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Spiritual Needs of Post-Stroke Patients in the Rehabilitation Phase

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Abstract

Post-stroke patients experience in various disturbances including physical, psychological and spiritual aspect. Post-stroke patients in the rehabilitation phase focus more on physical needs while the unfulfilled spiritual needs can reduce the patient's health condition. Therefore, it takes action to meet the spiritual needs of patients. This study was conducted to identify the spiritual needs among post-stroke patients.The descriptive quantitative was used among post-stroke patients in Neurological Polyclinic and stroke center in one of the Hospital in Bandung in 2017. The sampling technique used was consecutive sampling with 83 samples included post-stroke patients who have full awareness and didnot experience of aphasia. The instrument of this study used Spiritual Needs Questionnaire (SpNQ) which consists of 4 dimensions including religious, peace, self-existence, and dimension of the giving needs. SpNQ had a validity coefficient of 0.73 and r 0.75. Data were analyzed using frequency distribution. The results showed that the most of respondents feel the spiritual need in all dimensions. In the religious dimension, the majority of respondents desired to pray with others, to move closer to God and participate in various religious activities (98.8%). In the dimension of peace showed the most of respondents desired to be more cherished by others (96.4%). The most perceived item of respondents were forgiving someone from the past in the dimension of self-existence (98.8%) and a solace for others in the dimension of the giving needs (98.8%). The conclusion from this study was most respondents feel the spiritual needs in all dimensions. Based on these results, nurses are expected to provide advice to people around the patients to invite them in various religious activities. Nurses supposed more expressing affection to them and involving the patients in some family activities.

Keywords: Needs, rehabilitation, spiritual, stroke.

Introduction

Stroke is one of disease that leading causes of death. The incidence of stroke in various countries has increased. The mortality of stroke in Asia was higher than in Europe or United States. Indonesia is one of the countries with high incidence of stroke in Asia (Kim, 2014). Based on the Basic Health Research (Riskesdas, 2013), the incidence of stroke in Indonesia has been increasing rapidly from 8.3 per 1000 residents in 2007 to 12.1 per 1000 population in 2013 (Ministry of Health, 2014).

Stroke is a disruption of blood flow to a part of the brain, which causes brain cells to be damaged or blockage in the blood vessels. Stroke can be caused by a rupture or a blockage of blood vessels in the brain. Hypertension, hypercholesterolemia, diabetes mellitus are the risk factor of stroke. These conditions can cause disruption of tissue perfusion so the brain has function disruption and even death. The impaired function of the brain can cause various disorders including physical disturbances, emotional disturbances and cognitive disturbances (Smeltzer & Bare, 2010).

The post-stroke patients have experience in physical and emotional disturbances. The physical disturbances among stroke patients included the low function of extremity or even paralysis, swallowing disorders, speech impairment, visual impairment, and urinary or fecal incontinence (Smeltzer & Bare, 2010). These physical disorders depend on the area that affected by perfusion disturbances and can cause disorder of daily activity (Dalvandi et al., 2010). The emotional disturbances among stroke patients was personality disorder, become irritable, anxiety, depression, emotional incontinence, and often felt run down (Kim, 2016). Most of patients with stroke have experience moderate anxiety (Pratiwi, 2017). In addition, post-stroke patients often experience emotional expression disorders, catastrophic reactions, and fear of falling (Kneebone & Lincoln, 2012).

Physical and psychological disturbances among stroke patients can lead to disruption of their functional activity which related to decline in quality of life. Most of patients with post-stroke have a low quality of life. This is due to the disruption of emotional status, physical weakness, and other demographic factors such as gender and level of education (Oros et al., 2016). In addition, depression and anxiety can affect the treatment outcomes among post-stroke patients (Clarke & Currie, 2009).

The disturbances of physical, emotional, and cognitive among post-stroke patients resulted in them having to get comprehensive treatment in physical, psychological and spiritual care. The various therapies in the rehabilitation phase focus more on the interventions to coped with the various physical disorders than the psychosocial or spiritual disturbances. The previous studies showed some stroke patients consider that the spiritual dimension is very important to them (Owolabi, 2011).

Spiritual is linked to many important aspect of human functioning and can affect one's health condition. The individual's spiritual consist of three important elements includes of oneself, others and God. In addition, spirituality can be defined as the meaning and life expectancy and belief of a person so that it is viewed as a value and a belief (Dyson, Cobb, & Forman, 1997). The compliance of spiritual needs among patients with chronic diseases such as stroke is very important. Patients still have the meaning and hope in living his life. It will relate to increase the quality of his life as well as the motivation to undertake the various therapies in the rehabilitation phase. This is in accordance with study conducted by Rowe and Allen (2004) that spirituality was the largest source of individual coping. Outpatient care is mostly done by families compared to health workers. The fulfillment of spiritual needs in outpatient services is often overlooked even though in this phase, patients have returned home and socialized with the community. The socialization can be disrupted by the limitations of post-stroke patients.

Nurses have a role in providing services holistically among post-strokepatients. Nurses are expected to assist patients in meeting their biological, psychological, social and spiritual needs. Nurses should be

able to provide services with consideration to the body, mind and spirit holistically. The meet of the post-stroke patients needs has not only in physical and psychological needs but also in the spiritual need. Therefore, this study is important to examine the spiritual needs of post-stroke patients.

