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Jurnal Ners

- THE PSYCHOLOGICAL CAPITAL AND ANXIETY FELT BY POST-MARKET FIRE DISASTER VICTIMS
- MARITAL ADJUSTMENT AND PRENATAL BREASTFEEDING EFFICACY OF FIRST TIME MOTHERS IN A LOW-INCOME COMMUNITY IN THE PHILIPPINES
- SELF-EFFICACY AND HEALTH STATUS IN CORONARY ARTERY DISEASE PATIENTS
- INDICATORS AND INDEX OF ELDERLY WELL-BEING TO SUPPORT AN AGE-FRIENDLY CITY
- THE RELATIONSHIP BETWEEN FULFILMENT OF BASIC NEEDS WITH THE INCIDENCE OF STUNTING IN TODDLERS
- MODERN AND CLASSIC WOUND-DRESSING COMPARISON IN WOUND HEALING, COMFORT AND COST
- SOCIAL CARE IN IMPROVING SELF CONCEPT OF LEPROSY PATIENTS
- RISK OF MORTALITY ON PATIENTS WITH TRAFFIC ACCIDENTS OF EMERGENCY DEPARTMENT AT DR. SOEBANDI HOSPITAL, JEMBER REGENCY
- FAMILY HEALTH TASKS IMPLEMENTATION AND MEDICATION ADHERENCE OF PULMONARY TUBERCULOSIS PATIENTS: A CORRELATIONAL STUDY
- FEAR OF FALLING AMONG THE ELDERLY IN A NURSING HOME: STRONGEST RISK FACTORS
- THE EFFECTS OF ACCEPTANCE AND COMMITMENT THERAPY (ACT) ON DEPRESSION IN TB-HIV CO-INFECTION PATIENTS
- THE EFFECT OF NURSING INTERVENTION-BASED LEVINE CONCEPTUAL MODEL PROGRAM ON REHABILITATION PROCESS AMONG FRACTURE PATIENTS
- HYPNOTHERAPY AND YOGA COMBINATION DECREASE THE ANXIETY OF PATIENTS IN ELECTIVE PREOPERATIVE
- EXPLORING THE INFLUENCING FACTORS ON BREAST SELF-EXAMINATION AMONG MYANMAR WOMEN: A QUALITATIVE STUDY
- THE EFFECTIVENESS CHEWING GUM VERSUS CRYOTHERAPY ON SALIVARY VOLUME AMONG PATIENT WITH HEAD AND NECK CANCER UNDERGOING RADIOTHERAPY
- CARDIOVASCULAR RISK ESTIMATION IN PATIENTS WITH HYPERTENSION: A CROSS- SECTIONAL STUDY

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TABLE OF CONTENT

EDITORIALS: NURSING EDUCATION DURING COVID-19 PANDEMIC

While the COVID-19 pandemic impacts on global changes, nursing education has been especially challenged by using   online learning for nursing students. The adaptation of nursing instructors and nursing students take into account significant factors to overcome barriers during the changes. In our point of view, the biggest challenge faced during this faculty crisis is how to adopt a response and manage nursing education based on the standard of nursing education. An online learning program was considered as a first choice to solve the issue during this crisis.

Online learning   would be appropriate due to flexibility, convenience, interactive learning experiences, and advancement opportunities for nursing education during the Faculty of Nursing closure, including serving the international and national policies that recommend to make a decision on social distancing and personalized protection. Online learning resources were concerned that nursing instructors and students received support about online learning knowledge, e-learning platform, notebook and internet package from the national and university policy. Nursing instructors provided home study exercises and followed up their students such as with feedback on their study exercises and study discussion as an active learner by chat application and/or an e-learning platform at least once a week. During the nursing education, nursing students were evaluated based on desired learning outcomes, such as online examination and study report, including teaching evaluation. However, the online learning program must be evaluated for reviewing outcomes using a SWOT analysis, strengths, weaknesses, opportunities, and threats, that helps to understand the outcomes and improve the quality of nursing education.

As the new normal after COVID-19, nursing education should be designed based on international and national policies, standard of nursing education, desired learning outcomes, nursing competency, and nursing educational resources. In addition, blended learning as an integrative online and traditional classroom should be considered based on the quality of nursing education, such as balancing between online and face-to-face learning hours, learning content, and nursing educational resources, including research and innovation experiences.

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Original Research

The Psychological Capital and Anxiety Felt by Post-Market Fire Disaster Victims

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ABSTRACT

Introduction: Traditional markets are a financial resource for traders. Fire disasters at the traditional markets will have a bad effect in terms of generating both financial and psychological problems. There is a lack of studies about the psychological problems experienced by traditional market fire victims. The aim of this study is to identify the correlation of psychological capital (hope, self-efficacy, resilience, and optimism) with the anxiety level among the victims of market fire disasters in Central Jakarta.

Methods: This study used a cross-sectional approach with a non-probability sampling method. This study involved 174 market fire victims from Central Jakarta. The independent variables were psychological capital, which includes hope, self-efficacy, resilience, and optimism. The dependent variable was anxiety level. The instruments used the Hope scale, the General Self Efficacy scale, The 14-item Resilience scale (RS-14), the Life Orientation Test-Revised (LOT-R) scale and the Generalized Anxiety Disorder scale. The data analysis used an Independent T-Test, Chi-Square, and multiple logistic regression prediction modeling.

Results: The more kiosks burned, the more that the informant's anxiety increased by about 4.845 times after applying a control factor of self-efficacy and optimism with a Wald value of 23.146.

Conclusion: Psychological capital (self-efficacy and optimism) have a significant correlation with anxiety in the market fire disaster victims. Good self-efficacy and optimism can reduce the level of anxiety felt. This study highlighted that psychological capital is a part of the disaster assessment as the basis for providing disaster nursing interventions.

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INTRODUCTION

A disaster is an event that happens suddenly, creating damage, an ecological imbalance, a disrupted livelihood and worsening or even damaging people's health and the health services. A community will bear a huge burden and require external assistance (Landesman, 2014). The Centre for Research on the Epidemiology of Disaster (2016) stated that the Asian region is the area most impacted by disasters compared to other continents in the world (Guha, Hoyois, Below, 2014). The natural condition and human behavior in Indonesia has placed Indonesia at number five based on the country's most impacted by disasters (Guha, Hoyois, Below, 2014). Disasters can be either natural or non-natural. Fire events are a non-natural disaster that occurs frequently. According to Jakarta's Central Statistical Bureau,

based on burnt objects in 2014, there were 1,260 fire events, and 238 among them were in public buildings. Industrial buildings and markets were included in this list. There has been a 100% increase from 2014 to 2015 for market fires. The Indonesian Market Sellers' Union reported that in 2014, there were 100 market fires. In 2015, there were 250. Therefore, in this paper, the researcher limits the disaster of focus to only non-natural ones with a specific focus on market fires.

Market fires occur for two reasons: old and inadequate buildings and sub-standard safety and security systems (Rarasati, 2013). The impacts of fire can be divided as follows: personal impact, loss of property, and a loss of service (Davidson, Price, McCauley, Ruggiero, 2013). Sixty five percent of post-disaster trauma originates from the loss of property. Market fire victims lose their property, which reduces

their economic functioning (Aslam & Tariq, 2010). The disrupted economic functions give way to psychosocial impacts in the form of anxiety for not having a livelihood (Knopp, 2016).

Several research studies have proven that anxiety is the biggest problem after a disaster. Psychosocial symptoms (66%) rank number two in terms of post-disaster problems after musculoskeletal problems (79%) (Nijrolder, Van der Velden, Grievink, Yzermans, 2011). Anxiety counts for 30 - 90% of post-disaster emotional trauma (Shoaf, 2014). Unmanaged psychosocial issues such as anxiety can worsen into depression, post-traumatic stress disorder (PTSD) and homicidal tendencies. Individuals with high psychological capital will succeed in improving their post-trauma living quality (Gail, 2013).

The resilience when facing a psychological impact due to disaster is highly influenced by the initial resilience "capital" and the initial psychological conditions possessed by each individual. This is called "psychological capital". Psychological capital is an individual's positive development related to the following characteristics: self-efficacy, positive attribution (optimism) and belief in reaching their target in life (hope). When stressors appear, they are able to persevere and survive (resiliency) (Luthans, 2007). Individuals with high psychological capital will be able to improve their post-trauma living quality (Gail, 2013). Based on these explanations, this study intends to examine the correlation between psychological capital and anxiety in the market fire victims.

MATERIALS AND METHODS

This cross-sectional study encompassed 174 respondents recruited using the non-probability sampling. The respondents of this research were the victims of a market fire disaster living in a temporary relocation area who were willing to become a respondent. The researcher collected the data accompanied by the management staff of the traditional market, PD Pasar Jaya.

There were five instruments used in this study. Hope was measured using the Hope Scale questionnaire developed by Snyder and their colleagues with a reliability value of 0.897 (Snyder, Sympson, Ybasco, Babyak, Higgins, 1996). The General Self Efficacy Questionnaire with a reliability value of 0.925 was used to measure self-efficacy (Schwarzer & Jerusalem, 1995). The assessment of the level of resilience was done using the 14-item resilience scale (RS-14) with a Cronbach's alpha value of 0.81 (Wagnild, 1993). The optimism instrument used the Life Orientation Test-Revised scale (LOT-R) with a reliability alpha of 0.878 (Scheier, Carver, Bridges, 1994). The Generalized Anxiety Disorder questionnaire was used to measure the level of the respondents' anxiety with a Croncbach's alpha score of 0.92 and a reliability value of 0.83 (Spitzer, Kroenke, Williams, Lowe, 2006). All of the

Table 1. Mean Age of the Market Fire Victims (n=174)

Variable	Mean	Standard deviation
Age	35.94	7.343

Table 2. Percentage Distribution of Gender, the Frequency of Being Market Fire victims and the Number of Kiosks Burnt (n=174)

Variable	n	%
Gender		
Men	96	55.2
Women	78	44.8
Education		
None	6	3.4
Primary	20	11.5
Junior High School	73	42
Senior High School	63	36.2
College	12	6.9
The frequency of being market fire victims		
Once	67	38.5
Twice	89	51.1
>2	18	10.3
The number of kiosks burnt		
One Kiosk	92	52.9
Two Kiosks	63	36.2
Three Kiosks	8	4.6
Four Kiosks	11	6.3

Table 3. Psychological Capital (Hope, Self-Efficacy and Optimism) of the Market Fire Victims (n=174)

Variable	Mean	SD	95% CI
Hope	75.07	10.39	73.51– 76.62
Self-Efficacy	28.83	4.180	28.20 – 29.45

instruments were translated into Bahasa Indonesian and a reliability value of 0.867 was obtained for this study.

The analysis of the research data was carried out through univariate analysis (central tendency and frequency distribution), bivariate analysis (independent T test and Chi-Square) and multivariate analysis (multiple logistic regression prediction modeling).

Ethical approval number 83/UN2.F12.D /HKP.02.04/2017 was sought from the Research Ethics Committee of the Faculty of Nursing, Universitas Indonesia. The data was collected through questionnaires and did not cause any harm to the respondents. The ethical requirements and respondent rights have been fulfilled throughout the research process.

RESULTS

The average age of the respondents was 35.94 years old (Table 1). Table 2 shows that the majority of respondents were male (55.2%), with the highest education level that of junior high school (42%). The most common response was being a market fire victim twice (51.1%) and the number of kiosks that had burnt most commonly totaled one (53%).

Table 3 shows the description of psychological capital in the majority of respondents with a mean score of 75.07 (SD = 10.39; 95% CI = 73.51-76.62). Self efficacy was 28.83 (SD = 4,180; 95% CI = 28,20-29,45), optimism was 36.43 (SD = 35.75-37.10) and having a high resilience was (47.4%) (Table 4). Table 5 describes that the majority of respondents experience moderate anxiety (66.7%) 3 months after the fire disaster.

The characteristics of the respondents' age and gender do not have a significant correlation with a p-

Table 4. Psychological Capital (Resilience) of the Market Fire Victims (n=174)

Variable	n	%
Resilience		
Very good	25	14.4
Good	83	47.7
Average	53	30.5
Poor	12	6.9
Very Poor	1	0.6

Table 5. Anxiety Level of the Market Fire Victims (n=174)

Variable	n	%
Low	58	33.3
Moderate	116	66.7

Table 6. Correlation between Age and the Anxiety of the Market Fire Victims (n=174)

Variable	Mean	SD	p
Age			
Anxiety (Low)	37.43	8.700	0.058
Anxiety (Moderate)	35.20	6.474	

Table 7. Correlation between Gender, Education, the Frequency of Being a Market Fire Victim and the Number of Kiosks Burnt (n=174)

Independent Variable	Dependent Variable				Total		p
	Low		Moderate		n	%	
	n	%	n	%			
Gender							
Men	28	29.2	68	70.8	96	55.2	0.196
Women	30	38.5	48	61.5	78	44.8	
Education							
None	2	33.3	4	66.7	6	3.4	
Primary	7	35	13	65	20	11.5	0.362
Junior High School	30	41.1	43	58.9	73	42	
Senior High School	15	23.8	48	76.2	63	36.2	
College	4	33.3	8	66.7	12	6.9	
The frequency of being a market fire victim							
Once	28	41.8	39	58.2	67	38	
Twice	30	33.7	59	66.3	89	52	0.004
>2	0	0	18	100	18	10	
The number of kiosks burnt							
One Kiosk	50	54.3	42	42	92	55.3	
Two Kiosks	3	4.8	60	95.2	63	36.2	0.000
Three Kiosks	0	0	8	100	8	4.6	
Four Kiosks	5	45.5	6	54.5	11	6.3	

value of 0.058 (Table 6) and 0.196 (Table 7). The number of kiosks burned and the frequency of being a market fire victim have a significant relationship with anxiety (P = 0.004; 0.000) (Table 7).

Table 8 shows that there is a significant correlation between self-efficacy and optimism with anxiety with a p value 0.015, 0.014. Hope and resilience do not have a significant relationship with anxiety with a p-value of 0.922 (Table 8) and 0.526 (Table 9). The more kiosks are burnt, the more that the victim's anxiety increases by 4.845 times after being controlled by self-efficacy and optimism.

DISCUSSION

The results of the research describe that age has no influence on the level of anxiety experienced by the fire market victims. This is due to the fact that age influences individual ego. However, it does not have any correlation with the anxiety experienced (Bonnet, 2007). Age does not have a correlation with psychosocial issues but it does have a correlation with the development stages (Baily, 2004). Age does not guarantee that an individual will have the ability to cope with psychological problems such as anxiety. This is because when people growing older, the ego can either grow up or not depending on the stressors encountered in their life, in the environment and related to their individual values. Age does not ensure that a person is adaptable. Each age-based life stage relates to developmental tasks that must be fulfilled.

The individual achievements that need to be fulfilled related to the developmental tasks influences the ability to solve the psychological problems present, not age.

Gender does not have a correlation with anxiety in the market fire victims. Based on previous studies, traumatic events like traditional market fires influence the ego and developmental tasks, not age. They also no relation towards their ability to solve the anxiety experienced. Gender has no influence on the anxiety experienced by individuals especially when referring to the specific cause of the natural disaster (Robbins, 2004). This research showed that gender has no relationship on a sudden traumatic event like a market fire disaster. It becomes acceptable that gender does not relate to anxiety. This is because the victims' ability to face an anxiety-inducing experience depends on the stressor that they have experienced previously, referring to the environment, developmental tasks, ego development and also religious values and their social life.

The number of burnt kiosks is a factor influencing the respondents' anxiety. The more kiosks are burnt, the more than their level of anxiety increases by about 4.845 times after being controlled by self-efficacy and optimism. Disasters and their impact are stressors for the victims. The stressors increase with the disaster-severity factor that is experienced, in addition to the disaster frequency and the scope of their losses (Math, Nirmala, Moirangthem & Kumar (2015). Material damage and associated losses will create

Table 8. Correlation between Psychological Capital (Hope, Self-Efficacy, and Optimism) and the Anxiety of the Market Fire Victims (n=174)

Anxiety	n	Mean	SD	p
Hope				
Low	58	74.97	9.935	0.922
Moderate	116	75.12	10.615	
Self-Efficacy				
Low	58	29.90	4.154	0.015
Moderate	116	28.29	4.059	
Optimism				
Low	58	36.78	4.645	0.014
Moderate	116	35.72	4.435	

Table 9. Correlation between Psychological Capital (Resilience) and the Anxiety of the Market Fire Victims (n=174)

Independent Variable	Dependent Variable				Total		p
	Low		Moderate		n	%	
	n	%	n	%			
Resilience							
Very good	7	26.9	19	73.1	26	14.9	
Good	29	34.9	54	65.1	83	47.4	
Average	16	30.2	37	69.8	53	30.3	0.526
Poor	5	41.7	7	58.3	12	6.85	
Very Poor	1	100	0	0	1	0.6	

Table 10. Multivariate Logistic Regression

Variable	B	SE	Wald	p	Exp (B)	OR (95% CI)
Self-efficacy	-0.303	0.063	23.310	0.000	0.738	0.653-0.835
Optimism	0.213	0.059	12.988	0.000	1.238	1.102-1.390
Total number of kiosks	1.578	0.328	23.146	0.000	4.845	2.547-9.213

post-fire social and psychological problems. According to the research, there were three impacts as a result of the disaster; the personal impact, a loss of property and a loss of service (Davidson, Price, McCauley, Ruggiero, 2013). The amount of post-disaster material losses sustained caused 65% of the trauma (Aslam & Tariq, 2010). When the victims lost their products in the market, this meant that they lost financial resources as well. Material loss will affect to their family, social, financial and psychological life.

There was no severe anxiety level found in the market fire victims due to the grieving of the respondents being in the third phase. The stages of grieving are divided into the three phase. First there is the shock and numbness phase and then yearning, despair and disorganization as the second phase. The third phase is re-organization and recovery. This study was conducted 30 days after a market fire disaster, so the victims therefore have an ability to cope the resulting anxiety. The respondents also passed the acute stress syndrome phase that occurs 2 - 4 weeks after a disaster (Smid, Velden, Mulders, Knipscheer, Gersons, Kleber, 2013). After 30 days post-disaster, coping mechanisms will begin to emerge, according to the existing results of post-disaster management (Kaklauskas, Amaratungga & Haigh, 2009). Based on disaster recovery and re-organization by the management, they provide them with a new kiosk in the relocation area so then the fire victims can still receive transactions as a financial resource, which can relieve some of their anxiety.

Fire frequency and anxiety were found to have a correlation in the respondents studied. The research concluded that the disaster and its impact become a post-disaster anxiety trigger. This stressor worsens due to the factor of disaster frequency. These stressors increase with the level of disaster-severity factor that is experienced, inclusive of disaster frequency, and the scope of any losses (Math, Nirmala, Moirangthem & Kumar (2015). People who have experienced a disaster will experience psychological trauma. This worsens when the victims have successfully rebuilt their business and suddenly encounter the market fire disaster again. Their anxiety will be more than it was previously.

Psychological capital (self-efficacy and optimism) have a significant relationship with anxiety. The respondents' self-efficacy reached 75%, with another 25% needed to increase the self-efficacy value to the point where it is hoped to lower anxiety. Self-efficacy is the belief that the market fire victims possess related to their ability to successfully face a fire disaster. Therefore, the ability to find a way out by the respondents has improved through effort and reducing their negative thinking about the event. The respondents' optimism reached 72%, with 28% more needed to maximize the optimism possessed which is hoped to lower the respondents' anxiety. It can be said that the respondents have the ability to carry out certain activities in order to rise up following a fire disaster (Bandura, 1997). Improving optimism can be done through the suppression of pessimism and practicing positive thinking.

The results show that there is no correlation between the psychological capital (hope, resilience) and anxiety. The current respondent is a merged survivor in a relocation area, so an adaptation response has been formed and processed within. Hope is therefore not correlated with anxiety. Hope does not have meaningful correlation with the anxiety experienced by the merged survivors (Ozag, 2006). Resilience does not have significant correlation with the anxiety experienced by the market fire victims. Resilience is not only individualistic. It is a combination of the robustness of the system, infrastructure, government, business, community, and individuals when it comes to withstanding, tolerating, absorbing and recovering (Briding, 2014). The resilience of the victim has been built by the PD Pasar Jaya as a form of management by providing infrastructure for the purpose of relocation with good compensation. The community of fire victims allows them to support, tolerate and recover alongside each other, so good resilience has been formed and processed by the community of the victim. Although they are supported by the community and PD Pasar Jaya, they still experience anxiety. This is the reason why resilience does not have a significant correlation with the anxiety experienced by the market fire victims.

CONCLUSION

Based on the results of this research, it can be concluded that there are two psychological assets with a correlation to anxiety: optimism and self-efficacy. Optimizing the respondent's positive assets can be performed by suppressing their negative feelings and practicing positive ones in order to find a way out. Hopefully, the results of this research can be used as an input for market administrators to allow them to provide health clinics for use by the traders. The Regional Disaster Management Board can coordinate with the local health office in order to establish a healthcare post for the health team, namely the role of post-disaster psychological nurse. The regional health office, together with the government, can optimize the community program through nurse mapping in community life. Therefore, market fire victims with psychosocial issues can be assisted at the community level. Further research can be performed to encourage the development of a nursing intervention based on the psychological capital.

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Original Research

Marital Adjustment and Prenatal Breastfeeding Efficacy of First Time Mothers in A Low-Income Community in the Philippines

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ABSTRACT

Introduction: All women should be offered support to breastfeed their babies to increase the duration and exclusivity of breastfeeding. This study aims to assess the level of marital satisfaction and its influence to prenatal breastfeeding self-efficacy in first time mothers during late pregnancy.

Methods: A descriptive correlational study was conducted among 128 systematically sampled primigravid women who agreed to participate and had prenatal care check-up in the health center at the time of data gathering. The instruments used were 15-item Marital Adjustment Test (MAT) to measure marital adjustment and 14-item Breastfeeding Self efficacy Scale-Short Form (BSES-SF) as a measure of breastfeeding self-efficacy. Pearson's correlation coefficient was utilized to test the relationships between the sample's marital adjustment scores to correlate with BFSE of the respondents. Fisher's t test was utilized to determine the significance of correlations. A p-value of equal to or less than .05 was considered statistically significant.

Results: The study revealed that the sampled mothers have a high level of marital adjustment score (112.05± 21.83). Prenatal mothers responded in the study were highly confident and have high self-efficacy in breastfeeding first child currently bearing (4.55±.51). Lastly, it was found that there is no significant correlation between marital adjustment and prenatal breastfeeding self-efficacy (β=-.052, p-value=.280).

Conclusion: It was found that there is a high level of marital adjustment and breastfeeding self-efficacy among sampled mothers. However, there is no significant correlation between marital adjustment and prenatal breastfeeding self-efficacy. The study suggests incorporating co-parenting intervention involving father's involvement and assistance with breastfeeding when creating interventions in breastfeeding.

INTRODUCTION

In 2012, the World Health Assembly Resolution 65.6 endorsed a comprehensive implementation plan on maternal, infant and young child nutrition, which specified six global nutrition targets for 2025 (World Health Organization, 2014). It urges developing or, where necessary, strengthening nutrition policies so that they comprehensively address the double burden of malnutrition and include nutrition actions in overall country health and development policy, and establishing effective intersectoral governance mechanisms in order to expand the implementation of nutrition actions with particular emphasis on the framework of the global strategy on infant and young child feeding (Jones et al., 2014).

All women should be offered support to breastfeed their babies to increase the duration and exclusivity of breastfeeding. Support is likely to be more effective in settings with high initiation rates, so efforts to increase the uptake of breastfeeding should be in place. Support may be offered either by professional or lay/peer supporters, or a combination of both. Strategies that rely mainly on face-to-face

support are more likely to succeed (Renfrew, McCormick, Wade, Quinn, & Dowswell, 2012). Although health care professionals offer timely support to breastfeeding women (Bäckström, Wahn, & Ekström, 2010; Radzyminski & Callister, 2015), the more constant presence and immediate support of the baby's father, or mother's partner offers an opportunity to influence the maintenance and duration of breastfeeding. In a study with primiparous mothers, it revealed that high level of breastfeeding self-efficacy during postpartum predicted positive emotional adjustment and fewer depressive symptoms at six weeks postpartum, as well as more exclusive breastfeeding. On the other hand, breastfeeding concerns were among the most commonly named reasons for stress, along with lack of sleep, lack of social support, and overwhelming learning demands involved with being a new parent (Henshaw, Fried, Siskind, Newhouse, & Cooper, 2015). Also, many studies measure breastfeeding self-efficacy during early postpartum period (Chan, Ip, & Choi, 2016; McQueen, Dennis, Stremler, & Norman, 2011; Noel-Weiss, Rupp, Cragg, Bassett, & Woodend, 2006; Wu, Ho, Han, & Chen, 2018) and having less focus during prenatal period. There are studies focused on prenatal breastfeeding self-efficacy (McKinley et al., 2019), but evidence was limited to western countries and fewer studies conducted Asian mothers especially in the Philippine context.

Father or partner has been identified as an influencing factor in maternal decision-making (Ghose et al., 2017). Mothers reporting positive support from their partners had higher confidence in breast milk production and higher breastfeeding self-efficacy. If the mother feels that the father's attitude toward breastfeeding is positive and supportive, there is a greater likelihood that she will continue breastfeeding (Mannion, Hobbs, McDonald, & Tough, 2013). This study aims to assess the level of marital adjustment and its influence to prenatal breastfeeding self-efficacy of the first-time mothers in late pregnancy period.

MATERIALS AND METHODS

Study design

The research design of the study was descriptive correlational to determine the relationship between marital satisfaction and the level of prenatal breastfeeding self-efficacy of the primigravid mothers. The assumption in this study is that marital satisfaction has an influence to prenatal breastfeeding self-efficacy, but there was no causal relationship assumed.

Study site

The study was conducted in the municipality of Rizal, Occidental Mindoro, which is considered a low income and third-class municipality. This area is near and accessible from the site in which many primigravid mothers receive prenatal care checkup with the healthcare provider.

Sample

A total of 128 primigravid women agreed to participate and had prenatal care check-up in the barangay health center at the time of data gathering. For each selected area, respondents were chosen using systematic sampling in the interval of 2. Inclusion criteria in the study were: 1) primigravid women, 2) pregnant women without known complication that may be contraindicated with breastfeeding, 3) pregnant women who were willing to participate in the research. The study assumes a 95% confidence interval, 50% expected frequency, design effect of 1 and a margin of error of 5%. The study needed 168 samples, but has a 76% response rate.

Instrument

The questionnaire was composed of three parts: socio-demographic section and the breastfeeding self-efficacy scale. The socio-demographic section includes age (ordinal); civil status (nominal); educational attainment (ordinal); income level (ordinal); number of prenatal visits (nominal).

The second part is the Marital Adjustment Test (Locke & Wallace, 1959), a 15-item scale that measures marital satisfaction. It was initially used to differentiate well-adjusted couples from distressed couples. The 15 items are answered on a variety of response scales and possible scores range from 0-158, showing higher scores indicate greater satisfaction.

The third part of the questionnaire was the 14-item Breastfeeding Self efficacy Scale-Short Form (BSES-SF) by Dennis (2003). The BSES-SF is a self-support instrument containing two sub-scales: (1) the technique subscale, where items depict maternal skills and recognition of specific principles required for successful breastfeeding; and (2) the intrapersonal thoughts subscale, where 14 items are related to maternal attitudes and beliefs towards breastfeeding. Items are preceded by the phrase "I can always" and anchored with a 5-point Likert scale, where 1 means not at all confident and 5 means always confident. A study provided preliminary evidence that the BSES-SF may be an internationally applicable, reliable and valid measure to assist health professionals in caring for breastfeeding women. Cronbach's alpha coefficient for internal consistency was 0.87. Antenatal and postnatal BSES-SF scores were significant predictors of breastfeeding duration and exclusivity at 12 weeks after the birth (Aluş Tokat, Okumuş, & Dennis, 2010).

Table 1. Profile of the respondents (n=128)

Profile	Frequency	Percentages
Maternal age		
≤ 18	13	9.9
19-24	60	45.8
25-29	38	29.0
30-34	14	10.7
≥ 35	6	4.6
Marital status		
Unmarried	68	53.1
Married	60	46.9
Educational status		
Never been to school	1	.8
Elementary level	7	5.5
Elementary graduate	6	4.7
High school level	31	24.2
High school graduate	33	25.8
Vocational	5	3.9
College level	12	9.4
College graduate	33	25.8
Income status		
Poor	85	66.4
Low income (but not poor)	38	29.7
Low middle income	5	3.9
Number of prenatal visits		
None	5	3.9
1	17	13.3
2	25	19.5
3	27	21.1
≥ 4	54	42.2

Data collection

Permission from the Municipal Health Officer was secured to conduct the study. Approved letter of request was presented to the rural health midwifes where the study was conducted. The coverage of the data collection started every Thursday of the month of November 2018 during the scheduled prenatal care visit in the Barangay centre. The data collection technique was through a survey interview using a questionnaire. The postpartum mothers were approached during visits in the Barangay Health Center. Informed consent was attained from the mothers before the researchers conducted the interview.

Ethical consideration

This paper was technically reviewed and approved by the Research Council of the Occidental Mindoro State College under its Research Development and Extension Unit. Participation in the study was voluntary and it was explained to the mothers that they have the option to answer the questionnaire or not. Complete anonymity of the research participants was observed. The respondents were informed of the right to confidentiality and privacy. Any clarifications were entertained by the researcher to facilitate easy understanding of the statement in the research instrument. The questionnaire was coded and listed in a separate sheet; the code from the list was later matched after data collection. Specific information on the questionnaires could not be linked to specific individuals. Access to the data was limited only to the researcher.

Data analysis

Data collected were entered in Microsoft Excel and were analyzed with SPSS for descriptive and inferential statistics. Descriptive statistics used included percentages and frequencies for demographic profile and mean for BFSE. Pearson's correlation coefficient was utilized to test the relationships between the samples' marital adjustment scores to correlate with BFSE of the respondents. Fisher's t-test was utilized to determine the significance of correlations. A p-value of equal to or less than .05 was considered statistically significant.

RESULTS

Data presented in Table 1 show that most of the young adults were aged 19-24 (45.8%). It also reveals that the respondents were unmarried (53.1%), reached high school graduate and high school and college graduate (both 25.8%), earning ≤ 7,890 and considered poor (66.4%) and most had met the national prenatal visit minimum requirement (42.2%).

The results (Table 2) show that the respondents have a high level of marital adjustment (MAT scores;

Table 2. Marital Satisfaction in Late Pregnancy

Marital Adjustment	Mean	Standard Deviation
Marital Adjustment Score	112.05	21.83

Table 3. Prenatal Breastfeeding Self-Efficacy

BFSE Sub-scale	Mean	SD
Technique		
I can always determine that my baby is getting enough milk.	4.52	.64
I can always ensure that my baby is properly latched on for the whole feeding.	4.49	.60
I can always manage the breastfeeding situation to my satisfaction	4.48	.58
I can always manage to breastfeed even if my baby is crying.	4.16	.94
I can always comfortably breastfeed with my family members present	4.54	.65
I can always deal with the fact that breastfeeding can be time-consuming	4.50	.65
I can always finish feeding my baby on one breast before switching to the other breast	4.53	.56
I can always manage to keep up with my baby's breastfeeding demands	4.51	.66
I can always tell when my baby is finished breastfeeding.	4.47	.60
Weighted Mean	4.47	.44
Intrapersonal Thoughts		
I can always successfully cope with breastfeeding like I have with other challenging tasks.	4.60	.55
I can always breastfeed my baby without using formula as a supplement.	4.48	.66
I can always keep wanting to breastfeed.	4.54	.61
I can always be satisfied with my breastfeeding experience.	4.63	.53
I can always continue to breastfeed my baby for every feeding.	4.69	.50
Weighted mean	4.59	.52
OVERALL BFE	4.55	.51

Table 4. Correlation between Marital Adjustment and Prenatal Breastfeeding Self-Efficacy

BFSE Scores	MAT Score	
	Beta coefficient	p value
Technique	-.078	.190
Intrapersonal thoughts	-.148	.047*
Prenatal BFSE	-.052	.280

*. Correlation is significant at the 0.05 level (1-tailed)

112.05± 21.83). Further, prenatal mothers who responded in the study were highly confident and had self-efficacy in breastfeeding their first child (4.55±.51). It was also revealed that the respondents were both highly confident in breastfeeding technique (4.47±.44) and intrapersonal thoughts on breastfeeding (4.59±.52) (Table 3).

The study revealed that there is no significant correlation in marital satisfaction and prenatal breastfeeding self-efficacy (β=-.052, p value=.280). On the other hand, it also showed that there is a significantly negative and weak downhill linear relationship (β=-.148, p value=.047) between marital satisfaction scores and intrapersonal thoughts on breastfeeding among prenatal mothers in their late post-partum period.

DISCUSSION

Majority of these respondents were at their early adult age. In the Philippines, fertility peaks at age 20-24 and falls after 25-39 (Bersales, 2014). The findings on the current study also suggest that the majority of them did not pursue at aiming for the highest level of formal education. Studies have revealed that educated women are more likely to use maternal care services than women with no formal education period (Adu, Tenkorang, Banchani, Allison, & Mulay, 2018; Dutamo, Assefa, & Egata, 2015; Hill et al., 2013; Pulok,

Sabah, Uddin, & Enemark, 2016; Simkhada, Van Teijlingen, Porter, & Simkhada, 2008). According to the Philippine Statistics Authority, the national poverty threshold in 2015 is 10, 969 per month. Poverty threshold includes basic non-food needs such as clothing, housing, transportation, health, and education expenses (PSA, 2015). This indicates that the majority of the respondents were below poverty threshold. Population who belong to low income family could hardly afford to subject themselves to adopt the recommendations required for health improvement due to economic status (Bircher & Hahn, 2017). One study of peer counseling support shows that breastfeeding duration was significantly associated with increased maternal age and personal breastfeeding experience (Bolton, Chow, Benton, & Olson, 2009). A pregnant woman has at least one visit for the first and second trimester and two visits for the third trimester. Campbell and Graham (2006) supported this and stated that quality prenatal care is an important indicator for maternal and infant health status. If a mother is equipped with adequate knowledge in prenatal care, she is most likely to comply with the prenatal check-up and habits to attain maximum health during pregnancy.

The results show that the respondents have a high level of marital adjustment score. There was a statistically significant relationship between the perception of spouses toward their marriage or their

level of satisfaction with their relationship and being sensitive parents. The consistency in the relationship between spouses is also important for the baby to understand relationship connections (Mutlu, Erkut, Yildirim, & Gündoğdu, 2018). Further, it was also demonstrated that family functions, especially, problem solving, communications and family roles as well as marital adjustment, can explain more than half of the quality of life in women. Therefore, it is suggested that any intervention in increasing women's quality of life should take these aspects into consideration (Basharpoor & Sheykholeslami, 2015). Lastly, in a couple expecting their first child, both women and partners' coping behaviors contributed to higher marital adjustment, suggesting that risks for marital dissatisfaction may exist for couples not able to implement adaptive strategies, or for those unsatisfied with the implemented coping behaviors (Molgora, Acquati, Fenaroli, & Saita, 2019).

The results reveled that prenatal mothers who responded in the study were highly confident and had self-efficacy in breastfeeding their first unborn child. The results from the current study are consistent with the original BSES-SF study of Dennis (2003) and provide evidence that the BSES-SF is reliable measure of breastfeeding self-efficacy among a representative sample in Rizal, Occidental Mindoro. Pollard and Guill (2009) conclude that the score on BSES-SF was a statistically significant predictor of breastfeeding length. The use of the BSES-SF as the baseline assessment tool to identify women at high risk of weaning was also suggested. Using the BSES-SF as a screening tool, healthcare providers can target women at risk for early weaning and plan strategies that enhance mother's knowledge and breastfeeding using Dennis's breastfeeding self-efficacy framework. The BFSE-SF is also a useful tool in screening women who may need extra guidance and assistance once their children are born. If the individual leaves the class with a low self-efficacy score, the BSE-SF can be an effective tool in communication with breastfeeding support staff and lactation consultants in the clinic and hospital when the at-risk mother delivers and needs support and guidance in breastfeeding. Healthcare professionals can readily see the areas in which self-efficacy is low prenatally and help to empower the new mother to breastfeed successfully during the postpartum period. While previous research has found higher breastfeeding knowledge to positively impact both breastfeeding outcomes and breastfeeding intention (Cottrell & Detman, 2013; Kornides & Kitsantas, 2013), few studies have investigated the impact of breastfeeding knowledge on breastfeeding self-efficacy.

Lastly, the results revealed that there is no significant correlation in marital adjustment and prenatal breastfeeding self-efficacy. On the other hand, it also showed that there is a significantly negative and weak downhill linear relationship between marital satisfaction scores and intrapersonal thoughts on breastfeeding among prenatal mothers in their late post-partum period. On the contrary, in other studies, it was shown that women who reported active/positive support from their partners scored higher on the BSES than those reporting ambivalent/negative partner support when we controlled for previous breastfeeding experience and age of infant (Abbass-Dick, Stern, Nelson, Watson, & Dennis, 2015; Mannion et al., 2013). The studies suggested that a co-parenting intervention involving fathers warrants additional investigation to assess significant improvements in breastfeeding duration, paternal breastfeeding self-efficacy, and maternal perceptions of paternal involvement and assistance with breastfeeding. Lastly, paternal involvement and paternal breastfeeding self-efficacy could increase the feeling of confidence to a breastfeeding mother (Abbass-Dick et al., 2015; Dennis, Brennenstuhl, & Abbass-Dick, 2018). This suggests conducting future studies to measure breastfeeding self-efficacy among fathers, especially in the prenatal period.

A limitation of this study was the fact that the sample of the study was composed of women who presented to outpatient clinics and this does not include the pregnant women who do not seek consultation in the Barangay Health Center. This research does not claim findings representative of all Filipino women. It is difficult to state that the sample used fully represented the sociocultural groups who live in the province. It is important to conduct further studies to test the psychometric properties of the scale in samples representing different groups. Also, this study was limited by its cross-sectional nature, as a result of which the relationships between marital adjustment sociodemographic variables, and prenatal breastfeeding self-efficacy do not necessarily indicate causal relationships.

