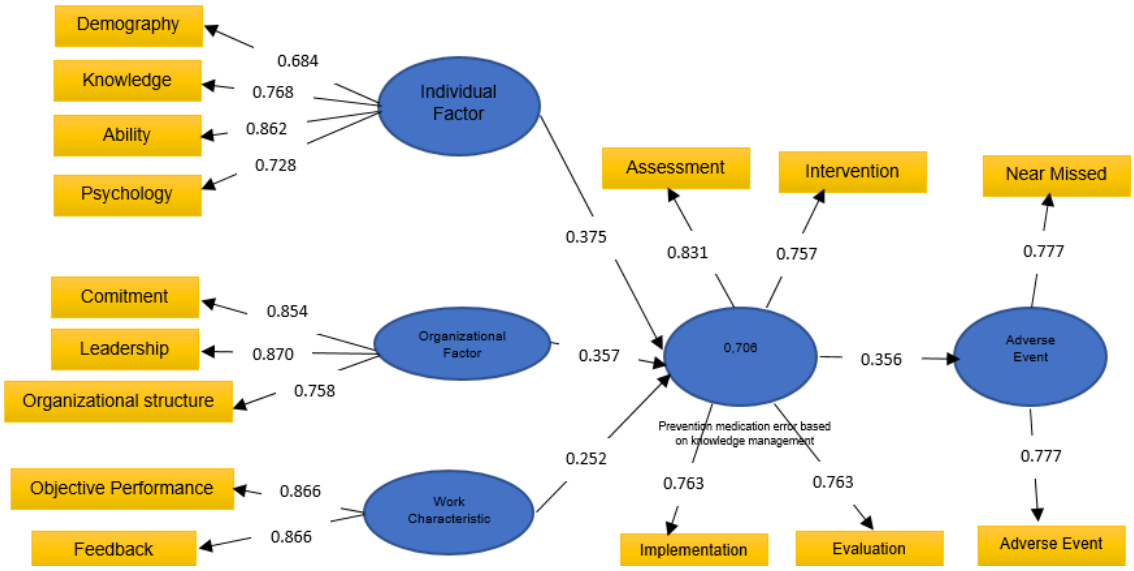
For individual factors, mostly the knowledge of respondents in preventing medication error is in the moderate category (77%). All respondents (100%) have the ability and skill in the moderate category, and most respondents have psychological factor in the moderate category (97%) for organizational factors, organizational commitment in preventing medication error mostly in sufficient category (97%) and organizational structure and culture mostly in enough category (87%). For respondent's work characteristics, the objective performance of all respondents in sufficient category are (100%), and feedback from the leadership in the sufficient category are 24 people (77%).

As seen in Table 2, in the assessment phase, 23 people (74%) has moderate knowledge identification, 26 people (84%) has moderate knowledge application, 17 people (55%) has moderate knowledge sharing, and transfer and 27 people (87%) has moderate knowledge repository. In the planning stage, the majority of respondents has moderate knowledge identification (25 people), moderate knowledge application (29 people), moderate knowledge sharing and transfer (21 people) and moderate knowledge repository (22 people). In the implementation phase the majority of respondents to the knowledge identification quite as many as 30 people (97%), knowledge application as many as 31 people (100%), knowledge sharing and transfer as many as 26 people (84%) and knowledge repository as many as 21 people (68%). In the evaluation phase the majority of respondents to the knowledge identification as many as 21 people (68%), knowledge application as many as 25 people (81%), knowledge sharing and transfer as many as 20 people (65%) and knowledge repository as many as 22 people (71%). Observation result of 31 nurses from three rooms ICU, Mina, and VIP Eden who implement drug administration to patients through a variety of routes showed that adverse event is still happening as much as 1.5%

Model Development of Prevention Medication Error Based on Knowledge Management

The results of the evaluation outer convergent value model validity can be seen in the following figures and tables. Based on picture 1, it can be seen that all the indicators declared invalid where the value of outer loading by the expected criteria is above 0.5. This shows that the whole indicator in the structural are valid.