Method

This study used the descriptive cross sectional design to identify the spiritual needs of post-stroke patients. This study was conducted among post-stroke patients at Neurological Polyclinic and Stroke Center in one of the Hospital in Bandung. The consecutive sampling method was used in this study. The inclusion criteria were more than 22 years old post-stroke patients, have full awareness and no communication problems, while the exclusion criteria was stroke patients who have unstable high blood pressure. 83 respondents,

Data collection techniques used questionnaire. The characteristic of respondents was assessed to see the homogeneity and other factors influencing the patient condition. The data was assessed consisting of age, gender, the education level, occupation, religion, income, marital status, length of stroke, type of stroke, comorbidities, and the history of stroke.

The spiritual needs of this study were measured using the Spiritual Needs Questionnaire (SpNQ), which was developed by Bussing, Balzat, and Heusser (2010). The time required in full filling this questionnaire was five minutes. The SpNQ consists of 19 items of questions under four dimensions: religious dimensions, inner peace, existential need (reflection/rerating), and actively giving. The scoring of this questionnaire was done by assessing the respondent's spiritual needs (yes/no), then assessing how important the needswas felt by the respondent with scale ranging from 1 (somewhat needed), (2) required, and (3) much needed. The SpNQ questionnaire has been used in Indonesian language with validity of 0.73 and r 0.75 (Nuraeni et al., 2015). Descriptive analysis (frequency, percentage, mean, and median) were used to analyze and identify the spiritual needs of post-stroke patients by comparison of percentage of each needs.

Result

Table 1 The Respondents' Characteristics

Characteristics	Frequency (f)	Percentage (%)
Age (years)		
36 – 45	3	3.6
46 – 55	42	50.6
>55	38	45.8
Marital Status		
Married	75	90.4
Single	0	0
Widowed	8	9.6
Barthel Indeks		
Total Dependence	2	2.4
Severe Dependence	4	4.8
Moderate Dependence	4	4.8
Mild Dependence	18	21.7
Independent	55	66.3

Table 2 Spiritual Needs of Post-Stroke Patients in Religious Dimension

Spiritual Needs:Religion	No	(%)	Yes	(%)
Praying with others	1	1.2	82	98.8
Someone is praying for you	3	3.6	80	96.4
Praying alone	**20**	24.1	63	75.9
Turning to a higher presence (i.e., God, angels).	1	1.2	82	98.8
Participating in a religious ceremony	1	1.2	82	98.8
Reading spiritual/religious books	5	6.02	78	93.98

Table 3 Spiritual Needs of Post-Stroke Patients in Inner Peace Dimension

Spiritual Needs: Inner Peace	No	(%)	Yes	(%)
Wish to dwell at places of quietness and peace	7	8.4	76	91.6
Finding inner peace	7	8.4	76	91.6
Talking with others about fears and worries	**32**	38.5	51	61.5
Plunge into the beauty of nature	22	26.5	61	73.5
More loving by others	3	3.6	80	96.4
Reading spiritual/religious books	5	6.02	78	93.98

Table 4 Spiritual Needs of Post-Stroke Patients in Existential Needs Dimension

Spiritual Needs:Existential Needs	No	(%)	Yes	(%)
Reflecting on your previous life	27	32.5	56	67.5
Find meaning in illness and/or suffering	20	24.1	63	75.9
Talking with someone about the meaning of life/ suffering	**22**	26.5	61	73.5
Talking about the possibility of life after death	22	26.5	61	73.5
Forgiving and forgiven someone from the past	1	1.2	82	98.8
Reading spiritual/religious books	5	6.02	78	93.98

Table 5 Spiritual Needs of Post-Stroke Patients in Actively Giving Dimension

Spiritual Needs:Actively Giving	No	(%)	Yes	(%)
Turning to someone in a loving attitude	4	4.8	79	95.2
Giving away something for yourself	3	3.6	80	96.4
Actively and autonomous intention to solace someone	**1**	1.2	82	98.8

The characteristics of respondents in this study can be seen in Table 1. A total of 83 respondents showed the most of respondents were range of age of 46-55 years (50.6%), Islam (98.8%), married status (90.4%), and independence (66.3%).

Based on the results of this study, all items of spiritual needs were felt by the most of respondents. Only a small proportion of respondents were report that they did not need or had fulfilled the items of spiritual needs. The spiritual needs of post-stroke patients in the religious dimension can be

seen in Table 2. As shown in Table 2, the item in religious dimension in spiritual needs revealed that the most needed (98,8%) by the respondents were praying with others, turning to a higher presence, and participation in religious ceremonies. The spiritual needs in the dimension of inner peace can be seen in Table 3. The spiritual needs item in inner peace dimension showed that the most of respondent was more loving by others (96.4%).

Table 4 shown spiritual needs in existential needs dimension. The most needed item by respondents was forgiving someone from the past (98.8%). As shown in Table 5, the item in active giving dimension of spiritual needs which have the most needed by respondents was actively and autonomous intention to solace someone (98.8%).

Discussion

The treatment of post-stroke patients should be holistic in terms of physiological, psychological, social and spiritual needs. The rehabilitation phase should not only focus in physical needs but also on social needs and spiritual needs. Stroke patients take less attention of spiritual needs whereas it's a need that greatly affects other needs including physical needs (Owolabi, 2011).