CONCLUSION

The study shows that the respondents are young adult, unmarried, literate, considered poor, and receive minimum antenatal care. The results show that the respondents have a high level of marital adjustment. Prenatal mothers who responded in the study were highly confident and had self-efficacy in breastfeeding their first unborn child. Lastly, it was found that there is no significant correlation in marital satisfaction and prenatal breastfeeding self-efficacy. This study recommends to create intervention focused on maximizing these psychosocial resources, mother-to-infant attachment and social support intervention to breastfeeding self-efficacy. There is also need to incorporate co-parenting intervention involving fathers, which warrants improvements in breastfeeding duration, paternal breastfeeding self-efficacy, and maternal perceptions of paternal involvement and assistance with breastfeeding.

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Jurnal Ners

Original Research

Self-Efficacy and Health Status in Coronary Artery Disease Patients

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ABSTRACT

Introduction: Coronary Artery Disease (CAD) impairs all aspects of the patient's life due to the decrease in physical function and lower quality of life, indicating an overall decreased health status. Self-efficacy as a psychological factor plays an important role in individuals maintaining a healthy lifestyle and improving their health status. The aim of this study was to analyze the correlation between self-efficacy and the health status of coronary artery disease patients.

Methods: This study used an observational analytic research design with a cross-sectional approach. This study involved 112 respondents who were coronary artery disease patients in RSD Dr. Soebandi Jember obtained through the incidental sampling method. The data was collected using Cardiac Self-Efficacy (CSE) and Seattle Angina Questionnaire (SAQ). The data analysis used the Spearman rank test with a 95% CI.

Results: The results showed that there was a significant relationship between self-efficacy and health status (p = 0,001, r = 0.307, α = 0,05). Self-efficacy was in good category (71,41 points) while health status was also in the good category (79,56 points).

Conclusion: The low positive correlation between the two variables shows that the higher the value of self-efficacy, the higher the value of health status. Good self-efficacy through healthy living behaviors can increase the health status of coronary heart disease patients. It is important for nurses to improve the psychological aspect of the patients including self-efficacy when optimizing their self-care and health status.

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INTRODUCTION

Coronary artery disease (CAD) is one of the most prevalent killer diseases in the world. The most common manifestations of underlying coronary heart disease are the presence of angina and myocardial infarction. Patients often experience symptoms of distinctive pain in the chest that spreads to the neck, jaw, ears, arms, and wrists, and possibly to the shoulder blades, back or abdomen. In connection with the effects of pain that are felt to be subjective, this can lead to psychological limitations such as anxiety arising from the sudden onset of illness and a fear of sudden death (Beltrame, 2017). Due to the feeling of pain, the physical restrictions, social disability, anxiety and depression, CAD patients are very vulnerable to a decline in health status (De Smedt et al., 2015; Le, Dorstyn, Mpfou, Prior, & Tully, 2018).

The symptom-based burden of CAD becomes the focus of attention because it is an impact that is felt directly by the patient (Stahle & Cider, 2018). The impact of the symptoms can cause physical limitations in terms of walking, climbing the stairs and other daily activities (Suputra, 2015). Healthy behavior must still be applied in order to maintain the stability of the health status of patients with heart disease (Nuraeni, 2016). Because CAD threatens the lives of sufferers in an ongoing manner, it needs there to be a good management of health continuously. CAD can be prevented through healthy lifestyle behaviors (Hendiarto, 2014). The psychosocial construct that plays a role in healthy behavior is self-efficacy. It is a strong predictor of the ability to adopt healthy

lifestyle changes (Bailey, Kashani, Eliasson, & Vernalis, 2013). Cardiac self-efficacy in cardiac patients is a specific measure of a patient's confidence in his capacity to perform activities that may be affected by the symptoms and complications of cardiovascular disease (Barham, Ibraheem, & Zyoud, 2019). Self-efficacy makes a difference in how individuals feel, think and act. The level of specific self-efficacy in cardiovascular health is related to important behavioral determinants of cardiovascular health such as a high-fat diet, physical activity, smoking cessation and high blood pressure control through active stress management (Wigger, 2011). In this case, self-efficacy can influence health behavior and chronic disease management in many chronic disease settings (Sarkar, Ali, & Whooley, 2007). Healthy behavior, as a major factor, can reduce the risk of disease from becoming more severe and increase the success of any treatment and surgery that is to be performed (Nuraeni, 2016)

Research findings in the United States show that on average, CAD patients have less self-efficacy. This low level of self-efficacy is associated with the risk of poor health management (Sarkar, Ali, & Whooley, 2009). Poor health management behavior is also indicated by poor dietary arrangements and irregular control after returning home following hospitalization (Wantiyah, 2010). CAD patients with lower initial self-efficacy are more likely to be hospitalized for heart failure. In fact, with each standard deviation (22%), the decrease in the participants' self-efficacy is 40% more likely to resulting in them being hospitalized with heart failure and they are 30% more likely to die (Sarkar et al., 2009). In addition, low self-efficacy involves many of the risk factors for existing heart disease. This is indicated by the research involving 71 respondents; 81.6% of the respondents (as many as 58) had low self-efficacy with many of the risk factors (Bailey et al., 2013)

Coronary artery disease is a chronic disease that lasts for the duration of a patient's life that is able to cause fluctuations in their health status from optimal function through to dropping dramatically due to recurrence. This can be life threatening (Wantiyah, 2010). This disease requires complex treatment management including not only medication adherence but also a healthy lifestyle. Self-efficacy is important in the management of CAD because it comes from the individual who feels the impact of the disease. This is improved through the motivation to change into having a good level of health management and decision making in reference to their care (Hendiarto, 2014; Riegel et al., 2017). The ability to manage their lifestyle as a form of good self-efficacy is needed, especially when managing their exposure to risk factors. People tend to ignore this and have unhealthy lifestyles such neglecting to lessen the sodium in their diet and eating high-lipid foods. These both have an impact on the development of cardiovascular disease. This study hypothesis is that

Table 1. Characteristics of the Respondents (n=112)

Characteristics of the Respondents	n	%
Gender		
Men	91	81.25
Women	21	18.75
Age		
<45 years old	4	3.57
45-54 years old	15	13.39
55-64 years old	61	54.47
65-74 years old	27	24.11
> 74 years old	5	4.46
Education		
No school	7	6.25
Graduated from elementary school	17	15.18
Graduated from middle school	17	15.18
Graduated from high school	45	40.18
College	26	23.21
Occupational Status		
Does not work	53	47.32
Labor	9	8.04
Farmers	8	7.14
General employees	12	10.71
entrepreneur	17	15.18
Civil servants	11	9.82
Indonesian National Army/ Indonesian Republic Police	2	1.79
Income		
<Rp 2,000,000	49	43.75
≥ Rp 2,000,000	63	56.25
Marital Status		
Single	0	0
Married	104	92.9
Widowed	8	7.1
Smoking History		
Never	35	31.2
Ever	77	68.8
Disease History		
Do not have	48	42.86
Hypertension (High Blood Pressure)	48	42.86
Stroke	0	0
Diabetes Mellitus (Sugar Disease)	14	12.5
Have others	2	1.78
History of Chest Pain (Angina) in the past month		
No Chest Pain	81	72.3
There is Chest Pain	31	27.7

self-efficacy has a correlation with perceived health status among patients with CAD.

MATERIALS AND METHODS

This study used an observational analytical design with a cross-sectional approach. The sample used in this study consisted of CAD patients post-outpatient treatment in the Heart Clinic of RSD Dr. Soebandi Jember. In total, 112 patients with CAD were selected as the research participants according to the criteria established by the researcher. The measurement of the sample size used the application of G * Power with a power analysis of 0.90.

The sampling technique used in this research was incidental sampling. This sampling technique determined the sample based on coincidence, where anyone who incidentally meets the researcher and who fits the inclusion and exclusion criteria can be sampled (Nursalam, 2017; Sugiyono, 2016). The data

Table 2. The Value of Self-Efficacy in CAD Patients in RSD Dr. Soebandi Jember (n = 112)

Variable	Mean	SD
Self-Efficacy	71.41	5.45

Table 3. Health Status Value in CAD Patients in RSD Dr. Soebandi Jember (n = 112)

Variable	Mean	Median	Min-Max
Physical Limitations	68.44	67.78	20-100
Symptoms burden	89.94	96.67	20-100
Treatment Satisfaction	84.41	86.25	47.50-100
Quality of Life	79.57	83.33	33.33-100
Health Status	79.56	80.39	49.06-95

Table 4. The Correlation between Self-Efficacy and Health Status in CAD Patients in RSD Dr. Soebandi Jember (n = 112)

Variable	p	r
Self-Efficacy Health Status	0.001	0.307

collection process was carried out in January 2020 in the Heart Outpatient ward of RSD Dr. Soebandi Jember. The process of taking the data used an instrument in the form of a demographic characteristic questionnaire. The self-efficacy measurement was done using the Cardiac Self-Efficacy (CSE) questionnaire by Sullivan translated and adapted to Bahasa Indonesian. This was found to be valid and reliable with a Cronbach's Alpha reliability of 0.77 (Wantiyah, 2010). The health status measurement was done using the Indonesian version of Seattle Angina Questionnaire (SAQ). The validity and reliability values in general for the SAQ questionnaire were in the range of 0.477-0.577 and the Cronbach's Alpha value was 0.866 (Nurhalimah, 2016). The data analyses used a Spearman rank test with a 95% CI by using SPSS 26 to determine the relationship between the two variables, namely self-efficacy and health status in patients with CAD.

This study was declared to have passed the ethical test conducted by the Health Research Commission of the Faculty of Dentistry at the University of Jember with Ethics committee approval number No. 706/UN25.8/KEPK/DL/2019. All of the respondents in this study were given informed consent. The study respondents had the right to refuse to participate without penalty if they wished to do so.

RESULTS

The respondent's demographic characteristics including age, gender, education, occupational status, income, marital status, history of disease and history of heart attack in the past month have collectively been displayed in Table 1. Based on Table 1, most of the respondents (81.25%) were men. The respondents were dominated by those in the age range of 55-64 years, totaling 61 respondents

(54.47%). The most common educational history of the respondents was having graduated Senior high school, totaling 45 respondents (40.18%). Most respondents did not work, totaling 53 respondents (47.32%). In relation to this, 63 respondents (56.25%) earn more than Rp. 2,000,000.00. Almost all of the respondents are married (92.9%). The respondents' smoking history shows that 77 respondents (68.8%) have a history of smoking and that 48 respondents (42.86%) have hypertension. Chest pain experienced by the respondents during the past month showed that as many as 81 respondents (72.3%) did not complain of a heart attack in the past month.

In Table 2, the self-efficacy measurement by CSE shows an average value of 71.41 (SD: 5.45). In Table 3, the health status measurement by SAQ shows an average value of 79.56, which indicates that the average health status of CAD patients is included in the good category because the criteria value ≥ 72.03 is the natural cut-off point. The median value is 80.39 with a minimum value of 49.06 and a maximum value of 95. It is known that the indicator with a high average score has a symptom load of 89.9 with a minimum value of 20 and a maximum value of 100. The indicator with the lowest average value was physical limitations, equal to 68.4 with a minimum value of 20 and a maximum value of 100.

Table 4 shows that there is a correlation between self-efficacy and health status in CAD patients. The Spearman rank test correlation coefficient value of 0.307 shows that the correlation category of the relationship between the two variables is low. The direction of the relationship shows there to be a positive value which means that the higher or better the self-efficacy, the higher or better the health status of the CAD patients.

DISCUSSION

This study found that there is a relationship between self-efficacy in reference to the ability to manage the changeable risk factors with health status. The study findings show that good self-efficacy has a positive effect on the perception of the health status of CAD patients. This can impact their condition and any improvements. The improvement is indicated by the low complaint of angina recurrence and other symptoms of a heart attack. The level of specific self-efficacy on cardiovascular health is related to the important behavioral determinants of cardiovascular health such as a high-fat diet, physical activity, smoking cessation and high blood pressure control through active stress management (Wigger, 2011).

The statistical analysis results show that there is a relationship between the self-efficacy variable with the variable of the health status of CAD patients. The correlation category shows that the relationship between the two variables has a low correlation. The relationship between the two variables has a positive relationship. The nature of the relationship shows that good self-efficacy associated with health

management will have an impact on the better health status of the CAD patients. This is supported by the research by Ahn, Song, & Choi, (2016) which shows that there is a relationship between the variables, where self-efficacy, self-health behavior and the risk factors that can be changed have an important role in improving the quality of life of CAD patients through the better and effective management of cardiovascular risk factors. Research by Sarkar, Ali, & Whooley (2007) shows that among patients with CAD, low cardiac self-efficacy is associated with poor health status, independent of CAD severity and depressive symptoms. The lack of self-efficacy in cardiac patients is associated with good self-acceptance. Individuals who have good self-acceptance can mean that they can accept both their weaknesses and strengths with realistic expectations. They can respect themselves. Individuals claim to be able to accept their conditions in various aspects positively and be able to live life well (Puspita, 2018). According to Bandura (1994), good self-efficacy is able to bring in adaptive behaviors, especially in the prevention of a health problem. Preventive efforts that are intended are efforts to reduce or control the risk factors that are detrimental to health. These efforts include being physically active, maintaining blood pressure, and developing various ways to manage stress (Buchanan, 2016).

The low correlation of the two variables as indicated by the findings of the study in some patients showed good self-efficacy but a poor level of health status. These results are irrelevant because the patient's self-efficacy began to be high after they were diagnosed with CAD, especially in new patients. It is known that CAD is a disease that is caused by a long period of exposure to the risk factors. A drastic change in self-efficacy when the patient changes his behavior in terms of health management and risk exposure does not show significant results in terms of improving their health status immediately.

CONCLUSION

Based on the research findings and discussion, it can be concluded that there is a relationship between self-efficacy and health status in patients with coronary heart disease at a low correlation level. The results showed that the better the self-efficacy of the patients with coronary heart disease, the better their health status.

Prospective studies can explore, using qualitative methods, matters related to self-efficacy and health status including the patient perceptions related to the symptoms and limitations in terms of CAD given how the opinions, ideas and assumptions will be broader than just the symptoms themselves.

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Original Research

Indicators and Index of Elderly Well-Being to Support an Age–Friendly City

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ABSTRACT

Introduction: Increasing the life expectancy of the elderly raises complex problems concerning the life aspects of the elderly, family, community, and government. A well-being indicator for the elderly is needed as a measurement tool to facilitate Indonesian elderly individuals to becoming more prosperous. The purpose of this study was to develop well-being indicators and to formulate the elderly well-being Index.

Methods: This study used an explanatory research design with a quantitative approach. In total, 400 respondents were collected using multistage random sampling. The physical well-being variable used the Mini-Mental State Examination (MMSE) instrument, Barthel's index, and the Disease Complaint questionnaire. In addition, a psychology and social well-being instrument, social well-being instrument, and spiritual instrument were employed. Confirmatory Factor Analysis was used to verify the factor structure of all of the observed variables.

Results: The results showed that the indicators for elderly well-being are demographic with the following factor loading: (λ) 0.32, social environment (λ)=0.51, health services (λ)=0.55, physical well-being (λ=0.36 psychological well-being (λ)=0.46, social well-being (λ)=0.45 and spiritual well-being (λ)=0.50. The indicators and index can be used as an effort to drive the program, so then the elderly can become productive, prosperous, and meaningful.

Conclusion: The elderly well-being index is expected to be a programmatic instrument that can measure and evaluate the welfare of the elderly. This will increase the elderly health program that is available to achieve more holistic well-being and an age-friendly city.

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INTRODUCTION

A growing elderly population has an impact when trying to improve the quality of life. Human well-being is one of the most popular fields of modern multidisciplinary research. The issue is topical due to the conclusions that it is on economic and social change. More than 25% of the world population will fall into the category of being elderly by 2050 (Global Age Watch Index, 2014). This also has an impact on the increasing growth of Indonesia's elderly population. The increase in aging is estimated to reach 63.31 million in 2045, which is around 20% of the population (Bps, 2018). Elderly needs are not only related to meeting their physical and financial needs that are currently the focus, but it also refers to their overall needs in life. At present, the increase in the number of elderly residents is not accompanied by an increase in the well-being of the elderly (Lifshitz, Nimrod and Bachner, 2019).

The view of well-being lies in the approach used in interpreting well-being. Well-being starts from the study of social and economic perspective approaches, where social well-being is a state of human life that is

created when facing various social problems that can be managed properly (Fave *et al.*, 2018). The well-being study in this research uses being 60 years of age and over to refer to the elderly, which includes their physical, psychological, social, and spiritual well-being. The elderly group that is the target of this development is also the concern of the Surabaya city government (Bps, 2018) of East Java. At present, the problem of the elderly is the focus of a study conducted by the province of East Java, especially the city of Surabaya. One of the development goals in East Java is to improve the well-being and quality of life of the people, including the elderly in East Java. In line with that, the formulation and direction of development policies are aimed at empowering and improving well-being. However, the program's achievements are not yet clear. The concern for older individuals about their well-being is closely related to their health condition. As an individual get older, their health declines and may worsen due to the constraints faced when maintaining their health (Ivankina and Ivanova, 2016). At present, the Indonesian government has launched an elderly-friendly city program (Hermawati, 2015). The acceleration program for achieving an elderly-friendly city is one of the efforts undertaken to anticipate the explosion of the elderly in Indonesia by 2035. The explosion will have an impact on the socio-economic burden of the state (Global AgeWatch Insight, 2018).

The Indonesian government does not have any indicators, nor an index prepared to measure the well-being of the elderly. Well-being indicators use individual income guidelines, but this was a different concept between welfare and well-being (Wiliyanarti *et al.*, 2017). The availability of appropriate indicators will help the Indonesian government determine the scale of the priorities and targets of well-being development. If there are no indicators or well-being indexes available, the government will experience difficulties when trying to determine the well-being category of the elderly for certain individuals or regions (Wiliyanarti, Asri and Putra, 2018). This will have an impact on the development of the elderly well-being program. It is important to understand that index numbers do not only measure a variable or indicator. They can measure several indicators at the same time. Advances in technology and knowledge require an effective method to be able to find a change in relation to the welfare of the elderly (Wiliyanarti, 2018). An index number is a simple statistical measure that can indicate a difference in the individual (elderly), so then the value and category of the index are known.

Based on the concept of health, according to Fleuret and Atkinson (2007), it conveys that well-being is a perfect state that includes physical, mental, social, and spiritual well-being. It does not mean being free from disease only. This indicator does not mention in detail the symbols used for each component, making it difficult to measure the achievement of well-being because it is still too general. The well-being of the elderly in various regions has not been measured using the same indicators.

Therefore, in order to be able to assess the level of well-being of the elderly, it is recommended to use the elderly well-being index as an additional method paired with the use of the existing indicators. The availability of appropriate indicators will assist the government in determining the scale of the priorities and targets of well-being development. If there are no indicators or well-being indexes, the government will have difficulty identifying the well-being categories of the elderly for certain individuals or regions. This will have an impact on the development of the elderly well-being program. The study aimed to develop the elderly well-being indicators and subsequently to formulate the Elderly Well-being Index in Surabaya.

MATERIALS AND METHODS

This study aimed to develop indicators for the well-being of the elderly. The research was conducted in two stages. The first stage used a qualitative approach presented in the form of a descriptive exploration (Burhan Bungin, 2005).

The study design used was an explanatory research study with a cross-sectional approach. The population was all of the elderly living with families—the study conducted in a selected village in the city of Surabaya. The sample was in the working area of the primary health care services of Surabaya (East, West, Central, North, South), totaling as many as 400 respondents. The sampling method used in this study was Multistage Random Sampling. The research variables were physical, psychological, social, and spiritual well-being. At the quantitative research stage, the research instruments were in the form of structured questionnaires. The instrument was created after the first research phase was completed when the indicators had been collected qualitatively. The indicators that were collected were used as material for instrument development. The instruments used were for physiological well-being (Ryff, 2014), social well-being (Ryff, 2014), and spiritual well-being (Gomez and Fisher, 2016). Modifications in terms of the instrument theme studies are associated with elderly well-being. The indicators tested for validity and reliability were psychological well-being with a value of 0,691, social well-being with a value of 0.7, spiritual well-being with a value of 0.971, social environment with a value of 0.7 and the health service factor with a value of 0.8. The instruments that were not tested for validity and reliability were the indicators for the demographic factors and physical well-being. This study was approved by the Ethics Committee number 37-KEPK in 2016.

RESULTS

Based on Table 1 above, it is known that the majority of the elderly were aged 60 - 69 at 68.3%, that women made up 80.8%, and that the percentage for those not

Table 1. Characteristic of Respondents (n=400)

Characteristics	n	%
Age		
60 - 69 years old	273	68.3
70 - 79 years old	113	28.3
> 80 years old	14	3.5
Gender		
Man	77	19.3
Woman	323	80.8
Income status		
Have an income	133	33.3
Don't have an income	267	66.8
Expenditure		
Expenditure 40% of income	135	33.8
Expenditure 41% - 60% of income	143	35.8
Expenditure >60% of income	122	30.5
Occupation		
Working	87	21.8
Un-employed	313	78.3
Marital status		
Married	254	63.5
Divorced	14	3.5
Widow/widower	128	32.0
Un-married	4	1.0
Education		
No education	27	6.8
Elementary school	107	26.8
Junior High School	96	24.0
Senior High School	95	23.8
Diploma	23	5.8
Bachelor's	51	12.8

working was 78.3%. The percentage of those who had no income was 66.9%, and 63.5% were married. Expenditures most commonly made up 41 % - 60% of any income, and the most common level of education was 26.8% for elementary school.

Based on table 2, the factor loading value of the 27 valid indicators, the factor score was calculated (Table 2). Based on the data above, it can be seen that out of the seven indicators. All indicators have a factor loading value above 0.3. The Confirmatory Factor Analysis (CFA) model for elderly well-being showed that the indicators that have the highest factor loading value were health services (X3=0.55) spiritual (Y4=0.50), social services (X2=0.51), psychological (Y2=0.46), social (Y3=0.45), physical (Y1=0.36), and demographics (X1=0.32).

The results are known to all of the indicators with a factor loading value >0.4 or value of tλ> 1.96 (α = 5%). Thus, be concluded that the seven indicators above are valid to use to measure the well-being of the elderly. Based on the results of Table 3, the Elderly Well-being Index Formulation can include the addition of 0,3(X1) + 0,51(X2) + 0,55(X3) + 0,36(Y1) + 0,46(Y2) + 0,45(Y3) + 0,50(Y4), after which the index value is categorized. The categorization of prosperity is 15.50 - 19.35, while well-being is sufficient 19.36-23.20, and prosperity is 23.21-27.05 (Table 3).

DISCUSSION

The indicator of demographics can be explained by education and income. The education achieved by the elderly contributes to the perception of the elderly regarding well-being. The income of the elderly made it known that most of the elderly do not have an income. Meeting their needs in everyday life is a cost borne by the family (Bps, 2018). For the elderly individuals that do have an income, this shows that there are still elderly who are actively working to fulfill their daily needs, or just to fill their spare time. They may also have a pension fund (Hyde, Maher and Elavsky, 2013). The ability of the elderly to meet their daily needs and to be able to help other families is an old formula for financial happiness (Kirkwood and Cooper, 2014). The elderly in the community have different well-being levels depending on if the elderly can adapt and go through the aging process.

The health service indicators explained that health services had become one of the components in the well-being of the elderly. The factor loading meets the standard criteria. It can be stated that the social environment and service guarantees are the indicators of the well-being of the elderly. According to the research, the social environment being optimal is a condition that is needed by the elderly (Burton, Mitchell and Stride, 2011). The environment determines the achievement of well-being for the elderly. Health insurance is one of the health efforts that the elderly need. When the elderly individual becomes sick, fulfilling health insurance is needed. The elderly health services in Indonesia are facilitated by the existence of the Elderly Health Services Post. The benefits of the Health Services Post for the elderly that it was a community-based service effort, among others. It seeks to improve the health status of the elderly, increasing their independence, slowing the aging process, and allowing for the early detection of health problems and increasing their life expectancy (Erpandi, 2015). The elderly way of life in the environment is very influential in the development of the elderly. The environmental conditions can provide support to increase the interest of the elderly to achieve a better sense of overall well-being (Wiliyanarti, Notobroto and Asri, 2017). A thriving environment is an environment that can improve the physical health, psychological well-being and social needs of those within it (Othman and Fadzil, 2020)

Successful or optimal old age emphasizes that the elderly have three relevant components: avoiding disease, the ability to work, and the ability to interact socially. The existence of disease is an indicator of the physical well-being of the elderly. This was stated by several elderly (Hyde, Maher and Elavsky, 2013). The physical condition is affected by the disease, which can reduce the life satisfaction of the elderly. Physical functioning and elderly cognition are also indicators of physical well-being. Changes in the organic and systemic systems vary greatly, both between individuals and within individuals as well (Kirkwood and Cooper, 2014). Aging with chronic stress can

Table 2. Well-being Indicators based on Loading Factor

Factors	Indicators	Factor Loading (λ)
Demography	1. Level of expenditure	0.41
	2. Occupation	0.71
	3. Marital status	0.30
	4. Education	0.49
Social environment	1. Social network	0.78
	2. Family and community environment	0.68
	3. Problems	0.59
Health services	1. Elderly services	0.80
	2. Access information	0.69
	3. Health insurance	0.73
Physical well-being	1. Independence	0.71
	2. Complaints of physical health	0.54
	3. Cognitive function	0.64
	4. Disease suffered	0.58
Psychological well-being	1. Self-acceptance	0.76
	2. Purpose of life	0.49
	3. Control of the environment	0.68
	4. Personal development	0.59
	5. Positive relationship	0.60
	6. Autonomy	0.59
Social well-being	1. Social acceptance	0.88
	2. Social actualization	0.71
	3. Social contributions	0.94
Spiritual well-being	1. God	0.92
	2. Personal	0.87
	3. The environment	0.88
	4. Communal	0.91

reduce immune function, making the elderly more vulnerable to getting an infection. The digestive system can still be quite efficient even though the elderly are more at risk of malnutrition. The elderly have a heart functioning level that is slower and irregular, often due to the occurrence of obesity in the elderly. This also increases blood pressure (Kirkwood and Cooper, 2014).

Nevertheless, there are still many elderly individuals who do not pay attention to the changes in their systemic functions. The elderly abilities related to cognitive function also experience changes, but not all changes in the brain are destructive. Changes in cognitive function are not fundamental, and they do not significantly affect cognition, although there are increased brain changes. Cognitive decline tends to increase (Papalia, Olds and Feldman, 2009). The physical activity carried out by the elderly is closely related to the level of well-being, normally referring to the activities carried out by individuals without assistance. However, this was different for each age group where the elderly experience physical decline (Hyde, Maher and Elavsky, 2013). This was also stated by (Roberts *et al.*, 2017), who stated that the ability to carry out basic activities could be used to refer to the continuation of old age and the desire to remain independent and to have a good quality of life. The ability to work independently contributes significantly to the quality of life of the elderly, and it is associated with psychological well-being (Fave *et al.*, 2018).

Psychological well-being, in general, can be interpreted as a form of satisfaction with aspects of life to bring in or cause feelings of happiness and a feeling of peace in one's life. The standard of satisfaction in each person is different, so this is subjective. Based on the results of the study, all of the indicators for psychological well-being can be used to measure psychological well-being, proving that the loading factor's statistical value is above the standard value. (Ryff, 2014) states that a positive attitude, which is a component of psychological well-being, is needed to recognize and accept the various aspects of the self, both positive and negative. They should have positive feelings about their past life. Self-acceptance means that the elderly are able to reflect on the shortcomings that exist in their elderly self. It was included the weakness of the physical condition when aging. This should not be a thing that reduces happiness, but instead, it should result in the sense of acceptance in the form of gratitude. The purpose of life that is possessed by the elderly is also an indicator and component of psychological well-being. Ryff formulates psychological well-being into a multidimensional model (Ryff, 2014). Each dimension describes the efforts made by someone to face different challenges, then the individual functions positively. Individuals who are autonomous means that the individuals have a sense of self-determination and that they are free and able to overcome social problems by thinking and acting according to their beliefs. They regulate their behavior from within and evaluate themselves based on their standards. Psychological well-being must be supported by mental health, which is not only about being without a mental illness. Positive mental health involves psychological feelings of well-being that coexist with self-health (Ryff, 2014). Suggested health

Table 3. Significance of the CFA model on Elderly Well-being

Symbol & Variables	Factor Loading (λ)	t_λ	$1-\delta$	$t_{1-\delta}$
X1. Demography	0.32	4.49	0.90	13.47
X2. Social environment	0.51	8.63	0.74	11.44
X3. Health services	0.55	10.14	0.70	
Y1. Physical well-being	0.36	6.20	0.87	
Y2 Psychological well-being	0.46	7.63	0.79	12.15
Y3. Social well-being	0.45	7.50	0.80	12.23
Y4. Spiritual well-being	0.50	8.36	0.75	11.65

and social policy approaches include supporting ameliorating an older adults' disability stages which may also contribute to their improved social life and mental health. Preventing functional decline may help to maintain regular social participation and independence in terms of mobility. (Stage 0) seems to be crucial to mental well-being. Psychosocial support should be allocated to individuals in higher ADL stages because of their more significant mental health needs. The findings from this study emphasize the salience of the care coordination required to provide complete medical, rehabilitative, psychological, and social care (Na and Streim, 2017).

The social changes that occur in the elderly are related to the physical and cognitive changes experienced by the elderly. Entering a happy old age is the same as being prepared to face changes in all aspects of their life. Social change can be a source of stress if it is not responded to positively (Fave *et al.*, 2018). Many elderly can remain optimal in the social field, and they can achieve conditions that are said to be prosperous (Elo and Isola, 2011). The results of the social well-being Confirmatory Factor Analysis model show that the indicator that has the highest factor loading value was a social contribution. A small loading value was excluded from the model, referring to social relations and social integration. The social well-being indicators are based on the statistical test results for social contribution, social relations, and social inclusion. The results obtained a loading factor result that was more than the standard indicator. Based on these results, it appears that the elderly have both carried out their social roles in the application of daily life, and they have value in the community. The research conducted by Seligman (Diener and Ryan, 2008) shows that the happiest people have good quality social relationships. Relationships that are considered to be useful must include two of the following three social relationships, namely family, friends, and harmonious relationships. Elderly social relations and social integration with the environment are positive behaviors in the environment (Wiliyanarti, Notobroto and Asri, 2017). Most of the elderly can fully interact in society, but the intensity of each individual's interactions shows a difference in the sense that the social relations carried out by the elderly occur only when due to a program or association (Wiliyanarti, Notobroto and Asri, 2017). It also found that the elderly who become cadres and who are active feel happy at being able to socialize. Therefore social relations and social integration cannot yet be a

measure to show that these indicators are the components of the social well-being indicators. Elderly well-being is in line with the quality of life, as well as the amount of social relations experienced (Ivankina and Ivanova, 2016).

Spiritual activity is something that can be said to be synonymous with old age activities (Gomez and Fizer, 2016). In societies in various countries, some elderly are made spiritual leaders in various religions, including churches, Muslim communities, and others. Based on the results of research conducted looking into the characteristics of spiritual well-being, the aspect of approaching God and the personal, environmental and communal aspects are in the good category. In this case, it can be interpreted that almost all elderly have fulfilled the criteria for spiritual happiness. The results of the spiritual well-being model show that the well-being components above are declared to be valid. The highest factor loading value is the God indicator. This is in line with spiritual well-being, according to (Gomez and Fisher, 2016). They stated that something is felt about the positive reflections on their behavior and cognition relating to oneself, in addition to society, intuitive feelings and the environment, the ability of individuals to identify themselves alone, commitment, positive attitude, and hormones in life. They also state that the reason for participating in religious activities is related to one's well-being (Diener and Ryan, 2008). A religious belief system helps most people to deal with stress and loss across the life cycle, providing optimism that the later life problems that cannot be overcome today will be resolved. In line with the opinion of (Diener and Ryan, 2008), the relationship between religion and the practice of spirituality is paradoxical. A religious person tends to have a higher sense of well-being, and it is more specific about matters of participation in faithful service, affiliation, a relationship with God, and praying. Older people get a better appreciation of the meaning of life from religion, as well as life satisfaction, self-esteem, and higher optimism (Lifshitz, Nimrod, Bachrur, 2009).

The use of this index can be preventive and part of an evaluation related to the well-being of the elderly in Surabaya. The use of indices in both the municipal and central governments. It is useful for measuring the well-being categories of each region. The areas with low elderly well-being categories are to be used for an evaluation of the elderly well-being programs. Based on the results of the study, it can be noted that the Surabaya urban elderly well-being index has an average value. It can be declared that the elderly in

Surabaya are in the prosperous category. Based on the formulation of the well-being index of the elderly, it is known that the most significant contribution is that the elderly can be biased in terms of well-being, environmental factors, health services, and spiritual well-being. In line with (Fleuret and Atkinson, 2007), they state that achieving success with the well-being index of the elderly must be supported by all aspects of life. The elderly can prepare themselves to face old age in a manner that is prosperous, productive, and meaningful. The strategy to become a friendly city for the elderly in 2030 requires an improvement of the indicators that achieved low, which does not require a lot of money. The results of this study can be used as input in the data assessment. Reconstruction is needed to plan towards having an elderly-friendly city (Kemenkes RI, 2013).

The limitations of the study were the sample consisted of the elderly, who live with their families. It did not include the elderly in nursing homes or the elderly who are being treated in hospitals. The measurement of the indicators for physical well-being is limited to the instruments of daily ability. Psychological well-being also did not look at the level of depression in the elderly.

CONCLUSION

Based on the above results, the indicators of elderly well-being are demographics, the health services available, the social environment, physical well-being, psychological well-being, social well-being, and spiritual well-being. The well-being indicators are expected to be a measuring tool that is a component of the well-being index. This study was useful as an evaluation of the elderly well- being in a manner that can be applied to policies and programs to improve the health of the elderly in both the regional and central government areas. The results can be used as a tool for improvement related to the elderly program to make the age-friendly city more optimal.

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Original Research

The Relationship Between Fulfilment of Basic Needs with the Incidence of Stunting In Toddlers

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ABSTRACT

Introduction: The prevalence of toddlers who very short and short at the age of 0-59 months in Indonesia is still high. One cause of stunting is lack of nutrition, mainly in the first 1000 days of life. The purpose of this study was to identify the relationship between the fulfilment of basic needs with the incidence of stunting in toddlers.

Methods: A quantitative analytic research methods using cross-sectional approach was applied on this study. The sample was 100 toddlers collected by purposive sampling technique. The questionnaires were used to measure the fulfilment of the basic needs of children and included questions about physical, emotion and stimulation. The data were analysed using Chi-Square.

Results: There was a relationship between fulfilment of the basic needs in physical and emotion category with stunting (p value of 0.000), while there was no relationship between fulfilment of basic needs in the category of stimulation with stunting (p value of 0.090).

Conclusion: The fulfilment of the basic needs of physical and emotion affects the condition of toddlers with stunting. Thus, all of children should get exclusive breastfeeding, appropriate complementary feeding, early childhood education programme, attend an Integrated Healthcare Centre routinely, have adequate access to immunisation services.

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INTRODUCTION

More than two million deaths of children under 5 years in the world are directly related to malnutrition, especially wasting and stunting. According to data released by UNICEF, there are around 195 million stunted children who live in poor and developing countries (Wiyogowati, 2012). The World Health Organization (WHO) placed Indonesia as the third country with the highest stunting prevalence rate in Asia in 2017, reaching 36.4%. However, in 2018, the figure continued to decline by 23.6%. From the same data, it is also known that stunting in children under five in Indonesia dropped to 30.8%. In Indonesia in 2017, the prevalence of toddlers was very short and short at the age of 0-59 months by around 9.8% and 19.8%, respectively and, in 2018, around 30.8% of toddlers were in the very short and short categories

while in Central Java Province in 2018 it was around 31.22% (Riskesdas, 2018).

Stunting is a syndrome in which linear growth failure functions as a marker of several pathological abnormalities associated with increased morbidity and mortality, loss of potential for physical growth, reduced nerve development and cognitive function and increased risk of chronic disease in adulthood (Kemenkes, 2018). Stunting can occur as a result of malnutrition, especially in the first 1000 days of life. There are multidimensional factors that cause stunting, including poor parenting practices, limited health services including ante natal care, lack of access to nutritious food, lack of access to clean water and sanitation (Kemenkes, 2018).

The nutritional status of children less than five years old is very influential in the process of growth and development. In stunting children there is a growth failure (growth faltering) that starts in the

womb and lasts until the child is 2 years old. This problem can occur due to lack of protein energy as one of the main nutritional problems that occur in toddlers and which is very influential on the child's growth and development process (UNICEF, 2010).

One treatment that can prevent the occurrence of stunting in children is to meet the basic needs during growth and development, namely fostering, caring and homing needs; these basic needs affect nutritional status. Basic needs greatly affect the nutritional status is the fulfilment of fostering needs because it is directly related to the physical environment of children (Maria & Adriani, 2009).

Parenting is a way parents treat their children by looking after, caring for, and educating them. From the way the parents treat them it will reflect their own characteristics which will affect the child's attitude patterns later on. Basic needs are very necessary to support the growth and development of children. These basic needs can be grouped into three, namely *"asih, asah, and asuh"* (Soetjiningsih, 2013).   The purpose of this study was to determine whether there is a relationship between meeting basic needs with the incidence of stunting toddlers.

MATERIALS AND METHODS

This research used observational analytic research with cross-sectional approach. The research was conducted in a village of Demak Regency for eight months from May - December 2019. The population in this study were 155 toddlers who were stunted. The sampling technique in this study was purposive sampling method. The inclusion criterion was minimum age of 2 years and a maximum of 5 years. Samples obtained were 100 respondents.

The instrument   used in this study was questionnaires containing the child's identity, mother identity and 41 questions about fulfilment of the basic needs of children, which included 25 questions for physical, 10 questions for emotion, and six questions for stimulation. The independent variable in this study was the fulfilment of the basic needs of children and the dependent variable was stunting. This study has   received   ethical   approval   from   the Medical/Health Research from the Commission of the Faculty of Medicine in UNISSULA with No. 642 / X / 2019 / Bioethics Commission.

RESULTS

Based on Table 1, it can be seen that 63.0% of respondents are included in the high-risk age category, 81.0% have basic education, 51.0% are housewives, 92.0% earn below the minimum wage payment, 60.0% are male, 50.0% were in short status and 50.0% were very short.