Results Composite reliability to test the value of reliability indicators in this study can be seen in Table 3.



Picture 1 Outer loading Value on Prevention medication error model based on Knowledge Management

Table 3. Results of Convergent Validity of the Prevention medication error model based on Knowledge Management

No	Variable	Concronbach Alpha	Composite Reliability	Note
1	Individual factor	0.733	0.834	Valid
2	Organizational factor	0.769	0.867	Valid
3	*Work characteristic*	0.668	0.858	Valid
4	Prevention medication error based on knowledge management	0.777	0.857	Valid

Table 4. Statistical result of several variables that potentially prevent medication errors

No	Variable	Result	Note
1	Individual factor	Path coefficient = 0.560 Standard deviation = 0,120 T statistic = 4,671	Significant
2	Organizational factor	Path coefficient = 0,276 Standard deviation = 0,110 T statistic = 2,504	Significant
3	Work characteristic factor	Path coefficient = 0,309 Standard deviation = 0,155 T statistic = 1,988	Significant
4	Prevention medication error based on knowledge management	Path Coefficient = -0,486 Standard deviation = 0,063 T Statistic = 7,704	Significant

The value of each variable composite reliability study showed a value of > 0.7. Cronbach alpha value of each variable also showed a value of > 0.6. It can be concluded that each variable has met reliability test.

These results indicate that there is a significant relationship between the variables individual, organization, and work towards the prevention of medication errors characteristic-based on knowledge management. There is a significant relationship between medication error prevention - based on knowledge management against the adverse event. The negative sign of the coefficient indicates the inversely proportional relationship means that the higher prevention medication error factor-based on knowledge management will decrease the incidence rate of an adverse event.

Recommendation of Focus Group Discussion (FGD) for module development in the prevention of medication error based on knowledge management against adverse event

1. Socialize about the adverse event and near missed to the nurses and allowed nurses to report to the Nurse Unit Manager and documented in patient safety report.
2. Patient safety report should regularly be reported to the patient safety team every week so that the risks can be found and prevention can be done immediately.
3. Socialize related to principles of correct drug administration and completeness of drug delivery instrument documentation sheet
4. Change the time of drug administration if the set time is still not applicable; give the autonomy to the each room related the drug administration so that the effectiveness of the drug is also noteworthy. Time of drug administration implemented 10.00-18.00-02:00 hours
5. Documenting drug administration should be relevant to what is done by each nurse.
6. There is a reward for the room which carries out regular reporting of patient safety incidents and for the room with the most minimally incident related patient safety.
7. Sustainability and innovation in the prevention of medication errors should be

considered to be applied continuously and improve patient safety.

Phase 2

The trial of the model conducted from May 8, 2016. The pre-test conducted in 10-day by observation of nurses behavior in preventing medication errors and unexpected events. Firstly, the module is given to nurses in Arofah Safa and Marwah and researcher explain about the module. Researcher accompanied the nurse in administering the drug for two weeks in the morning shift. After two weeks nurses perform independently until ten days and researcher observe it as a post-test.

The results of pre-test and post-test of implementation of the application of medication error prevention module-based on knowledge management can be seen in Table 5.

Table 5. Results of Implementation of Medication Error Prevention-Based on Knowledge Management against adverse event