The spirituality can affect a person's health condition. Patients with chronic illness who have good spiritual wellbeing showed improve their health condition (Vilhena et al., 2014). A person who has a high spiritual level will experience in getting meaning of life (Visser, Garsen, and Vingerhoetsa, 2010). The spirituality can help a person by facilitating and improving emotional status, feelings of happiness, positive feelings and leading to a better life (Barlett et al., 2001). In addition, spirituality can help a person to be tougher in living his life (Owolabi, 2011). Spirituality can help patients struggle against chronic diseases by stabilizing the psychological and emotional conditions, finding hope and meaning of life and achieving peace despite suffering from chronic diseases (Bussing, Zhai, Peng, and Ling, 2013).

All the dimensions of spiritual need are required by the majority of respondents in this study. The patients with chronic diseases with various physical conditions and followed any treatments can cause various psychological disorders such as anxiety and depression. In such conditions, spiritual needs was one of the many needs needed by patients with chronic diseases as a coping mechanism in the face of all the stressors (Pulchalski, 2001; Rowe & Allen, 2004). The spiritual needs consist of four dimensions including religious dimension, inner peace dimension, existential needs dimensionand actively giving dimension (Bussing, 2012).

In this study, the most of respondents have the most spiritual needs in religious dimension. This result was relevant with study conducted by Nuraeni et al. (2015) among cancer patients. The most needed items by the respondents were praying with others, turning to a higher presence, and participation in religious ceremonies. The majority of respondents in this study were late adult aged. They would begin to consider the meaning of life and more closer to the higher power of God. This finding is consistent with study conducted by Mc Cullough's research et al. (2005) that the higher of age will increase the religious condition as well. Most of the respondents in this study were independent so they can engage in various religious activities. Therefore, the majority of respondents in this study have selected item ‘praying with others, turning to a higher presence, and participation in religious ceremonies’. Religion has a part in the rehabilitation phase among post-stroke patients includes the coping mechanism and acceptance of self-conditions, and therapist approach in rehabilitation therapy (Omu, Al-Obaidi, & Reynolds, 2014). The resources of spirituality for patients in the most countries refer to the “religion” as the resources and coping.

All items in inner peace dimension of spiritual needs were required by the majority of respondents in this study. The most needed item wasmore loving by others. Patients with post stroke often have experience anxiety and depression so they need others to share (Pratiwi, 2017). The item ‘talking with others about fears and worries’ in inner peace dimension was the least needed by respondents in this study. This condition can be caused by the majority of respondents in

this study have married and living with a partner so that items have been meet by the presence of their spouses. The perceived concerns of post-stroke patients are related to their health condition and physical limitations experienced by them. These conditions can lead feeling anxious and fear of their future (Kevitt et al., 2009).

The most needed item of existential needs dimension of spiritual need by respondents in this study was to forgiving someone from the past. Life in the past can affect a person's well-being. If the person has unresolved problems in the past so can lead to uncomfortable life. The items 'talking with someone about the meaning of life/suffering' and 'talking about the possibility of life after death' in the existential needs dimension showed the least needed by the respondents in this study. This could be happen due to majority of the respondents were Muslim which clearly illustrates that there is life after the death.

All the items in active giving dimension of spiritual needs were needed by respondents in this study. The most needed item by respondents was actively and autonomous intention to solace someone. In this dimension, a person has a need to give because by giving there wasa satisfaction and happiness. Despite the limited functionality in the activity, patients with stroke still want to have meaning of life of others so that they have needs for giving. This is in accordance with the meaning of spirituality for patients in Indonesia who has actively giving needs (Nuraeni, 2012). The chronic illness can bring a person to a better life. A small percentage of respondents in this study reported the needs item 'turning to someone in a loving attitude'. Research Limitation, none of the respondents in this study were included in the early adult range so they could not describe spiritual needs at various ages.

Conclusion

Based on the results of this study, the spiritual needs that respondent's requirement in sequence ranging from dimension of religious, inner peace, existential need, and actively giving. The religious dimension among post-stroke patients in this study reported that the most needed was in religious dimension in spiritual needs revealed that the most needed was praying with others, turning to a higher presence, and participation in religious ceremonies. In the dimension of inner peace revealed that respondents in this study was to be more loved by others. The existential need dimension in this study revealed that the most needed was forgiving someone from the past. The active giving dimension of spiritual needs among post-stroke patients in this study was actively and autonomous intention to solace someone.

A nurse is a caregiver for patients and helps to meet their basic needs by providing nursing care.Nursing care in patients with chronic diseases especially in post-stroke patients should be done holistically both physiologically, psychologically, socially and spiritually. The treatment of post-stroke patients in the rehabilitation phase should not only focus on meeting physiological needs but also on psychological and spiritual needs. The meet of spiritual needs can affect to physiological and psychological well-being. In addition, the spiritual can be a coping mechanism among patients and provide experience in getting hope, and understanding the meaning of life so can achieve the tranquility.