The results of the study (Table 2) found that 70.0% of respondents in the low risk category had toddlers with a short status and 56.0% were very short, respondents with basic education 80.0% had short toddlers and 82.0% were very short, Respondents as housewives, 50.0% had short toddlers and 52.0% were very short; income   less than MWP, 90.0% had short toddlers and 94.0% were very short while for gender of stunting in toddlers 54.0% are short and 66.0% are very short occurring in boys under five. The characteristics of respondents had no significant relationship with stunting in toddlers (p value> 0.05), but there was a significant relationship between fulfilment of the basic needs, including physical, emotion and stimulation with the incidence of stunting in toddlers (p value 0.000 <.05).

DISCUSSION

The fulfilment of the basic needs of physical and emotion affects the condition of toddlers with stunting. According to the director of the budget in the field of human and cultural development in 2018, stunting is caused by multidimensional factors including bad child care practices, meaning children aged   0-6   months   are   not   getting   exclusive breastfeeding and children aged> 6-24 months do not get the appropriate complementary feeding, while children aged 3-6 years old are not registered in an early childhood education programme, show decreased level of attendance in Integrated Healthcare Centres, and do not get adequate access to immunisation services (Direktur Anggaran Bidang Pembangunan Manusia dan Kebudayaan, 2018). The results showed that for toddlers with both short and very short status, neither physical nor emotional needs were met. Based on the questionnaire, it is known that the majority of infants do not get exclusive   breastfeeding   and   have   received complementary feeding before the age of 6 months. The complementary feeding given is not suitable for the baby's age, whereas in children aged 12 - 60 months the feeding does not meet balanced nutrition. This includes bad parenting and child care needs not being met. This is in line with the research of Rahmayana, Ibrahim, and Darmayati (2014) which stated there was a significant relationship between feeding practices with stunting in toddlers. Feeding infants and children is an important foundation in the growth process. Globally, around 30% of children under five years who are stunted are a consequence of poor feeding practices and recurrent infections (Rahmayana et al., 2014).

Maternal nutrition knowledge in Mimika Regency was found to be 80% of respondents in good category and 20% in less category. The level of maternal education also determines the convenience of mothers in absorbing and understanding the nutritional knowledge gained. This can be the basis for   distinguishing   the   appropriate   extension methods. From the family's nutritional importance,

Table 1. Respondents' Characteristics (n=100)

Variables	n	%
Age of Respondent		
Low Risk	37	37.0
High Risk	63	63.0
Mother's Education		
Primary Education	81	81.0
Secondary Education	18	18.0
Higher Education	1	1.0
Mother's Occupation		
Housewife	51	51.0
Labourers	23	23.0
Private Employee	26	26.0
Family Income		
< MWP	92	92.0
> MWP (Minimum Wage Payment)	8	8.0
Gender of toddlers		
Male	60	60.0
Female	40	40.0
Status of Stunting		
Short	50	50.0
Very Short	50	50.0

Table 2. Relationship of Characteristics, Fulfilment of Basic Needs with Stunting Toddler Events

Variables	Stunting				P Value
	Short	%	Very Short	%	
Age of Respondent					
Low Risk	35	70.0	28	56.0	0.214
High Risk	15	30.0	22	44.0	
Mother's Education					
Primary Education	40	80.0	41	82.0	0.603
Secondary Education	9	18.0	9	18.0	
Higher Education	1	02.0	0	0	
Mother's Occupation					
Housewife	25	50.0	26	52.0	0.969
Labourers	12	24.0	11	22.0	
Private of Employment	13	26.0	13	26.0	
Family Income					
Below The Minimum Wage Payment	45	90.0	47	94.0	0.715
Above The Minimum Wage Payment	5	10.0	3	06.0	
Gender of Toddler					
Male	27	54.0	33	66.0	0.307
Female	23	46.0	17	34.0	
Physical					
Fulfilled		3		6.0	
Not Fulfilled		47		94.0	
Emotion					
Fulfilled		12		24.0	
Not Fulfilled		38		76.0	
Stimulating					
Fulfilled		7		14.0	
Not Fulfilled		43		86.0	

education is needed so that a person, especially mothers, is more responsive to the nutritional problems in the family and can take action as soon as possible. High maternal knowledge is able to provide a balanced nutritional intake for families and children. Higher maternal knowledge is more prevalent in well-educated mothers than in poorly educated mothers. Good maternal nutritional knowledge does not always mean a child experiences

optimal growth; in cases where the mother is well-knowledgeable ,m17.5% of children have stunting (Silas, Rantetampang, Tingginehe, & Mallongi, 2018).

The association between education, in general, and health education in particular, with the level of stunting even after controlling for other socioeconomic factors underlines the need for customised health/nutrition education to make it more relevant to the existing situation and

underscores the need to fulfil the right to education. Importantly, children born of young mothers are at increased risk for stunting as these age groups are more active and involved in various income generating activities while the age of their children reflects a period of high risk. Similarly, the children from households having no access to irrigation and livestock are likely to be at a higher risk of stunting. This substantiates the longstanding fact that livestock and irrigation are critical components of food security in this community. The findings suggest that children from households that practise inappropriate child eating habits and food taboos are at increased risk for underweight and wasting. This complements the results of a pocket study in the country (unpublished), which found that children from households practising the old age traditional feeding habits are twice as likely to be malnourished. This finding underscores the importance of feeding the child separately and confirms its usefulness in avoiding the risk of child malnutrition. In terms of the right to nutrition security, 44.5% of the children exposed by the study were found as having chronic malnutrition. This is a type of malnutrition that reflects an extended period of deprivation. The study also captured violations of a short-term nature which affected 9% of the children as depicted by prevalence of wasting. The need to have an enabling environment in which individuals can provide for their own and their families' needs are stressed in the voluntary guidelines that provide a rich and very detailed set of recommendations and an agenda for action for the progress to realisation of the right to food (Hidar & Abate, 2005).

Emotional needs are children's need for the development of love, spirituality, independence, security, comfort, and sense of belonging. Emotional needs can provide a sense of security if physical and psychological contact is fulfilled as early as possible by the mother (Soetjiningsih, 2013). One of the needs that can be done immediately after birth is for the mother to hold the baby (skin to skin contact). The results showed that there was a significant relationship between fulfilment of the needs of caring for the incidence of stunted toddlers; based on a questionnaire given to respondents, there were things related to the success of breastfeeding, namely the question of early breastfeeding initiation. Eighty per cent of respondents stated that when giving birth to a baby they were not immediately held to the breast of the mother or had no early breastfeeding experience. Early initiation is the beginning of breastfeeding activities within the first hour after the baby is born. Early initiation can also be interpreted

as a way for babies to breastfeed the first hour after birth with their own efforts, in other words self-breastfeeding instead of being breastfed. The way the baby initiates breastfeeding early is called the Breast Crawl or crawl looking for breasts. One of the benefits of IMD is that the baby is more successful at breastfeeding exclusively and will be breastfed longer (Roesli, 2008). One of the factors causing stunting is that the baby does not get exclusive breastfeeding (Kemenkes, 2018). This is in line with (Mawaddah, 2018) who states that there is a relationship between the EBM (Early Breastfeeding Initialization) variable and exclusive breastfeeding. The Odd Ratio 9.17 (95% CI) shows that respondents who were not given breastfeeding initiation were 9.17 times more at risk of not getting exclusive breastfeeding compared with respondents who were initiated into early breastfeeding (Mawaddah, 2018).

Stimulation needs are very important to support the growth and development of children. The more often the child gets stimulation, their development is faster than children who get little stimulation. During pregnancy, stimulation can be done from when the child is in the womb and after the child is born by giving breastmilk as early as possible. The child also needs stimulation as early as possible to develop motor skills, sensory awareness, social-emotional skills, language, cognitive processes, independence, creativity and leadership, and become moral and spiritual children (Kemenke, 2018). Based on the questionnaire, 88% of respondents did not provide stimulation to children. Stimulation is stimulus that is carried out from newborn (even preferably when in the womb) and is carried out every day to stimulate all the sensory systems (hearing, vision, touch, smell, smell). In addition, it must also stimulate rough and smooth motion of feet, hands and fingers, invite communication, and stimulate feelings that delight babies and children. Stimulation is important in children's growth and development. The results showed that children who lack of love and lack of stimulation will experience obstacles in their growth and development as well as difficulties in interacting with others. Stimulation given to children during the first three years (golden age) will provide an enormous influence on the development of the brain and become the basis for forming life to come (Setiawan, 2019).

CONCLUSION

Age, education, occupation and family income do not influence the occurrence of stunting in under five children, while the pattern of the fulfilment of the basic needs, which includes exclusive breastfeeding,

complementary feeding, emotional needs (early breastfeeding initiation and early stimulation) have a significant relationship with the incidence of stunting in toddlers.

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Original Research

Modern and Classic Wound Dressing Comparison in Wound Healing, Comfort and Cost

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ABSTRACT

Introduction: Wound care has also developed rapidly after the dissemination of the concept of TIME (Tissue, Infection, Moisture, and Wound Edge) in modern dressing (MD). The aim of this study was to compare modern dressings (MDs) and classic dressings (CDs) in terms of patient comfort, cost effectiveness and wound healing.

Methods: A prospective study design with total of 25 participants. The sampling technique used was consecutive sampling. Patient comfort was assessed through the frequency of wound care and pain scale using the Visual Analogue Scale (VAS). Cost-effectiveness was assessed using direct and indirect costs. Wound healing was assessed using the Bates-Jensen Wound Assessment Tool (BWAT) score. The data was analyzed using the independent t and Mann-Whitney tests.

Results: In terms of comfort, the mean for the number of times that wound care was performed and the pain scale in the participants using MD was (3.07 ± 0.88 times and VAS 4.59 ± 0.72, respectively), which is less compared to using CD (4.60 ± 1.84 times each and VAS 5.43 ± 0.75). Referring to the indirect and direct costs, MD (13.67 ± 6.09 and 527.63 ± 84.47, respectively) has the same cost-effectiveness as CD (14.00 ± 7.64 and 482.68 ± 98.08, respectively). In terms of healing, the mean of the BWAT score in MD (31.26 ± 1.69) was better compared to CD (33.07 ± 1.65).

Conclusion: The application of MD has the same cost-effectiveness as CD with a more satisfactory outcome for the wounds in terms of comfort and healing.

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INTRODUCTION

A wound is a disorder of the normal condition of the skin in the form of damage to its continuity due to a pathological process, be it internal or external. Wounds often occur in daily life and they can lead to serious complications if not treated adequately (Gonzalez, Andrade, Costa, & Medrado, 2016).

The incidence of wounds is increasing annually. More than 1.2 million people have died globally due to traffic accidents and between 20-50 million people have suffered non-fatal injuries, including wounds. Most injuries, both acute and chronic in the global population, are caused by trauma (48.00%), foot ulcers (28.00%) and pressure sores (21.00%). Acute

wounds occur with a rapid onset and the healing process can be estimated. For example, injuries due to trauma or surgery. The healing process for chronic wounds cannot be predicted, for example, as in pressure ulcers, injuries due to malignancy and others (Gurtner, 2007). In developing countries, 1-2% of the population is predicted to have suffered from a chronic injury during their lifetime (Hurley, Knepper, & Price, 2013).

In Indonesia, the incidence of injuries is quite high along with the increasing incidence of traffic accidents in recent decades. In Surabaya, particularly at the Dr. Soetomo Regional General Hospital in Surabaya, 147 orthopedic patients with injuries were treated in the Acute Surgical Treatment Room

between January 2016 and March 2017. There was a male to female ratio of four to one; 90% of them were injuries due to trauma.

Both acute and chronic wounds require good wound care and management. Wound management is an act of wound care that includes all elements including comorbid control and complications that can result from an injury. The series of activities include cleaning the wound and changing the dressing. The conventional wound care that is often done using tulle and gauze requires a long healing time, especially for chronic wounds with certain complications. Long days of care and visits conducted by the medical personnel that need to be more frequent will have an impact on the cost of care. In addition, in terms of comfort, patients treated using conventional bandages often complain of pain when dressing because the wound tends to adhere with the dressing (Morrison, Moffatt, & Franks, 2007).

In the last two decades, wound care has experienced rapid developments. Developments in the field of wound care began knowledge of the TIME concept (Tissue, Infection, Moisture, and Wound Edge) was been applied to the MD that is widely circulating today. MDs are a product of high-tech wound dressing. This type of dressing is able to control the humidity around the wound. A humid atmosphere will help to provide the atmosphere needed for there to be a local defense made by macrophages, accelerating angiogenesis and thus accelerating the wound healing process. In addition, it is expected that the use of MD can further increase the cost effectiveness and comfort of the patients (Daunton, Kothari, Smith, & Steele, 2012).

The application of wound care methods through the MD route in Indonesia is still relatively small. This is because the majority of health care facilities tend to use CD. The aim of this study was to compare modern dressings (MDs) and classic dressings (CDs) in terms of patient comfort, cost effectiveness and wound healing.

MATERIALS AND METHODS

This was a clinical observational study conducted using a prospective design approach in order to compare the outcome of wound care between MD and CD. The research subjects were orthopedic and traumatology patients with wounds treated in the surgical ward of Dr. Soetomo Regional General Hospital in Surabaya between March 2018 and February 2019. The inclusion criteria consisted of acute wounds caused by trauma where the raw surface of the wounds was 50-500 cm2 and where the depth of the wound ranged from partial to full thickness with skin loss down to muscle level. The exclusion criteria in this study included wounds with a raw surfaces of less than 50 cm2 or more than 500 cm2, wounds that are without an exposure of bone, tendon, nerve, vascular and cartilage and wounds in patients with multiple traumas or with comorbidities like anemia, hypoalbuminemia or systemic diseases such as diabetes mellitus or malignancy.

The dependent variable in this study is the type of dressing (MD and CD) while the independent variables are (1) patient comfort assessed by how often wound care was performed and the pain scale each time that wound care was performed, (2) cost effectiveness as seen from the direct and indirect costs and (3) wound healing. Wound care was carried out by the orthopedic resident based on the standard operational procedures for wound care in the hospital of Surabaya Province. First, hand scrubbing was conducted. An explanation of the procedure of wound care was given to the patient, followed by patient identification. The use of gloves was emphasized. The wound dressing was removed with tweezers and disposed of. The wound was cleaned with gauze and NaCl 0.9% from the inside out. The condition of the wound was noted and documented. The wound was closed with a primary dressing, followed by a secondary dressing. The dirty gauze was disposed of and the tweezers were cleaned in a 0.5% chlorine solution.

MD is a type of wound dressing that consists of CutimedSiltec® and CutimedSorbact®. This is a standard modern dressing in the hospital. CD is a type of wound dressing that consists of gauze and tulle. Patient comfort was assessed according to the frequency of wound care being performed until the wound was ready for definitive therapy with a soft tissue coverage procedure. The pain scale each time wound care was performed was assessed by VAS. VAS is a pain rating scale with points along the length of a 10-cm line that represents a continuum between "no pain" at the left end (0 cm) of the scale and the "worst pain" at the right end of the scale (10 cm) (Bechert & Abraham, 2009; Delgado et al., 2018). Cost effectiveness was assessed through the direct costs referring to the costs directly related to wound care including wound dressing materials, the use of pain medication during wound care, the use of antibiotic drugs due to complications from infected wounds and the hospital costs. Cost effectiveness was also assessed using indirect costs, referring to costs that are not directly related to the treatment process, including productivity problems, as well as the costs incurred by the patient's carer during their stay in hospital. This is directly proportional to their length of stay (LOS) (Al-Gharibi, Sharstha, & Al-Faras, 2018). Wound healing refers to where the wound condition was assessed using the BWAT score (see Table 3) every time that wound care was performed (Bates-Jensen, McCreath, Harputlu, & Patlan, 2019).

All of the data was tested for normality distribution using the Kolmogorov Smirnov test. Variant homogeneity was determined using the Levene test. The data that was normally distributed with homogeneous variants was compared using an independent T-test while the data that was not normally distributed with non-homogeneous variants was compared using the Mann-Whitney test.

This research has been approved by the Commission of Health Research Ethics Faculty of Dr. Soetomo General Hospital Surabaya no. 52/Panke.KKE/II/2018 on 13th February 2018.

RESULTS

The results of this study have been presented in tables and diagrams. The patients with wounds treated using MD totaled 13 men and 2 women. The patients with wounds treated using CD amounted to 6 men and 4 women. Patients with wounds treated using MD consisted of 6 people aged less than 30 years old, 5 people aged 30 to 50 years old and 4 people aged over 50 years old. Patients with wounds treated using CD consisted of 4 people aged less than 30 years old, 4 people aged 30 to 50 years old and 2 people aged more than 50 years old. Seven patients treated using MD suffered from upper extremity wounds and 8 patients suffered from lower extremity wounds. The patients with wounds treated using CD consisted of 1 person suffering from a wound in the upper extremities and 9 people suffering from wounds in the lower extremities. The complete data of these patients has been described in Table 1.

Based on Table 2, the area of the wounds in patients treated with MD was 233.13 ± 91.97, the same as the area of the wounds treated with CD:170.60 ± 117.01 ($p > 0.05$). The mean number of times that wound care performed in patients using MD (3.07 ± 0.88) was less than the wound care frequency for patients using CD (4.60 ± 1.84). There was a significant difference ($p < 0.05$). The initial VAS in patients treated with MD was 7.27 ± 0.96, which is the same as the initial VAS in patients treated with CD of 7.40 ± 0.84 ($p > 0.05$). The last VAS in patients using MD (2.60 ± 0.63) was less than the last VAS in patients using CD (3.90 ± 0.74); there were significant differences ($p < 0.05$). Likewise, the mean VAS in patients using MD (4.59 ± 0.72) was less than the mean VAS in patients using CD (5.43 ± 0.75); there were significant differences ($p < 0.05$). The duration of the wound stated to improve in patients treated with MD was 13.67 ± 6.09 days, which is slightly faster than the wound care performed for the patients treated with CD after 14.00 ± 7.64 days. There was no significant difference ($p > 0.05$). Similarly, referring to the direct cost for the patients treated with MD (527.63 ± 84.47), it was slightly higher than for CD (482.68 ± 98.08) but not significantly different ($p > 0.05$). The initial BWAT score for patients treated with MD was 35.07 ± 2.12, which is the same as the initial BWAT score for patients treated with CD, which was 35.00 ± 1.70 ($p > 0.05$). The last BWAT score in patients using MD (27.60 ± 2.06) was better than the last BWAT score of the patients using CD (30.70 ± 2.36); there was a significant difference ($p < 0.05$). Likewise, the mean BWAT score in patients using MD (31.26 ± 1.69) was better than the average BWAT score of patients using CD (33.07 ± 1.65); there was a significant difference ($p < 0.05$).

DISCUSSION

According to the demographic data, most of the causes of injuries were traffic accidents. It was found that the majority of patients were male (76%) and the rest were female (24%). Among the patients who used MD, 87% of them were male and 13% were female. Regarding the patients who used CD, 60% were male and 40% were female. These results are consistent with other studies where men are the more common accident victims compared to women with a ratio of 3.2: 1 (Laiou et al., 2016). This relates to the proportion of road users being mostly male and the characteristics and attitudes of male motorists during traffic (Nastiti, 2017).

Based on age, it was found that the majority of patients were younger than 30 years old (40%). The patients aged 30-50 years totaled 36% and those over 50 years totaled 24%. In the patients using MD, it was found that the majority of patients were under the age of 30 years (40%), the patients aged 30-50 years totaled 33% and those over 50 years old totaled 27%. In the patients using CD, it was found that the patients under 30 years old totaled 40%, the patients aged 30-50 years totaled 40% and those over 50 years totaled 20%. The traffic accidents predominantly involved motorcycle riders with an average age of 15-29 years

Table 2. Comparison of Modern and Classic Dressings in Terms of Patient Comfort, Cost Effectiveness and Wound Healing

Parameter		MD (n=15)	CD (n=10)	p
Wide of wounds		233.13 ± 91.97	170.60 ± 117.01	0.055[u]
Frequent of wound care		3.07 ± 0.88	4.60 ± 1.84	0.021[u]
VAS	Initial VAS	7.27 ± 0.96	7.40 ± 0.84	0.676[u]
	Last VAS	2.60 ± 0.63	3.90 ± 0.74	0.001[u]
	Mean of VAS	4.59 ± 0.72	5.43 ± 0.75	0.014[u]
Length of stay before soft tissue coverage procedure (**Indirect cost**)		13.67 ± 6.09	14.00 ± 7.64	0.317[t]
Direct cost		527.63 ± 84.47	482.68 ± 98.08	0.267[u]
BWAT	Initial BWAT	35.07 ± 2.12	35.00 ± 1.70	0.533[t]
	Last BWAT	27.60 ± 2.06	30.70 ± 2.36	0.001[u]
	Mean of BWAT	31.26 ± 1.69	33.07 ± 1.65	0.017[u]

u = Mann-Whitney test
t = independent T-test

old, which is within the productive age range (Nastiti, 2017). Teenagers and young adults, especially from among the male population, were most at risk of traffic accidents, with the prevalence rates ranging from 11.1 to 42.6% for the 20-30 years old age group and from 4.6 to 97.2% for male subjects overall (Khatib, Gaidhane, Quazi, & Khatib, 2015).

In terms of patient comfort, the indicators were assessed included frequency of wound care being done and the pain scale during the wound care procedure being performed. In this study, the frequency of wound care performed on patients using CD was more often when compared to the wound care when done using CD. In addition, the pain scale experienced by patients treated with MD and CD was also different, where the patients who used MD tended to find it less painful than those who used CD. Wound care is an action used to achieve wound healing which involves different emotional aspects for each individual who experiences it, including pain. The more frequently that wound care is done, the more likely it is that the patient feels uncomfortable. It is undeniable that pain can affect wound care procedures. Pain that is not treated adequately can have a negative impact on wound healing and the quality of life of the patients. In a multinational study conducted by the European Wound Management Association (EWMA), clinicians assessed that the time to change the dressings when wound care is performed is where pain is felt most severely (Moffatt, Franks, & Hollingworth, 2004). Pain during wound care (procedural pain) is closely related to the type of dressing used and this can be assessed using VAS. The selection of a type of dressing that does not adhere to the wound base and that can be easily removed will be very helpful in terms of reducing patient pain (S Calne, Day, & Pediani, 2004; Granick, Sood, & Tomaselli, 2014). Gauze is most likely to cause pain because it tends to be more adherent to the wound base and Siltec is a type of silicone dressing that is more easily released when changing dressings. According to Morris (2009), based on his research on burns in pediatric patients, the use of silicone dressings can minimize the incidence of trauma and pain in most patients who are the subject of his research (Morris, 2009).

In terms of cost effectiveness, especially indirect costs, it can be seen from the duration of the wound that it is good to do the soft tissue coverage procedure. This measurement can also be based on the Length of Stay / LOS. In this study, the indirect cost of using CD was the same as the wound care for patients using MD, which was in parallel to direct cost. In other words, the costs incurred in the use of both types of dressings for wound care were not much different. According to Hutchinson (1990), the use of gauze for wound care is indeed cheaper but its duration for subsequent dressing changes is too short. This risks increasing the occurrence of infection in the wound (Hutchinson & McGuckin, 1990).

Furthermore, when viewed in terms of wound healing, the BWAT score can give us an idea of the wound condition of each patient when first treated until the end when the wounds are declared to be ready for the soft tissue coverage procedure (Greatrex-White & Moxey, 2015; Sussman & Bates-Jensen, 2007). The initial BWAT score for each wound, whether treated using CD or MD, showed no significant difference. By comparing the last BWAT score and the average BWAT score of the wounds treated using MD and CD, different scores were obtained. The last BWAT score and the mean show better and significant healing for the wounds treated using MD (see Figures 1 and 2). CutimedSorbact was used as a primary wound dressing because its active material in the form of dialkylcarbomyl chloride (DACC) is able to bind bacteria and other microorganisms from contaminated wounds. The active material has strong hydrophobic properties that are used to bind microorganisms that have cell surface hydrophobicity (CSH) quickly and effectively. This includes gram-positive bacteria such as S.aureus, Methicillin-Resistant Staphylococcus aureus (MRSA), Streptococci, gram-negative bacteria such as E.coli, Clostridium difficileand P.aeruginosa, and types of fungi such as C.albicans (Cutting & McGuire, 2015). As stated by Ljungh et al (2006), hydrophobic dressings should be used for wounds with exudates to bind microorganisms that express CSH (Ljungh, Yanagisawa, & Wadstrom, 2006). In addition, Cooper and Jenkins (2016) reported the efficacy of DACC on CutimedSorbact concerning binding the biofilms formed by pathogens MRSA and P.aeruginosa (Cooper & Jenkins, 2016). As a secondary dressing, CutimedSiltec was used in this study because of its nature as an absorbent of silicon. This is very useful for absorbing any excess exudate in the wound. This is consistent with the research conducted by Rook et al (2019) which states that silicone dressings (a type of modern dressing material) have the ability to reduce exudates, to provide a moist wound environment for optimal healing, to keep the tissue around the wound healthy, to avoid maceration, and to minimize pain (Boateng, Matthews, Stevens, & Eccleston, 2008; Rook, Davies, Frenthoff, & Wurfel, 2019). The use of CutimedSiltec with material from silicone foam is instrumental to deliver water vapor and oxygen, in addition to providing thermal insulation to the wound bed. Its main advantage is its ability to accommodate exudates and is able to protect healthy tissue around the wound, because the material is highly absorbent and able to spread the exudate evenly throughout the absorbent layer and prevent leakage with semi-permeable material on the back (Jones, Grey, & Harding, 2006; Vermeulen H, Ubbink D, Goossens A, de Vos R, & Legemate D, 2005).

CONCLUSION

In terms of patient comfort, including the frequency of wound care and the pain scale during wound care, modern dressings have advantages over classic

dressings. Based on the comparison of the indirect and direct costs, modern dressings have the same cost effectiveness as classic dressings. In terms of wound healing using the BWAT score, modern dressings have better efficacy compared to classic dressings.

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Original Research

Social Care in Improving Self-Concept of Leprosy Patients

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ABSTRACT

Introduction: Many infectious diseases occur in developing countries with low socioeconomic conditions. One such is leprosy. Leprosy is common in developing countries as a result of the country's limited ability to provide adequate services, including among some health workers. Such health workers are lacking knowledge and understanding of the false beliefs of leprosy and its resulting disabilities. The purpose of this research is to formulate a social care model in improving self-concept of leprosy patients in Probolinggo District.

Methods: This research used explanatory research survey method with a cross-sectional approach. The sample was 56 respondents. The variables were family support, social care and self-concept. The data were collected using a questionnaire modelled on Liandi, Richard H's concept and The Tennessee Self-Concept Scale. The data were then analyzed by Partial Least Squares (PLS) to test the hypothesis and form the empirical model.

Results: The results showed social care was able to improve the self-concept of leprosy patients (T=5.800, T >1.96).

Conclusion: Therefore, it is expected that nurses continuously synergize in maintaining social care conditions with the community in order to improve the self-concept of leprosy patients.

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INTRODUCTION

Infectious diseases are common in developing countries with low socioeconomic conditions. One such is leprosy (Montaya, 2010). Leprosy is common in developing countries as a result of the country's limited ability to provide adequate services in the areas of health, education, and socioeconomic welfare in the community; leprosy is still feared by the community, among families, and even including some health workers (Lucinda, 2014). The World Health Organization (WHO) (2013) indicates that Indonesia has 17,012 cases of leprosy, although its leprosy prevention is better, as indicated by being ranked 4th after India, Brazil and Nepal. As of December 2015, in the preceding ten years, Indonesia succeeded in reducing leprosy morbidity by 85% from 107,271 people to 17,012 people (WHO, 2013). From these data, East Java is the province with the most leprosy patients, with the number of patients reaching 4,293 cases, with patients who have a lifelong disability as

many as 184 and, childhood sufferers as many as 117 in the region of Madura, Tapal Kuda and Pantura (Ministry Of Helath (MOH), 2015). The case of leprosy patients in Probolinggo regency ranks seventh after Tuban, while the first order is Sampang Regency (Ministry Of Helath (MOH), 2015). Leprosy patients will experience body image or present their individual self-image. Illness and serious injury can damage self-concept, including disability. Adapting the behavior of illness can affect a person's feelings about their identity (Hobfolf, 2006). Threats to body image as well as self-esteem are often accompanied by feelings of shame, inadequacy and guilt. In a healthcare setting, people sometimes have to adjust to a situation that threatens their self-esteem, (Hasselhorn, 2010) and leprosy patients will experience some problems, both physically, psychologically, socially, and economically (Misch, 2010). A preliminary survey conducted in February 2016 from medical records at Glagah Puskesmas

Table.1 Respondents' Characteristics of Leprosy Patients in Probolinggo District.

Variable	n	(%)
Gender		
Male	32	57
Female	24	43
Age (years old)		
20 – 30	11	20
31 – 40	18	32
>40	27	48
Marital status		
Married	35	62
Not Married	21	38
Duration of suffering (years)		
1-5	24	43
6-10	19	34
>10	13	23

Table. 2 Family Support to Leprosy Patients in Probolinggo District.

No	Family Support	Category							
		Good		Enough		Low		Total	
		n	%	n	%	n	%	n	%
1	Empathy	6	10	25	45	25	45	56	100
2	Encouragement	6	10	25	45	25	45	56	100
3	Facilitative	7	12	24	43	25	45	56	100
4	Participatory	9	16	23	41	24	43	56	100

Table. 3 Social Care of Leprosy Patients in Probolinggo District

Social Care	Category							
	Good		Enough		Low		Total	
	n	%	n	%	n	%	n	%
Opportunity	6	10	25	45	25	45	56	100
Freedom	6	10	25	45	25	45	56	100
Attention	7	12	24	43	25	45	56	100

Table 4. Self-Concept in Leprosy Patients in Probolinggo District

Self-Concept	Category							
	High		Medium		Low		Total	
	n	%	n	%	n	%	n	%
Self-image	6	10	25	45	25	45	56	100
Self-esteem	7	12	24	43	25	45	56	100
Role	9	16	23	41	24	43	56	100

Probolinggo District showed that there were 34 patients recorded from 2012 to 2015 and that most of the patients (41.03%) had experienced disability of Busier Pausi (PB), while those with disability level of Multi Basiler (MB) was as much as 58.97%. From the results of field observations with the help of health cadres from Glagah Puskesmas, researchers found that leprosy patients feel their self-esteem (self-concept) is very low. Patients isolate themselves from society, even families. The main goal is for patients to socialize to the community to improve their self-concept through s social approach. Social care in the provision of health services needs to be done (Curtis, van der Heijden,Kümmerlin, van Dam, & van der Schoot, 2009) so that,hopefully, the family is not just resigned to the state of patients who also isolate themselves from the family.Thus the nurse must also attend the family and patient to provide health education. The purpose of this research is to formulate a social care model in improving the self-concept of leprosy patients.

MATERIALS AND METHODS

This research used explanatory research survey method with a cross-sectional approch. The sample was 56 respondents. The variables in this study were family support, social care and self-concept. The data were collected by three kinds of instruments. The family support was measured by questionnaireadopted from Liandi (2011). The social care using questionnaires whas developed by researchers based on Richard H's concept (2015). The Tennessee Self-Concept Scale (Fitts, 1965) was used for measuring self-concept. The analysis technique used is a model based on variance or component-based, known as Partial Least Squares (PLS). PLS is a powerful analysis, since it does not assume that data should be of a certain scale, can work with a small sample, and can also be used to confirm the theory (Ghozali, 2009). This study was approved by the Hafshawaty Pesantren Zainul Hasan Institute of

Table 5. Values of Outer Weights in Outer Model of Self-Concept of Leprosy Patients

Variable	Original sample (O)	Sample mean (M)	Standard Deviation (STDEV)	T statistic	P value	Information
Empathy	0.999	0.897	0.115	8.697	0.000	Significant
Encouragement	0.086	0.085	0.294	0.295	0.769	Not significant
Facilitative	-0.164	-0.162	0.206	0.799	0.425	Not significant
Opportunity	0.519	0.520	0.108	4.800	0.000	Significant
Freedom	0.323	0.299	0.101	3.205	0.001	Significant
Attention	0.338	0.338	0.095	3.572	0.000	Significant
Participation	0.371	0.361	0.094	3.937	0.000	Significant
Self-image	0.416	0.406	0.079	5.238	0.000	Significant
Self-esteem	0.293	0.277	0.068	4.312	0.000	Significant
Self-role	-0.090	-0.083	0.093	0.964	0.336	Not significant
Personal Identity	0.542	0.518	0.076	7.108	0.000	Significant
Self-ideal	0.136	0.120	0.122	1.115	0.266	Not significant

Table 6. T-Statistic Value on Inner Model of Self- Concept of Leprosy Patients

Direct and Indirect Causality Relationships between exogenous and endogenous variables	Path parameter coefficient	Sample Mean (M)	Standard Dev	T-Statistic	P value	Information
The influence of *Family Support* (X1) on self-concept (Y1)	0.448	0.447	0.091	4.953	0.000	Significant
The influence of *Family Support* (X1) on *Social care* (X2)	0.344	0.393	0.087	3.960	0.000	Significant
The influence of *Social care* (X2) on *Self-concep*t (Y1)	0.549	0.536	0.087	6.285	0.000	Significant

variables. Indicator of self-concept variable (self-role and self-ideal) was not significant (p value > 0.05), so the indicator must be discarded and only self- image, self-esteem and personal identity were significant and maintained in the model.

Inner model test result

Table 6 explains the path coefficient of paramaters based on PLS test. Individual reflective size is said to be valid if it has a loading correlation loading with the latent variable construct measured, ≥ 5%, or the T-statistic value must be greater than 1,96 (two-party test) at the significance level α = 5%. Table 6 shows that family support influences the self-concept of leprosy patients (T=4.953), family support affects social care (T=3.960), and social care influences the self-concept of leprosy patients (T=6.285).

The self-concept model of leprosy patients is composed of three variables: family support, social care and self-concept. Self-concept in leprosy patients is directly affected by family support and social care. Self-care conditions of leprosy patients can be reinforced indirectly through social care channels reinforced by family support (Hamim, 2015). Based on the outer weights of the outer model test, there are several indicators of each latent variable that are not significant, so it must be reconstructed first to obtain the ideal model.

Based on Table 7, the results of the reconstruction of the leprosy self-concept model developed from

However, further research is needed, in particular longitudinal and experimental design, to determine the effectiveness of social support on self-care behavior in individuals with heart failure, as this review reveals most of the cross-sectional, correlational research limits the ability to infer causality (Lucinda, 2014).

Thus, the important role of family support is to change the mindset of lepers and other people to bring about the quality of a better work life. These conditions will cause the desire of the patient to socialize with the surrounding environment and includes activities that exist within each household, . This is directed to improve working life conditions, which can raise the spirit of the sufferers in carrying out the task of achieving a normal life. Similarly, people around the patient will feel an integral part of their everyday life.

The influence of family support on social care

The condition of the influence of family support on social care has T-statistics of 3.977 (T > 1.96). Thus, there is influence of family support to social care. The condition of good support will have an impact on good culture so that the patient's activity can be improved maximally; the nurse will also benefit from the positive activity. Therefore, all components in the society are expected to maintain the existing conditions so that society will continue to be part of
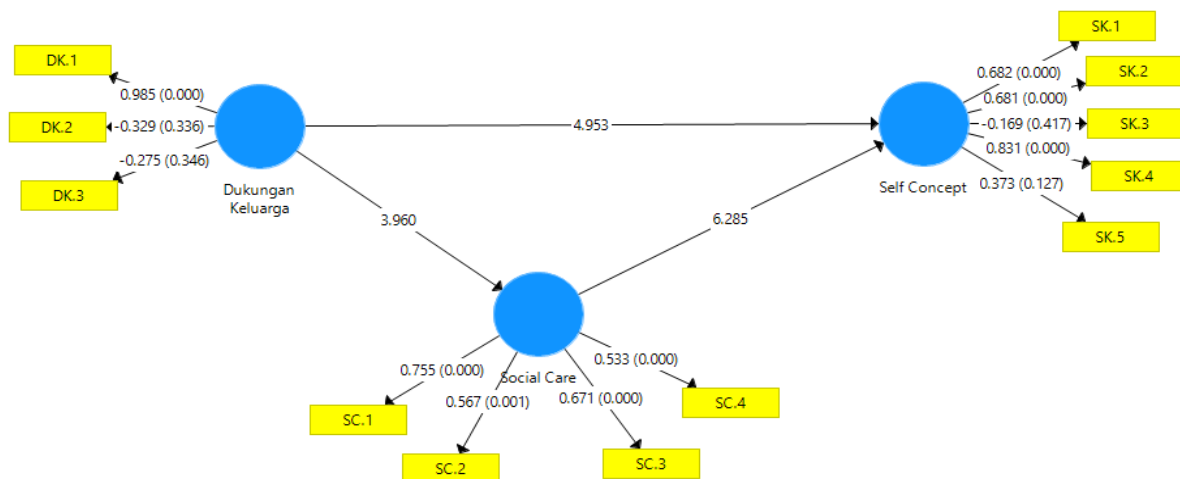
Figure 1. Self-concept model of leprosy patients based on path analysis before reconstruction
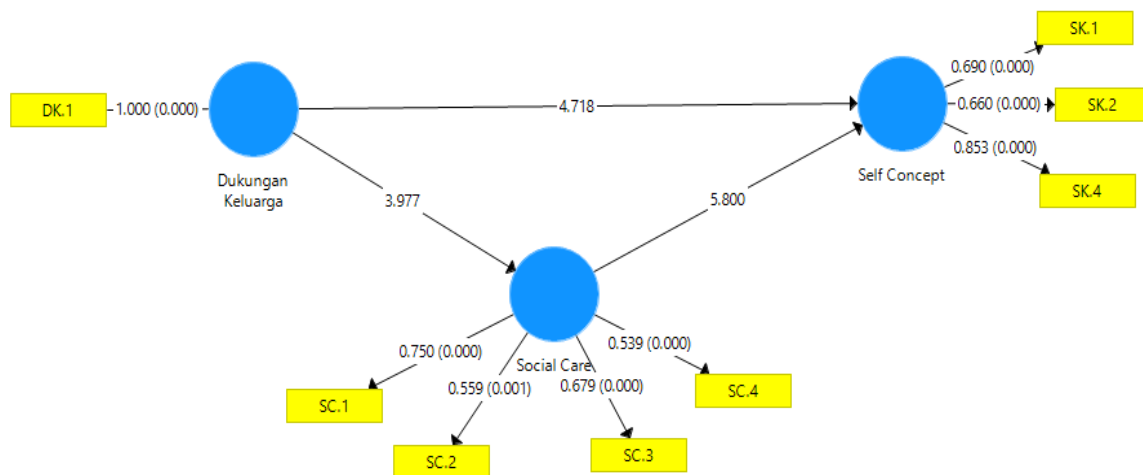
Figure 2. Test result model after reconstruction

the initial conditions expected by the patient (Friedman, 2013).