Prevention medication error based on knowledge management	**Pre**			**Post**		
	Good	**enough**	**less**	**Good**	**Enough**	**less**
Assessment						
Knowledge identification			29 (100%)	4 (14%)	25 (86%)	0
Knowledge application	5 (17%)	22 (76%)	2 (7%)	14 (48%)	15 (52%)	0
Knowledge Sharing and Transfer	2 (7%)	24 (83%)	3 (10%)	9 (31%)	20 (69%)	0
Knowledge repository	5 (17%)	22 (76%)	2 (7%)	13 (45%)	16 (55%)	0
Intervention						
Knowledge identification	0	20 (69%)	9 (31%)	5 (17%)	24 (83%)	0
Knowledge application	7 (24%)	22 (76%)	0	14 (48%)	15 (52%)	0
Knowledge Sharing and Transfer	6 (21%)	21 (72%)	2 (7%)	7 (24%)	22 (76%)	0
Knowledge repository	5 (17%)	18 (62%)	6 (21%)	7 (24%)	22 (76%)	0
Implementation						
Knowledge identification	17 (59%)	12 (41%)	0	18 (62%)	11 (38%)	0
Knowledge application	6 (21%)	23 (79%)	2 (7%)	28 (97%)	1 (3%)	0
Knowledge Sharing and Transfer	5 (17%)	22 (76%)	2 (7%)	6 (21%)	23 (79%)	0
Knowledge repository	12 (41%)	17 (59%)	0	14 (48%)	15 (52%)	0
Evaluation						
Knowledge identification	0	0	29 (100%)	5 (17%)	24 (83%)	0
Knowledge application	0	0	29 (100%)	8 (28%)	21 (72%)	0
Knowledge Sharing and Transfer	0	1 (3%)	28 (97%)	10 (34%)	19 (66%)	0
Knowledge repository	0	0	29 (100%)	10 (34%)	19 (66%)	0

Table 6. Statistical analysis of pre and post intervention between adverse event and near missed

	Δ – SD	**Z**	**Asymp. Sig (2-tailed)**
Advers event	0.15 ± 0	2.023	0.043
Near missed	89.08 ± 3.78	4.703	0.000

Results of statistical analysis of the near missed by using Wilcoxon Signed Rank test showed a significance value (p) = 0.000, less than the standard value of α = 0.05 which indicates that there is an influence of medication error prevention knowledge

management based on the nearly missed incident. While the results of the statistical analysis of the adverse event by using Wilcoxon Signed Rank Test showed significance value (p) = 0.043, less than the standard value of $\alpha = 0.05$ which indicates that there is the influence of medication error prevention-based on knowledge management against the adverse event.

DISCUSSION

Individual Factors Against the Prevention of Medication Error Based on Knowledge Management

The results of PLS analysis obtained that the coefficient value of 0.56 lines and 4,671 t statistic (t> 1.96). It can be concluded that individual factors contribute to the adoption of knowledge management-based medication error and indirectly an attempt to reduce the adverse event. Components of the individual factors include knowledge, abilities, skills of nurses, and psychological. Mc. Closhey & Mc. Cain (1988) research results which cited in Gillies (2004) stated that nurses who have higher education also have the ability to work better. Efforts to increase knowledge is an important thing especially in the context of patient safety. Human resource-limited knowledge was health services problem to unable manage service-oriented based on patient safety which is a required key for the sake of security created by the care given by health workers, including nurses.

In this case, the ability and skills of nurses related to the implementation of the drugs correct administration principles conducted by nurses include right patient, right drug, right indication, right dose, right route of administration, the correct time and the correct documentation.

Psychological factors include perception, motivation, attitude and willingness to learn. Perception in this case related to the satisfaction of nurses to the salary given by the health services. The motivation of nurse to maintain patient safety efforts and motivation of the leadership that made more development in work. The attitude and willingness to learn make nurses more responsible for their actions. Their high willingness to study of RSUI nurses thus requiring hospital organization active role as a media to conduct information and knowledge for nurses.

Organization Factors Against the Prevention of Medication Error Based on Knowledge Management

The study results, the analysis of PLS obtained coefficient t statistic lines 0276 and 2504 (t> 1.96), these results suggest that there is significant influence between the variables of organizational factors on medication error prevention-based knowledge management. Organization factors have sub-variables included organizational commitment, leadership, structure, and culture of the organization.