The nursing care in meeting the spiritual needs of patients starts from the assessment of the condition and the spiritual needs of patients, providing the interventions appropriate to the patient's spiritual condition. Interventions of spiritual needs must be given in all dimensions including religious dimension, inner peace dimension, existential need dimension (reflection/rerating), and actively giving dimension. The religious dimension among post-stroke patients in this study reported that the most needed was in spiritual needs revealed that the most needed was praying with others. Most patients needed turning to a higher presence, and participation in religious ceremonies. In the dimension of inner peace revealed that respondents in this study was to be more loved by others. The existential need dimension in this study revealed that the most needed was forgiving someone from the past. The active giving dimension of spiritual needs among post-stroke patients in this study was actively and

autonomous intention to solace someone.

Based on the results of this study, nurses are expected to facilitate post-stroke patients in meeting the spiritual needs of religious dimensions by advising families to often invite patients to pray together, together come to various religious activities, and often watch religious events and provide books religious. In addition, nurses are expected to advise people around the patient to better express their affection to the patient, and allow them to engage in some family activities.

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Differences in The Number of Germs in The Insertion Area of Central Venous Catheter (CVC) Done by Polyurethane Transparent and Plaster Gauze Dressing

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Abstract

A central venous catheter is a catheter that is placed directly on a large vein in the body and its tip lies in one of the central veins that is often used on critical care patients. Colonization of bacteria (germ) around the insertion area of the CVC is an area that is very likely to cause infection even though it has been closed by dressing. The factor that should always be considered is that the state of moisture retention occurs beneath the dressing. Moisture will cause an increase in colonization of the insertion area and increase the risk of catheter-related infection. As is known the humidity level of Indonesia with other countries is higher and the results of positive swabs in the insertion area are associated with Percutaneous Central Venous Catheter (PCVC) colonization and Catheter-related Sepsis (CRS). Transparent polyurethane and plaster gauze are two types of dressings that are different and often used. The transparent polyurethane is widely used in invasive procedures, there are still many medical staff who use plaster gauze dressings. The purpose of this study is to determine the difference in the number of germs in the CVC insertion area that are dressed using transparent polyurethane and plaster gauze. The design of this study is a quasi-experimental pretest-posttest control group with positive sampling. The number of samples is 12 for the intervention group and 11 for the control group. The intervention group performed transparent polyurethane dressings and a control group with plaster gauze. Calculation in the number of germs is with the cup count method. Wilcoxon and Mann-Whitney tests are for te data analysis. Based on the results of the study, it can be concluded that there is no difference in the number of CVC insertion germs between the use of dressings transparent polyurethane and plaster gauze so that both types of dressings can be used for CVC dressings in critical patient care settings.

Keywords: CVC insertion area, dressing, number of germs, plaster gauze and transparent polyurethane.

Introduction

Patients in critical care units have a risk that threatens their lives. According to Urden et al. (2010), critical care patients are at high risk for life-threatening health problems both actual and potential. Hemodynamic monitoring of patients with critical conditions in the ward need to be used to detect cardiovascular insufficiency, differentiate contributing factors and instructions for therapy (Bersten & Soni, 2009). Technology related to hemodynamic monitoring, one of which is monitoring Central Venous Pressure (CVP) (Woods et al., 2010). At the hospital research site in the city of Bandung, there are several treatment rooms for adult patients, where CVC patients often have to be treated.

For the large number of CVC installations in intensive care and high care settings, it is necessary to pay attention to the disadvantages of using central venous access (Doughherty, 2006). Infection is one of the complications of using CVC. Chateter-related infection plays a role in the spread of causes of nosocomial infections based on the facts in critical care and is associated with an increase in Length of Hospital Stay (LOS) (Ramntu et al., 2008). The term used to describe catheter-related infection are two, namely Central Line Associated Blood Stream Infection (CLABSI) and Catheter Related Blood Stream Infection (CRBSI) (Kusek et al., 2012). According to Tarpatzi et al. (2012) the mortality rate of patients with CRBSI was 11.3%.

The use of CVC is related to infection in blood flow caused by microorganisms that colonize the external surface of the CVC. The pathogenesis of the CVC CLABSI can become contaminated with two major routes, namely the generalum route and the intraluminal route. The extraluminal route is that the skin organisms of the patient in the insertion area can migrate along the surface of the catheter to the cutaneous catheter around the catheter and produce colonization at the catheter's end (O'Grady, 2011). Besides that the wound condition, in this case the insertion wound will also be affected by the level of albumin and food intake (Said et al., 2016).

To control infections due to CVC installation, health workers need to carry out strategies. According to the Centers for Disease Control and Prevention (CDC), National Nosocomial Infection Surveillance System (NNIS) in Woods et al. (2010), control can be done with a dressing. Dressings are used for wound care including CVC insertion wounds include Transparent dressing, Hydrocolloid, Hydrogel, Foam, Alginates, Gauze, Composites and Silver dressings (Baird & Bethel, 2011). CVC dressings used in hospitals where research in Bandung is Transparent Polyuretane and gauze tape (gauze and tape).

The treatment of wound area with transparent polyurethane dressing and gauze has its own advantages. Wound care with a transparent polyurethane dressing has the advantage of being able to see the wound state, prevent moisture loss from wound, protect from external contamination, protect from friction, and can be used as a second dressing over other types of dressings. Whereas excess wound care with gauze is inexpensive (cheap), easy to use, ideal for wrapping wounds (Baird & Bethel, 2011). However, based on research conducted by Webster et al. (2011) on CVC care, CRBSI is a higher in groups of transparent polyurethane when compared to gauze and tape; OR = 4.19 (95% CI = 1.02 to 17.23)

Based on the background above, the researcher wanted to examine the difference in the number of germs in the area of CVC insertion that was dressed using transparent polyurethane and plaster gauze.