Social services are divided into two groups. First is social services, which are very complicated and comprehensive and so difficult to determine identity (Curtis et al., 2009). These services include education, social assistance in the form of money by the government, medical care and public housing. The second is clear social service scope and its services, although these are always changing. This service can stand on its own, for example child welfare and family welfare, but it can also be a part of other institutions, such as social work in schools, medical social work, social work in public housing and social work in industry. Social service in the broad sense is any service intended to improve the social welfare of human, while, in the narrow sense, it is the service given to some people who are less fortunate (Desi, 2011). Thus, in a synergy, the better the support of the family will have an impact on the overall social attention, because how can social attention can be maximized if there is no support from the family on the patient.

The effect of social care on the self-concept of leprosy patients

The results showed the influence of social care on the self-concept of leprosy patients. Table shows the influence of social care on self-concept of leprosy patients with a T-statistics score of 5.800 (T >1.96). There is influence of social care to self-concept of leprosy patients. The concept of self defines all ideas, thoughts, feelings, and beliefs that involve individual knowledge about self and affects the relationship with others (Stuart & Sundeen, 2006). Self-concept consists of self-image, self-esteem, role of self, self-identity and self-ideal, while the factor that influences the formation and development of self-concept is age. Self-concept is formed along with increasing age whereby this difference is more related to development tasks. Education also influences self-concept. A person with a high level of education improves his achievement. If his achievement increases, then his self-concept will change. Socioeconomic status affects the acceptance of others toward him. Family relationships of a person

Table 7. T-Statistic Value of Inner Model Self- Concept of Leprosy Patients After Reconstruction

Direct and Indirect Causality Relationships between exogenous and endogenous variables	Path parameter coefficient	Sample Mean	Standard Dev	T-Statistic	P value	Information
The influence of *Family Support* (X1) on *Self -Concept* (Y1)	0.441	0.433	0.093	4.718	0.000	Significant
The influence of *Family Support* (X1) on *Social Care* (X2)	0.344	0.363	0.086	3.977	0.000	Significant
The influence of *Social Care* (X2) on *Self-Concept* (Y1)	0.556	0.563	0.096	5.800	0.000	Significant

who has a close relationship with his or her family members will identify with others and want to develop the same personality pattern, if this is a same-sex character it will develop a self-concept worthy of his sex. Other people make us know ourselves by knowing others first. How another knows ourself will contribute to form self-concept. Individuals are accepted by others, respected and liked because of their condition and individuals will tend to be respectful and accept him. Conversely, when others always underestimate themselves, blame, and reject, they will tend to not like him.

CONCLUSION

There is influence of family support to the self - concept of leprosy patients. The findings show the influence of family support on the self-concept of leprosy patients. The better the family support, the higher the self-concept of leprosy patients. There is influence of family support to social care. From the results of analysis, it shows the influence of family support to social care, The better the family support, the better the social attention of society to leprosy patients.There is influence of social care to self-concept of leprosy patients. Results analysis shows an influence of social care on self-concept of leprosy patients; the better social care or social attention of people to leprosy patients, the higher the self-concept of leprosy patients.

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Original Research

The Risk of Mortality on Patients with Traffic Accidents of Emergency Department at dr. Soebandi Regional Hospital, Jember Regency

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ABSTRACT

Introduction: The number of deaths due to traffic accidents has become a global burden. In addition SDGs 2030 has set a target to decrease the number of fatalities and global injuries due to traffic accidents. The purpose of this study was to analyse the risk of mortality due to traffic accidents in the Emergency Department (ED) of dr.Soebandi Hospital Regional, Jember Regency.

Methods: A retrospective observational study was carried out in the ED by studying medical records of the traffic accident patients aged ≥16 years. The sampling technique was simple random sampling with sample size 250. The study collected data with Modified Rapid Emergency Medicine Score. This study result was analyzed with frequency distribution and Chi-square test.

Results: The result showed respondents who experienced traffic accidents were mostly 20-29 years old (19.6%). The majority of the patients were men (68.4%). The riders of two/three-wheeled vehicles who suffered traffic accidents reached 73.2%. Most of the accidents occurred between 06.00-11.59am, 37.6%. Generally, traffic accidents occur to drivers as much as 68.4% and the number of types of head trauma as much as 57.2%. This study showed that 94.8% patients were at low risk of mortality. There was significant relationship between risk of mortality and the role in vehicle use (p-value = 0.043).

Conclusion: Almost all patients have a low risk of mortality in the ED of dr. Soebandi Hospital Jember Regency.

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INTRODUCTION

Traffic accidents can increase mortality rates for vulnerable road users, such as bicycle riders, motor riders and pedestrians. Mortality rate due to traffic accidents is still a global burden and the 3.6th target of the Sustainable Development Goals 2030 program (SDGs) is to reduce half of global mortality and injury rates by 2020 (WHO, 2018; ILO, 2018). During the period 01 January to 30 December 2018, the number of traffic accidents in Indonesia reached 108,873 accidents with a total mortality of 25,511 people (National Traffic Police, 2019). One of the provinces contributing mortality rates due to traffic accidents is East Java. The number of traffic accidents in East Java during the period 01 April to 30 June 2019 reached 423 accidents with a total mortality of 104 victims (National Traffic Police, 2019). On the other hand, Jember Police data revealed that traffic accidents in 2018 reached 1,260 accidents with a total mortality of 379 victims (Wahyunik, 2019).

Traffic accidents can cause emergency condition for the victim (Ministry of Health of the Republic of Indonesia, 2016). Therefore it requires treatment within the first hour or what is often called as the golden period to save the victim (Korlantas Polri, 2019). One of the initial steps to save victims is determining risk of mortality in prioritizing victim care in health facilities. The Rapid Emergency Medicine Score (REMS) observation sheet can be used to determine patient's risk of mortality (Seak et al., 2017). Based on research by Nakhjavan-Shahraki, Bikpour, Youseifard, Nikhseresht, Razaz, Faridaalaee, and Hossein (2017), REMS can predict mortality events and adverse effects on patients in the Emergency Department.

However, REMS has a lower validity value than the Modified Rapid Emergency Medicine Score (mREMS) in determining the incidence of mortality in trauma patients. REMS validity value is 91.1% and 92.1% for mREMS. In addition, mREMS is suitable to apply in trauma cases. mREMS is better than some other trauma scores, such as the Mechanism of Glasgow Coma Scale and Arterial Pressure (MGAP), Revised Trauma Score (RTS), Injury Severity Score (ISS), Shock Index (ISS), and Shock Index SI). mREMS score range is between 0 and 26. Patients who have mREMS score 0 to 2 reached 70 mortalities (0.03%) out of 221,684 victims, while trauma patients having mREMS score 22 to 26 reached 1,781 mortality (91.2%) out of 1,952 victims. The higher the value of mREMS, the higher the mortality rate of patients with trauma (Miller et al., 2017).

The mREMS instrument consists of age, Systolic Blood Pressure (SBP), heart rate (HR), respiratory rate (RR), oxygen saturation, and Glasgow Coma Scale (GCS). These variables are needed by the EMS (Emergency Medical Service) officer or triage officer to check the patient's health status in making the decision to transport the victim to the most appropriate facility (Miller et al., 2017). Thus, it is important to know the score of the mREMS at the Hospital ED, which is the first emergency service.

Emergency services are expected to prevent the risk of disability and mortality in patients (to save life and limb) (Korlantas Polri, 2019). Emergency Departments experience an increase in the number of patient visits each year (Deviantony et al., 2017). Based on data from the dr. Soebandi Regional Hospital Emergency Department there were 2,402 patients with traffic accident in 2018. Therefore, it is important to know the patient's condition in preventing mortality, especially in the hospital emergency department. The assessment of mortality scores with mREMS is unknown in the dr. Soebandi Regional Hospital Emergency Department. This study aimed to analysis the risk of mortality patients with traffic accidents in the dr. Soebandi Regional Hospital Emergency Department, Jember Regency

MATERIALS AND METHODS

Quantitative research with retrospective approach was used in this study. Retrospective observational research is a research conducted on events that have occurred to see the risk factors of the causes of these events (Nursalam, 2015). This research was conducted for one month (December 2019-January 2020) using a variable risk level of patient mortality due to traffic accidents and the risk factors for mortality in the dr. Soebandi Regional Hospital, Emergency Department, Jember Regency. The population in this study is the data of medical records of patients with traffic accidents in the dr. Soebandi Regional Hospital, Emergency Department, Jember Regency in January to December 2018; there were 2,402 population while the number of samples used in the study was 250.

This study used probability sampling, which is a sampling technique by giving equal opportunities to each population to be selected as a sample (Sastroasmoro & Ismael, 2014). The technique in sampling used simple random sampling by randomization. This technique is a random sampling technique without considering strata in the population (Sugiyono, 2015). The instrument used in this study was the mREMS observation sheet. The mREMS component consists of age, SBP, HR, RR, SpO2 and GCS that are measured when the patient is in the first triage or during the primary survey. The AUC value of mREMS has been tested for validity and reliability by Miller, Nazir, McDonald and Cannon (2017) of 0.967 (95% CI (Confidence Interval): 0.963-0.971) which means that the validity level of mREMS is 96.7% to predict mortality of trauma patients in the hospital. mREMS had three categories in the risk of mortality: low risk (score 0-8), moderate risk (score 9-17), and high risk (18-26) (Miller et al., 2017).

This study employed univariate analysis of patient characteristics (such as age, education, gender, and occupation), season, day of traffic accident, time of traffic accident, type of road, role of patient using vehicle, type of trauma, patient information and level risk of mortality. The component is analyzed by percentage and frequency distribution. This study also employed bivariate analysis with Chi-square test. The Chi-square test was used for relationship between categorical variables with the risk of mortality (p<0.05). The research ethics were approved on October 21, 2019, by the ethics committee of the Faculty of Dentistry, University of Jember based on a certificate of ethical qualification number 594 / UN25.8 / KEPK / DL / 2019.

RESULTS

Respondent characteristic, risk factors, and risk of mortality of traffic accident patients were analyzed in this present study. Table 1 shows that the highest data of traffic accident patients characteristic in the dr. Soebandi Regional Hospital, Emergency Department, Jember Regency, in 2018 was age group of 20-29 years with 49 patients (19.6%), and 171 male patients (68.4%) with 94 high school education level patients (37.6%). Based on the type of employment often involved in crashes are farmers with 57 patients (22.8%). Table 1 shows that the characteristics of respondents' age, gender, education, and job had no significant relationship with risk of mortality.

Table 2 shows that, according to type of user, 2/3-wheeled motorized vehicles with about 183 patients (73.2%) became the highest case. Based on the distribution of the day, the highest accident occurrence was on Wednesday as many as 46 patients (18.4%) and Sunday as many as 40 respondents (16%), while based on the time of the incident there were 94 patients (37.6%) who had an accident at 06.00-11.59am. There were 134 respondents (54.0%) who had accidents in the dry season

dominated by drivers as many as 171 respondents (68.4%). The most types of trauma were head trauma of 143 respondents (57.2%) out of 250 respondents and referral patients were 158 respondents (63.2%). Table 2 found significant relationship in the role in vehicle use between risk of mortality (p = 0.043 <0.05), but there wasn't a significant relationship in type of road, the day of occurrence, time of occurrence, season, type of trauma and patient information between the risk of mortality.

Table 3 illustrates the level of risk of mortality of patients due to traffic accidents in the dr. Soebandi Regional Hospital Emergency Department in Jember Regency that in 2018 there were 237 patients (94.8%) who had a low risk of mortality. The high risk of mortality is 12 patients (4.8%) and the lowest level risk of mortality is a high risk of one patient (0.4%)

DISCUSSION

This study analyzed 250 medical records from patients with traffic accident in the dr. Soebandi Regional Hospital, Emergency Department, Jember Regency. Most of the study samples or 237 patients (94.8 %) had a low risk of mortality. Trauma patients death reached 6.0% with the highest proportion of head /spinal trauma patients (67%) (Eaton et al., 2017). In addition, other studies also showed 4.5 % deaths in motorbike traffic accident, treated in ward (82.5%) and ICU (13%) (Fouda et al., 2016).

The high risk of mortality was caused by traffic accident. Traffic accidents can cause casualties to become an emergency (Ministry of Health of the Republic of Indonesia, 2016). An emergency case is a situation that can threaten a victim's life. Emergency case requires immediate treatment to reduce the

Table 1. The Relationship Between the Characteristics of Patients with the Risk of Mortality in the ED of dr. Soebandi Hospital, Jember Regency, in 2018 (n = 250)

Characteristics of respondents	Risk of Mortality Frequency						Totals	
	Low Risk		Moderate Risk		High Risk			
	N	%	N	%	N	%	N	%
Age								
16-19	43	95.6	2	4.4	0	0	45	100
20-29	48	98	1	2	0	0	49	100
30-39	31	100	0	0	0	0	31	100
40-49	45	93.8	3	6.2	0	0	48	100
50-59	35	94.6	2	5.4	0	0	37	100
60-69	27	87.1	3	9.1	1	0,1	31	100
>69	8	88.9	1	11.1	0	0	9	100
Totals	237	94.8	12	4.8	1	0.4	250	100
Chi-square Test	$p = 0.427$							
Gender								
Man	164	95.9	6	8.2	1	0,6	171	100
Woman	73	92.4	6	7.6	0	0	79	100
Totals	237	94.8	12	4.8	1	0.4	250	100
Chi-square Test	$p = 0.299$							
Education								
Not Schooling	16	84.2	3	15.8	0	0	19	100
Primary School	84	94.4	4	4.5	1	0,4	89	100
Middle School	28	93.3	2	6.7	0	0	30	100
Senior High School	92	97.9	2	2.1	0	0	94	100
College	17	94.4	1	5.6	0	0	18	100
Totals	237	94.8	12	4.8	1	0.4	250	100
Chi-square Test	$p = 0.380$							
Job								
Not Working	6	100	0	0	0	0	6	100
Government Employees	11	100	0	0	0	0	11	100
General Employees	40	90.9	3	6.8	1	2.3	44	100
Entrepreneur	47	97.9	1	2.1	0	0	48	100
Housewife	19	82.6	4	17.4	0	0	23	100
Farmer	54	94.7	3	5.3	0	0	57	100
Student	48	98	1	2	0	0	49	100
Etc (Driver, Pedicab and Wood Driver, Fisherman, Trader)	12	100	0	0	0	0	12	100
Totals	237	94.8	12	4.8	1	0.4	250	100
Chi-square Test	$p = 0.301$							

* A statistically significant (p < 0.05)

Table 2. The Relationship Between the Type of road, Day of Occurrence, Time of Occurrence, Season, Role in Vehicle Use, Type of Trauma and Patient Information with the Risk of Mortality in the ED of dr. Soebandi Hospital, Jember Regency, in 2018 (n = 250)

Variable	Risk of Mortality							
	Frequency						Totals	
	Low Risk		Moderate Risk		High Risk			
	N	%	N	%	N	%	N	%
Type of Road								
Pedestrian	47	87	6	11.1	1	0,2		100
Non-Motorized Vehicle Users	8	100	0	0	0	0	8	100
User of 2/3-Wheeled Motorized Vehicles	177	96.7	6	3.3	0	0	183	100
Motorized Vehicles ≥ 4-Wheeled Motor	5	100	0	0	0	0	5	100
Totals	237	94.8	12	4.8	1	0.1	250	100
Chi-square Test	$p = 0.122$							
Day of Occurrence								
Monday	29	87.9	4	12.1	0	0	33	100
Tuesday	32	94.1	2	5.9	0	0	34	100
Wednesday	44	95.7	2	4.3	0	0	46	100
Thursday	33	100	0	0	0	0	33	100
Friday	25	92.6	2	7.4	0	0	27	100
Saturday	35	94.6	2	5.4	0	0	37	100
Sunday	39	97.5	0	0	1	0,4	40	100
Totals	237	94.8	12	4.8	1	0.1	250	100
Chi-square Test	$p = 0.350$							
Time of Occurrence								
06.00-11.59 AM (Morning)	89	94.7	5	5.3	0	0	94	100
12.00-17.59 AM (Noon)	69	95.8	3	4.2	0	0	72	100
18.00-23.59 AM (Night)	61	95.3	3	4.7	0	0	64	100
00.00-05.59 AM (Early day)	18	90	1	5	1	5	20	100
Totals	237	94.8	12	4.8	1	0.1	250	100
Chi-square Test	$p = 0.070$							
Season								
Dry	129	95.6	5	3.7	1	0.7	135	100
Rain	108	93.9	7	6.1	0	0.4	115	100
Totals	237	94.8	12	4.8	1	0.1	250	100
Chi-square Test	$p = 0.448$							
Role in Vehicle Use								
Pedestrian	47	87	6	11.1	1	1.9	54	100
Driver	166	97	5	2,9	0	0	171	100
Passenger	24	96	1	4	0	0	25	100
Totals	237	94.8	12	4.8	1	0.1	250	100
Chi-square Test	$p= 0.043$							
Type of Trauma								
Head Trauma	130	90.9	12	8.4	1	0.7	143	57.2
Facial Trauma	32	100	0	0	0	0	32	12.8
Neck and spinal Trauma	4	100	0	0	0	0	4	1.6
Chest Trauma	5	83.3	1	16.7	0	0	6	2.4
Abdomen and Pelvic Trauma	5	100	0	0	0	0	5	2
Upper Extremity of Trauma	52	98.1	1	1.9	0	0	53	21.2
Lower Extremity Trauma	95	95	4	4	1	1	100	40
Totals	323	129.2	18	7.2	2	0.8	343	137.2
Chi-square Test	$p = 0.689$							
Patient Information								
Tranfer Patient	147	93	10	6.3	1	0.6	158	100
Non-Transfer Patient	90	97.8	2	2.2	0	0	92	100
Totals	237	94.8	12	4.8	1	0.1	250	100
Chi-square Test	$p = 0.245$							

* A statistically significant ($p < 0.05$)

threat of life and an emergency situation needs to be handled quickly and appropriately to avoid the threat of life and disability in the limbs of the victim (Musliha, 2010). Thus, this requires treatment in the first hour, or what is often called the golden period, to save the victim's condition (Kartikawati, 2012). There are trimodal mortality patterns in trauma. The first periode is the risk of mortality caused by disorders of the heart, large blood vessels, brain and spinal cord system. The second periode is is the risk of mortality

Table 3. Overview Risk of Mortality of Traffic Accident Patients (n = 250)

Mortality Risk	Frequency (n)	Percentage (%)
Low Risk	237	94.8
Moderate Risk	12	4.8
High Risk	1	0.4
Total	250	100

caused by intracranial bleeding, pelvic fracture and tears in solid organs bleeding. The third periode is the risk of mortality caused by sepsis, failure of some respiratory organs or other complications (American College Of Surgeons, 2018; Kartikawati, 2012; Sheehy, 2013).

This study showed one referral patient experienced the highest risk of mortality with an mREMS score 25. Patient had traffic accident between pedestrians and motorbikes on Sunday at 04.00am. The traffic accident was in early morning with vehicle tending to speeding because there are not many vehicles on the road. According to Rompis, Mallo, and Tomuka (2016), the slower the vehicle on the road, the higher the severity of the patient's condition due to traffic accidents. On the other hand, this 68-year-old patient was also diagnosed with brain hemorrhage and open fracture femur, systolic blood pressure (78mmHg), heart rate (39 x/min), respiratory rate (5x/min), SPO2 (74) %), and GCS (3). Hemorrhagic brain can increase intracranial pressure, which increases the risk of cerebral hypoxia (lack of oxygen), cerebral necrosis, cerebral ischemia, brain tissue edema, and brain herniation. Open fracture femurs can cause massive bleeding according to the location of the fracture and its trauma (Sheehy, 2013; Ulya et al., 2017). These conditions can increase patient's risk of mortality.

In addition to the types of trauma above, the patients' vital signs are in the abnormal range. According to Ha et al. (2017), the vital signs of patients experiencing the risk of mortality are patients with abnormal vital signs and as much as 5% risk of mortality with respiratory distress from the first eight hours to 48 hours. Systolic blood pressure, GCS, and RR also affect the risk of mortality. The lower the value of systolic blood pressure, GCS, and RR the higher risk of mortality (Ristanto et al., 2016). SBP (<90mmHg) can predict the risk of patient mortality (Liu et al., 2012). If the SpO2 is lower (<90%), it can increase the risk of mortality within 24 hours (Ha et al., 2017).Age also plays a role in determining the level of risk of mortality in trauma patients. Lingsma, Roozenbeek, Steyerberg, Murray, and Maas (2010), showed that the older the age of the patients, the worse their condition. This was caused by decreased neurological function and disability conditions increased.

The role in vehicle use has significant relationship with risk of mortality (p = 0.043). The role in vehicle use as drivers often experiences traffic accidents (68.4%). Drivers had the risk of mortality (67.8 %) due to traffic accident in Tomohon. This incident was caused by an undisciplined driver using a seat belt, on the motorist's helmet and completeness of the letter,

the condition of the driver who was tired, drunk (or the influence of alcohol and drugs) and / or sleepy (Rompis et al., 2016). Drivers had 66,2% experience of traffic accidents (Angela et al., 2013). Thus, researchers assume that drivers have higher risk of mortality due to traffic accidents.

The age group of 20-29 years often experiences traffic accidents (19.6%). Generally traffic accidents at Guilan Province Medical Center occur in the age group of 20-29 years (32.2%) (Amiri et al., 2016). Other studies show that ages 21-30 years dominate traffic accidents (33.46%) (Yogesh, 2015). So it can be seen that the productive age group and adult contribute in the occurrence of traffic accidents. This is because these age groups have anger and are less stable. As a result, there is lack level of caution and discipline in using vehicles and roads (Rompis et al., 2016). Researchers assume that traffic accidents often occur in the age group 21-29 years with status as students and workers due to the time when the accident happened; 6 am to 11.59am is the time where students go home and go to school. However, based on Chi-square test, there is no significant relationship between the age group and risk of mortality (P = 0.427).

Type of road user who frequently experience traffic accidents are 2-wheeled or 3-wheeled motor riders (73.2%). Motorcycle users often experience traffic accidents (53.78%) (Wicaksono et al, 2014). Another study explained that the number of motorcycle users who experienced traffic accidents was 65% (Herawati, 2014). This is due to an increase in the number of motorized vehicles, which in developing countries sees an increase occurred in two-wheeled motor vehicles and buses (Nugroho & Yulianti, 2016). On the other hand, drivers and passengers of motorized vehicles are not protected by security as are car drivers (Rompis et al., 2016). Researchers assume that two or three-wheeled motorized vehicle users have a vulnerability to traffic accidents due to lack of safety driving behavior. However, the Chi-square test showed no significant relationship between type of vehicle and the risk of mortality (p = 0.122> 0.05).

Traffic accident patients at the ED of dr. Soebandi Regional Hospital, Jember Regency, in 2018 often occurred from 06.00-11.59am (morning) (37.6%). This research is in line with the results of Herawati's research (2014), stating that the highest number of traffic accidents occurred 06.00-12.00am and 12.00-18.00pmeach as much as 31%. Most traffic accidents occurred at 12.00-18.00pm (31.74%) (Wicaksono et al., 2014). Other research also explains that 12.00-18.00pmis a time that often occurs traffic accidents, by 44% (Saputra, 2017). This is because at 06.00-

11.59am and 12.00-17.59pmare the peak of outdoor activities, which means that people tend to go out at the same time, either for going to school or having lunch, so that the level of traffic accidents is greater (Rompis et al., 2016). Although traffic accident tends to increase in a specific time, there is no significant relationship between time of traffic accident and risk of mortality (Chi-square test p = 0.070 > 005).

Furthermore, the number of male patients in the ED of dr. Soebandi Regional Hospital due to traffic accidents reached 68.4%. But the gender does not have significant relationship with risk of mortality (p = 0.299 > 0.05). Male dominates the incident of traffic accidents by 88.5% (Katageri et al., 2015). The fatalities were primarily male (98.5%) (Kotwal et al., 2019). The ratio of injuries due to traffic accidents between men and women is 8.4: 1 (Hosseinpour et al., 2017). Furthermore, traffic accident victims who experienced mortality in the city of Tomohon for the 2012-2014 period were 84.75% men (84.75%) (Rompis et al., 2016). Gender which frequently experiences traffic accidents is men. Factors that cause an increase in traffic accidents in men are behavior patterns in driving, mobility levels, and male dominance on the road (Oktavianti, 2016; Rompis et al., 2016).

In this study, traffic accident patients experienced head trauma (57.2%), and lower limb trauma (40.0%). Lower extremities consist of femur, tibia, fibula, patella, tarsal, metatarsal, and phalanges (Ros & Wilson, 2014). Other studies also explained that head trauma due to traffic accidents reached 87.8% and external trauma as much as 92.8% (Nugroho& Yulianti, 2016). The type of trauma that usually occurs in traffic accident victims is extremity trauma as much as 28% (Yogesh et al ., 2015). Generally, head and neck trauma is experienced by victims of traffic accidents by 26.4% (Amiri et al., 2016). Head trauma is caused due to negligence in the use of helmets. The use of helmets can reduce the incidence of severe head injuries by 70%. Traumatic injuries also often occur due to traffic accidents because of primary impact or secondary impact; secondary impact is caused by a collision with an opposing vehicle and / or highway (Oktavianti, 2016). The highest mortality rates occur in patients with chest trauma (22.2%) and head trauma (14.7%) (Fouda et al., 2016). This research result showed no significant relationship between type of trauma and risk of mortality (p = 0.689).

The limitation of this study was it only analyzed medical record patients in one year and only in one hospital. This study cannot show risk of mortality trend due to regulation change that makes patients go to first referral hospitals.

CONCLUSION

The conclusion of this research was that almost all patients with traffic accident in the ED dr.Soebandi regional hospital (94.8%) had low risk of mortality. Traffic accidents often occured in the age group of 20 to 29 years (19.6%) and the male group (68.4%). Traffic accidents were often experienced by riders of 2 or 3-wheeled motor vehicles (73.2%), while the highest type of trauma in traffic accident patients was head trauma (41.7%). There was a significant relationship between the role in vehicle use with the risk of mortality. Future studies can focus on the prevention risk of mortality for patients due to traffic accidents according to role in vehicle use. The clinical implication of this research is a source of data for health workers to make clinical decisions at various levels risk of mortality for patients with traffic accidents. This is expected to prevent worsening in the patient's condition.

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Original Research

Family Health Tasks Implementation and Medication Adherence of Pulmonary Tuberculosis Patients: A Correlational Study

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ABSTRACT

Introduction: Non-adherence medication is found among patients with pulmonary tuberculosis. Various factors influence patient adherence to medication. The purpose of this study was to analyze the relationship between family health tasks to medication adherence among patients with pulmonary tuberculosis.

Methods: The design of this study was cross-sectional, with 45 sample size of pulmonary tuberculosis patients at Polyclinic of Pulmonary Disease in Haji General Hospital Surabaya taken by using a purposive sampling technique. Independent variables of this study were family health task which includes five dimensions, recognizing the family member health problem, making decisions for appropriate treatment measures, caring for sick family members, modifying the healthy environment and utilizing the healthcare facilities. The dependent variable was medication adherence. Data were taken using the questionnaires then analyzed by Spearman rho test.

Results: There was a relation between tasks of family health: recognizing the family member health problem (p=0.001), taking decisions for appropriate treatment measures (p=0.000), caring for sick family members (p=0.003), modifying the healthy environment (p=0.006), and utilizing the healthcare facilities (p=0.001) with medication adherence in patients with pulmonary tuberculosis.

Conclusion: The research of this study suggests the hospital arrange health education for the family and the patient to increase the quality of health services. The family can provide a conducive environment for the patient and further research can develop better research by using other methods such as direct observation, demonstration, and simulation.

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INTRODUCTION

Non-adherence to medication was found as the cause of multidrug-resistant TB (MDR-TB). In 2013, the World Health Organization (WHO) declared MDR-TB as a worldwide crisis due to the number of new cases each year almost reached half a million and that cased continues to emerge with serious epidemics in some countries. Moreover, there were detected amount 136,000 cases eligible for MDR-TB treatment (WHO, 2014). The surveillance of TB prevalence in Indonesia reported positive tuberculosis smear amounted to 257 per 100,000 citizens with upper age 15 years old. The notification rate (CNR) in 2015 for all cases was 117 per 100,000 citizens (Ministry of Health Republic of Indonesia, 2016). The survey of tuberculosis

prevalence in 2014, Indonesia was noticed as the second largest contributor of tuberculosis patients after India. In 2015, the East Java Province of Indonesia reported new cases of positive smear amounted to 23,183 patients, which revealed a case detection rate of t 56%, whereas the target was 70% (East Java Provincial Health Office, 2016).

Pulmonary tuberculosis is one of the world's health problems, although control efforts with the Directly Observed Treatment, Short-course (DOTS) strategy have been implemented in many countries since 1995 (Kementerian Kesehatan (Kemenkes—MOH), 2014). One of the main challenges to pulmonary tuberculosis control in Indonesia is the presence of drug-resistance, especially Multidrug-resistant TB. TB resistance rates are currently low,

but the number of MDR-TB cases tends to increase every year (Deprtemen Kesehatan Republik Indonesia, 2013). The WHO also stated that, by 2013, the world was experiencing a crisis of MDR-TB (World Health Organization, 2015). One of the contributing factors to the increase in MDR-TB cases is the lack of patient adherence in TB treatment (Kementerian Kesehatan (Kemenkes—MOH), 2014).

Non-adherence of patients in taking anti-TB drugs can be caused due to several factors, such as length of treatment period that causes boredom or feeling of healed so that patients tend to stop treatment unilaterally before the treatment program is complete (Kementerian Kesehatan (Kemenkes—MOH), 2014). The patient's personal experience of side effects from anti-TB drugs also influences the patient's compliance with the drug. Another factor that causes noncompliance of TB patients in taking medication is due to inadequate oversight of the Supervisors of Swallowing Drugs (SSD). The SSD is the person closest to the patient, as well as the health officer who oversees the patient in taking the medicine. In this case, the family is thought to be more effective in the patient's drug supervision, as the family is the immediate neighborhood of the patient. The results of interviews with some pulmonary TB patients at Pulmonary poly, General Hospital Haji Surabaya stated that they received good support from their families so that they were willing to undergo a prescribed treatment procedure, but others said that, during suffering from tuberculosis, they felt the lack of good care of their family

Green and Kreuter's (2005) behavioral theory of mentions three factors that influence the health behavior of individuals, namely (1) predisposing factors are factors that exist in the individual self, such as knowledge, attitudes, values, beliefs and others; (2) the enabling factor is a supporting factor of the individual environment, which includes the availability of human resources, accessibility to human resources, community / government regulations, priorities and commitment to health and so on; (3) the reinforcing factor is a factor that reinforces the occurrence of health behavior, family support, peers, teachers, community stores and attitudes of health care providers (Green and Kreuter, 2005).

The factor in the formulation of medication behavior of pulmonary tuberculosis patients is the presence of family support, which can be evaluated through the implementation of family health tasks. The family has a health maintenance role, which includes five family health tasks: recognize health problems in the family, take decisions for appropriate treatment measures, care for sick family members, modify a healthy environment, as well as utilize the healthcare facilities that are available around the neighborhood to the maximum. The role of families in the implementation of family health tasks is needed in the treatment process. Personal family is the main factor of patient healing. The role of the family in motivating the patient to take the medicine,

explaining that the treatment is important, helping to get the medicine, to make the patient always take the medicine, give treatment and give the impetus to recover quickly (Risnawati, 2016) will form patient compliance during treatment procedures.

Family can be an influential factor in determining the beliefs and value of individual health and establishing a treatment program they can receive (Niven, 2012). A study conducted by (Pameswari, Halim and Yustika, 2016) states that the role of the family as an SSD is necessary. The role of an SSD is to improve patient compliance to take medication regularly and uninterruptedly, increasing the patient's willingness to control and re-check the sputum according to the time specified, encouraging to recover, assisting costs (finances) for treatment, encouraging patients to rest, provide nutritious food for patients, and clean the house and environment well. (Pameswari, Halim and Yustika, 2016) also explained that, based on the results of research, some respondents said the size of family support and always reminding to take medication on time were the main reason why they were obedient. The purpose of the study was to analyze the relationship between family health tasks to medication adherence among patients with pulmonary tuberculosis

MATERIALS AND METHODS

This research uses correlational design with the cross-sectional approach. The population in this study was patients and families of pulmonary tuberculosis at Polyclinic of Pulmonary Disease in Haji General Hospital Surabaya, in July-September 2016. The inclusion criteria of this study were TB patients under intensive and advance treatment by age 18 to 54 years old with in-house family members. Patients under treatment without family assistance, the family assistance member under 21 years old were included in the exclusion criteria. The sample was chosen by a purposive sampling technique based on inclusion and exclusion criteria which resulted in a large sample of 45 patients.

The independent variable in this research is a family health task consisting of five dimensions of family health tasks: recognizing the family member health problem, taking decisions for appropriate treatment measures, caring for sick family members, modifying healthy environment and utilizing the healthcare facilities. The dependent variable is medication adherence.

The data collecting process used the instrument to collect data from patients and family about patient and family demography, family task implementation in treating the family member with TB and patient adherence to taking medication. The instrument of family health task implementation contains 40 questions taken from research conducted by Marwansyah (2012) with modifications from other researches. Determination of answer was using Likert scale, with a score range of 1 – 4. The classification of questionnaire assessment results in this study are: 1)

the highest score is the highest value weighted by the number of questions, 2) the lowest value is the lowest value weight of the number of questions, 3) range is the highest number of values minus the number of lowest values then created intervals is the range divided by the number of categories. The criteria categories are divided into three based on the mean value and standard deviation of the questionnaire question scores: 1) good: X > mean + standard deviation, 2) enough: mean-standard deviation < x < mean + standard deviation, and 3) less: x < mean-standard deviation

Instrument for adherence to medications uses MMAS-8 (Morisky Medication Adherence Scale) that contains eight questions. This questionnaire was taken from *The Journal of Clinical Hypertension* (Okello *et al.*, 2016). The questionnaire is most often used to measure compliance with the drug in hypertensive clients, but has been modified so that it can also be used to determine the level of compliance with some chronic diseases requiring long medication treatment (Morisky, Green and Levne, 1986). Determination of the answer was by using a Guttman scale, where the respondent's answer is only limited to the answer "Yes" which is given a score of 1 and "No" which is given a score of 0. The patient and family filled the questions during waiting time to control with a doctor or after treatment without interruption during treatment.

Researchers went through several phases during data collection, including requesting permission for the research activities, identification of research respondents, informed consent to research respondents willing to follow the research, replenishment of questionnaires accompanied by mentoring during the filling of questionnaires, and short interviews to selected research respondents. Data obtained were analyzed by using statistical test of Spearman Rho with degree of significance 0.05. The researcher obtained ethical permission from the Ethics Committee of the Faculty of Nursing, Universitas Airlangga, Surabaya, with number 270-KEPK.

RESULTS

The results showed that most of the TB patients were aged between 46-55 years old (24.4%), most of them female (55.6%), with the highest level of education (Senior High School) 46.7%. Most TB patients were unemployed (28.9%) and most were currently undergoing TB treatment in an advanced phase (60%). The result of the research showed that most of the family members' age was between 26-34 years old (33.3%), female (57.8%), with the highest level of education (Senior High School) 57.8% and the most jobs were entrepreneurs (31.1%) (Table 1).

The results showed that most families had performed general family health tasks in good category with frequency (62.2%). Family health tasks that have been well implemented are mostly caring for sick family members (66.7%), while family health

tasks that have not been well implemented are recognizing health problems in the family and modifying a healthy environment (Table 2).

From the results of the research in the table above can be concluded that the medication adherence for patients of pulmonary tuberculosis treatment in Pulmonary poly, General Hospital Haji Surabaya is mostly in high category, as many as 25 patients (55.6%). In the research results, there are still respondents who have low adherence level, as many as one respondent (2.2%) (Table 3).

Implementation of family health tasks in good category has high medication adherence category as many as 20 people (44.5%). In the research result, there are still families with the implementation of family health tasks in the enough category, but the level of medication adherence is low as many as one person (2.2%). The result of statistical analysis with Spearman Rho correlation test found that there is a relationship between the implementation of family health tasks with the medication adherence of TB patient. Implementation of family health task 'recognize the health problems of family members' in the good category has the highest level of medication adherence as many as 13 people (28.9%). In the research result, there are still families with family health task implementation 'recognize health problem of family members' in the less category, but having medication adherence level of moderate category as many as three people (6.6%). The results of statistical analysis with Spearman Rho correlation test obtained there is a relationship between the implementation of family health task 'recognize the health problems of family members' with medication of pulmonary tuberculosis patients. Implementation of family health task 'taking decisions for appropriate treatment' category has high levels of medication rate as many as 19 people (42.2%). In the research result, there are still families with the implementation of family health task 'taking decision for the appropriate action' in the less category, having low level of drug adherence compliance rate as many as one person (2.2%). The result of statistical analysis with Spearman Rho correlation test shows relationship between the implementation of family health task 'take decisions for appropriate action' with medication adherence of pulmonary tuberculosis patients (Table 4).