The organization structure shows how a group designed, lines of communication and relationships of authority and decision-making (Marquis & Huston, 2000). Organization commitment stated here include hospitals vision and mission suitability, reward and punishment, training and development. RSUI's Vision and the mission were appropriate, particularly related to Quality Improvement and Patient Safety. Reward and punishment imposed by the hospitals, especially in a room with a patient safety incident reporting implemented by regularly documented every week and every month. Currently, nurses in the hospitals are still got no reward and punishment in particular, but every month there is a favorite nurse election based on a poll of the patient. Training and development at RSUI were based on their regular schedule in the improvement of knowledge especially nurses with information in the form of in-house training with the involvement of the expert of experts according to the field or socialization by peers who have been carrying out training of ex-house training.

Instruction model leadership is indicated by the high task and low relationship. RSUI leadership has contributed greatly to the compliance of nurses in implementing guidelines for prevention of medication errors. This is consistent with the theory that nurse manager has a very important role in implementing patient safety, especially the prevention of medication errors. In other research, any correlation between nurse's knowledge levels with right principle implementation of medication on injection action (Gede, Pratama, Prabowo, & Rahil, n.d.)

The organization system in RSUI was well structured so that the chain of command and

coordination lines between each field can be implemented quite well. Given the structure of a good organization can support nurse adherence in doing medication error prevention.

Work characteristic Against the Prevention of Medication Error Based on Knowledge Management

The results of PLS analysis obtained coefficient lines 0309 and t statistic is 1.98 (t> 1.96). This showed that there is significant influence between variable factors, work characteristic against the prevention of medication errors based knowledge management. Further found also showed that the objective performance is a domain factor related to nursing compliance in applying the prevention of medication errors.

Robbin (2008) stated that a work characteristic is an approach to work that is specified in 5 dimensions of the core characteristics: skill variety, task identity, task significance, autonomy, and feedback.

In RSUI Malang district, job design delivered at the beginning of nurse orientation after they accepted as a nurse. Nurses are oriented about their responsibilities, rights, and duties as a nurse at the hospital. This activity is closely related to job performance, and supervision carried out by hospitals, but this activity still does not yet implemented optimally. Therefore, the hospital should perform evaluation and amelioration of performance and supervision.

Implementation of Medication Error Prevention - Based on Knowledge Management against Adverse Event

The trial model of knowledge-based prevention of medication errors management as an effort to decrease the adverse event of 4 modules that have been tested to decrease the adverse event. The significant difference is the inaccuracy of time and documentation, where nurses do not realize the impact that may arise in the administration of drugs that do not correspond with the timing so that the next shift could be faster or slower administer the drugs so it can influence the effectiveness of drug delivery.

Based on the overall hypothesis testing, it can be seen significant lines, models describing these results is the variable of individuals ability, organizations and work characteristic variable against the prevention of medication errors based knowledge management and indirectly to decrease the adverse event.

CONCLUSIONS

Individual factors (demographics data, level of knowledge, abilities, and skills, and psychological) significantly influence on the prevention of medication errors based on knowledge management. While organizational factors (organizational commitment, leadership, structure, and organizational culture) significantly affect the prevention of medication errors based on knowledge management. Job characteristic factors (objective performance and feedback) significantly influence the medication error prevention-based knowledge management.

Model of medication error prevention-based on knowledge management is influenced by individual factors, organization and work characteristic. Medication error prevention-based knowledge management can significantly reduce the unexpected incidence. Learning with knowledge management methods are used so that the nurse can learn about discussion, formulate, and decide on knowledge gained so can be easily applied to the ability of nurses in drug delivery.

To enhance the prevention of medication error, it needs to make a list of the order of nursing personnel who will participate in continuing education, training or seminars as a form of nursing staff's knowledge increase. Application of medication error prevention module-based on knowledge management can be performed on orientation activities at the first time of nurse work. Create pre-conference and post-conference activities routine at every turn shift as a medium to add information and knowledge for nurses. Create continue evaluation and supervision for nurses to conduct the safe administration of drugs and as an effort to improve the behavior of the nurses. Enable the nursing committee specifically to credentialing about the nurse actions. Initiate PMKP program proactively that spurred the realization of a work culture toward patient safety oriented. Hold a gradual guidance and training for nurses who still have less working period regarding its implementation about the hospital's patient safety.

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