Method

The research design used in this study is Quasi Experiment, a quasi-experimental design (Notoatmodjo, 2010). Quasi Experiment used in this study is nonequivalent control group pretest-posttest design (Polit & Beck, 2004). The independent variable in this study was the intervention of CVC insertion area dressing with transparent polyurethane and CVC insertion area dressing with plaster gauze. The dependent variable in this study is the difference in the number of germs in the CVC insertion area.

The population in this study were patients who carried out CVC installation in several

rooms in hospitals where research in Bandung such as operating rooms, intensive rooms and high care rooms. While the sampling in this study is non-random (non-probability), that is sampling is not random, sampling is not based on the possibility that can be calculated. In this study the number of samples involved in accordance with the inclusion and exclusion criteria determined were 12 patients in the intervention group and 11 patients in the control group using purposive sampling technique (Arikunto, 2010). This is due to the limited number of beds in the intensive care unit so that the number of samples is limited and the research time is limited

Inclusion criteria in this study were 1) Patients who followed CVC insertion from the beginning; 2) Patients undergoing tunneled CVC installation; 3) Patients who carried out CVC insertion in subclavian veins; and 4) Patients who performed CVC with 3 lumens. Exclusion criteria in this study were patients with CVC wounds that were wet and multiple CVC. While the criteria for drop out in this study were patients who died before the post dressing smear was carried out or the patient refused to continue following the research process. In this study there were 4 respondents dropped out because the patient died before the 72 hour post dressing smear was carried out.

Data Analysis in this study uses univariate and bivariate analysis. Univariate analysis in this study was in the form of data on age, sex, length of day of hospital treatment prior to installation of CVC, CVC installer, CVC installation room and treated patient room. Categorical data including age, gender, CVC installation room and patient room are described with frequency and percentage. Numerical data includes the length of day of hospital treatment before the CVC installation is described with the mean. The data normality test used in this study is the Shapiro-Wilk test because the sample size in this study is 50, with a significance value (p) > 0.05 (Dahlan , 2012).

The comparative test used to determine the difference in the average number of germs before and after dressing in the intervention and control groups was the Wilcoxon test (nonparametric test) because the data on the number of germs before and after the dressing were not normally distributed with a value of $p < 0.05$ ($p = 0.00$ and p post-test = 0.00). The comparative test used to determine the difference in the mean (pre-post difference) of the number of germs in the intervention group and the control group using the unpaired numerical comparative test with 2 groups, the Mann Whitney test (non-parametric test) because the data from both data were not distributed normal with $p < 0.05$ ($p = 0.00$ and $p = 0.00$).

Result

The results obtained from data processing and data analysis will be discussed in several parts, namely the characteristics of respondents, characteristics related to CVC installation in patients, description of the number of germs in the CVC insertion area in the control group and the intervention group, differences in the mean number of germs in the insertion area CVC before and after dressing in the control group and intervention group as well as differences in mean difference ("pre-test and post-test") number of CVC insertion area germs in the control group and intervention group.

Characteristics of respondents were seen from demographic data in the research observation sheet. Characteristics of respondents are shown in the table below:

Based on Table 1, it can be seen that the characteristics of age respondents are in the control group and the intervention group almost has the same characteristics. The highest gender in the control group was 6 women (60%) and in the intervention group 8 men (61.5%).

Based on Table 2 above shows that the average length of patient care before CVC installation was 5.167 days in the intervention group and 2.09 days in the control group. The most CVC installers in the intervention group were 11 residents (73.3%) and 7 in the control group (87.5%). The most CVC installation space in the intervention group was GICU 8 installation and in the control group was MIC 8 installation. The majority of patients in the intervention group were treated at GICU 8 and in the control group were treated in the MIC room.

Table 1 Frequency Distribution and Mean Characteristics of Respondents in The Control and Intervention Groups (n = 23)

Characteristics		Group			
		Intervention (n= 12)		Control (n= 11)	
		Total	%	Total	%
Age	Late Teenager (17-25 tahun)	3	50	3	50
	Early Adult (26-35 tahun)	1	33.6	2	66.7
	Late Adult (36-45 tahun)	3	50	3	50
	Early Elderly (46-55 tahun)	2	50	2	50
	Late Elderly (56-65 tahun)	3	75	1	25
Sex	Male	8	61.5	5	38.5
	Female	4	40	6	60

Table 2 Frequency Distribution and Mean Characteristics Related to CVC Installation of Patients in The Control and Intervention Groups (n = 23)

Characteristics		Group			
		Intervention (n= 12)		Control (n= 11)	
		Total	%	Total	%
Treatment duration	average	5.167		2.09	
CVC Installation	Medical Specialist	1	12.5	7	87.5
	Resident	11	73.3	4	26.7
CVC Installation room	Operation Room	4	100	0	0
	General Intensive Care Unit (GICU)	8	100	0	0
	Moderate Intensive Care (MIC)	0	0	8	100
	Flamboyan Inpatient Room	0	0	3	100
Patient Room	General Intensive Care Unit (GICU)	8	100	0	0
	Cardiac Intensive Care Unit (CICU)	4	100	0	0
	Moderate Intensive Care (MIC)	0	0	8	100
	Flamboyan Inpatient Room	0	0	3	100