Implementation of family health task 'taking care for sick family members' in the good category has a high adherence in the drinking category as many as 21 people (46.7%). In the research result there is still family with family health task implementation 'taking care for a sick family member' in the enough category, but having low medication adherence level, as many as one person (2.2%). The results of statistical analysis with Spearman Rho correlation test found there is a relationship between the implementation of family health task 'taking care for a sick family member' with medication adherence in pulmonary tuberculosis patients. Implementation of family health task 'modifying a healthy environment' has

Table 1. Frequency Distribution of TB Patients' Characteristics

Demographic Characteristics	Patients		Family	
	n	%	n	%
Age of Respondents				
17 – 25	7	15.6	-	-
26 – 35	9	20.0	15	33.3
36 – 45	8	17.8	10	22.2
46 – 55	11	24.4	14	31.1
56 – 65	10	22.2	6	13.3
Gender				
Male	20	44.4	19	42.2
Female	25	55.6	26	57.8
Education Level				
Elementary School	16	35.6	7	15.6
Junior High School	3	6.7	5	11.1
Senior High School	21	46.7	26	57.8
Bachelor's degree	5	11.1	7	15.6
Occupation				
Student	7	15.6	-	-
Unemployed	13	28.9	4	8.9
Housewife	5	11.1	11	24.4
Entrepreneur	7	15.6	14	31.1
Traders	1	2.2	5	11.1
Government employee	1	2.2	2	4.4
Private employee	3	6.7	6	13.3
Others	8	17.8	3	6.7
Status in Family				
Husband	16	35.6	16	35.6
Wife	18	40.0	16	35.6
Child	11	24.4	13	28.9
Treatment Phase				
Intensive	18	40	-	-
Advanced	27	60	-	-

Table 2. Frequency Distribution of Family Health Tasks Implementation in TB Patients

Family Health Tasks	Categories					
	Good		Enough		Less	
	n	%	n	%	n	%
General family health task	28	62.2	17	37.8	0	0
Recognize health problems in the family	16	35.6	25	55.6	4	8.9
Take decisions for appropriate treatment	24	53.3	20	44.4	1	2.2
Care for sick family members	30	66.7	15	33.3	0	0
Modify a healthy environment	21	46.7	23	51.1	1	2.2
Utilize the health care facilities	29	64.4	15	33.3	1	2.2

high categories of medication adherence as many as 16 people (35.6%). In the research result, there are still families with the implementation of family health tasks in the enough category, but the level of medication adherence is low as many as one person (2.2%). The result of statistical analysis with Spearman Rho correlation test showed that there was a relationship between the implementation of family health task 'modifying a healthier environment' with the adherence of taking the medicine for pulmonary tuberculosis patients. Implementation of family health task 'utilizing good health care facilities' has a high level of adherence to taking medication category as many as 21 people (46.7%). In the research result, there is still family with family health task implementation 'utilize health care facility' in the enough category, but low level of adherence of medication as many as one person (2.2%). The results of statistical analysis with Spearman Rho correlation test found that there is a relationship between the

implementation of family health task 'utilize the available health care facilities' with the adherence of taking medication for pulmonary tuberculosis patients (Table 4).

DISCUSSION

Relationship between family health tasks implementation and medication adherence

The results of the study reveals a significant relation between family task implementation and patient adherence in taking medication. The adherence in taking medication will increase when the patient has the support from the other family members during treatment. In relation to the study, results declared that compliance in treatment will increase when patients get help from the family (Ramizer cited in Maulidia, 2014). The family is the first and closest unit to the patient, the family knows about the condition

Table 3. Frequency Distribution of Medication Adherence in TB Patients

Measured Variables	Categories	n	%
Medication Adherence	High	25	55.6
	Medium	19	42.2
	Low	1	2.2

Table 4. Relationship Between Family Health Tasks Implementation and Medication Adherence

Indicators	Medication Adherence						p	r
	High		Medium		Low			
	n	%	n	%	n	%		
Family Health Tasks Implementation								
Good	20	44.5	8	17.7	0	0		
Enough	5	11.1	11	24.5	1	2.2	0.004	0.423
Less	0	0	0	0	0	0		
Total	25	55.6	19	42.2	1	2.2		
Recognize Health Problems in The Family								
Good	13	28.9	3	6.6	0	0		
Enough	12	26.8	13	28.9	0	0	0.001	0.475
Less	0	0	3	6.6	1	2.2		
Total	25	55.7	19	42.1	1	2.2		
Taking Decision For Appropriate Treatment								
Good	19	42.2	5	11.1	0	0		
Enough	6	13.3	14	31.2	0	0	0.000	0.538
Less	0	0	0	0	1	2.2		
Total	25	55.5	19	42.3	1	2.2		
Taking Care for Sick Family Member								
Good	21	46.7	9	20	0	0		
Enough	4	8.9	10	22.2	1	2.2	0.003	0.426
Less	0	0	0	0	0	0		
Total	25	55.6	19	42.2	1	2.2		
Modifying a Healthy Environment								
Good	16	35.6	5	11.1	0	0		
Enough	9	20	13	28.9	1	2.2	0.006	0.407
Low	0	0	1	2.2	0	0		
Total	25	55.6	19	42.2	1	2.2		
Utilizing Health Service Facilities								
Good	21	46.7	8	17.8	0	0		
Enough	4	8.9	10	22.2	1	2.2	0.001	0.474
Less	0	0	1	2.2	0	0		
Total	25	55.6	19	42.2	1	2.2		

of the patient's illness as well as most often communicates with the patient. Open and two-way communication in the family will greatly support the TB patient, reminding each other and motivating the patient to continue the treatment can obtain the healing process. The family role in TB patient care can be a good social support for each family member (Hannan and Hidayat Syaifurahman, 2013).

It was found that the implementation of good category family health tasks mostly has high levels of medication adherence, but there is also the implementation of family health tasks in the enough category to have low adherence level of medication. The condition is due to the factors that underlie compliance behavior, not only from family factors alone, but many other factors become influential, for example, from an individual's factors themselves. An individual who has an unhealthy behavior, even though his or her family's support is good, will still have an effect on the level of medication adherence.

In this study, the family task implementation which was mostly good was caring for the sick family member, while the tasks about knowing family health problem and environment modification were less. The less understanding about those problems will result in the lower achievement of family task implementation in caring for a family member with TB. It's also proven by Freadman (2010 cited in Nurhidayati, Dhian, & Khoirunisa,2016) who stated that families have a role to carry out healthcare practices, namely to prevent the occurrence of health problems and care for family members who are sick.

The ability of families to carry out healthcare or maintenance can be seen from family health tasks carried out. Families who can perform good family health tasks means they are able to solve health problems that exist in family members. The role of the family in the implementation of good family health tasks is a powerful motivation or support in encouraging patients to seek treatment regularly as recommended (Pare, Amiruddin and Leida, 2010).

Research conducted by Herawati (2011) states that the family has an important role in the prevention of transmission of TB disease. Green states that the health of a person or society is influenced by two factors, namely behavioral factors and environmental factors. One's own health behavior is influenced by three factors, namely predisposing factors, enabling and reinforcing. Predisposing factors are internal factors that exist in the individual, enabling factors are supporting factors that encourage the realization of healthy behaviors such as healthcare facilities, while reinforcing factor is a strengthening factor such as support from family, teachers, community leaders, health workers and others (Nursalam, 2014).

The health behavior of TB patients in terms of medication adherence is also influenced by some factors. One of the important factors that plays an important role in the formation of patient medication behavior of pulmonary tuberculosis patients is the existence of family support, which can be evaluated through the implementation of family health tasks. Family support greatly supports the success of one's treatment by always reminding the patient to take medication on a regular basis, providing good care during the patient's treatment process, giving understanding and passion to the patient to remain diligent and regular in treating. The presence of family health and duties and tasks will have a psychological impact on patient compliance in the treatment process. Families who have been able to perform family health tasks well will establish good health behavior also, which in this case is behavior of medication adherence.

Relationship between family health task implementation: recognize health problems in the family and medication adherence

Recognizing family health issues is very important, because family health cannot be ignored (Ayuningtiyas, 2013). The family acts as the first to recognize a health problem in one of the family members. Health problems in the family can be resolved immediately if the family is able to recognize the health problems experienced by one member of the family.

Recognizing family members' health problems is a prelude to identifying family needs according to the situation (Kausar, Herawati and Pertiwiwati, 2015). The health of family members is very important to note. Health can be a great resource to meet the welfare of each family member. Families should be able to understand every health problem that occurs in family members even though it is a small thing. The slightest changes experienced by family members will be a concern in family decision-making. The better the family's ability to familiarize themselves with family health problems the easier it will be for families to overcome the health problems experienced by a family member (Handayani, 2014).

Family ability to recognize health problems is not only in the context of the disease alone, but the family must also be able to recognize how the treatment process is, the problems that may occur during the treatment process, prevention and what are likely to occur if the lung TB patient does not undergo the treatment process that has been established. Families should be aware that long-term TB treatment processes will make TB patients feel bored with their treatment, so the family is expected to motivate and act as a supervisor in the patient taking the medicine in order to keep the patient obedient in taking the medicine (Marwansyah, 2012)

The result of the research showed that most TB patients' family's ability in Polyclinic of Pulmonary Disease in Haji General Hospital, Surabaya in recognizing health problem of family members is in the enough category (55.7%) with medication compliance level mostly in the medium category (28.9%). This is in accordance with Handayani's statement (2014) that the family's ability to familiarize themselves with family health issues will affect the outcomes of family problem solving.

The family's ability to recognize family health problems is one of the processes of gaining knowledge. Knowledge is influenced by two factors: internal factors and external factors. Internal factor includes education. The educational level of a person will have an effect on the understanding of an experience and stimuli provided through learning and other media. Knowledge will affect one's behavior as intermediate impact of the given stimulus (Zulfitri, Agrina and Herlina, 2012). Wahyudi, Upoyo, and Kuswati (2008) also stated that the higher the education of a person, the better the knowledge related to health problems. The results obtained data that most of the family education is high school (46.7%), the level of education is not high, but also not classified as low. This is what causes the family's ability in knowing the health problems of family members to still be in the enough category.

Recognizing the health problems of family members is an early stage to determine the next action to address the health problems experienced. The family's ability to familiarize themselves with family health issues can help families establish what measures are appropriate for family members in order to improve their health status. If the family has been able to familiarize themselves with family health issues, particularly in TB patients, then they will consider the possibilities that may occur during the treatment process so that they can anticipate any problems.

Relationship between family health task implementation: taking decisions for appropriate treatment and medication adherence

The family is the primary key in decision-making and therapeutic care at every stage of sick family members (Setiadi, 2008). The family's ability to make the right decisions is the primary family effort to seek appropriate help according to family circumstances, taking into account who among family members has the ability to perform this task. Family health measures are expected to be appropriate to family circumstances (Marwansyah and Sholikhah, 2015). The family's ability to make the right decisions has an impact on the adherence of the pulmonary tuberculosis patient's medication. The accuracy and speed of the family in decision-making will affect the healing rate of TB patients. The sooner the family takes the decision, the sooner the family overcomes the health problems experienced by family members, in this case related to the adherence of taking the medicine for pulmonary tuberculosis patients (Kausar, Herawati and Pertiwiwati, 2015) Marwansyah and Sholikhah (2015) also stated that the ability of families to make good decisions can have a positive impact on ailing family, while, if the ability of the family is less able to negatively impact a sick family member, the sufferer may feel unnoticed.

Wahyudi et al. (2008) explain that, in the implementation of this decision-making task, the family will feel disturbed by the illness experienced by the patient; therefore, the family is rich to find the right treatment for the patient so the patient will recover from his illness. The family also strives to keep an eye on patients in undergoing a prescribed treatment program so that the treatment runs smoothly and the patient becomes obedient so that will accelerate the healing of the disease.

The family's ability in decision-making for appropriate action in this study was good (53.5%). It was also shown by the adherence of good or high TB drug patients (42.2%). These data suggest that the more accurate and quicker the decisions taken by the family will increase the compliance of TB patients in taking OAT drugs.

Decision-making for appropriate action can help the family in resolving family members' health problems. The family's ability to interpret the illness experienced by family members is influenced by the family's experience of the disease. If the family has been able to recognize the illness suffered by family members, then the family will be able to decide and take the attitude to overcome the illness experienced. Similar to TB patients, if the family has been able to recognize TB disease, including the old treatment process, the family will be able to make decisions when problems occur in patients during the treatment process.

Relationship between family health task implementation: taking care for sick family member and medication adherence

The main function of the family is family care, where the family provides preventive health care and jointly cares for the family members who are sick. The ability of the family in carrying out healthcare or maintenance can be seen from the task of family health that it does (Mubarak, Chayatin and Santosa, 2010). Setiadi (2008) explains that the family, in carrying out its functions, must understand about the illness experienced by family members, know the nature and development of care needed, know the sources in the family, know the existence of facilities needed for care and family attitudes toward sick family members. The family can perform simple maintenance in accordance with the ability, whereby the care of this family can be attempted to prevent side effects or complications of the disease to a minimum.

Notoatmodjo (2003) states that, after someone knows the stimulus or health object, then they will implement and practice what they know. When families are aware of the health problems of their family members, families can help family members take proper care of the health problems experienced.

The result of the research shows that the family health task that has been done well is taking care of a sick family member. This is because the family and patients of TB who seek treatment in Polyclinic of Pulmonary Disease in Haji General Hospital Surabaya always get assistance from the nurse on duty. The family always asks the nurse if problems occur or there are complaints during TB treatment. Nurses in Pulmonary poly, General Hospital Haji Surabaya also always provide health education on how to care for pulmonary tuberculosis patients to overcome the complaints that occur during treatment.

Families in caring for pulmonary tuberculosis patients should know about pulmonary tuberculosis and treatment programs that the pulmonary tuberculosis patient must undergo. In the treatment process, pulmonary tuberculosis patients are required to take many drugs, some of which have various side effects. Drug side effects that are too heavy will make TB patients reluctant to take the medicine again because they think it feels worse when taking the medicine. The family's ability to care for pulmonary tuberculosis patients has a major impact on the family's ability to cope with the side effects experienced. The better the family ability to overcome the side effects of taking medicine in pulmonary TB patients, the better the willingness of TB lung patients to complete the treatment program. The high motivation of the family with proper care will improve patient adherence in the prescribed treatment.

Relationship between family health task implementation: modifying a healthy environment and medication adherence

Modifying the environment is identical to how to make the environment a therapeutic place for patient recovery. In addition to the physical environment, the psychological supportive environment for sick family members also needs attention (Effendi and Makhfudli, 2009).

Modifying the environment to ensure family health is also important in family health tasks, as the health of family members is influenced by lifestyles, stress and the environment. Family health can be guaranteed by taking into account the environmental factors of residence (Handayani, 2014). Modifying the environment can help in the care of family members who experience health problems, in the form of home hygiene and creating comfort in order to rest in peace without any interference from outside. Health improvement and maintenance is essential, especially through the commitment and modification of the environment and family lifestyle. This will increase the role of the family in carrying out its responsibilities to the health of family members (Setiadi, 2008)

The ability to modify a good environment will minimize transmission of TB disease to other family members. Maintaining a healthy and conducive home environment will help TB patients to maintain their body resistance so that they can avoid other diseases during their treatment program. If a TB patient is suffering from another disease, it will allow them to take other medications. This will increase the amount of drugs consumed by patients, so it tends to potentially cause psychological problems in the patient, which will affect the patient's compliance in taking the drug. Therefore, families are required to have good skills in modifying a healthy environment for TB patients in order to ensure better adherence to TB drug treatment.

Relationship between family health task implementation: utilizing health service facilities and medication adherence

Family perception about healthy pain is closely related to behavior seeking for treatment. Family responses when there are family members who experience family health problems are very varied, ranging from not doing anything with the excuse not to interfere, performing certain actions such as treat yourself, seeking traditional medical facilities, finding drugs in drug stalls, seeking treatment to service facilities of modern health organized by the government or private, to seeking modern treatment organized by practicing physicians. This will affect whether or not health facilities are available (Notoatmodjo, 2007)

Pulmonary tuberculosis is a disease with a lengthy period for the healing process, that is patients should consume drugs regularly and on time. If this is not the case, then the healing process will experience obstacles, or the other possibility is that there can be resistance to TB drugs (MDR-TB). Resistance to TB drugs will cause TB patients to repeat the treatment process. The process of treatment will be extended longer, the number of drugs consumed will also be increase. This condition will lead to problems in the psychological condition of the patient that will lead to non-adherence with medication (M, Rohmah and Wicaksana, 2015).

Utilizing health care facilities needs to be done, not only to maintain the health stability of pulmonary TB patients, but also to ensure that drug taking is done on time. Often the ability of families to reach health facilities becomes an obstacle for families to bring TB patients to health facilities. It also relates to the accuracy of pulmonary TB patient drug preparation (Handayani, 2014)

The family as a patient's medicinal overseer should ensure that patient drug taking should not depart from the schedule set by the health worker. Delay in taking drugs will make the patient late also in taking the medicine, so if left continuously it will lead to resistance to TB treatment. This will make the TB patient repeat the treatment process with increased number of medicines and longer time span, which will make the patient feel bored because they have to consume drugs continuously. This condition will affect patient compliance in taking OAT drugs. Therefore, the family should be able to utilize the health service facilities that are well available to support the cure of patients with drug medicine in the high category.

CONCLUSION

The results of data analysis with the Spearman Rho trial showed that there was a significant relationship between carrying out family task and medication adherence of TB patients. Adherence to medication will increase when patient get help from family. The family is the first and closest unit to the patients, the family knows about the disease, and also the patients and is who most often communicates with the patients. Open and two-way communication within the family will greatly support TB patients; asking for one another and motivating help to continue treatment can improve the healing process. The role of the family in the care of TB patients can be a social support for family members.

Implementation of family health tasks of pulmonary tuberculosis patients who seek treatment at Pulmonary poly General Hospital Haji Surabaya is mostly in the good category. Medication adherence of pulmonary tuberculosis patients treated in Pulmonary poly General Hospital Haji Surabaya is included in the category of high compliance. Family health tasks in caring of pulmonary tuberculosis patients have a significant relationship with the level of medication adherence of pulmonary tuberculosis patients in Pulmonary poly General Hospital Haji Surabaya. Family health task 'recognizing the health

problems of family members' has a significant relationship with the medication adherence of pulmonary tuberculosis patients who seek treatment at Pulmonary poly General Hospital Haji Surabaya. Family health task 'making decisions for appropriate action' has a significant relationship with medication adherence of pulmonary TB patients treated at Pulmonary poly General Hospital Haji Surabaya. Family health task 'taking care for sick family members' has a significant relationship with the medication adherence of pulmonary tuberculosis patients who seek treatment at Pulmonary poly General Hospital Haji Surabaya. Family health task 'modifying the environment' has a significant relationship with the medication adherence of pulmonary tuberculosis patients who seek treatment at Pulmonary poly General Hospital Haji Surabaya. Family health task 'utilizing available health care facilities' has a significant relationship with medication adherence of pulmonary TB patients treated at Pulmonary poly General Hospital Haji Surabaya.

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Original Research

Fear of Falling Among the Elderly in a Nursing Home: Strongest Risk Factors

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ABSTRACT

Introduction: The aging process causes a decrease in physical abilities which can cause fall events. Fall events are influenced by fear of falling. Some risk factors of fear of falling were age, gender, balance while walking, use of a walker, depression and a history of previous falls. This study aim was to identify risk factors related to fear of falling among the elderly in nursing home.

Methods: A cross-sectional study was used in this study. Respondents were elderly aged ≥60 years, can communicate well, able to read and write and not being sick which causes balance disorders and pain when walking. Respondents totaled 155 obtained by proportional random sampling. A questionnaire was used to retrieve data such as age, gender, use of a walker, depression, previous fall history and balance walking.

Results: The results showed a significant relationship between all of these risk factors with the fear of falling ($p < 0.05$) and the power of significance for each variable was different. The age variable was power significance 0.228, gender C = 0.2, previous fall history C = 0.374, use of a walker C = 0.367, balance walking C = 0.355 and depression rs = 0.196. There are three risk factors most closely associated with fear of falling in terms of balance walking (B = 1.424 Exp(B) = 4,153), use of a walker (B = 1,365 Exp(B) = 3,914) and previous fall history (B = 1.425 Exp(B) = 4.159). These factors had strength of 27%.

Conclusion: Balance walking, use of a walker and previous fall history were the strongest risk factors.

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INTRODUCTION

The aging process causes a decrease in physical ability and further can cause the incidence of fall, especially for the elderly. The number of falling in the elderly is quite high, at least 28% -35% of 65-year-old people fall every year and the number increases to 32% -42% in the elderly over 70 years (World Health Organization, 2007). Fall events are influenced by several factors, one of which is the personal factor of fear of falling. As to psychological status of fear of falling, up to 70% of recent fallers and up to 40% of those not reporting recent falls acknowledge the fear of falling (25,38,55). Up to 50% of people who are fearful of falling restrict or eliminate social and physical activities because of that fear (WHO, 2004).

Fall events are influenced by several factors, one of which is the personal factor of fear of falling. Fear of falling is an internal phenomenon or anxiety associated with falls that can affect a person's level of dependence which results in a decrease in function when doing activities. Fear of falling is a residual symptom of falling, but can also occur in people who have never fallen. This incident occurs above 60% in the elderly aged 60-79 years (Howland, 1998). Fear of falling can affect quality of life for the elderly and increase the risk of falling through the reduction of physical activity, confidence, strength, and balance. Fear of falling can reduce balance control and reduced the confidence to prevent falls, further increasing the incidence of falls for the elderly (Public Health Agency of Canada, 2005).

Fear of falling is feeling anxious when walking or mobilizing normally or normally, it can cause falls (Greenberg, 2011). The current study showed around 26% -55% of elderly people living in the community were fearful of falling, and 40% -73% of the elderly who had fallen had fear of falling (Howland, 1998). In many ways, the fear of falling potentially causes restrictive movement, especially

for the elderly. That condition can decrease the independence of the elderly in daily activities (Murphy, 2002), decreased quality of life of elderly and decreased social interaction (Austin et al., 2007).

The prevalence of fear of falling is in line with age (Scheffer et al., 2008). Aging will lead to physiological changes in the body's systems, such as the musculoskeletal, cardiovascular, respiratory, nervous, sensory and other organ functions (Narinder & Verma, 2007). Because of physiological changes during the aging process, the elderly will have difficulty maintaining balance while performing activities. This situation can produce fear of falling during a functional activity.

Several studies of fear of falling have identified the prevalence of more women (Susan et al., 2002). In one study conducted on 1000 women over three years, more than one-third of the samples reported fear of falling and increased 45% after three years (Lach, 2005). The fear of falling is also influenced by the ability to maintain balance while walking (Jacobs & Fox, 2008). People with impaired balance have lost confidence to rest with the feet, especially when walking (Fletcher & Hirdes, 2004; Kumaret al., 2008)) so that it will increase the fear of falling.

Psychological conditions, especially depression, also become one of the risk factors in fear of falling. Depression has a strong relationship with the fear of falling and can cause the limitations of physical and social activity (Jung, 2008). When the ability to do activity is decreased, elderly people will feel not confident and increase further fear of falling. Depression can also make people less secure about their physical abilities, thus causing fear of falling (Legters, 2002).

Several studies have shown a positive relationship between fear of falling and a previous fall history. A person who often experiences a fall will increase the incidence of fear of falling (Jung, 2008). Elderly people who have fallen are also more difficult to maintain balance as they perform their functional activities for fear of falling (Kumaret al., 2008). Elderly people who feel fear of falling will protect themselves by using walking aids to reduce the fear (Victorian Quality Council, 2004). However, the elderly dependency on walking aids will also increase the fear of falling.

Several factors have a positive relationship with fear of falling; therefore, through this study, we want to identify the strongest risk factors that have been mentioned. So, it will be very helpful in determining the intervention, especially sports activities appropriate for the elderly who can support the maintenance of independence, function, health, and safety for them so it can be used as a preventive effort to reduce the incidence rate of fall in the elderly (Greenberg, 2011).

MATERIALS AND METHODS

This study was carried out at private and government nursing homes, St Yosef nursing home, Surya nursing home, Usia nursing home, Griya Wredha nursing home, Anugerah Surabaya nursing home, and Yayasan Cinta Kasih Ibu Teresa, between 1 March and 29 May 2016. The study protocol was approved by the ethical committee on health research, Faculty of Medicine, Airlangga University, Indonesia. Informed consent was obtained from all of the respondents.

This study was conducted at 155 elderly determined by a proportional random sampling technique. Independent variables in this study are age, gender, previous fall history, use of a walker, depression status, and balance ability, while the dependent variable is fear of falling. The data were obtained by using questionnaire. The questionnaire containing questions about age, gender, previous fall history and use of a walker. To fill in the age data, the respondents fills his / her age in the questionnaire in year, gender, for the data of previous fall history, respondents select "yes" or "no" items in the questionnaire, and for the data of the use of the walker, respondents select item "yes" or "no" in the questionnaire.

To obtain the fear of falling data, we used the Questionnaire Modified Fall Efficacy Scale Indonesia Version with content validity item in the range of 0.857 - 1 (valid value> 0.78), while the Sum-Content Validity Index obtained the result 0.93 (valid value> 0. 9) with Cronbach's alpha value 0.948), and to obtain depression data we used the Indonesian version of the geriatrics depression scale (GDS) questionnaire with Cronbach's alpha value of 0.88 (Himawan, Rinawaty, & Wirawan, 2014), in addition, we used the Time Up and Go Test (TUGT) with inter-rater of 0.94 and intra rater of 0.95 to obtained balance walking data (Asnandra, 2009).

The data were recapitulated, entered into the SPSS program and analyzed. Spearman test was used to identify correlation for age, depression, and fear of falling and the other data used Contingency Coefficient to identify the correlation between gender, previous falls history, use of a walker, balance ability with fear of falling. To identify the risk factor, binomial logistic regression was used.

RESULTS

Characteristics of respondents in this research are average 76 years with a percentage equal to 70.3% and female. Of the 155 respondents it was found 58.1% had experienced a fall. As many as 65.2% are not depressed. Respondents in this study, as many as 65.8%, had a risk of falling and 74.2% of them did not use a walker. A total of 49.7% of respondents have high concerns about falling (Table 1).

Table 1. Demographics (n: 155)

Variable	Sub Group	Mean±SD/n(%)
Age		76.3±8.02
Gender	Male	46 (29.7%)
	Female	109 (70.3%)
Previous fall history	Yes	90 (58.1%)
	No	65 (41.9%)
Use of a walker	Yes	40 (25.8%)
	No	115 (74.2%)
Balance walking		22.3±14.6
	Risk of Falls	102 (65.8%)
	No risk of Falls	53 (34.2%)
Depression		8.5±5.1
	Normal	101 (65.2%)
	Mild Depression	50 (32.3%)
	Moderate Depression	4 (2.6%)

Table 2. Correlation Analysis

Variable	Fear of Falling	
	rs	C
Age	0.228**	
Gender		0.200*
Previous fall history		0.374***
Use of a walker		0.367***
Balance walking		0.355***
Depression	0.196*	

*p< .05;**p< .01;***p< .001

Table 3. Binomial Logistic Regression Test Analysis

	B	Sig.	Exp(B)	95% C.I.for EXP(B)		Cox & Snell R Square
				Lower	Upper	
Previous fall history	1.424	0.000	4.153	1.913	9.016	
Use of a walker	1.365	0.006	3.914	1.474	10.395	
Balance walking	1.425	0.001	4.159	1.820	9.501	
Constants	-2.116	0.000				
						0.276

Table 4. Chance of Fear of Falling

Risk of Falls	Use of a walker	Previous fall history	% Chance of Fear of Falling
No	No	No	10.76%
No	Yes	No	32.06%
No	No	Yes	33.36%
Yes	No	No	33.39%
No	Yes	Yes	66.23%
Yes	No	Yes	67.57%
Yes	Yes	No	66.23%
Yes	Yes	Yes	89.07%

Spearman test was used to identify correlation for age, depression, and fear of falling and the other data used Contingency Coefficient to identify the correlation between gender, previous fall history, use of a walker, and balance ability with fear of falling. The correlation analysis in this study showed that there was a moderate correlation between the previous fall history and the fear of falling (C = 0.374; p = 0.000), the use of walking aids with fear of falling (C = 0.367, p = 0.000) and the balance walking with fear of falling (C = 0.355; p = 0.000) (Table 2)

Multivariate analysis in this study used a binomial logistic regression test. We used this test because the correlation test of risk factors fear of falling to fear of falling is not strongly related and we assume the possibility of any relationship between each risk factor. The previous fall history, the use of walkers and the current balance is the strongest risk factor for fear of falling (Cox & Snell R Square = 0.276). Respondents experiencing one of these three risk factors risk an average of four times more with high fears of falling (Exp (B) = 3,914-4,159) (Table 3). Respondents who do not have a risk of falling, do not use walking aids and do not have a previous fall history still have a chance of fear of falling by 10.76%. Respondents who are at risk of falling, using walking aids and having a previous fall history have a high probability of falling 89.07%. To identify the chance of power independent variable to the dependent variable, the researcher using the formula $P: 1/1+e^{-y}$. (Y= -2,116+1,425 balance ability+1, and use of a walker +1, previous fall

history. The formula used by researchers has a precision of 74.8%.

Equation:

$$\mathbf{H}' = - \sum_{i=1}^{g} (P_i)(\log_2 P_i)$$ ....
.... (1)

Remarks: ....

DISCUSSION

This study showed 58.1% of respondents had a history of previous falls. The result of the correlation analysis p = 0.000 r = 0.374 indicating that the previous fall history has a moderate strength relationship with fear of falling. The logistic regression analysis test showed the result of significance p = 0.000 with the positive direction indicated by the value of B = 1.423. This is by the theory that a person who often experiences a fall will increase the incidence of fear of falling (Jung, 2008). When viewed from the chances of respondents who have a history of falling and experiencing high fears they will fall, this obtained data of 33.3% and 76.62% of respondents who have a history of falls have high worries they will fall. Other studies with elderly respondents also reported that there was a significant correlation between previous fall history and fear of falling (Lopes, Costa, Santos, Castro, & Bastone, 2009). The fear of falling can be described depending on the experience of the previous fall and the increased fear of falling with the fall type (Arken et al., 1994). Fall events that cause serious injury further increase the fear of falling (Salkeld et al., 2000). Elderly people who have experienced a previous fall not only impact on their physical condition, but have an impact on the psychological conditions in which they will feel traumatized by such unpleasant events and afraid to fall again when they do the activity. This condition will have an impact on the decline in social activity and confidence.

This study has the result explain that although respondents who never fall but they have risk of falls and using a walking aid, they have a chance 66.23% fear of falling (Table 4). This is in line with previous research by Lopes et al. (2009) where the incidence of fear of falls occurred by 12% -65% in the elderly who live in the community, aged over 60 years and have no previous fall history. The results obtained in this study indicate that most respondents who have a fear of falling do not have a previous fall history (Lopes et al., 2009). This condition can occur because the fear of falling is a multifactor event, so that not only the previous fall history can cause fear of falling. Elderly people who do not have a previous fall history may experience fear of falling. This fear can be a safeguard to be more careful to avoid the risk of falling, but also can be a risk when it results in limitations and lack of confidence when doing activities.

The previous fall history is one of the biological factors of fear of falling. To determine the appropriate intervention in this risk factor, it is necessary to examine the type of activity, the time of the fall, the frequency of fall, the injury suffered and the symptoms at the time of fall. If the elderly have a history of falling due to unsafe environmental causes for the elderly to walk, then appropriate intervention is to change the environment to be safe for the elderly, for example: to give a handle in every aisle used by the elderly to walk so that the elderly remain confident not to fall. Interventions that can be done in the elderly with a history of previous fall include trying to stay active, always positive thinking, take care of yourself and do relaxation exercises (Shaw, 2010).

For these three things, balance is one of the key moves (Allison, 2001). Balance, strength, and flexibility are needed to maintain good posture. These three elements are the basis for realizing a good road pattern for each individual. Important mechanisms for each individual to have a good balance involve the peripheral nervous system, proprioceptive (sense of joint position), vestibular and cerebral and visual (vision) (Skelton, 2017), otherwise known as postural control, which is the ability to maintain balance and orientation in the gravitational environment. According to Lopes et al. (2009), postural control consists of three components, peripheral sensory system, central system, and effector system, and the elderly will experience a decrease in function, as well as peripheral nerves. Central processing runs slowly as well as in the interpretation and sensory information of the system and recruitment of motor planning, and careful environmental responses. Peripheral nerves, skeletal muscle mass and muscle strength decrease in function causing postural control to be slower and weaker. This decrease in function will disturb the balance, which will ultimately lead to a greater risk of falling (Jette, 2012).

In this study data obtained 65.8% of respondents have the risk of falling. The result of the correlation analysis is p = 0.000 r = 0.355, which shows that the current balance has a medium relationship with the strength of the relationship. The logistic regression analysis test showed the result of significance p = 0.001 with the positive direction indicated by the value of B = 1.425. Research conducted by Boyd and Stevens (2009) shows a relationship between decreasing balance and fear of falling. Posture control, voluntary movement stability, and reaction maintain balance when being subjected to outside interference is the basis for maintaining balance. Postural control involves the integration of sensory, nervous, and musculoskeletal systems, so the center of mass remains at bases of support and center of gravity moves along with a change in the base of support so that balance can be formed (Miyamoto, Lombardi, Berg, Ramos, & Natour, 2004).

Another study reported that 78.91% of respondents experienced partial independence during transfer, 50.34% indicated a fear of falling through the tandem gait test (correlation r = 0.457)

and 31.39% decreased equilibrium (correlation r = 0.44248) (Lopes et al., 2009). This is in line with this study that there is a relationship between the current balance and the fear of falling. Fear of fall is the result of the recruitment of agonist and antagonist muscle work while maintaining poor posture, abnormal road patterns, poor balance strategy, depending on assistive devices that ensure stability and increased risk of falls in the elderly. When a person is feeling unbalanced when doing activities, especially walking, this will directly make the individual afraid to perform activities because of changes in the balance that can consciously cause a fall when forced to move. Likewise, in the elderly, physical changes are closely related to the balance in walking. The chance of respondents experiencing high concerns they will fall in respondents who have a risk of a fall is 33.39%. Medical conditions associated with a disturbance of equilibrium greatly affect the increased fear of falling because people with impaired balance have lost the confidence to rest with the foot, especially when walking (Kumar, Venu Vendhan, Awasthi, Scholar, & Tiwari, 2008). Therefore, it is necessary to identify the main factors causing the imbalance so that appropriate interventions can be given to improve the balance of the elderly.

To determine the appropriate intervention of this risk factor, an examination consisting of a path pattern examination, balance and joint function on the lower extremities is required. One of the interventions that can improve balance is tai chi gymnastics. This is shown in a study conducted by Scheffer, Schuurmans, van Dijk, van der Hooft, and de Rooij (2007) which found that there is an increase in balance during activity. Tai chi is a sport that contains slow, rhythmic movements, many involving trunk movements, weight transfer, coordination, and pedestrian refinement. This gymnastic activity is performed for 60-90 minutes for two sessions per week.

This study shows 25.8% of respondents using road aids. The result of the correlation analysis p = 0.000 r = 0.367 indicates that the use of the walker has a relation with the medium strength of the relationship. The logistic regression analysis test showed the result of significance p = 0.006 with the positive direction indicated by value B = 1.365. Opportunities of respondents using of road aids experienced high concerns about falling (32.06%). The elderly use walking aids for various reasons, namely as a therapeutic tool to train post-injury walking skills, the elderly with neurological disorders, and to further reduce the fear of falling (World Health Organization, 2007). The use of a walker has a protective effect on falls in the elderly as it helps elderly people with mobility limitations when engaging in activities with disturbances from the environment (Rayel, Land, & Gutheil, 1999). Elderly using a walker already have concerns about falling if they do activities. This is in line with the

theory so they compensate by using a walker to reduce the fear of falling.

This is in line with research conducted by Multani andc Verma (2007) in 43 elderly people (≥ 60 years) where 22 people (51%) used a walker at least one year. The reason for the respondents using the walker was because they were afraid of falling as much as 54.5%, while the other reason was finding security (27.3%), and habituation following surgery/injury (18.2%).

This study also obtained the data of respondents who do not use a walker, but have a high concern they will fall, as many as 45 people (58.44%). Elderly do not use walkers because they feel embarrassed / considered disabled, elderly and feel by using a walker it will restrict its activity because the use of a walker can affect the pattern of the road by inhibiting swing pattern, affect posture, reduce road speed, step length and swing time, and stance time (World Health Organization, 2007). It will cause more fear of falling. Besides, the elderly judge that the environment around them does not support them to use the walker. Another thing that causes those who do not use the walker, but still experience high worries they will fall, with 32 respondents have a history of falling before, 32 people have a risk of falling, and 22 people have a history of previous fall and have the risk of falling.

Some elderly people have difficulty when using a walker. Therefore, the should be trained in advance in the use of a walker, especially in the elderly, on how to use the right aids so that the elderly are confident in using the tool so that the fear of falling can be reduced (Bradley & Hernandez, 2011).

This study reported that the probability of experiencing heightened fear of fall over those who do not have a risk of falling / balancing when walking well, not having a previous fall history and not using a walker is 10.76%. This concern can be a protective order to be more careful to avoid the risk of falling during the move.

Opportunities experiencing heightened concerns they will fall over those who have had a previous fall history and use the walker is 66.23%. One study reported that, from 199 respondents, 56 respondents (28.4%) often experienced a fall in the last 12 years, eight respondents (4.1%) had experienced a fall of one time to cause injury and 32 respondents (16.2%) never experienced a previous fall without causing injury. Respondents who had experienced the fall using a walker and experienced fear of falling (Roman de Mettelinge & Cambier, 2015). The elderly who have experienced a fall have low confidence when doing activities for fear of falling owned. To increase confidence to feel a sense of security while doing activities and avoid the risk of falling back, some elderly use a walker because it helps to maintain balance while on the move.

People who have a risk of falling / balancing on a bad run and using a walker have a chance of high worries will fall by 67.57%. The use of a walker indicates the occurrence of a balance disorder or

may cause one to lose balance due to an increase in attention requirement (Public Health Agency of Canada, 2005), and it can cause fear of falling.

People who have a risk of falling/balancing on a bad run and having a previous history of falling have a chance of high worries they will fall by 66.23%. Ability to maintain balance while on the move/walking is done by several systems in the body. When considering elderly experiencing a decline in anatomical and physiological functions, the ability will be reduced, resulting in the elderly often experiencing a fall during the move. Therefore, the elderly who have often experienced a fall because of balance going bad will experience the fear of falling to a higher extent.

According to this study, if people have a risk of falling / balancing when walking is bad, having a history of previous falls and using a walker, they will have a chance of experiencing high worries they will fall by 89.07% (Table 4). This is because of the three things are the most dominant factors in the fear of falling. The elderly having a poor balance will feel insecure when using foot as a pedestal. This causes an increased risk of falling in the elderly. The elderly who had fallen had a sense of trauma and confidence reduction during the move, so used a walker. The use of a walker will also cause the elderly to have unusual road patterns, reduce swing while walking, affect posture, reduce road speed, length of step and stance time, and then will increase worries of fall.

CONCLUSION

The strong predictor of the fear of falling in the elderly was the use of walkers, balance and previous fall history. Therefore, based on this study people who have responsibility in the nursing home have to provide regularly activities such as gymnastics which can improve the balance of the elderly, also provide consultation for the elderly to be able to increase self-confidence, especially for those who have a history of previous falls, and modify the environment to add handrails in the area used by the elderly to reduce fears of falling.

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Original Research

The Effects of Acceptance and Commitment Therapy (ACT) on Depression in TB-HIV Co-infection Patients

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ABSTRACT

Introduction: The most common psychological problem in TB-HIV coinfection patients is depression. Acceptance and Commitment Therapy (ACT) is an intervention that encourages participants to change their relationships with their thoughts and physical sensations through mechanisms of acceptance and value-based action. This present study has been carried out to investigate the effectiveness of ACT in treating TB-HIV coinfection patients.

Methods: This research was a quasi-experiment. This study involved 62 respondents diagnosed TB-HIV coinfection by doctor, experienced mild depression to severe depression, able to communicate well and have not hearing loss. ACT was given by a researcher with six sessions) one session per day) held in the intervention group. Data were collected using Beck Depression Inventory (BDI) questionnaires. Data analysis use paired t-test to determine the differences in value of depression on pre-test and post-test in each group. Data were analyzed using the independent t-test to determine the effect of ACT on depression.

Results: The majority of respondents were male (66.1%). Most of the early adult and older adult respondents had moderate depression, while middle-aged adult mostly had severe depression (50%). The fully unemployed respondents had severe depression (100%). The analysis results showed that there was a more significant decrease in depression in the intervention group given ACT compared to the control group (p value =0.00).

Conclusion: ACT has an effect on reduce depression of TB-HIV coinfection patients. ACT is recommended to be developed as a nursing intervention that can be given to patients who are depressed.

INTRODUCTION

HIV/AIDS is one of the most devastating illness that people have ever faced (Bhatia & Munjal, 2014). HIV/AIDS is still a global health problem (Tran et al., 2019). Prevalence of people with HIV/AIDS in the world until end 2018 was recorded as many as 37.9 million people (UNAIDS, 2019). HIV/AIDS will cause the immune system to weaken so that the CD4 count will decrease. As a result, HIV/AIDS patients become more susceptible to various diseases, especially infectious diseases (opportunistic infections). Opportunistic infections that most often occur in people living with HIV/AIDS is tuberculosis (TB). TB remains the leading cause of death among people living with HIV, accounting for around one in three AIDS related deaths. The TB virus will actively develop when the immune system damage gets heavier when the condition of patients with HIV/AIDS have a CD4 count below 200 (Maartens et al., 2014).

In the individual host, the two pathogens, Mycobacterium tuberculosis and HIV, potentiate each other, accelerating the deterioration of immunological functions. Both TB and HIV are heavily stigmatized diseases, and diagnoses may lead to poor psychological health outcomes (Bruchfeld et al., 2015).

Depression is the most common psychological disorder with TB-HIV (Larson et al., 2017). Depression characterized by persistent sadness and a loss of interest in activities that people normally enjoy, accompanied by an inability to carry out daily activities, poor concentration, pessimistic thoughts and biological symptoms (poor appetite and sleep difficulties) (Kim et al., 2015; Tran et al., 2019). The incidence of depression in TB-HIV patients is 28% (Deribew et al., 2013). Despite its prevalence, depression is commonly underdiagnosed and consequently untreated in general medical population (Bhatia & Munjal, 2014).

Depression causes patients to be less likely to adhere to the consultation schedule, poor HIV treatment outcomes, not adhere to therapeutic doses, drug, and alcohol abuse (Gebrezgiabher et al., 2019; Todd et al., 2017; Uthman et al., 2014). This will cause the patient's immune status to decrease. The final impact, the mortality rate will increase (Larson et al., 2017).

Interventions to deal with depression have been carried out, namely Cognitive Behavior Therapy (CBT) (Mohamadian et al., 2018), Internet-based intervention (Karyotaki, 2018), Logo Therapy (Mohammadi et al., 2014), Psychotherapy and Exercise study (Lofgren et al., 2018). Acceptance and Commitment Ther apy (ACT) is one of the interventions for reduce depression that has been developed by Zettle & Hayes in 1986. ACT helps someone to reduce the problems experienced by increasing the patients awareness and abilities of what they want in their life and aims to improve functioning and quality of life by increasing psychological flexibility (Bramwell & Richardson, 2018).

ACT is as effective as other established psychological interventions in treating depression (A-Tjak et al., 2015). In ACT, depression is conceptualized as a secondary emotion that arises from struggling to avoid normal and adaptive emotional reactions to distressing life events, for example, loss (Far, Gharraee, Birashk, & Habibi, 2017). The core difference between ACT and other interventions is the central proposition that diagnostically distinct clinical disorders may be established and maintained through common processes that are rooted in the capacity for language. These common processes include psychologically deleterious experiential avoidance (Bai, Luo, Zhang, Wu, & Chi,, 2020), which has been defined as an unwillingness to experience feelings, physiological sensations, and thoughts, especially those that are negatively evaluated, as well as attempts to alter the form or frequency of these events and the contexts that occasion them (Twohig, 2012).

A recent meta-analysis concluded that ACT was effective to reduce depression in personality disorder patient, mental disorder patient, cancer patient, male smokers, and university students. In this study, ACT was given between four weeks until 16 weeks. The session was given once or twice per week (Bai et al., 2020). There have been several studies of ACT to reduce depression, especially in mental disorder outpatients. However, study about ACT on TB-HIV patients has never been done before. Therefore, in the present study, the aim is to investigate the effectiveness of Acceptance and Commitment Therapy (ACT) in treating depression in TB-HIV coinfection inpatients.

MATERIALS AND METHODS

This study was a quasi-experimental method with a pre-test and post-test design with comparison group design, which was conducted from December 2018 until February 2019. Before data collection, this study obtained ethics approval from Aisyiyah University, Yogyakarta (No. 727/KEP-UNISA/XII/2018).

The population in this study was TB-HIV coinfection patients who were hospitalized in Yogyakarta Regional Public Hospital and Sleman Regional Public Hospital. The sample was selected through the consecutive sampling method and divided into two groups, the experimental group and the control group. The inclusion criteria were patients who have been diagnosed TB-HIV coinfection by doctor, experienced mild depression to severe depression, and able to communicate well. The exclusion criterion was patients who have hearing loss.

The number of people in each group was 31 people. The experimental group members participated in six sessions (one session per day). Each session was given in 60 minutes. They were also given ACT module. No intervention was done in the control group by the researcher. However, the control group still received usual care from hospital. After data collection was done, the control group was also explained about ACT and given the ACT module. It was expected that this study has applied the principle of justice.

 The ACT sessions are 1) Acceptance (willingness to open fully to unwanted experiences such as difficult thoughts, memories, or emotions); 2) Cognitive defusion (being able to step back from unwanted experiences without getting stuck in them); 3) Present moment (being mindful and aware of one's experiences); 4) Self as a context (maintaining perspective about oneself within one's experiences); 5) Valuing (staying connected to personal values or areas of life that are important) and 6) Commitment (engaging in actions that move toward important aspects of life).

Data were collected using Beck Depression Inventory (BDI) Indonesia Version questionnaires that consist of cognitive, affective and somatic

Table 1. Distribution of Both Groups regarding Their Sociodemographic Characteristics

Characteristics	Intervention (n=31) n (%)	Control (n=31) n (%)	Total (n=62) n(%)	p
Gender				0.125
Male	19 (61.3%)	22 (71%)	41(66.1%)	
Female	12 (38.7%)	9 (29%)	21(33.9%)	
Age				0.425
Early Adult (18-40 years)	20 (64.5%)	18 (58.1%)	38(61,2%)	
Middle Adult (41-60 years)	7 (22.6%)	11 (35.5%)	18(29.1%)	
Late Adult (>60 years)	4 (12.9%)	2 (6.5%)	6(9.67%)	
Marital Status				0.932
Single	13 (41.9%)	16 (51.6%)	29(46.7%)	
Widow/widower	8 (25.8%)	7 (22.6%)	15(24.2%)	
Married	10 (32.3%)	8 (25.8%)	18(29.1%)	
Education				0.353
Elementary School	5 (16.1%)	3 (9.7%)	8(13%)	
Junior High School	5 (16.1%)	5 (16.1%)	10(16.1%)	
Senior High School	14 (45.2%)	15 (48.4%)	29(46.7%)	
College	7 (22.6%)	8 (25.8%)	15(24.2%)	
Last Job				0.893
Not yet working	2 (6.5%)	1 (3.2%)	3(4.8%)	
Housewife	5 (16.1%)	6 (19.4%)	11(17.7%)	
Laborer	8 (25.8%)	8 (25.8%)	16(25.8%)	
Entrepreneur	7 (22.6%)	7 (32.6%)	14(22.7%)	
PNS/TNI/POLRI	2 (6.5%)	0 (0%)	2(3.2%)	
Private	7 (22.6%)	9 (29.0%)	16(25.8%)	
Complications of the disease				0.233
Yes	8 (25.8%)	6 (19.4%)	14(22.7%)	
No	23 (74.2%)	25 (80.6%)	48(77.3%)	

Table 2. Difference in BDI Scores on Pre-test and Post-test of Experimental Group and Control Group

Variable	Group		Mean	SD	P Value
Depression	Experimental group	Pre-test	20,38	6,34	0,000
		Post-test	12,29		
	Control group	Pre-test	21,38	1,50	0,293
		Post-test	21,67		

Table 3. Distribution of Experimental and Control Group Regarding Indicator of BDI in Post-test

Variable	Experimental Group		Control Group		P value
	Mean	SD	Mean	SD	
Depression	12.29	4.93	21.67	4.52	0.000

depression symptoms with content validity item in the range of 0.51 and Cronbach's alpha value 0.90. The data were recapitulated, entered into SPSS program and analyzed. One Way ANOVA test was used to identify homogeneity of respondents' characteristics. Data analysis using paired t-test was used to determine the differences value of depression on pre-test and post-test in each group. Data analysis using independent t-test was used to determine the effect of ACT on depression in both groups.

RESULTS

Characteristics of respondents in this research are majority was male (66.1%) in both the experimental group and the control group. The majority of respondents were early adult, both in the experimental group (64.5%) and the control group (58.1%). Based on the marital status, the majority of respondents had single status (46.7%). Based on

education, majority respondents had a senior high school education. Based on the presence of disease complications, more than half of the control group (80.6%) and experimental group (74.2%) had no complications of the disease. All of the respondents' characteristics have p value > 0.05, which means that both groups are homogeneous (Table 1).

Table 2 shows the results of the analysis of BDI scores on pre-test and post-test which found a significant reduction in depression symptoms in the experimental group that was equal to 8.09 (p=0.00). A greater reduction was found in the experimental group where the BDI scores mean before the ACT intervention was at 20.38 (moderate depression) and after the intervention, the BDI scores mean decreased to 12.29 (mild depression).

The control group had a BDI score mean of 21.38 (moderate depression) on pre-test and the average actually increased to 21.67 (moderate depression) on post-test. The average value actually increased by 0.29 with p value = 0.329 (> 0.05). Based on these

data, it can be concluded that there was a significant change in the condition of depression pre-test and post-test only in the experimental group.

The effect of Acceptance and Commitment Therapy (ACT) for reducing depression can be seen from the mean post-test scores in the intervention group and the control group (Table 3). Table 2 shows the difference in BDI scores in the control and experimental group after getting ACT. It can be said that there is a significant difference in the experimental and control groups among depression (p = 0.000). Given the size of this effect, the rate is significant. Therefore, it can be said that Acceptance and Commitment Therapy (ACT) significantly reduces depression in TB-HIV coinfection patients.

DISCUSSION

In the current study, the effectiveness of Acceptance and Commitment Therapy to reduce depression was investigated and the finding was positive. This result is consistent with the findings of previous studies. Heydari, Masafi, Jafari, Saadat, and Shahyad. (2018) showed that Acceptance Commitment Therapy for Razi Psychiatric Center staff had a positive effect on decreasing anxiety and depression (Heydari et al., 2018). Other study found that ACT was positive for relieving depression for patients with mild depression and depressed adults; depressive symptoms reduced significantly immediately after the intervention as well as at the three months of follow up (Bai et al., 2020).

In acceptance and commitment therapy, depression conceptualization is emotions related to past events, such as death or losing something, which prevents normal reactions and adaptation to stressful life events. In the above approach, the content of a depressed person's negative thoughts is not considered. The ACT intervention led to statistically significant reduction in depressive symptomatology. Moreover, mediational analysis showed that the improvement of acceptance during the intervention mediated the effects of the intervention on depressive symptomatology at follow-up (Bohlmeijer, Fledderus, Rokx, & Pieterse, 2011).

The decrease in BDI scores in the experimental group could be caused by ACT. This could occur because, through ACT, respondents were asked to make commitments. The commitment states what is important to the individual and when making a commitment the respondent will underline the choices made, thereby committing to influence the emotional response and coping of individual to react to the presence of stressors (Hayes & Waltz, 2010). This is in accordance with the results of the research obtained where, after receiving ACT treatment, the mean of BDI scores decreased up to 11.08. Majority respondents were in moderate level of depression on pre-test, while on post-test, majority respondents were in mild level of depression.

The mean of BDI score in the control group actually increased before and after treatment, from 21.38 to 21.67. According to observations, the level of depression increase that occurred in the control group respondents could be due to the length of stay. In the control group respondents, the majority underwent hospitalization for 8-10 days. This is consistent with previous research which states that depression can occur because of the length of stay of hospitalization. When patients undergo lengthy hospitalization, they experience conditions that result in a person's inability to relate interpersonally. Depression can be felt if individuals have a sensitivity to the environment. The existence of conditions such as separation from the closest person or loss of something can cause a person to experience depression (Nasronudin, 2012).

Evaluation of the level of depression after giving ACT was done by giving a questionnaire to the respondents and observations made directly by the researcher. According to observations, when ACT was first performed, the majority of respondents avoided telling stories or meeting face-to-face with researchers. The avoidance of being able to be open in conveying the burden and the problem experienced (experiential avoidance) can be caused by cognitive defusion in that the environment will be judged poorly if it conveys its burden too far. This is an indicator of the absence of psychological flexibility (the ability to think with several different concepts) in respondents. Without realizing it, avoiding behavior chosen as a strategy used, but is not effective for the long term. This is reflected in the reaction of respondents who are increasingly depressed because they feel alone in dealing with their illness (Bai et al., 2020).

In the third session 'present moment', the psychological knowledge of subjects was added. This means that the individuals were aware of all mental states, thoughts, and behavior in the present moment. Fourth session, 'self as a context', involved efforts to reduce the excessive focus on visualization or personal story (as victims) that the individuals had made for themselves. Fifth, 'valuing', was about helping the individuals to understand their basic personal values and identify them to convert to specific behavioral goals (to clarify the values). Finally, the last session 'commitment', involved motivating them to act responsibly toward the goals and values of the activities identified with the adoption of mental experiences. (Farb et al., 2018; Montgomery, Kim, & Franklin,, 2011).

Because of these conditions, the ACT is important. ACT made it clear to respondents that it was important to provide space for themselves to accept unpleasant feelings and experiences so that they did not need to be avoided, and appreciation of other people's judgments that were not necessarily attached to them. ACT also made the respondents aware of the important things and expectations in life, and that it can change the perspective of the respondent in seeing the situation, and reduce the attachment to negative thoughts and feelings (Rauwenhoff, Peeters, Bol, & Van HeugtenVan, 2019).

This was proven in that, after the second meeting to the end, respondents felt happy and more open.

With the growing willingness to face and undergo the consequences obtained through ACT, there is a change in the cognition process where appraisal of situations that cause depression is no longer seen as something negative. When the meaning changes, which initially becomes negative neutral, the appraisal will change and the level of depression will also decrease. ACT also directs to improve their perspective to be more positive in dealing with problems through coping changes based on the emotions felt. The aim of ACT is to change the functions and context of behavior and thoughts; symptom reduction is not a treatment outcome (Hayes & Waltz, 2010).

Through ACT, the respondents were not only invited to accept, but were also facilitated to be able to set steps to overcome their problems along with the acceptance of the consequences. With the establishment of these measures, perceived resources can more reach demands as TB-HIV coinfected patients. Thus, this can reduce the level of depression experienced (Syndrome, Maghsoudi, Razavi, Razavi, & Javadi, 2019).

This study has some limitations. First, these findings are based on self - reporting of people. Second, this study did not have follow–up period. Third, the lack of large sample size of the population and only at two hospitals could be mentioned as other potential limitation. Finally, further studies with larger sample sizes in multi-centers are suggested to clarify the results of this study. Follow-up post-test in longer period is needed, for example within one month after intervention. This is intended to know whether ACT has an effect on reducing depression in the long term. Investigating the effects of ACT on other patient outcomes such as quality of life, coping, adherence to treatment is recommended as is analyzing the patterns of all aspects of ACT on depression. It can be concluded that Acceptance and Commitment Therapy could reduce depression.

CONCLUSION

There was a significant difference between the value of depression in the experimental group after being given Acceptance and Commitment Therapy compared to the control group. This means that ACT has the effect of reducing depression in TB-HIV coinfection patients. ACT is recommended to be developed as a nursing intervention that can be given to patients who are depressed. Nurses can now directly use ACT to intervene according to the actual situation, so as to improve service efficiency and effects.

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Original Research

The Effect of Nursing Intervention-based Levine Conceptual Model Program on Rehabilitation Process among Fracture Patients

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ABSTRACT

Introduction: The nursing intervention program is a strategy for the rehabilitation process among fracture patients The Levine conceptual model program *is* a practical nursing theory using energy conservation, energy, structural integrity, personal integrity, and social integrity. The study aims to identify the effect of nursing intervention based on Levine's theory of the rehabilitation process among fracture patients.

Methods: A quasi-experimental with equivalent control group design was applied in this study. Sixty-two respondents were selected into the experimental group (n=31) and control group (n=31) by using a consecutive sampling technique. The patients' rehabilitation on fracture included sleep disorder, pain, anxiety, and family support as dependent variables. Researchers used the Sleep Quality Scale (SQS) instrument, the Numeric Rating Scale, the Hamilton Anxiety Rating Scale, and the family support scale. Data were analyzed using a Wilcoxon Signed Rank Test.

Results: The results showed a significant effect of patients' recovery on fracture among patients after receiving Levine-based nursing intervention than before receiving the intervention (p <0.05). The results of research on the nursing intervention program are based on Levine's conceptual model of sleep disorders, pain, anxiety, and family support (p <0.05). In conclusion, there was significantly different nursing intervention based on Levine in energy conservation, energy, structural integrity, personal integrity, and social integrity.

Conclusion: The nursing intervention program based on Levine's conceptual model could be part of independent nursing intervention to deal with recovery in fracture patients. Based on this description, the researcher is interested in examining the effect of nursing intervention based on Levine's conceptual model program on rehabilitation process among fracture patients.

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INTRODUCTION

Fracture condition is caused by pressure that exceeds the ability of the bone to withstand excessive stress on the bone. It could cause massive trauma and difficulty to perform activities (Einhorn & Gerstenfeld, 2015). Fractures cause malfunctioning parts of the body that can result in permanent disability and even cause death after the trauma experienced. It can cause significant changes in a person's life, with the result of loss of independence. Thereby, immediate treatment for fracture recovery is required (Buza & Einhorn, 2016). Fracture recovery is a stage of the fracture healing process that starts from the beginning of the trauma until the fracture process, enabling the body to recover from the trauma experienced. Fracture recovery from injury due to trauma requires a different recovery time, from a few weeks to months, depending on the type of trauma, location, and severity of the fracture (Bhandari et al., 2008).

Data from the World Health Organization (WHO) in 2011 revealed fracture incidence of approximately 5.6 million people who died due to accidents, and 1.3 million people experienced permanent physical disabilities. In addition, Basic Health Research in the Republic of Indonesia (2018) also showed that fractures had significant impacts on lower limbs

(67.9%), upper limbs (32.7%), head (11.9%), back (6.5%), chest (2.6%), and abdomen (2.2%).

The prevalence of fractures in North Sumatera was 864 people, which included lower limb fractures as many as 549 people (63.5%), upper limb fractures were 250 people (28.9%), pelvic fractures were 39 people (4.5%), and spinal fractures as many as 26 people (3.1%) (Moesbar, 2013). A pilot survey conducted at H. Adam Malik hospital, Medan in 2018, showed that of 196 people, lower limb fractures accounted for 94, upper limb fractures 45, shoulder and upper arm fractures31, and foot fractures 26.

Fractures patients often experience physical and psychological changes. The physical changes included sleeping disorder, pain, anxiety, and low family support (Potter, Perry, Stockert, & Hall, 2016), all of which could hinder the recovery process of fracture healing. Factors associated with fracture recovery include age, length of hospitalization, and other complications (Crowley, 2011). In maintaining the ability of fracture patients to resist obstacles, make appropriate adaptations, and deal with disabilities, a conceptual conservation model is required in this study. Fracture patients often have complex problems, such as sleep disorders, pain, anxiety, and low family support. Therefore, fracture patients have limited activities and are still dependent on other people around them (Paech, 2007).

The concept of the Levine model is a nursing intervention program that has various conservation principles. Levine's conceptual model has never been studied in fracture patients, so the researcher is interested to look at this phenomenon. Thus, it could impact on functional of life among individuals even when faced with difficult challenges. Levine's conceptual model aims to maintain the needs of individuals using the principle of energy conservation, conservation of structural integrity, conservation of personal integrity, and conservation of social integrity (Abumaria et al., 2015).

The conceptual model of the nursing intervention program is in accordance with operational standards of the procedure and the results of this study have a significant effect on the recovery of fracture patients. The complex problems previously stated can be overcome by carrying out nursing interventions based on Levine's conceptual model. The novelties in this study were the intervention of Levine's nursing intervention program among fracture patients and it aimed to identify the effect of nursing intervention based on the Levine concept on fracture recovery among fracture patients.

MATERIALS AND METHODS

A quasi-experimental study design was applied in this study to examine the effect of nursing intervention based on the Levine conceptual model program on the rehabilitation process among fracture patients. In the intervention group, the nursing intervention program was carried out based on the Levine conceptual model, while the control group was given hospital-based nursing interventions. Nursing interventions based on Levine's conceptual model consist of four programs: Benson relaxation techniques, deep breathing relaxation techniques, progressive muscle relaxation techniques, and providing health education.

The frequency of nursing interventions based on Levine's conceptual model was carried out for six days and a duration of 40 minutes for each of the nursing problems. In the intervention group, Levine's conceptual program action was taken from each nursing intervention and evaluated every day for six days, whereas the control group was not given a nursing intervention based on Levine's conceptual model but only given based on hospital standards.

The study was conducted in H. Adam Malik Hospital, Medan, between August 10th and October 29th, 2019. Sixty-two samples consisted of 31 samples were allocated in the experimental group and 31 samples for the control group. Allocation techniques in this study consisted of patients included in the inclusion criteria. We applied a nonprobability sampling with consecutive sampling to select the samples. This method is a strategy to choose all individuals found and who met with the inclusion criteria (Polit & Beck, 2015).

The criteria inclusion included: (a) all hospitalized fracture patients aged between 17 to 65 years old, (b) patients with upper and lower limb fractures, (c) cooperative in discussion process, (d) rehabilitation length between 1 to 3 months. The data were gathered using a Sleep Quality Scale (SQS) to measure sleeping disorders. Hamilton Anxiety Rating Scale (HARS) was used to measure anxiety level (Hamilton, 1959). Hamilton Anxiety Rating Scale (HARS) was one of the first rating scales developed to measure the severity of anxiety symptoms and is still widely used today in both clinical and research settings. Family Support Scale (FSS) was used to measure family support (Espe-Sherwindt, 2008).

Before data collection process ethical consideration was approved by the ethics committee, Faculty of Nursing, North Sumatera University with ethical clearance number 1874/VIII/SP/2019. Informed consent was signed by all respondents who were willing to participate in this study.

RESULTS

Three experts validated those questionnaires with the validation scores reported as: Sleep Quality Scale (SQS) 0.94, Hamilton Anxiety Rating Scale (HARS) 0.97 and Family Support Scale (FSS) 0.98. Test-retest was applied to measure the reliability of the questionnaire with Cronbach's alpha of Sleep Quality Scale (SQS) as 0.80, Hamilton Anxiety Rating Scale 0.86, and the Family support scale 0.81.

Description of Respondents' Characteristics

Table 1 shows that the highest distribution of respondents' characteristics based on age among the intervention group was 17-25 years old (29.0%).

Table 1. The Distribution of Frequency and Percentage of Characteristic Demographic Data among the Intervention and the Control Group (n=62)

Characteristics	Intervention		Control	
	n	%	n	%
Aged				
17-25 years old	9	29.0	9	29.0
26-35 years old	6	19.4	10	32.3
36-45 years old	3	9.7	2	6.5
46-55 years old	6	19.4	5	16.1
56-65 years old	6	19.4	5	16.1
>65 years old	1	3.2	-	-
Mean ± SD	38.68± 16.782		36.55± 15.714	
Gender				
Male	21	67.7	26	83.9
Female	10	32.3	5	16.1
Mean ± SD	1.32± .475		1.16±.374	
Education				
Junior high school	4	12.9	1	3.2
High school	23	74.2	24	77.4
Diploma 3	1	3.2	3	9.7
Bachelor	3	9.7	3	9.7
Mean ± SD	4.10± .746		4.26±.682	
Occupation				
Housewife	5	16.1	-	-
Entrepreneur	10	32.3	17	54.8
Private employees	5	16.1	5	16.1
Farmer	1	3.2	4	12.9
Student	8	25.8	5	16.1
Civil servant	2	6.5	-	-
Mean ± SD	3.10±1.640		2.90±1.165	
Duration of hospitalization				
One day to 1 week	14	45.2	23	74.2
2 to 3 weeks	10	32.3	6	19.4
1 to 2 months	6	19.4	2	6.5
Three months	1	3.2	-	-
Mean ± SD	1.81± .873		1.32± .599	

Also, the control group showed that most respondents were 26-35 years old (32.3%). The distribution of respondents based on gender among the intervention group was 67.7% male, while the control group also showed that most of them were male (83.9%). Regarding respondents' characteristics based on education, most of the respondents in the both the intervention group and control group were high school with 74.2% and77.4%, respectively. In regard to distribution of respondents based on occupation, both the intervention group (32.3%) and the control group (54.8%), were entrepreneurs. In terms of the distribution of respondents based on the duration of hospitalization, it showed that most of them were hospitalized from between one day to 1 week, accounting for 45.2% of the intervention group and 74.2% in the control group. Analysis in the intervention group used the Kolmogorov Smirnov test while the analysis in the control group used the Mann Whitney Test.

Rehabilitation of fracture patients

Table 2 shows that, in the distribution of patients' rehabilitation of fracture on sleep disorder among the intervention group before receiving the Levine-based model of nursing intervention, the majority of sleep quality was poor, which is 26 respondents (83.9%). Whereas among the control group before receiving the standard care from the hospital, all 31 respondents (100%) had poor sleep quality. For the distribution of respondents after receiving the Levine-based nursing intervention, the majority of respondents had better quality of sleep (74.2%), and among the control group after receiving the standard intervention from the hospital, all respondents had a poor quality of sleep (100%).

The results of the study showed that the distribution of patients' rehabilitation of fractures on the pain level among the intervention group before receiving the Levine-based nursing intervention was 23 respondents (74.2%), while among the control group before receiving the standard intervention from the hospital, the majority of respondents with mild pain were 20 respondents (64.5%). For the distribution of respondents after receiving the Levine-based nursing intervention, all 31 respondents (100%) were mild pain, whereas among the control group after receiving the standard

Table 2. The Distribution Frequency and Percentage on Patients' Rehabilitation of Fractures among the Intervention Group and the Control Group before Receiving the Nursing Intervention based on the Levine Model (n=62)

Rehabilitation of fracture patients	Intervention				Control			
	Pre		Post		Pre		Post	
	n	%	n	%	n	%	n	%
Sleep disorder								
Very poor	26	83.9	-	-	-	-	-	-
Poor	5	16.1	-	-	31	100	31	100
Good	-	-	8	25.8	-	-	-	-
Very good	-	-	23	74.2	-	-	-	-
Mean ± SD	66.10 ± 3.655		47.87 ± 6.328		90.55 ± 3.686		89.65 ± 4.294	
Min-Max	59-73		38-56		85-99		80-99	
Pain								
Light	8	25.8	31	100	20	64.5	23	74.2
Mild	23	74.2	-	-	11	35.5	8	25.8
Severe	-	-	-	-	-	-	-	-
Mean ± SD	3.71 ± 0.529		2.06 ± 0.512		3.19 ± 0.703		3.10 ± 0.651	
Min-Max	2-4		1-3		2-4		2-4	
Anxiety								
Light	-	-	1	3.2	-	-	-	-
Mild	-	-	30	96.8	-	-	-	-
Severe	31	100	-	-	31	100	31	100
Mean ± SD	58.19 ± 3.240		29.52 ± 5.476		56.19 ± 3.902		55.52 ± 4.419	
Min-Max	52-64		20-43		51-63		47-63	
Family support								
Good	-	-	31	100	-	-	-	-
Enough	24	77.4	-	-	-	-	-	-
Poor	7	22.6	-	-	31	100	31	100
Mean ± SD	38.81 ± 7.534		61.84 ± 1.508		56.19 ± 3.902		54.97 ± 3.071	
Min-Max	27-58		57-64		51-63		49-62	

Table 3. The effect of the Levine-based Nursing Intervention on Rehabilitation of Fracture Patients among the Intervention Group and the Control Group (n=62)

Rehabilitation of fracture patients	Intervention				Control			
	Mean	SD	Z	p-value	Mean	SD	Z	p-value
Sleep disturbance								
Pretest	88.77	4.318	-4.862	0.000	90.55	3.686	-2.032	0.042
Posttest	47.87	6.328			89.65	4.294		
Pain								
Pretest	3.71	0.529	-4.824	0.000	3.19	0.703	-1.732	0.083
Post-test	2.06	0.512			3.10	0.651		
Anxiety								
Pretest	58.19	3.240	-4.862	0.000	56.19	3.902	-1.604	0.109
Posttest	29.52	5.476			55.52	4.419		
Family support								
Pretest	38.81	7.543	-4.865	0.000	56.19	3.902	-1.486	0.137
Posttest	61.84	1.508			54.97	3.071		

intervention from the hospital it showed that some of them were mild pain, with 23 respondents (74.2%).

Based on the results it shows that in regard to the distribution of patients' rehabilitation of fracture on anxiety among the intervention group before receiving the Levine-based nursing intervention all 31 respondents (100%) had severe anxiety, whereas in the distribution of respondents after receiving the Levine-based nursing intervention, the majority of them, as many as 30 respondents (96.8%) had severe anxiety and with 31 respondents (100%) among the control group after receiving the standard nursing intervention from the hospital.

The effect of the Levine-based nursing intervention on the rehabilitation of fracture patients among the intervention group and the control group

Based on Table 3 of the bivariate analysis using the Wilcoxon Signed-Rank statistical test, it was obtained the significance value of p-value in the intervention group before and after the nursing intervention

program based on the Levine conceptual model for the recovery of fracture patients (sleep disturbance, pain, anxiety, and family support) α = 0.000 (p < 0.05). Thus, it can be said that the nursing intervention program based on Levine's conceptual model influences the recovery of fracture patients (sleep disorders, pain, anxiety, and family support) in patients who experience fractures.

The results of the bivariate analysis using the Wilcoxon Signed-Rank statistical test showed no effect on the control group on fracture patient recovery (sleep disturbance α = 0.042, p < 0.05, pain α = 0.083, p < 0.05, anxiety α = 0.109, p < 0.05, and family support α = 0.137, p < 0.05). Thus, it can be said that there is no significant effect of an intervention on recovery among fracture patients. There are sleep disorders, pain, anxiety, and family support in the control group in patients who have fractures.

DISCUSSION

Based on the study, results showed that the Levine-based nursing intervention had a significant effect on sleep quality (α=0.000, p<0.05). The nursing intervention conducted in this study to improve sleep in fracture patients is Benson's relaxation technique. This can improve sleep because it can stimulate endorphin hormone secretion. This hormone is related to the neurotransmitter serotonin, which has a role in the sleep process (Rambod et al., 2013).Benson and Proctor (2000) state Benson's relaxation techniques can be approved by a good environment. This finding showed significant effect on the sleep quality of the respondents (p-value 0.000). Rahman, Handayani, & Sholehah(2019) stated that the Benson relaxation technique could improve sleep quality among elderly patients.

The Levine-based nursing intervention also showed a positive effect on pain (α=0.000, p<0.05). The results of the bivariate analysis using the Wilcoxon Signed Ranking statistical test showed no difference in the control group in pain (α = 0.083, p> 0.05). Fracture patients with pain could use non-pharmacological management, such as deep breathing techniques (Black &, 2014). This study implemented the deep breathing relaxation technique to reduce pain among fracture patients. Based on the results, there is a significant effect on the intervention on pain among respondents (p-value 0.000). Another study from Sehono (2010) stated that deep breathing relaxation technique was effective in reducing pain post-operation for fracture.

Nursing intervention-based on the Levine model could also provide a positive impact on anxiety (α=0.000, p<0.05). Zhao et al. (2012) said that progressive muscle relaxation techniques can be used to reduce anxiety, which can suppress sympathetic nerves and suppress tension experienced by respondents reciprocally so that counter conditioning will arise. Xie et al. (2016) state that progressive muscle relaxation techniques are effective in reducing anxiety in patients with limb fractures undergoing

surgery. Based on this intervention, it showed that there is a positive effect of the intervention on anxiety among respondents (p-value 0.000). A study from Hardono & Amirudin (2020) said that muscle progressive relaxation technique could reduce anxiety levels among pre operated fractures patients. In addition, another study from Zhao et al. (2012) also said that muscle progressive relaxation technique could be used to reduce anxiety and that it could suppress the sympathetic nerves and the tension experienced by the respondents reciprocally so that there will be counter conditioning.

Other findings showed positive effect of the Levine-based nursing intervention on family support (α=0.000, p<0.05). Nursing interventions conducted in this study to improve family support in fracture patients were to provide health education. This family support can be in the form of task orientation that can be given to family, friends, and even neighbors (Friedman, Browden, & Jones, 2010). The health education was implemented to educate fracture patients. This finding indicated that there is a significant difference in the intervention on family support among respondents (p-value 0.000). The result was consistent with previous study from Helmi (2012) which said that there is a positive effect of health education on anxiety levels among pre-operated patients. The limitation of this study is that it still takes a long time to provide nursing intervention for the recovery of fracture patients so that nursing intervention can be felt and utilized by patients suffering from fractures.

CONCLUSION

There is a positive effect of Levine-based nursing intervention on sleep disorder, pain, anxiety, and family support. The findings recommend applying the different instruments for measuring sleep disorder, pain, anxiety, and family support to identify the results effectively. Further studies are also needed to conduct a similar study with longer and expected duration and frequency of Levine-based nursing intervention. The results of this study can be an evidence-based nursing practice that can strengthen the body of knowledge of nursing, especially those related to the nursing intervention program based on Levine's conceptual model.

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Jurnal Ners

Original Research

Hypnotherapy and Yoga Combination Decrease the Anxiety of Patients in Elective Preoperative

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ABSTRACT

Introduction: Surgery is an experience that can cause anxiety, which, if not treated well, will cause some side effects. One of the forms of non-pharmacological therapy is hypnotherapy and yoga combination therapy. This study aimed to determine the effect of hypnotherapy and yoga combination therapy on anxiety scores in elective preoperative patients.

Methods: This study used a quasi-experimental pretest and posttest with control group design. This study involved 17 respondents in the intervention group and 17 respondents in the control group. The sampling technique used consecutive sampling. Data collection used the instruments of The Amsterdam Preoperative Anxiety and Information Scale (APAIS). The statistical test used was the Mann-Whitney test.

Results: The average age of respondents was 36.65 years old. In a majority, they were junior high school graduates who worked as employee. The major type of operation was tumor excision. The average anxiety scores before treatment in the intervention group were 14.71 (moderate anxiety) and decreased after being given hypnotherapy and yoga combination therapy to 9.47 (mild anxiety). The average anxiety scores before treatment in the control group were 15.71 (moderate anxiety) and decreased after deep breathing therapy to 13.76 (moderate anxiety). The difference test in anxiety scores of the intervention and control groups obtained p-value 0.015.

Conclusion: Hypnotherapy and yoga combination therapy can reduce anxiety scores in elective preoperative patients.

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INTRODUCTION

Surgery is all medical treatments that use invasive methods by opening or displaying parts of the body to be treated (Sjamsuhidajat & Jong, 2010). The surgery phase consists of pre, intra and post operative. The pre-operative stage is the initial stage of the surgical procedure, including the decision on the operation until the act of operation itself (Maryunani, 2014).

World Health Organization (WHO) data shows a significant increase in the number of patients who are undergoing operations. Data in 2011 recorded 140 million patients in all hospitals in the world, while data in 2012 increased to 148 million patients. In 2012, operation treatments were measured in Indonesia and recorded 1.2 million patients (Hartoyo, 2015).

Preoperative anxiety impacts physiological and psychological responses. If preoperative anxiety is not handled well, it has some side effects such as sweating and frequent urination, in addition to which the patient will also experience anxiety or tension, changes in hemodynamic status, and it can continue to postoperative which can affect the immune response, causing longer recovery and longer healing in the wound after surgery (Gunawan & Kristinawati, 2018; Pereira, Figueiredo-braga & Carvalho, 2015).

Internal and external factors can affect preoperative patient anxiety. Internal factors consist of gender, age, level of knowledge, personality type, environment, and situation, while external factors

consist of the type of work, family, threats to the self-system, and threats to physical integrity (Yusuf, Fitryasari, & Nihayati, 2015).

Anxiety management is generally managed with pharmacological and non-pharmacological therapy. Hawari (2001) described antidepressants and anti-anxiety medicines (anxiolytic) as pharmacological treatments. The use of antidepressants and anti-anxiety medicines can help reduce anxiety, but it has negative effects such as drowsiness, breathing difficulty, and affects the recovery duration of operation patients (Bradt, Dileo, & Shim, 2013). Non-pharmacological therapies that can help reduce preoperative anxiety are hypnotherapy and yoga.