Table 3 Overview of The Number of Germs in The Control and Intervention Groups (n = 23)

Group	Total Germ Average		
	Pre-test	Post-test	(Pre-test dan Post-test)
Control	9.25×10^5	6.03×10^7	5.9×10^7
Intervention	9.05×10^5	2.66×10^6	1.7×10^6

The following is a description of the average number of germs in the CVC insertion area both in the control group and in the intervention group:

Table 3. Overview of The Number of Germs in The Control and Intervention Groups (n = 23)

Based on Table 3 above shows that the

Table 4 Statistical Tests of Differences in The Average Number of Germs Before and After Dressing in The Control Group and Intervention Group (n = 23)

Group	Total Germs			
	Pretest	**Postest**	**Z**	**p**
Control	9.25×10^5	6.03×10^7	0.533	0.594
Intervention	9.05×10^5	2.66×10^6	0.889	0.374

Table 5 Statistical Test of Differences in Mean Difference ("Pre-Test and Post-Test") Number of CVC Insertion Germs in The Control Group and Intervention Group (n = 23)

Group	Total Germs Difference			
	(Pre test dan Post test) Jumlah Kuman Postest		**Z**	**p**
Control	5.9×10^7	1.9×10^8	-0.369	0.712
Intervention	1.7×10^6	5.7×10^6		

number of bacteria increased by 5.9×10^7 colonies in the control group and 1.7×10^6 colonies in the intervention group. On average in both groups the number of germs increased, but in the intervention group the number of germs in the CVC insertion area increased less than in the control group.

Based on the normality test performed on the data the average number of pre-test and post-test germs in the intervention and control groups were $p = 0.00$ ($p < 0.05$), the data were not normally distributed. Bivariate statistical tests to examine differences in the average number of germs before and after dressing in the control group and intervention group were by Wilcoxon test. Statistical test results are shown in the table below.

Based on Table 4 above, the results of the statistical test of the difference in the number of germs before and after dressing in the control group was $p = 0.594$ ($p > 0.05$) thus H_0 failed to be rejected. These results indicate that there is no significant difference in the number of germs before and after the dressing with plaster gauze. Statistical test results of differences in the number of germs before and after dressing in the intervention group were $p = 0.374$ ($p > 0.05$), thus H_0 failed to be rejected. These results showed no significant difference in the number of germs before and after dressing with transparent polyurethane.

Based on the results of the normality test, data on the difference in the number of germs in the intervention group and also in the control group were not normally distributed with $p = 0.00$ ($p < 0.05$). Statistical calculations used to test differences in mean differences (pretest and posttest) of the number of germs in the control group and the intervention group were the Mann-Whitney test, as follows.

Referring to Table 5 above shows that H_0 failed to be rejected because the value of $p > 0.05$ ($p = 0.712$), so it can be concluded that there is no difference in mean of the difference (repre test and post test) the number of CVC insertion area germs in the control group and group intervention.

Discussion

Characteristics of critical patient respondents in the control group and intervention group in this study had similar characteristics between the two groups. Patients in this study started from late adolescence to late elderly. The youngest age in this study was 17 years old and the oldest was 63 years. This is consistent with research in October 2000 to February 2002 at two university hospitals in Germany, where the sample in this study patients who carried out CVC installation ranged in age from 18-80 years (Yucel et al., 2004). Age aspects are factors that influence the incidence of infection due to CVC installation. In the study involving respondents who were not too young and too old (extreme). This is in line with Poderman and Girbes (2002) that extreme age both too young and too old is a risk factor for infection due to CVC installation.

The highest gender in the control group

was 6 women (60%) and in the intervention group 8 men (61.5%). This is consistent with research conducted by Ranucci et al. (2003) where almost the same frequency of both sexes in CVC insertion, of 355 patients included in this study were 174 male and 181 female patients. The sex of the patient is one of the risk factors for the incidence of infection due to CVC insertion (Kusek et al., 2012).

Based on Table 3 shows that the number of bacteria increased by 5.9 x 10^7 colonies in the control group and 1.7 x 10^6 colonies in the intervention group. The number of germs in the CVC insertion area of the intervention group increased less than in the control group.

The number of germs increases with the length of time that CVC is used. The number of germs in both groups can increase due to several things such as the virulence of the organism, the amount of inoculation, the place of entry of germs and host immunity. Length of catheter use is a common risk factor in CRBSI (Yoshida et al., 2011). In the study of Yucel et al. (2004) S. Aureus was even identified on the skin surface of patients using CVC. This needs to be considered because according to O'Grady et al. (2011), CVC can be contaminated with an extraluminal pathway. This is what can later cause infection if it is not managed properly.

In the intervention group, germs were added to the CVC insertion area, which was done with less transparent polyurethane dressing than the plaster gauze. It occurs because the dressings with transparent cover well the CVC insertion area when attached. Besides that transparent polyurethane is semipermeable which can prevent bacterial, viral, other foreign matter contamination and water resistant while maintaining skin breathing, so as to maintain skin integrity. This reinforces that dressing with transparent polyurethane has the advantage of protecting it from external contamination (Baird & Bethel, 2011). Based on the important criteria (SSIVD), it states that the use of transparent dressing is the right choice of dressing to minimize the risk of infection (Kergon & Obasi, 2010).