Research conducted by Lestari and Putri (2018) found that the combination of self-hypnosis and yoga exercises was effective in reducing anxiety. Hypnotherapy physiologically makes the body relax so that it can increase endorphins, which can reduce anxiety. It also makes the body feel comfortable and calm, while yoga can increase gamma amino butyric acids (GABA) which function to reduce arousal and aggression, anxiety, and are active in the function of excitation (Lestari & Putri, 2018; Yulinda, Purwaningsih, & Sudarta, 2017). Hypnotherapy method is to change the patients' ways of thinking using relaxation techniques, suggestions, while yoga uses the integration of a series of physical, mental health, mind movements, and is done continuously and regularly (, 2018; Cahyadi 2017). Hypnotherapy and yoga are therapies that both cause a relaxing effect. When the body relaxes, the endorphins increase, which is beneficial to reduce anxiety and to make the patient feel comfortable and calm. Hypnotherapy is expected to retain suggestions that have long-term effects, so that the therapeutic effects of combination hypnotherapy and yoga can maximally handle anxiety.

Medical record data were from Hj. Anna Lasmanah Regional Public Hospital Banjarnegara with 9916 patients treated in poly operation during 2018 and 27% of patients were scheduled elective operations from a poly operation. The results of a preliminary study of 10 elective operation patients showed that 90% of patients expressed anxiety in facing the planned operation. Anxious feelings are such as fear of operation and fear of something unexpected happening during operation. Anxiety management performed by nurses in preoperative patients was in using deep breathing techniques. From the results of the evaluation, seven patients said they were still anxious after being given deep breathing therapy. As the majority of patients still feel anxiety after deep breathing therapy, there is a need for new therapies that can help reduce anxiety. One of the therapies is a combination therapy of hypnotherapy and yoga which is expected to be more effective in reducing anxiety scores. This research combines hypnotherapy and yoga which are complementary therapies that must be developed in the field of nursing. Based on the background phenomena above, it is necessary to study these. This study aimed to determine the effect of the combination of hypnotherapy and yoga on anxiety scores in elective preoperative patients at Hj. Anna Lasmanah Regional Public Hospital Banjarnegara.

MATERIALS AND METHODS

The study design used a quasi-experimental pre and posttest control group design. The population of this study was elective preoperative patients at Hj. Anna Lasmanah Regional Public Hospital Banjarnegara. The sampling technique was consecutive, which refers to the inclusion and exclusion criteria set by the researcher. Inclusion criteria: re elective surgery patients from surgical polyclinic, do not have a hearing problem, ages range from 18 - 65 years old, have composite consciousness and not experiencing mental disorders, willing to be a respondent, first-time experience operation, and their last education backgrounds are elementary and junior high school. Exclusion criteria: the patient is experiencing a worsening condition and requires immediate surgery, the patient resigns from being a respondent during the research process, and the patient experiences moderate to severe pain during the research process. The sample size was 34 respondents with 17 respondents as the intervention group and 17 respondents as a control group. This study used the Amsterdam Preoperative Anxiety And Information Scale (APAIS) instrument, which had been tested for validity and reliability by Firdaus (2014) on 102 preoperative respondents with the following results: The validity test of the APAIS instrument showed the r value for question 1 (0.864), 2 (0.773), 3 (840), 4 (0.868), 5 (829) and 6 (849). Question correlation had a good total value of r> 0.7. APAIS instrument reliability showed consistent internal results (Cronbach's alpha). Cronbach's alpha value for anxiety component (questions 1, 2, 4, and 5) obtained 0.825, while Cronbach's alpha value for information necessity component (questions 3 and 6) was obtained as 0.863. Good Cronbach's alpha value ranged from 0.7 to 0.9. Researchers conducted an anxiety assessment pretest to respondents using APAIS questionnaire, the experimental group received a combination of hypnotherapy and yoga therapy one by one, then respondents received therapy for 25 minutes, including yoga for 10 minutes and hypnotherapy for 15 minutes, while, in the first control group, they received deep breathing therapy

Table 1. Respondents' Characteristics (n=34)

Characteristics	Intervention		Control		p-value
	n	(%)	n	(%)	
Gender					
Male	8	44.4	10	55.6	0.492
Female	9	56.2	7	43.8	
Education					
Elementary School	7	46.7	8	53.3	0.730
Junior High School	10	52.6	9	47.4	
Job					
Farmer	4	40	6	60	
Housewife	6	54.5	5	45.5	0.753
Employee	7	53.8	6	46.2	
Surgery Type					
Mama Tumor Biopsy Excision	4	50	4	50	
BPH Prostatectomy	2	40	3	60	0.938
Appendectomy	3	50	3	50	
Tumor Biopsy Excision	6	60	4	40	
Hernia Repair	2	40	3	60	
	Mean		SD		p-value
Age	36.65		13.919		0.338

Table 2. Description of Anxiety Mean Scores

Anxiety	Mean (SD)	Median	Min-Max	p-value
Pretest Intervention (n = 17)	14.71 (4.135)	15	6-22	0.554
Pretest Control (n = 17)	15.71 (5.520)	17	6-24	
Pretest Intervention (n = 17)	14.71 (4.135)	15	6-22	0.001
Posttest Intervention (n = 17)	9.47 (3.223)	8	6-15	
Pretest Control (n = 17)	15.71 (5.520)	17	6-24	0.002
Posttest Control (n = 17)	13.76 (5.142)	14	6-24	
Posttest Intervention (n = 17)	9.47 (3.223)	8	6-15	0.015
Posttest Control (n = 17)	13.76 (5.142)	14	6-24	

for five times after the two groups did an anxiety score posttest assessment for respondents using the APAIS questionnaire. This study received ethical approval from the Faculty of Health Sciences, Jenderal Soedirman University, number: 242 / EC / KEPK / XII / 2019. Univariate data analysis was performed on the two research variables and produced data presented in the form of frequency distributions namely gender, education, job, and age using central tendency. Bivariate data analysis was performed using the Mann-Whitney test. The data normality test results obtained data were not normally distributed in the posttest intervention, p = 0.021. Homogeneity tests for the pre-groups of both groups using the Levine test results obtained p = 0.554, which means data similarity was homogenous.

RESULTS

The distribution of respondents based on the gender of the majority were men (52.9%), the education of the majority of respondents was junior high school education (55.9%), the majority of respondents' jobs were employees (38.2%), the majority of operation types were excision tumor biopsy (29.4%) and the average age of respondents was 36.65 years old. Based on the table, there were no differences in the characteristics of respondents (gender, education, job, type of operation, and age) between the intervention and control groups. Based on Table 1, it can be seen that the p-value is to determine the homogeneity of each respondent's characteristics (Table 1).

The mean score of anxiety before treatment in the intervention and control groups using the unpaired t-test obtained p = 0.554. Anxiety scores in both groups belonged to the moderate anxiety category (13-18). These data indicate there was no statistical difference in the mean score of anxiety scores before treatment in the intervention and control groups (Table 2).

The anxiety score in the intervention group showed the pretest with a median value of 15, on the posttest with a median value of 8 and a significance value of 0.001 (p <0.005). This meant that there were differences in anxiety scores before and after hypnotherapy and yoga combination therapy in the intervention group. The anxiety score in the control group showed that the pretest with a mean value of 15.71, the posttest with a mean value of 13.76, the average difference of 1.95, and the significance value of 0.002 (p <0.005). This meant that there were differences in anxiety scores before and after deep breathing therapy in the control group (Table 2).

The anxiety score in the intervention group was lower than the control group. Mann-Whitney Test results obtained a p-value of 0.015 (p <0.05), then Ho was rejected, which meant there was an effect of

hypnotherapy and yoga combination therapy on the reduction of anxiety scores in elective preoperative patients (Table 2).

DISCUSSION

The age range of respondents in this study was between the ages of 18-65 years old (n = 34) with the average age of respondents in both groups 36.65 years old. Respondents in this study were classified as adults according to (Indonesian Ministry of Health (2016). The results of this study were supported by the research of Sulastri, Cahyanti, and Rahmayati (2019) showing the majority of preoperative respondents aged 36-45 years old. Age can determine a person's ability to make decisions in how they behave (Diananda, 2019).

The majority of respondents in this study were male. This result was supported by research conducted by Nurdin (2018) which stated that the majority of preoperative patients were male. In contrast, research conducted by Usnadi, Rahayu, and Praptiwi (2019) explained that the majority of respondents were female. Medical record data of Hj. Anna Lasmanah Regional Public Hospital Banjarnegara showed the proportion of elective operation patients in 2019 male and female patients was 58:42. Men and women have different levels of anxiety in which women are more easily offended, very sensitive, and emphasize feelings, whereas men have masculine characteristics that tend to be dominant, such as active, more rational, and they are not emphasizing feelings (Niken, Armiyanti & Arif, 2014).

This study showed that the majority of respondents had a junior high school education and was supported by the research of Usnadi, Rahayu, and Praptiwi (2019) that the majority of respondents had elementary and junior high school education. This was different from research conducted by Sulastri, Cahyanti, and Rahmayati (2019) who found that the majority of respondents had an elementary school education. The difference in the results of this study was because one's education does not affect perceptions that can cause anxiety in facing operation (Vellyana, Lestari, & Rahmawati, 2017).

This study showed that most of the respondents were employees and was supported by the research of Rizki and Hartoyo (2019) who found that the majority of respondents' jobs were employees. This was different from the research of Usnadi, Rahayu, and Praptiwi (2019) where the majority of respondents were housewives. This difference was due to the majority of respondents in this study. The type of job that has an unstable income can affect the behavior of respondents in determining treatment, buying medicine, paying hospital costs, and paying high medical costs which will increase respondents' anxiety (Rizki & Hartoyo, 2019). Similar results were also conducted by Vellyana, Lestari, and Rahmawati (2017) who stated that anxiety can be triggered by low-income levels and economic status.

This study showed most types of surgery as with excision of tumor biopsy. Excision biopsy was performed at Hj. Anna Lasmanah Regional Public Hospital to strengthen the diagnosis of patients with tumors or cancer. The type of operation affects the duration of postoperative care, the seriousness of the disease, the affected body part, and the duration of recovery (Rahmayati, Asbana, & Aprina, 2017).

The results of this study indicated that the average value of anxiety in respondents before the application of hypnotherapy and yoga combination therapy did not differ statistically compared to respondents before applying deep breathing therapy. Anxiety score in both groups belongs to the moderate anxiety category. This study was supported by the research of Rismawan, Rizal, and Kurnia (2019) in that the majority of respondents who experienced preoperative anxiety were at moderate anxiety levels. Anxiety is an emotion or feeling that arises due to the first response to psychological stress and threatens values that are meaningful to patients (Azizah, Zainuri, & Akbar, 2016). Physical responses arising in preoperative patients who experienced moderate levels of anxiety include sweating, frequent urination, restless sleep, and waking up at night (Rismawan, Rizal, & Kurnia, 2019).

The results of this study indicated there were significant differences between anxiety scores in patients before and after hypnotherapy and yoga combination therapy in the intervention group. Research conducted by Potié et al. (2016) explained that hypnotherapy sessions were very effective in reducing anxiety before an operation. The results of this study reinforce the research conducted by Téllez et al. (2016) who explained that hypnosis sessions for 15 minutes before an operation can increase relaxation and significantly reduce preoperative anxiety levels.

Deep breathing therapy is a nursing therapy procedure at Hj. Anna Lasmanah Regional Public Hospital Banjarnegara as an independent nursing intervention in overcoming preoperative anxiety. The results of this study indicated that there were differences in anxiety scores before and after deep breathing therapy in the control group. Other studies related to deep breathing therapy in Nurdin's research (2018) where there were differences in anxiety levels in patients with preoperative appendicitis after doing deep breathing therapy. Research conducted by Rokawie, Sulastri, and Anita (2017) showed that there were differences in average anxiety scores before and after deep breathing in abdominal preoperative patients. This is in line with the theory of Smeltzer and Bare (2002) which stated the purposes of deep breathing relaxation were to maximize the work of alveoli ventilation, to accelerate gas exchange, to prevent lung atelectasis, to improve cough efficiency, and to reduce stress both physical stress (pain) and emotional (anxiety).

The results of this study indicated that there was an effect of decreasing anxiety scores between respondents who were given hypnotherapy and yoga

combination therapy with respondents given deep breathing therapy. This study showed hypnotherapy combination therapy, yoga and deep breathing therapy, could all reduce anxiety scores, but for the reduction score in the intervention group using hypnotherapy and yoga combination therapy was higher than the control group using deep breathing therapy.

Hypnotherapy and yoga combination therapy were given for 25 minutes and deep breathing therapy given for five times. Both therapies were effective in reducing anxiety. The advantage of hypnotherapy and yoga combination therapy was the process of uniting aspects in human beings, such as physical, psychological, and spiritual, by giving positive suggestions; even after the hypnosis session had finished the suggestion was still recorded in the patient's subconscious mind (Kinasih, 2010; Syaripudin, 2018). Deep breathing is a procedure for treating anxiety in the Hj. Anna Lasmanah Regional Public Hospital Banjarnegara so that researchers took deep breathing as a control. A deep breathing is as effective as hypnotherapy and yoga combination in dealing with anxiety, but the duration of the effectiveness of relaxation is longer because hypnotherapy and yoga are cognitive therapies. Research conducted by Niken, Armiyanti, and Arif (2014) explained that there was the effect of reducing anxiety after being given deep breathing therapy within four hours before the patient entered the operating room and measuring anxiety again 45 minutes before the patient entered the operating room, as such an increase in anxiety scale was obtained due to external and internal stimuli that could affect preoperative patient anxiety. The study limitation was not yet controlling overall factors that influenced preoperative anxiety, such as the type of surgery and personality type.

CONCLUSION

In conclusion, respondents' ages in this study were averaged 36.65 years old, the gender majority was male, the education majority was junior high school, the job majority was employee, and the type of operation was tumor excision. The average anxiety score before the intervention was 14.71, while in the control group was 15.71. Anxiety scores in both groups belonged to the moderate anxiety category. There were differences in anxiety scores before and after hypnotherapy and yoga combination therapy in the intervention group. There were differences in anxiety scores before and after deep breathing therapy in the control group. There was a significant decrease in anxiety scores after the application of hypnotherapy and yoga combination therapy. The researcher suggests future research to examine the effective duration of hypnotherapy and yoga combination therapy in preoperative patients.

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Original Research

Exploring the Influencing Factors on Breast Self-Examination Among Myanmar Women: A Qualitative Study

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ABSTRACT

Introduction: Breast self-examination (BSE) is the most sensitive and cost-effective method to diagnose breast cancer at an early stage in healthcare resources' limited setting. However, the practice of BSE is low in Myanmar. Although various international studies were conducted to clarify the influencing factors in irregular BSE practice, there is a range of different factors and the answer is not yet clear. Hence, this study is aimed to explore the influencing factors on the practice of breast self-examination among Myanmar women.

Methods: A qualitative exploratory-descriptive study was conducted on eight women through in-depth semi-structured interviews between February 2020 and March 2020. The samples were women who lived in the rural area of Myanmar and purposive sampling technique was used. Data were analyzed using Colaizzi's method, which consisted of seven stages.

Results: Four themes emerged as the results of the in-depth interview, namely knowledge of breast cancer, knowledge regarding breast self-examination, barriers to performing regular BSE and ways to improve BSE practice.

Conclusion: This study showed that the women were inadequate in knowledge and practice regarding BSE and breast cancer. Some barriers of BSE practice are rooted in the inadequate skill of BSE and the women's attitude. Greater understanding about breast cancer and improving the confidence of women in BSE will lead to better prognosis. Hence, healthcare authorities and providers should encourage a formal health education program and the results from this study hope to be useful in future rural health education programs of BSE practice.

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INTRODUCTION

Breast self-examination (BSE) is important to detect breast cancer early, especially in healthcare resources' limited setting. It is the most sensitive and cost-effective method to diagnose breast cancer at an early stage (Tiwari and Naik, 2018). Even though the women heard about BSE, the majority of the women were low in BSE practice and did not perform regular BSE (Win et al., 2019) (Abolfotouh, BaniMustafa and Mahfouz, 2015; Ahmed, Zahid and Ladiwala, 2018). Although various studies were conducted to clarify the influencing factors in irregular BSE practice, there is a range of different factors and the answer is not yet

clear. In Myanmar, the government introduced the BSE method as a primary healthcare level in the Manual for Package of Essential Non-Communicable Diseases (PEN) (Ministry of Health and Sports, 2017). in addition, the government encourages promoting regular BSE practice by sharing information using pamphlets and through government websites (Ministry of Health and Sports, 2019). If breast cancer (BC) detects late with low screening practice, it results in poor prognosis with a high mortality rate. To enhance BSE practice and support the BSE program, the contributing factors of BSE need to be identified.

BC is a serious health problem for both developed and developing countries (World Health Organization, 2018). According to the International Agency for Research on Cancer (IARC), over 60,000 new cancer cases occur yearly in Myanmar, with BC being the most common among women and 11 people per 100,000 population die of BC (International Agency for Research on Cancer, 2018). Early detection involves an essential role in breast cancer (BC). Of breast cancer cased detected, 73.5% were by physical examination method, and there was evidence that BSE can find tumors with 22.1mm in diameter (Schwab et al., 2015). Moreover, BSE can help to diagnose over 90% of all breast cancers in an early stage (Mohamed, Ibrahim and Lamadah, 2016). Also, Hassan, Mahmoud and Miller (2015) proved that BSE could detect breast cancers at early stages (<3) and suggested it be applied as a useful screening test with high availability and low costs at the community level (Hassan, Mahmoud and Miller, 2015).

However, BSE practice is still low in practice. A previous study conducted in Myanmar showed that only 16.7% of the respondents could talk about BSE, and only 13.3% of them performed it (Win et al., 2019). The previous international studies identified the various impacting factors that can influence on BSE. As socio-demographic factors, age, marital status, personal history of breast disease (Vasishtaa et al., 2018), level of education (Febriyanti et al., 2018), and work status (Abolfotouh et al., 2015) have a significant relation with BSE practice. According to a cross-sectional study conducted in Bali, it described that those having good level of knowledge of BSE, perceived benefits, perceived low barriers, and high level of self-efficacy were more likely to perform BSE (Febriyanti et al., 2018). Also, the reasons for not performing BSE included that they did not know how to do it, had no symptoms of breast cancer and worried about detecting breast cancer, respectively (Vasishtaa et al., 2018).

To organize an effective program in improving regular BSE practice among women, understanding the impacting factors on BSE practice plays a crucial role. Hence, this study is aimed to explore the influencing factors on the practice of breast self-examination among rural women in Myanmar.

MATERIALS AND METHODS

This research is a qualitative research using a descriptive exploratory approach. Eight women who met the criteria were recruited by using purposive sampling. Targeting criteria included women who wanted to share their experience for this research, women who had heard about BSE and women aged between 20 to 45years. Data collection was carried out at two villages of Meiktilar Township, Myanmar between February 2020 and March 2020.

The data were collected by using individual in-depth interview until the data were saturated. Open-ended semi-structured questions were used and the interview took 30 to 60 minutes at the respondents' home or convenient place. Before conducting the interview, the researcher firstly explained the purpose of the study and procedure. Then, if the women desired to participate, took consent from all women. All interviews were audio-recorded and field notes taken after getting permission from respondents. The main guided items used in the interview were "What do you understand about breast cancer?" "What do you think of breast self-examination?" "Have you ever examined your breasts?" and "How can BSE practice be improved?" Ethical approval was obtained from the Institutional Review Board, Department of Medical Research, Yangon, Myanmar with the number (Ethics/DMR/2020/004) and the Research Ethics Committee of Faculty of Nursing, Universitas Airlangga with the number (No: 1799-KEPK).

Interview data were transcribed from original recordings and field notes after data collection, and the accuracy checked to reduce mistakes in writing the transcript. Then, data were analyzed using the Colaizzi's method, which consisted of seven steps. Peer check and immersed data to ensure the rigor of the findings were used as well. Four major themes emerged, namely, knowledge of breast cancer, knowledge regarding BSE, barriers to performing regular BSE, and ways to improve BSE practice.

RESULTS

Eight women from two villages of Meiktilar township, Myanmar, participated in this study. All of the women were Buddhists and aged between 21 to 42 years. Among them, two women had a history of excision of a breast lump, and one woman had a history of cyst in breast. All women had heard about BSE. One of them performed BSE every day, four of them sometimes and three of them never used BSE. Three women obtained information from healthcare providers, three from peers and two from audio-visual media. The characteristics of participants are shown in Table 1, and then four major themes are described in detail with the respondents' responses.

Knowledge of breast cancer

The results showed that the women did not know about breast cancer well, especially in sign and symptoms, risk factors, screening and management. The majority of the women, except one, agreed that breast cancer was a painful lump. Some of their responses were:

> "Breast cancer is a serious and fatal disease. I am scared that I suffer from breast cancer. It is a painful lump and gradually increases in size and pain intensity" (P1).

Table 1 Characteristics of participants

Code.No	Age	Marital Status	Religion	Education	Family history of BC	History of Breast disease	BSE practice	Sources of information
P1	42	Married	Buddhism	Graduate	No	Breast lump	Sometimes	Healthcare person
P2	21	Single	Buddhism	University	No	No	Never	Peer
P3	40	Single	Buddhism	High school	No	Cyst	Sometimes	Healthcare person
P4	40	Married	Buddhism	Graduate	No	No	Never	Healthcare person
P5	25	Married	Buddhism	Graduate	No	No	Never	Peer
P6	31	Single	Buddhism	High school	Yes	No	Always (everyday)	Audio-visual Media
P7	36	Married	Buddhism	Middle school	No	No	Sometimes	Peer
P8	39	Married	Buddhism	High school	No	Lipoma	Sometimes	Audio-visual Media

P=Participant

"It is the lump in the breast that can disseminate to other parts of the body. If the lump has no pain, there is no need to worry. There is no problem. It is not breast cancer" (P3).
"….it is a painful ulcer or lump, but I do not know well" (P4).
"I do not know the symptoms…It is a lump and painful" (P5).

Regarding risk factors and causes, many different aspects appeared. They assumed that menopausal or unmarried women can suffer more breast cancer. Some of the women believed they had no chance to experience breast cancer. Some of their opinions were:

"It is common in women after menopause and in spinsters. I believe that I cannot suffer from BC. I am not old age and already married" (P2).
"I never think I can suffer breast cancer because I have no breast disease" (P4).

Although there was no scientific evidence on the relationship between wearing a bra and breast cancer (American Cancer Society, 2017), the women believed there was a relationship. Two of the women believed wearing a nylon bra as a cause of breast cancer while one of them suggested removing the bra at free time. The women explained the following:

"The women who always wear nylon bras suffer from breast cancer. So, I always wear cotton ones" (P3).
"Wearing a tight bra and nylon bra (that can feel hot and sweating) causes breast cancer and other breast diseases" (P7).
"I think it (bra) maybe, but not sure. Should remove at night and free to prevent BC" (P5).

A controversial response was found in gripping or massaging of the breast by hand and breast cancer. The women said:

"I don't know the causes of BC. I think if there is an injury of the breast caused by handgrip of the breast during sexual intercourse. It will become breast cancer later. So, I always remind my husband" (P5).

"I think it is not related to a handgrip on the breast. Even if there is a lump, it will reduce by massaging" (P1).

On screening method, all of them accepted that examination of the breast was a way to detect breast cancer. One woman recommended a regular check-up (every three years) whereas another woman answered there was no need for a regular check-up. All of them accepted that BSE was a way to detect breast cancer.

Knowledge regarding BSE

The level of understanding of BSE was inadequate among participants. Although the women had already heard of and accepted BSE as a way to detect breast cancer, they did not know the method accurately. Their uncertainty was seen in the following responses:

"….just heard about BSE. Women should perform BSE. But it is not sure how to do it" (P2) (P4).
"I heard about BSE. ………………… but not know the way to do" (P7).
"I heard about BSE from the doctor who removed my breast lump. She taught me how to palpate the breast briefly, but now I forget the steps" (P1).

The majority of the samples assumed that BSE was the palpation of the breast by hand to find the lump and there was no need to inspect the breast. One of them described that she felt embarrassment with inspection. Some of them thought that there was no need to palpate the axilla region. Some of their responses were the following:

"BSE is squeezing of the breast thoroughly with hand in sitting position at the time of bathing, but not the axilla because of breast cancer" (P6).
"BSE is the palpation of the breast so see if there is a lump or not. I think there is no need to palpate the axilla region …." (P8).
"I palpate both the breast and the nipple, but never look at in the mirror. It makes me embarrassed" (P1).

Although regular practice in BSE is important to find abnormal changes in the breast, the women

who participated in this study did not implement this. Most of them performed BSE when they felt something in the breast and before menstruation. Some of their responses were:

"If there is a pain in the breast, I sometimes perform the BSE, but not regularly. As for me, there is no need to do a regular exam if there is no problem" (P1).

"Sometimes, I perform when I feel something in my breast. I think there is no need to do it regularly" (P8)

"I do BSE sometimes. If I suffer pain in the breast (usually before menstruation), I remember to take BSE" (P3).

On the other hand, one woman performed BSE every day (sometimes, more than once a day). She stated that:

"I always perform BSE every day. Sometimes, I palpate more than once a day. My aunt (father's sister) suffered from breast cancer with a painful feeling and groaning before she died. I'm afraid of dying with breast cancer" (P6).

Moreover, some misunderstandings on the lump of BSE had occurred. One of the women described that "BSE is the palpation of the breast. The women should perform BSE. If there is a painful lump immediately go to healthcare providers. The painless lump has no need to be a worry. It is not a problem." The women assumed that only females need to perform BSE. Therefore, the women needed more information about BSE, including who should perform, how to do it, when to do it, and which region should be performed.

Barriers to perform regular BSE

Generally, the women had no regular BSE practice. The majority of the participants reported that they did not know how to do BSE correctly. Some women performed BSE sometimes when they felt something or had pain in the breast. The women who had never performed BSE answered that they were busy; they did not have enough time to palpate, no history of a breast lump, no pain in the breast and assumed no need to do BSE. Their responses were as following:

"… I have no history of breast disease. I do not feel pain in my breast. I think that I do not need to do breast examination" (P2).

"… because I do not know how to do it, and I have no extra time to do it" (P4).

"I rarely perform it because I have no problem with breast and usually go to an obstetrician and gynecologist (OG) to get a child. Nevertheless, I have never asked about breast cancer, and also she does not suggest me to perform BSE" (P7).

Ways to improve BSE practice

Based on the participants' view, health education involves a crucial role. They stated that they are eager to learn how to do BSE systematically, and they think that providing health education with practical sessions from the healthcare provider is effective.

They also suggested that healthcare providers should be female, and group discussion should also be included. Some of the samples described their concern to improve BSE practice as follows:

"If there are health talks about BSE, I would like to join. I think it should include the explanations with the picture, the practical examination one by one. The practical session should be how to understand and classify the findings from other breast diseases" (P3).

"Do I need to perform BSE? If someone explains the requirement of BSE and teaches how to do it, I will perform it" (P5).

"I think that health education with peer group discussion will get the chance to ask for the unclear points. Besides, I always encourage others to palpate the breast if they have an interest" (P6).

"To understand and perform BSE well, I would like to learn the method of BSE from female healthcare providers together with my peers. I can discuss and remember easily. If I forget something, I can ask my friends" (P7).

DISCUSSION

The present study was conducted with the aim to explore the contributing factors on regular BSE practice. The samples who participated in this study were aged women between 21 to 42 years. This study revealed the perceptions of young women on BSE because breast tumors in young female showed more aggressive and tended to be diagnosed in more advanced stage (Radecka and Litwiniuk, 2016). As a result of the recent study, four major themes emerged, namely, knowledge of breast cancer, knowledge regarding BSE, barriers to performing regular BSE, and ways to improve BSE practice.

The study results showed that women with a history of the breast-related disease and family history of breast cancer had more tendencies to do BSE. This finding was in concordance with previous study (Abolfotouh, BaniMustafa and Mahfouz, 2015). The sample obtained the information mainly from healthcare providers and peers. Similar results were also seen in the study by Hanson, Wyk and Adejumo (2016), which described that healthcare workers were the primary source of health information in reproductive health issues (Hanson, Wyk and Adejumo, 2016). In Myanmar, basic health services in the rural area are provided primarily by the midwives and community health nurse. They should provide health information widely in the community and encourage women to perform BSE regularly.

Although knowledge is the essential requirement to change behaviors, the understandings of breast cancer and BSE among women were low in this study. Khiyali, Aliyan and Kashf (2017) proved that improving the knowledge of BC and BSE improved the BSE behaviors which can reduce the mortality rate with breast cancer.

Another study showed that there was a significant relationship between knowledge and BSE practice (Noor *et al.*, 2018). In this study, some of the women knew about breast cancer and that it is common in women, but they denied that they had the chance to suffer from breast cancer with the reasons of young age and marital status. The women heard about BSE from different sources and accepted that women should palpate the breast to find the breast lump. However, the results showed that the information that they obtained is not enough and it required an organized health education program, including basic knowledge about breast cancer and BSE.

The perceived low barrier is one of the significant factors that can influence on BSE (Febriyanti *et al.*, 2018). In this study, the causes of failures to do BSE practice were that they do not know the method of BSE, no time to perform BSE, busy and inadequate time to palpate, no history of a breast lump, no pain in the breast and assumed no need to do BSE. Similarly, another study showed that the women in Myanmar had a negative attitude toward BSE with embarrassment to do, time-consuming, fear of discovering tumors, and difficulties to do (Myint, 2015). Based on the results, the barriers that occurred among women were rooted in inadequate knowledge regarding BSE, risk factors, and signs and symptoms of breast cancer. So, enhancing knowledge is considered to remove or reduce the perceptions of barriers.

In this study, the majority of the women assumed that health education is essential to improve BSE practice. The women were willing to learn about BSE method with practical sessions until understanding how to interpret the findings. They also suggested using visual aids like diagrams to get precise information. Similarly, a study conducted in Malaysia proved that there was a significant increase in knowledge and performance of BSE. Health intervention of that study was carried out by different teaching methods such as PowerPoint presentation, using educational videos, group discussion, and performing breast examination on models (Masoudiyekta *et al.*, 2017). Similarly, previous studies proved that health education is essential to obtain awareness about BC and encourage performing BSE practice. An educational intervention based on the health belief model (HBM) on BSE behavior showed that it is effective in promoting BSE behaviors (Khiyali, Aliyan and Kashf, 2017). Therefore, theory-based health education combined with different teaching methods should be considered in enhancing BSE practice.

CONCLUSION

This study showed that the women living in the rural area of Myanmar were low in knowledge and practice regarding BSE and breast cancer. Some barriers that contribute to the BSE practice were rooted in inadequate knowledge and skill of BSE and the women's attitude. By providing health education, the more the women understand about BC and BSE, the earlier they detect breast cancer. Consequently, the prognosis of breast cancer will be better and the mortality rate with breast cancer will reduce. Hence, healthcare authorities and providers should develop a formal health education program on BC and BSE. The results from this recent study hope to be useful in future health education programs in the rural area.

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Original Research

The Effectiveness of Chewing Gum versus Cryotherapy on Salivary Volume among Patient with Head and Neck Cancer Undergoing Radiotherapy

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ABSTRACT

Introduction: Hyposalivation is a common problem experienced by head and neck (H&N) cancer patients undergoing radiotherapy. Hyposalivation can cause negative effects on the physical aspects of making oral mucositis, pain during eating and talking as well as psychological effects that cause feeling of discomfort sadness and, ultimately, depression. Many nonpharmacological interventions can be done for hyposalivation that occur in patients, among which are chewing gum and cryotherapy because they are easy to do, easy to access, inexpensive and have minimal side effects. However, the effectiveness of these interventions is not yet clear. Hence, this study is aimed to determine the effectiveness of chewing gum versus cryotherapy to increase salivary volume in H&N cancer patients undergoing radiotherapy.

Methods: A quasi-experimental time series group design to determine the most effective time to influence the increase in salivary volume. This research was conducted on 36 respondents H&N cancer undergoing radiotherapy with four times measurement are pretest-posttest on the 3rd, 5th, and 7th day of intervention between February and March 2020. Subjects were chosen using consecutive sampling. Chewing gum group will chew gum six (6) pieces/day and cryotherapy group will suck on ice cubes five (5) minutes before and after radiotherapy. The spitting method was used to collect saliva and the data were analyzed using General Linear Model-Repeated Measure (GLMRM).

Results: Chewing gum is more effective to increase salivary volume than cryotherapy. The GLMRM within subjects at four (4) times measurement showed a significant difference between chewing gum and cryotherapy group with p value <0.05 on the 7th day. Subjects in the chewing gum group had better salivary volume increment than cryotherapy group.

Conclusion: This study showed that chewing gum is more effective to increase salivary volume on patient H&N cancer undergoing radiotherapy because chewing gum has higher salivary volume increment than cryotherapy groups.

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INTRODUCTION

Head and neck cancer is a tumor that arises in the nasal cavity, mouth. oropharynx, nasopharynx, salivary glands, paranasal sinuses, hypopharynx, and larynx (NIH. 2019). Radiotherapy is one of the three most common treatments for head and neck cancer and requires discipline and a long time (Laursen et al., 2018). Radiotherapy is a cancer treatment that uses high-energy X-rays or other types of radiation to kill cancer cells or keep cancer cells from growing (NIH, 2019). The safe dose of the parotid gland is 26Gy, the safe dose of the submandibular gland is 39Gy and a 30Gy dose for minor salivary glands remains safe (Siddiqui & Movsas, 2017). Radiotherapy doses of 60-70Gy can cause prolonged and severe problems in the mouth (Villa & Sonis, 2015). Radiotherapy can shrink and kill tumor cells (Santoso,Surarso, & Kentjono, 2009). but it has the most frequent side effects experienced by patients, namely hyposalivation, thickened saliva, mucosal infections, pain and taste sensory dysfunction (Epstein et al., 2017). Epstein et al. (2017) state radiation can cause problems in the mouth.

Hyposalivation is a common problem experienced by head and neck cancer patients undergoing radiotherapy (Siddiqui & Movsas, 2017). The incidence of hyposalivation due to radiation was 87.5% -100% experienced by patients undergoing radiotherapy of the head neck area (Marinna & Harijanti, 2017;(Surjadi & Amtha, 2012). Continuous exposure to radiation and cytotoxic agents have several direct effects on the oral epithelium that can cause damage to the salivary gland duct cells and cause hyposalivation (Eghbali, Aziz, Taherkhanch, & Bagheri, 2017). Hyposalivation is defined if salivary flow without stimulation is ≤0.2mL / min (Kaae, Stenfeldt, & Eriksen, 2016). The volume of saliva produced per day ranges between 0.5 and 1.0L in normal physiological conditions, and the physiological pH range for saliva is 6.5–7.4 (Simões, Campos, Arana-Chavez, & Nicolau, 2015). Resting saliva flow rate (volume of saliva/collection time) is of 0.1mL/min or less and/or a stimulated whole saliva flow rate of 0.7mL/min or less (Ra'abung, Sudiana, & Hidayati,2019). Saliva has decreased production in patients undergoing radiotherapy compared to normal people (Irna & Subita, 2008; Surjadi & Amtha, 2012). Hyposalivation could cause negative effects on the physical aspects of making oral mucositis, pain during eating and talking, papilla loss on chapped tongue and lips (Plemons et al., 2014) as well as psychological effects causing feelings of discomfort, sadness, and, eventually, depression (Traktama & Sufiawati, 2018).

Hyposaliva management in Saiful Anwar Malang hospital advises to drink sufficient water and clean the mouth, but hyposalivation is still often experienced to become oral mucositis. Based on observations and interviews with head and neck cancer patients undergoing radiotherapy, there are patients who drink only a little because of pain when swallowing, so that intervention is needed that can stimulate the salivary gland without swallowing. Several methods can be done to reduce the severity of hyposaliva, one of which is by stimulating the salivary glands to keep producing saliva. Some methods used to reduce hyposaliva are chewing gum, sucking ice cubes, increasing the consumption of mineral water and cleaning the mouth (Marinna & Harijanti, 2017). Research (Kaae et al., 2016) shows that chewing gum can stimulate saliva output that is seen at the beginning and at the end of an intervention. Findings by Epstein et al. (2017) show that cryotherapy can stimulated saliva. Previous research have carried out many studies of chewing gum or cryotherapy in patients undergoing chemotherapy (Didem, Ayfer, & Ferda, 2014; Utami & Hayati, 2018).

Given the importance of the role of saliva and the consequences arising from hyposalivation, it is necessary for nurses to help increasing salivary volume in head and neck cancer patients undergoing radiotherapy. Chewing gum and cryotherapy are easy, inexpensive, safe interventions done by patients to increase the volume of saliva and oral mucositis (Utami & Hayati, 2018). The use of cold therapy can make patients feel cold and toothache so that it requires criteria. teeth in a healthy condition (no history of sensitive teeth) (Katranc et al., 2012) and strong flavors, such as peppermint or lemon, are not favored in the early phase of recovery; effects can be minimized by choosing flavors of xylitol gum such as blueberries and strawberries, but its effectiveness is unclear. Nurses play an important role in helping patients protect and maintain their oral health. This study aimed was to determine the effectiveness of chewing gum versus cryotherapy to increase the volume of saliva in head and neck cancer patients undergoing radiotherapy.

MATERIALS AND METHODS

This research was a quasi-experimental time series group design to determine the most effective time to influence the increase in salivary volume. This study involved 36 respondents who were divided into chewing gum groups and cryotherapy groups (18/18) obtained by consecutive sampling. Respondents were taken based on inclusion criteria to reduce the effects of bias. The inclusion criteria in this study were: 1) patients having mucositis oral undergoing radiotherapy head and neck cancer; 2) Type squamous cell carcinoma because it is the most common type of cancer; 3) patients can chew gum or suck ice cubes, confirmed with interviews. Meanwhile, the exclusion criteria in this study are: 1) patients having sensitive tooth to minimize pain when sucking ice cubes; 2) patients having diabetes mellitus. The drop out criteria in this study include the patient dies and the patient not completing the therapy process. Data collection was carried out at Radiotherapy Installation Saiful Anwar Hospital Malang between February 2020 and March 2020.

The dependent variable was salivary volume and the independent variable was chewing gum and cryotherapy. Researchers prepared equipment such as xylitol gum, ice cube, measuring cup, mask, gloves, stationery, 3cc syringe, cellphone stopwatch, observation sheet and informed consent. Prior to the intervention, the respondent obtained an explanation of the purpose of the study and signed an informed consent as a sign of willingness to become a respondent. The researchers measured the patient's saliva volume as pre-intervention data. The researchers divided the respondents into the chewing gum group and the cryotherapy group according to the patient's condition at the beginning of the study meeting and continued for up to seven (7) days of radiotherapy. The researcher also involved the respondent's family to be willing to help in the research, especially as the supervisor of the respondent in intervening correctly and routinely. Researchers explained the interventions to be provided and educated them to keep doing the hospital standard in the form of adequate drinking and cleaning the mouth.

Table 1. Characteristics of participants

Characteristics of participants	Chewing Gum group (n=24)		Cryotherapy group (n=18)		Total	
	n	%	n	%	n	%
Gender						
Male	15	83.3	16	88.9	31	86.1
Female	3	16.7	2	11.1	5	13.9
Age (year)						
17-25	1	5.6	0	0	1	2.8
26-35	1	5.6	0	0	1	2.8
36-45	4	22.2	3	16.7	7	19.4
46-55	5	27.8	7	38.9	12	33.4
56-65	2	11.1	4	22.2	6	16.7
>65	5	22.2	4	22.2	9	25
Diagnosis of Disease						
Nasopharyngeal cancer	7	38.9	13	72.2	20	59.5
Oropharyngeal cancer	1	5.6	0	0	1	2.8
Larynx cancer	5	27.8	2	11.1	7	19.4
Non-Hodgkin's lymphoma	1	5.6	0	0	1	2.8
Tongue cancer	3	16.7	0	0	3	8.3
Lymphoma cancer	1	5.6	0	0	1	2.8
Mandibula cancer	0	0	3	16.7	3	8.3
Stage						
Stage 1	0	0	1	5.6	1	2.8
Stage 2	10	55.6	9	50	19	52.8
Stage 3	6	33.3	4	22.2	10	27.8
Stage 4	2	11.1	4	22.2	6	16.7
Education status						
No school	1	5.6	2	11.1	3	8.3
Elementary school	7	38.9	4	22.2	11	30.6
Middle school	2	11.1	5	27.8	7	19.4
High school	6	33.3	6	33.3	12	33.3
Bachelor	2	11.1	1	5.6	3	8.3
Employment status						
Farmers	4	22.2	5	27.8	9	25
Private job	6	33.3	6	33.3	12	33.3
Trader	3	8.3	5	27.8	8	22.2
Civil servants	3	16.7	1	5.6	4	11.1
Housewife	2	11.1	1	5.6	3	8.3
Marital status						
Married	16	88.9	16	88.9	32	88.9
Not married	2	11.1	1	5.6	3	8.3
Divorced	0	0	1	5.6	1	2.8
Smoking habit						
Not smoking	3	16.7	3	16.7	6	16.7
1 pack/day	12	66.7	10	55.6	22	61.1
2 pack/day	2	11.1	4	22.2	6	16.7
3 pack or more/day	1	5.6	1	5.6	2	5.6
Length of smoking						
Not smoking	3	16.7	3	16.7	6	16.7
1-10 years	9	50	4	22.2	13	36.1
11-20 years	5	27.8	7	38.9	12	33.3
21-30 years	1	5.6	4	22.2	5	13.9

Subjects in the chewing gum group were asked to chew six pieces of sugar-free gum xylitol a day (two pieces in the morning. afternoon and evening) each about 10 minutes respectively for a week after radiotherapy session. The ingredients contained in xylitol gum are natural ingredients and artificial flavors (sorbitol, maltitol, syrup, xylitol, aspartame. acesulfame K), rubber-based ingredients, binding agents (E903) and antioxidants (E321) (Jerniga, Chiung, Chen, & Sewell, 2014;Leede, Leersum, Kroon,Weel, & Sijp, 2018) so they are safe for consumption. Xylitol is anticaries because it is able to suppress the number of Streptococcus mutans colonies, inhibits the growth of plaque, suppresses saliva acidity and inhibits inflammation in the mouth because xylitol cannot be metabolized by oral bacteria, including Streptococcus mutans. and is a substance that plays a role in the process of glycolysis inhibition (Rodian et al., 2011). To reduce the drop out of this research involved the family and filling out the intervention check list. The family were willing to help be a reminder of respondents in conducting chewing gum interventions, namely chewing xylitol gum three (3) times a day in the

Table 2. Salivary volume in the chewing gum and cryotherapy groups in GLMRM ANOVA within subject test

Group	Time	Mean ± SD	Delta	p-Value
Chewing Gum	3rd day vs pre-test	0.6444±0.17564	0.1223	0.000
	Day 5 vs pre-test	0.8944±0.14337	0.25	0.000
	7th day vs pre-test	1.0722±0.18087	0.4278	0.000
	7th day vs 3rd day	0.7667±0.16088	0.3055	0.000
	7th day vs day 5	0.8944±0.14337	0.1778	0.000
Cryotherapy	3rd day vs pre-test	0.6444±0.22287	0.1112	0.000
	Day 5 vs pre-test	0.8611±0.16852	0.2167	0.000
	7th day vs pre-test	0.9611±0.15770	0.3167	0.000
	7th day vs 3rd day	0.7556±0.15038	0.2055	0.000
	7th day vs day 5	0.8611±0.16852	0.1	0.001

Table 3. Salivary volume in the chewing gum and cryotherapy groups in GLMRM ANOVA between subject test

Saliva (ml/minute)	Chewing Gum Mean ± SD	Cryotherapy Mean ± SD	Delta (confidence interval 95 %)	p-value
Pretest	0.6444±0.17564	0.6444±0.2228	0 (-0.109-0.145)	1.000
3rd day	0.7667±0.16088	0.7556±0.15038	0.0111 (-0.72-0.111)	0.832
5th day	0.8944±0.14337	0.8611±0.16852	0.0333 (0.060-0.138)	0.527
7th day	1.0722±0.18087	0.9611±0.15770	0.1111 (0.16-0.237)	0.058

morning, afternoon and evening for about 10 minutes on the radiotherapy schedule. Subjects in the cryotherapy group were asked to suck an ice cube before and after radiotherapy session for five (5) minutes for a week. The patients suck the ice cubes evenly in the mouth area. Ice cubes were provided by researchers to facilitate patients. Posttest was held on third, fifth and seventh day of intervention.

Saliva volume measurements were carried out by the researchers themselves using the spitting method. The patient bowed his head deeply and the subject allowed the saliva to collect and flow through the lower lip into the tube and spit out the remaining saliva that did not flow. Measurements were taken five (5) times in five (5) minutes. Ethical approval was obtained from Komisi Etik Penelitian Kesehatan (KEPK) Saiful Anwar Hospital Malang with the number 400/017/K.3/302/2020 on January 17, 2020.

Demographic data include gender, age, education, employment status and marital status, diagnosis of disease, stage of cancer and smoking habit. Statistical tests using the General Linear Model-Repeated Measured ANOVA within subjects to determine the difference in salivary volume values pretest and posttest in each group. General Linear Model Repeated Measured ANOVA between subjects was used for showing effect of the chewing gum and cryotherapy on salivary volume between two groups.

RESULTS

Descriptive statistical analysis of the respondent's characteristics is shown in Table 1. This study was followed by 36 patients with head and neck cancer undergoing radiotherapy divided into chewing gum intervention and cryotherapy intervention. Table 2 describes the statistical test GLMRM ANOVA within subjects of the effects of treatment on each group.

Table 3 describes the statistical test GLMRM ANOVA between subjects and the effect of treatment.

Table 1. shows that, in the chewing gum group and cryotherapy group, 31 people in this study were male and five were female and had the highest age range distribution of 46-55 years by 12 people. Nasopharyngeal cancer was the majority diagnosis with 20 people. The highest stage was stage 2 with 19 people. The education level of as many as 12 people is educated high school with 12 respondents having private job. The marital status majority are 32 married people. Smoking habit as many as 22 respondents smoking 1 pack/day and the majority over 1-10 years, 13 people.

Table 2 explains that the results of the GLM-RM ANOVA test showed that there were significant differences in salivary volume before and after the intervention of chewing gum and cryotherapy at the 4th time of measurement with $p = <0.05$. In the chewing gum and cryotherapy, the biggest delta group was on the 7th day of the intervention compared to the pretest3rd day and 5th day. Delta value of the chewing gum intervention on the 7th day is 0.4278 and delta value on 7th day cryotherapy is 0.3167.

Table 3 explains that the GLMRM test results between subjects showed no significant differences in salivary volume before and after the intervention of chewing gum and cryotherapy. But the chewing gum group had better results than the mean chewing gum, which was higher by 1.0722 ± 0.18087, than the smaller cryotherapy, 0.9611 ± 0.15770, although the statistical results were p values 0.058 (p> 0.05).

Results of the GLM-RM (General Linear Model-Repeated Measure) ANOVA between subjects between the chewing gum group and the cryotherapy group showed that the effect of chewing gum intervention and cryotherapy on salivary volume is clearly visible after seven days of treatment.
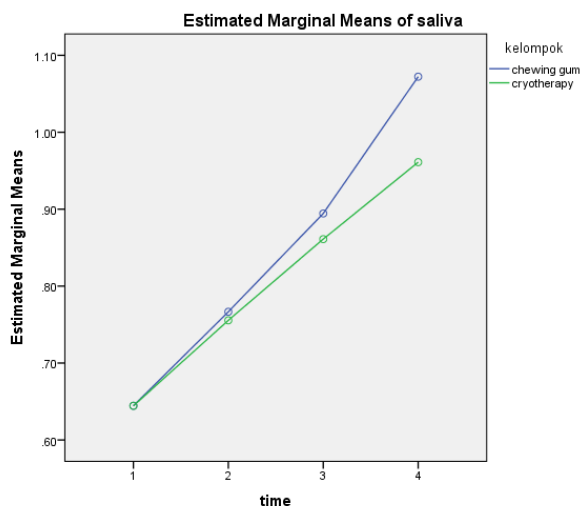
Figure 1. Graphs of salivary volume interactions (ml/min) between measurement times and between groups

DISCUSSION

Result of this study is chewing gum is more effective to increase salivary volume than cryotherapy. According to research (Pereira et al., 2016) chewing gum can increase the rate of salivary flow compared to the control group. Chewing muscles that are affected by radiation can be stimulated (Kaae et al., 2016). The main stimulus for increased salivary secretion is through mechanical stimulation (Subramaniam & Muthukrishnan, 2019). Chewing gum is a form of mechanical stimulation that is useful for increasing saliva and pH (Costa, Fernandes, Quinder,De Souza, & Pinto, 2003; Llop, Jimeno, Acien, & Dalmau, 2010). Chewing movements can make changes in the permeability of the plasma membrane, so that calcium can enter the cell. Influx cells occur and activate several enzymes, one of which is calcinurin, which affects the process of protein production transipsi, one of which is saliva (Ambudkar, 2014) thus increasing saliva production (Eghbali et al., 2017). Factors that can affect the achievement of saliva are the patient's hydration status (Samuels, 2017). drugs consumed, sleep, fasting, nutrition and imagining food and psychological factors are sadness and depression (Plemons et al., 2014).

Previous studies do not yet know the effectiveness of chewing gum versus cryotherapy to increase saliva volume which reduces because radiation rays. Saliva is a liquid produced from several glands, namely the parotid gland, which is the largest gland, then the submandibular gland which produces serus (thin saliva, low viscosity), and the smallest gland is the sublingual gland, which produces mucus (thick saliva, viscosity is higher) (Yunus, 2008). Saliva is very important because it contains antimicrobials such as lysozyme and secretes immunoglobulin A (Subramaniam & Muthukrishnan, 2019).

This research was conducted using time series to obtain the most effective time effect. In line with previous opinions (Plemons et al., 2014), measuring saliva periodically is an effective way to monitor changes in the volume and composition of saliva. Chewing or sucking sugar-free gum to stimulate saliva flow is an intervention to minimize dry mouth (Dental & Ada, 2015). This study used xylitol gum because it contains lower sugar and is easy to find on the market. The results of this study support Rodian et al. (2011) that xylitol chewing gum showed the highest increase in salivary volume compared to sucrose chewing gum and probiotic gums, but the statistical tests showed no significant difference.

Cryotherapy is applied because it has many advantages in that is practical to be applied, economical, easy and has minimal side effects (Utami, 2017). The goals of cold therapy include reducing inflammation, inhibiting pain receptors, reducing edema And controlling bleeding (Rosdahl & Kowalski, 2014).

Symptoms of a dry mouth due to reduced saliva can make a patient feel uncomfortable. disturb the appetite and quality of life (Plemons et al., 2014). Study (Dental & Ada, 2015) states sucking ice cubes, drinking water while eating to help chew and swallow food, using mouthwash-free mouthwash, avoiding carbonated drinks (such as soda), caffeine, tobacco, and alcohol, and using lanolin-based lip balm to comfort cracked or dry lips can reduce dryness in the mouth and stimulate saliva discharge. Increased salivary secretion leads to increased volume and thinning of saliva needed for ingestion and lubrication.

In this study, not all of the patients' salivary volumes increased. This is influenced by several factors. According to Samuels (2017) drugs, smoking, and alcohol consumption will reduce the flow rate of saliva. Most respondents were aged in the range 46-65 years. Old age will make the function of the salivary glands decrease, because the acinar element turns into fat and fibrous tissue (Baird, Donehower, Stalsbroten, & Ades,1991).

The results of this study prove that the chewing gum and cryotherapy affect the stimulus production of saliva. Hopefully, this study can increase information about nursing care in head and neck cancer, so that the symptoms caused by radiotherapy of the head and neck area can be reduced or avoided.

The limitation of this study was the researcher cannot fully control the respondent's intervention because it is done at home or boarding so this can have an impact on the result of the study. The strength of this study was there is an effective nonpharmacological action nurses can take to increase the volume of saliva in head and neck cancer patients by chewing gum.

CONCLUSION

This study showed chewing gum is more effective to increase salivary volume than cryotherapy among patient head and neck cancer undergoing radiotherapy in Saiful Anwar Hospital Malang on 7th day intervention. The results from this recent study hope to be useful in future health therapies to increase the volume of saliva in radiotherapy patients in the head and neck area so that it can reduce side effects and make therapy successful. What must be considered when discussing clinical application is the suitability of the gum variant. Future research is expected to control the factors that influence saliva production and conduct research by taking patients from the beginning of radiotherapy until radiotherapy is completed.

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Original Research

Cardiovascular Risk Estimation in Patients with Hypertension: A Cross- Sectional Study

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ABSTRACT

Introduction: Cardiovascular disease is a disease caused by the misfunctioning of the heart and blood vessels. Atherosclerosis is the main cause of cardiovascular disease. Prevention and control of cardiovascular disease can be done with early detection through screening activities. Framingham Risk Score using Body Mass Index (FRS BMI) risk assessment is very useful and easy, which is used without using lipid indicator. This study aims to estimate the risk of cardiovascular disease on patients with hypertension with Framingham Risk Score BMI.

Methods: The study used a descriptive method with cross-sectional design. The samples in this study were 130 respondents who were selected using consecutive sampling and retrieval technique by using FRS BMI application questionnaire.

Results: There were 11.5% respondents in low risk of CVD, 22.7% respondents at moderate risk and 60.8% respondents in higher category of cardiovascular disease 10 years later.

Conclusion: Majority of patients with hypertension showed a high risk of CVD for the next 10 years. Patients' sex and age also play an important role to increase the risk, whereby men show a higher risk of CVD for the next ten years. The hospital management and health worker should pay more attention and educate the patient about the prevention of heart disease for the next 10 years, especially for those with high risk of CVD based on FRS BMI measurement.

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INTRODUCTION

Hypertension has become a global disease, both in developed and developing countries. Hypertension is also referred to as a "silent killer" because, in some cases, it can appear without symptoms but suddenly result in death (Nuraini, 2015). The development of hypertension is gradual so it is often not realized by the sufferers. Hypertension is defined as an increase in systolic blood pressure of more than 140mmHg and diastolic blood pressure of more than 90mmHg at two measurements between a five minute interval in a good condition (Kemenkes, 2014). Hypertension which lasts for a long time (persistent) can cause damage to the kidneys, heart and brain (West Java Health Office, 2016).

According to data from Dhungana et al. (2018), the prevalence of hypertension worldwide is around 972 million or 26.4% of people. The number is likely to increase to 29.2% in 2025. From 972 million cases of hypertension, 333 million occurred in developed countries and the remaining 639 million were in developing countries, including Indonesia (Yonata, Satria, & Pratama, 2016). Meanwhile, based on the results of the 2018 Baseline Health Research report, hypertension increased from 2013 as much as 25.8% to 34.1% from the results of measurements on the population aged over 18 years (Badan Penelitian & Pengembangan Kesehatan, 2018). By 2016 in West Java 790,382 cases of hypertension (2.46% of the population ≥18 years) were found with a total of 8,029,245 cases examined in 26 districts or cities (West Java Health Office, 2016).

According to Whelton et al. (2018), the prevalence of hypertension in stage 1 showed more

men with hypertension than women, while, in stage 2, it affects more women. Women more than 55 years are more at risk of suffering hypertension than men. Complications of hypertension cause around 9.4 million deaths worldwide each year. Hypertension causes at least 45% of deaths due to heart disease and 51% of deaths due to stroke (Kemenkes, 2014). Increasing age and increasing numbers of hypertensive patients raise major problems associated to cardiovascular disease.

Cardiovascular disease is caused by impaired heart and blood vessel function WHO (2019). Globally, among non-infectious diseases, the number one cause of death annually is cardiovascular disease (Kemenkes, 2014). According to the WHO (2019), around 17.5 million people worldwide die from cardiovascular disease and the disease accounts for 31% of deaths worldwide. Deaths caused by cardiovascular disease, especially coronary heart disease and stroke, are expected to keep increasing, reaching 23.3 million in 2030 (Kemenkes, 2014).

Hypertension is a factor that plays a role in the pathogenesis process of cardiovascular disease through atherosclerosis process. According to Budiman, Sihombing, and Pradina, (2015), the process of atherosclerosis in artery walls will facilitate the formation of blood clots and weaken the blood vessels of patients. So that the effects that occur in the heart arteries continuously cause damage to the arterial blood system leading to a hardening or stiffness process.

According to Frostegård (2013), atherosclerosis is a major cause of cardiovascular disease. Atherosclerosis is a chronic inflammatory condition in blood vessels that can cause plaque in artery walls (AHA, 2019). Cardiovascular disease or atherosclerosis cardiovascular disease includes cardiovascular disease coronary heart disease, myocardial infarction, and stroke (Lloyd-Jones et al., 2019). Plaque can be formed from cholesterol, fatty substances, calcium and fibrin. When plaque builds up, it can narrow the channels in the arteries, partially or completely, in the heart arteries (AHA, 2019).

Efforts to prevent and control cardiovascular disease can be done with early detection through screening activities, so that the possibility complications risk, such as coronary heart disease, myocardial infarction, and stroke, can be prevented. Health screening for disease prevention has long been used as the most important healthcare strategy to provide patients with early diagnosis and treatment, improvement in quality of life, and preventing premature death (Bell et al., 2017). Currently, there are many global researches developed on how much a person is affected by cardiovascular disease, one of which uses Framingham Risk Score using Body Mass Index (FRS BMI) application. According to Emor,

Panda, and Pangemanan (2017), this can be done as primary prevention in patients who already have risk factors, but have never experienced cardiovascular disease. The result of FRS BMI is a calculation of the risk of atherosclerotic cardiovascular disease in the next 10 years (Lloyd-Jones et al., 2019). This FRS BMI application measures the risk of cardiovascular disease with indicators of age, sex, systolic blood pressures, hypertension treatment, smoking status, diabetes mellitus, and BMI. Risk assessment using FRS BMI is very useful and practical to use without using the measured lipid indicators, making it easier to detect early in controlling cardiovascular disease risk factors, among which are systolic blood pressure, smoking habits and body mass index.

The results of Emor et al's (2017) study regarding the prediction of the risk of atherosclerotic cardiovascular disease in patients seeking treatment at internal medicine clinics in RSUP Prof. Dr. RD Kandaou Manado shows the results of the number of patients (n=100) with the predicted risk level of the next ten years for atherosclerotic cardiovascular disease;(n=42) patients have a low risk level of 42%, moderate 27% and high 31% based on Framinghan Risk Score. This study also states that patients with systolic blood pressure ≥160mmHg were not found with low and moderate risk, but high risk. Hassan et al. (2018) conducted a research on the prediction of atherosclerotic cardiovascular disease in the population of Pakistan, and found that smoking history, diabetes type 2 and hypertension are the main potential risk factors underlying ASCVD (Atherosclerotic Cardiovascular Disease) in individuals in Pakistan. No study has been conducted in Indonesia to explore the risk of cardiovascular disease in hypertensive patients using FRS BMI, which is considered as a useful tool. The purpose of this study was to estimate cardiovascular disease in hypertensive patients in Indonesia.

MATERIALS AND METHODS

The research design used in this study was quantitative descriptive, with cross-sectional approach. The study population was hypertension patients in hospitals in West Java. The sample size in this study was determined using G-power software version 3. 1. 9. 2 (Cohen, 1992) to determine the estimated frequency of cardiovascular risk in hypertensive patients using the exact test and statistical test, that are the proportion difference from constant (binominal test, one sample case) assuming $\alpha = 0.05$, medium effect size = 0.15, power level = 0.95 and constant proportion = 0.5; the maximum total sample recruited is 119 people. To avoid data error, the number of respondents was

added by 10% for researcher errors and for sample errors measured. Therefore, the total sample recruited in this study was 130 people.

Table 1. Estimated CVD Risk for Hypertensive Patients (n = 130)

Risk Estimation	n (%)
Low	15 (11.5)
Medium	36 (22.7)
High	79 (60.8)

Table 2. Characteristics of Respondents (n = 130)

Variable	n (%)
Gender	
Male	38 (29.2)
Female	92 (70.8)
Age	
mean ± SD	61.3 ± 8.74
min ± max	40 ± 74
36-45 years old	8 (6.2)
46-55 years old	24 (18.5)
56-65 years old	46 (35.4)
>65 years old	52 (40.0)
Occupation	
Unemployed	10 (7.7)
Labor	4 (3.1)
Trader	8 (6.2)
Private sector (employee)	5 (3.8)
Civil Servant	30 (23.1)
House Wife	46 (35.4)
Retired	27 (20.8)
Education	
Uneducated	1 (0.8)
Elementary School	26 (20.0)
Junior High School	29 (23.3)
Senior High School	55 (42.3)
College	19 (14.6)

The inclusion criteria of this study were hypertension patients who have hypertension systolic, documented height and body weight (to measure the body mass index), and aged above 35 years old according to the recommendation from using Framingham Risk Score BMI (for aged above 25 years old), and have been diagnosed with hypertension for more than one year. The exclusion criteria were patient already diagnosed with cardiovascular disease and other medication, chronic kidney disease, tuberculosis, cancer-related disease, and pregnant women. Consecutive sampling technique was used to take all respondents that met the inclusion criteria until the sample size was fulfilled.

The instrument used for this research was the application of FRS BMI (Framingham Risk Score using Body Mass Index) developed by Agostino et al. (2008) in collaboration with Boston University and the National Herat, Lung, and Blood Institute. Indicators assessed gender, age, systolic blood pressure, treatment of hypertension, current smoking, diabetes mellitus status and BMI. Cardiovascular disease outcomes include stroke, chronic heart disease, myocardial infarction, and peripheral arterial disease

and heart failure. Risk assessment can be calculated using the following formula (Agostino et al., 2008). Reliabilities of the original Framingham function and of the best Cox model fit with the study data were similar in men (area under the receiver operator characteristic curve 0.68 and 0.69, respectively, p=0.273), whereas the best Cox model fitted better in women (0.73 and 0.81, respectively, p=0.001) (Marrugat et al., 2007).

$$\hat{p} = 1 - S_0(t)^{\exp}\left(\sum_{i=1}^{p} \beta_i x_i - \sum_{i=1}^{p} \beta_i \bar{X}_i\right)$$

Note: Where S0 (t) is the baseline survival at follow-up time t (t = 10 years; see Table 3. 1), β_i is estimated regression coefficient (log hazard ratio; see Table 3. 1), Xi is log- transformed value of risk factors, X¯ i is the corresponding mean, and shows the amount of risk factors. The 10-year CVD risk can be calculated as follows: the risk for women 1-0.95012exp (ΣßX - 26.1931). The risk for men 1-0.88936exp (ΣßX - 23.9802) (Agostino et al., 2008).

Ethical permission was conducted from the affiliated university (III/12/KEPK/STIKEP/JABAR/2019). In the implementation phase of the research for data collection, respondents used the application questionnaire. Selection of respondents was by means of patients who came that day, but researchers first looked at the criteria. Researchers looked at hypertensive patients from the patient's medical record to see that the respondents were indeed hypertensive patients. After that, the names of hypertensive patients were noted. After the respondent was summoned to the blood pressure measurement room by a nurse in the internal medicine clinic to be checked for blood pressure, weight and height, the researcher introduced themselves and provided a simple explanation of the purpose and objectives of this study. Questionnaires and informed consent were read by researchers to respondents. Respondents just answered questions from the researchers, then the researchers calculated the patient's BMI and FRS BMI score. Blood pressure, body weight, and TB data were obtained from the patient's medical record. For the stage of hypertension, this was seen from the doctor's diagnosis in the medical record.

RESULTS

Table 1 shows that more than half of respondents (60.8%) have a high-risk category for the CVD in the next ten years particularly among hypertensive patients. On the other hand, a small proportion of respondents (11.5%) have a low category. Table 2 shows that the majority of respondents (70.8%) were female with an average age of 61.3 years (SD 8.74). Less than half of respondents (35.4%) work as housewives with last education for less than half of respondents (42.3%) was high school.

Table 3 shows that the average SBP stage is hypertension 142.20mmHg. Hypertension patients without smoking habit have a greater percentage

than those who smoke (80.0%). As regard diabetes status, more than half of respondents (66.9%) did not suffer from diabetes mellitus and the average BMI in hypertensive patients was 25.13 (SD 13.18). Comorbidity in hypertensive patients showed that more than half of the respondents (63.8%) did not have concomitant diseases. The duration of HTN treatment and length of HTN suffered was an average of 6.21 years.

Table 4 shows the majority of respondents (94.7%) were men at high risk of CVD in the next 10 years with a p value of 0.000. The age of hypertensive patients at high risk of CVD in the next 10 years was less than half of respondents (46.8%) with age> 65 years. Then, for the stage of hypertension, most respondents (84.2%) had a high risk of CVD in the next 10 years with a p value of 0.001. More than half of the respondents (68.4%) were obese BMIs with a high risk of CVD in the next 10 years. The length of HTN and HTN treatment duration was more than half of respondents (64.7%) or> 10 years of high-risk CVD in the next 10 years with p value 0.180.

DISCUSSION

The data show that more than half of respondents (60.8%) were in high risk category in hypertensive patients to have CVD in the next 10 years. The results of this study are in line with the study of Sa'adeh et al. (2018), who stated that hypertensive patients with high knowledge scores and high attitude scores are significantly associated with high practice scores on the prevention of chronic kidney disease (CKD). Chronic kidney disease is a serious disease, but can be prevented with a three-level strategy, including education, modifying risk factors and screening.

This research shows that the high risk of CVD in hypertensive patients is influenced by high blood pressure. Increased blood pressure is a heavy burden on the heart, causing hypertrophy in the left ventricle or myocardial infarction. High and persistent blood pressure will cause direct trauma to the walls of the coronary arteries, making it easier for coronary atherosclerosis t occur. This causes angina pectoris (Anwar, 2004). High blood pressure continuously causes damage to the arterial system of the arteries, with the artery slowly also affected by increased cholesterol levels in the blood; this process constricts the lumen in the blood vessels so that blood flow becomes obstructed.

This study shows the results that the majority of respondents (94.7%) of high-risk CVD in the next 10 years were men more than women. This is supported by Marso et al. (2016) who stated that the risk of CVD is greater in men than in women. Women are somewhat more resistant to this disease until the age after menopause and then become as vulnerable as men; this is because men do not have protective hormones like women, called the hormone estrogen, which functions as protection of the heart until before menopause.

Table 3. Clinical Information of Respondents (n = 130)

Variable	n (%)
Hypertensive Stage (SBP)	
Mean ± SD	142.20 ± 13.18
Min ± Max	130 ± 200
Currently smoking status	
Yes	26 (20.0)
No	104 (80.0)
Diabetes Mellitus	
Yes	43 (33.1)
No	87 (66.9)
BMI	
mean ± SD	25.13 ± 4.13
Min ± max	16.70 ± 38.70
Comorbidity	
No comorbidity	83 (63.8)
CKD	3 (2.3)
DM	43 (33.1)
TB	1 (0.8)
Length of treatment	
Mean ± SD	6.21 ± 6.91
Min ± max	1 ± 49
Length of hypertension	
Mean ± SD	6.21 ± 6.91
Min ± max	1 ± 49

However, this study not only describes the sex, but, in terms of age, it depicted that as regard the age of hypertensive patients less than half the respondents were > 65 years of high-risk CVD in the next 10 years. This is supported by Marleni and Alhabib (2017) at Siti Khadijah Hospital in Palembang who found that cardiovascular disease sufferers are more common in the age group> 45 years. According to research conducted by Endah, Patriyani, and Purwanto (2016) 75% of CHD occurred at the age of> 40 years. The American Heart Association (AHA) explains that age is an irreversible risk factor and the majority of people die from coronary heart disease aged 65 years or more (Arnett et al., 2019). Age is a risk factor for coronary heart disease where increasing age will increase the risk of coronary heart disease, the older the age the greater the emergence of plaque that sticks to the walls of blood vessels and causes disruption of blood flow through it.

Age factor has been shown to be related to death from coronary heart disease. Signs and symptoms of coronary heart disease are often found in older individuals (Ghani et al., 2016). Based on the results of this study and supported by theory and previous research, the researchers argue that coronary heart disease currently occurs considerably in old age, where the physiological physiology of the human body has decreased. That is because there are other trigger factors, especially in terms of lifestyle.

For stage of hypertension or SBP most of the respondents (84.2%) have a high risk of CVD in the next 10 years. Other studies also reinforce that respondents with high risk of hypertension experience CHD 10.09 times compared with those

Table 4. Frequency Distribution Based on Demographic Characteristics Differences of Hypertensive Patients at the Hospital Polyclinic in West Java (N = 130)

Variable	n (%)	Estimated CVD risk for the next 10-years			p *value*
		Low n (%)	Medium n (%)	High n (%)	
Sex					
Male	38 (29.2)	0	2 (5.3)	36 (94.7)	0.000
Female	92 (70.8)	15 (16.3)	34 (37.0)	43 (46.7)	
Age					
36-45 Years Old	8 (6.2)	6 (40.0)	2 (5.6)	0	0.000
46-55 Years Old	24 (18.5)	7 (46.7)	5 (13.9)	12 (15.2)	
56-65 Years Old	46 (35.4)	1 (6.7)	15 (41.7)	30 (38.0)	
>65 Years Old	52 (40.0)	1 (6.7)	14 (38.9)	37 (46.8)	
Blood pressure					
<142,2	92 (70.8)	15 (16.3)	30 (32.6)	47 (51.1)	0.001
>142,2	38 (29.2)	0	6 (15.8)	32 (84.2)	
Body Mass Index (BMI)					
Underweight	3 (2.3)	0	2 (66.7)	1 (33.3)	0.462
Normal	64 (49.2)	8 (12.5)	14 (21.9)	42 (65.6)	
Overweight	44 (33.8)	5 (11.4)	16 (36.4)	23 (52.3)	
Obese	19 (14.6)	2 (10.5)	4 (21.1)	13 (68.4)	
Length of treatment					
<10 Years	110	14 (14.6)	25 (26.0)	57 (59.4)	0.180
>10 Years	20	1 (2.9)	11 (32.4)	22 (64.7)	
Length of hypertension					
<10 years	110	14 (14.6)	25 (26.0)	57 (59.4)	0.180
>10 years	20	1 (2.9)	11 (32.4)	22 (64.7)	

without hypertension (Ghani et al., 2016). According to Perry and Potter (2010),the elderly usually experience an increase in systolic blood pressure associated with decreased elasticity of blood vessels and this increases the risk of diseases associated with hypertension. In addition, structural and functional changes in the peripheral vascular system are responsible for changes in blood pressure that occur in old age. These changes include atherosclerosis, loss of elasticity of the connective tissue, and reduction in relaxation of vascular smooth muscle.

Consequently, the aorta and large arteries are reduced in the ability to anocytate the volume of blood pumped by the heart (stroke volume), resulting in decreasing cardiac output and increasing peripheral resistance (Brunner & Suddarth, 2002). Based on the above explanation, the researchers assume that hypertension increases the risk factors for cardiovascular disease. That is because the current pattern of human life which prefers to consume instant food or junk and fatty food, and has smoking habits increasingly makes the heart workload increase. So, if someone with hypertension needs to control blood pressure in order to reduce the risk of cardiovascular disease, she or he needs to adopt a healthier lifestyle.

Based on this study, it is known that the Body Mass Index in hypertensive patients shows more than half of respondents (68.4%) have BMI obese status with high risk of CVD in the next 10 years. This can be explained as that the effect of obesity on coronary heart disease does not always stand alone, but is usually exacerbated by other factors. Previous study using Framingham Risk Score for lipid showed that for every 10% increase in body weight, systolic blood pressure rises by 6.5mmHg, plasma cholesterol is

12mg/dl and blood glucose level is 2mg/dl (Djafri, Monalisa, Elytha, & Machmud, 2017). This is supported by Jneid and Thacker (2001) who proved a significant relationship between obesity and coronary heart disease with a pooled RR of 1.81 (95% CI 1.56-2.10). There is a significant relationship between obesity and coronary heart disease because obesity can increase blood pressure, triglyceride levels, cholesterol, glucose resistance, and blood clotting. Increased blood pressure makes blood vessels vulnerable to thickening and narrowing. If this occurs in the coronary arteries, it will cause coronary heart disease.

Duration of HTN and duration of HTN treatment show that more than half (64.7%) or >10 years of respondents are at high risk of CVD in the next 10 years. This is supported by Novriyanti and Usnizar (2014) that hypertension duration shows risk factors for CHD with 11-15 years hypertension category dominating by 47.9%. This shows that the longer the hypertension, the higher the risk of CHD. Increased blood pressure over a long period of time will result in structural changes in blood vessels. These include changes in macro and microvascular structure. Changes in macrovascular arteries become stiff and changes in amplification are central to peripheral pressure. Microvascular changes are in the form of changes in the ratio of blood vessels and lumen in large arterioles, vasomotor tone abnormalities and 'structural rarefaction' meaning loss of microvascular blood flow does not flow to all microvascular to maintain perfusion to certain capillaries. Changes in structure will interfere with tissue perfusion, so that, in the long term, hypertension can result in damage to body organs.

This causes myocardial infarction, stroke, heart failure, and kidney failure (Hall et al., 2015; Neter et al., 2003: :Yannoutsos et al., 2014).

In this research, limitations are that measurement of blood pressure was not carried out twice , difficulty to get respondents and the short time in the selection of respondents.

CONCLUSION

Prevalence of the estimated risk of CVD in the next 10 years in hypertensive patients results in a high category (60.8%). Differences in demographic data in hypertensive patients showed men are at high risk of developing CVD in the next 10 years compared to women with an average age of 61.3 years. Furthermore, hypertension with an average of 142.2mmHg showed high risk of CVD in the next 10 years. For BMI status, obese status estimation was with high category. Duration of hypertension and length of treatment of high-risk hypertension CVD in the next 10 years have significant differences. It is expected that hospitals can pay attention to patients with obesity to obtain treatments or education related to obesity about prevention of heart disease in the next 10 years. Future research can be done, such as the factors that influence the risk of CVD in hypertensive patients.

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AUTHOR INDEX
VOLUME 15 NOMOR 1 APRIL 2020

SUBJECT INDEX
VOLUME 15 NOMOR 1 APRIL 2020

AUTHOR INFORMATION PACK
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Jurnal Ners

Table of Content

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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/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

DISCUSSION (Times New Roman 11)

Describe the significance of your findings. Consider the most important part of your paper. Do not be verbose or repetitive, be concise and make your points clearly. Follow a logical stream of thought; in general, interpret and discuss the significance of your findings in the same sequence you described them in your results section. Use the present verb tense, especially for established facts; however, refer to specific works or prior studies in the past tense. If needed, use subheadings to help organize your discussion or to categorize your interpretations into themes. The content of the discussion section includes: the explanation of results, references to previous research, deduction, and hypothesis.

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CONCLUSIONS (Times New Roman 11)

Conclusion should be explained clearly related to hypothesis and new findings. Suggestion might be added contains a recommendation on the research done or an input that can be used directly by consumer.

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REFERENCES (Times New Roman 11)

The author-year notation system is required and completed. All reference mentioned should be written down in reference using **Harvard Cite Them Right 10th Edition** style and arranged from A to Z. Articles have minimal 25 recent references (last 10 years) and 80% is journal. References from journal publication should be provided by DOI. **All cited references must be mentioned in in-text citation.** If you are Mendeley user, please download the reference style here **https://www.mendeley.com/guides/harvard-citation-guide**

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Reference to a Journal Publication:
Efendi, F., Chen, C. M., Nursalam, N., Indarwati, R., & Ulfiana, E. (2016). Lived experience of Indonesian nurses in Japan: A phenomenological study. Japan Journal Nursing Science, 13(2), 284-293. doi:10.1111/jjns.12108

Reference to a Book:
Kurniati, & Efendi, F. (2013). Human Resources for Health Country Profile of Indonesia. New Delhi: WHO South-East Asia Region.

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MoH. (2013). Sosialisasi Global Code of Practice on The International Recruitment of Health Personnel [Dissemination Global Code of Practice on The International Recruitment of Health Personnel]. Retrieved December 2, 2014, from
http://bppsdmk.depkes.go.id/tkki/data/uploads/docs/workshop-sosialisasi-gcp.pdf

Reference in Conference:
Nursalam, Efendi, F., Dang, L. T. N., & Arief, Y. S. (2009). Nursing Education in Indonesia: Todays and Future Role. Paper presented at the Shanghai International Conference, Shanghai.

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