Based on Table 4, the difference in the number of germs before and after dressing in the control group was $p = 0.594$ ($p > 0.05$), so there was no significant difference in the number of germs before and after the dressing with a plaster gauze. This is because dressings are carried out every day in accordance with the Standard Operating Procedure (SOP) with normal saline fluid. Normal saline fluid is effective enough to clean around the CVC insertion area. Simcock (2001) recommends cleaning the outer area of insertion with normal saline and sterile gauze with the aim of removing blood, exudates or impurities that make the possibility of infecting. This is in line with Rickard et al. (2004) who included the use of sterile gauze dressings to close the insertion of CVC catheters at the level of evidence IA, which is strongly recommended. Thus strengthening the results of this study that stressed with plaster gauze with NaCl 0 cleaning fluid, 9% is effective enough to protect against germ contamination by treatment according to SOP.

The difference in the number of germs before and after dressing in the intervention group was $p = 0.374$ ($p > 0.05$). There was no significant difference in the number of germs before and after the dressing with transparent polyurethane. As described above, the dressings with transparent cover well the CVC insertion area when attached. Besides that transparent polyurethane is semipermeable which can prevent bacterial, viral, other foreign matter contamination and water resistant while maintaining skin breathing, so as to maintain skin integrity. Therefore, the difference in the number of germs in the CVC insertion area before and after the dressing with transparent polyurethane is not significant. This reinforces that dressing with transparent polyurethane has the advantage of protecting it from external contamination (Baird & Bethel, 2011).

The research that is in agreement with this research is a research with a meta-analysis conducted by Maki and Marmel (1997) which compares seven studies of high-risk dressings. The results of this meta-analysis are pooler risk of infection 2.7 per 100 CVC installations with sterile gauze and 2.5 per 100 CVC installations with semipermeable transparent adhesive polyurethane (PU). Weight relative risk is 1.06 (95 CI, 0.59 to 1.90, $p = 0.85$). Based on the above research, it is a strong aspect that PU dressings which

are used in high risk populations, non cuffed CVC used for temporarily access and they do not increase the risk of CVC associated with blood stream infection (Maki & Mermel, 1997). Ther were another research, namely prospective, randomized trial of 100 (59 women and 41 men) critical patients with liver problems in the ITU Liver, Qoeen Elizabeth Hospital Birmingham. Microbial analysis at entry site wound, the entry site, and CVC tip was carried out in 75 patients. 36 patients with Tegaderm dressing and 39 with IV3000. There were no significant differences in the incidence of contamination ($p > 0.1$). The number of microorganisms isolated from the skin under two types of dressings is not significantly different. In the Opsite IV3000 dressings the number of organisms present is 3.2×10^4; 5.2×10^4; and in Tegaderm dressings 4.1×10^4; 8.6×10^4. Swab culture in insertion area wounds, there was no significant difference between the two types of dressings transparent for the number of isolated organisms in the wound area ($p > 0.1$) (Renolds et al., 1997). Thus it is clear that dressings with transparent polyurethane according to SOP are effective enough to protect against germ contamination.

Referring to Table 5 shows that there is no difference in mean of differences in differences ("pre-test and post-test") the number of CVC insertion area germs in the intervention group and the control group ($p = 0.712$). There is no significant difference made possible because in the study between the two groups for the characteristics of age and sex are almost the same. Age and gender are two of several risk factors for infection due to CVC installation (Poderman & Girbes, 2002). In this study controlled the incidence of infection due to CVC installation using a good skin antiseptic using 70% alcohol and povidone iodine in both groups. According to Widani and Nasution (2015), in other cases, oral care had a significant decrease in the number of bacterial colonies before and after oral care with providone iodine (1%). In addition, it also applies appropriate insertion techniques according to hospital SOPs in this study. Hand hygiene is also always done before doctors who do the CVC installation start the action. All patients in this study also carried out CVC placement on a uniform venous location, the subclavian vein. According to the CDC (Centers for Disease Control and Prevention); NNIS (National Nosocomial Infection Surveillanc System) in Woods et al. (2010), infection control because the installation of CVC can indeed be done in stages (1) using the right skin antiseptic, (2) proper insertion techniques, (3) appropriate hand hygiene, (4) selection of the location of the correct insertion area, (5) using the right antimicrobial catheter, (6) replacing the catheter according to the indication, (7) dressing, (8) giving the right set of flush fluid and (9) doing Central venous culture and arterial catheters as needed.

In this study, when the CVC was installed, the proper insertion technique was used according to the hospital SOP, i.e. sterile barrier precaution technique. This was also done in the study of Yucel et al. (2004) which included the use of masks, hats, sterile dresses, gloves and duk. Area insertion is carried out by smear or cleaning with Alcohol 75%. In this study also used povidone iodine to clean the stabbing area before the CVC was installed.

All patients in this study carried out CVC placement in the subclavian vein. According to Urden et al. (2006), in anticipation of CVC being installed for more than 5 days, installation of subclavian veins is better used for CVC installation. The incidence of infection in this subclavian vein position was lower and the patient's discomfort when using CVC in the lower subclavian vein position. CVC insertion in subclavia is associated with a lower risk of potential infection (Yucel et al., 2004).

Another thing that also affects the difference in the average difference in the number of germs in both groups is the length of day of treatment prior to installation of CVC, where in both groups the average days of treatment before CVC installation was almost the same even though in the control group The average length of treatment before CVC installation is shorter which is 2.09 days. According to Poderman and Girbes (2002), prolonged hospitalization before CVC insertion is one of the risk factors for the incidence of infection due to CVC installation. According to Poderman and Girbes (2002), the underlying disease or condition is one of

the risk factors for the incidence of infection due to CVC installation.

The results of this study are in line with the Rondomized Controlled Trial (RCT) design study conducted by Barros et al. (2009) with a study subject of 66 hemodialysis patients at Sao Paulo Dialysis Unitat Hospital in September 2007-June 2008 which was divided into two groups, the control group and intervention groups (33 subjects per group). The control group was given a dressing in the CVC insertion area with gauze and micropore and the intervention group used transparent film dressing. The result is that there is no significant difference in the use of both types of dressings. Nonetheless, the use of transparent films based on qualitative data analysis shows that this type of dressing is preferred by patients and health care providers from university hospitals where the research was conducted.

Both types of CVC dressings both transparent polyurethane and plaster gauze can be used in critical care settings. In a study conducted by Rickard et al. (2004) in 14 hospitals in Australia, CVC dressings using semi-permeable transparent dominant were used. According to Rickard et al. (2004), the use of sterile, transparent, semi-permeable gauze dressing to cover CVC catheters at the level of evidence IA which means is highly recommended to be implemented and strongly supported by experimental, clinical design studies. or epidemiological studies. Patients who are intolerant of transparent dressing using sterile gauze and plaster for dressing. Dressing with gauze is better than transparent dressings if the patient is sweating, or if the condition is bleeding (Pratt et al., 2007).

Based on this study there is no significant difference in the mean difference of the number of germs in the insertion area between those using transparent polyurethane or those using plaster gauze with daily dressing using saline normal liquid. Therefore, the type of dressing selection not only based on the consideration of the type of dressing that can minimize the risk of infection but must also take into account other factors in the selection of dressings, namely whether it provides comfort for the patient (Kergon & Obasi, 2010), safe protecting the catheter, easy to use and opened (Mallett & Bailey, 1996).
Research Limitation, This study still involved respondents with a minimum number of as many as 12 patients in the intervention group and 11 patients in the control group, of course this was a limitation in this study. With a larger number of respondents, the evidence will be able to show more differences between the two types of dressings, especially in terms of differences in the number of germs in the CVC insertion area that are dressed using Transparent Polyurethane and gauze tape (gauze and tape).

Conclusion

Based on the results of the research and description in the discussion, it can be concluded that there is no significant difference in the number of germs in the CVC insertion area of critical patients dressed using transparent polyurethane and using a plaster gauze. This shows that both types of dressings are appropriate for preventing external contamination of the CVC insertion area.

Suggestions in this study for further research is that research needs to be done with a larger number of samples so that the evidence is stronger and the difference in the number of germs from both types of dressings can further be seen.

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Relationship between Academic Stress, Family and Peer Attachment with Internet Addiction in Adolescents

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Abstract

Biological, psychological and social changes make adolescents at risk of various health problems in the community. The ease of internet access nowadays makes adolescent more vulnerable to internet addiction. In Indonesia, many studies examine the relationship between internal factors such as low self-esteem, loneliness and the type of personality with internet addiction. Further research is still needed that focuses on external factors such as academic stress, family and peer attachment. This study aimed to examine the relationship of academic stress, family and peer attachment with internet addiction in high school adolescents in Andir District, Bandung City. The study used a quantitative correlational design with a cross-sectional approach. The population was high school adolescents. A total sample of 367 adolescents was determined using the slovin formula with alpha Cronbach 0.05. Respondents were recruited using random cluster sampling. Data were analyzed using Rank Spearman and Logistic Regression. Statistical tests of academic stress variables showed, family and peer attachments were significantly related with internet addiction in adolescents ($p = 0.000$); family attachment variable was significantly related to internet addiction in adolescents ($p = 0.000$), and peer attachment was significantly related with internet addiction in adolescents ($p = 0.000$). Logistic regression tests showed the family attachment variable had a significant influence on internet addiction in high school adolescents. In conclusion, there are correlations between academic stress, family and peer attachment to internet addiction. The family attachment has the most significant influence with internet addiction in high school adolescents. It is essential for community mental health nurses to conduct health education to families related to the result of this study.

Keywords: Academic stress, adolescent, family attachment, internet addiction, peer attachment.

Introduction

Adolescents are a group that occupies a sizeable population reaching around 18% or 1.2 billion of the world's population (WHO, 2015). In adolescence, the young will experience periods of growth and development, where individuals experience changes from childhood to adulthood followed by biological, psychological and social changes (Santrock, 2005). These three aspects put adolescents at risk of various health problems in the community.

Risk behaviors that often occur in adolescents include alcohol use, suicide, depression, academic stress, premarital sexual behavior and internet addiction (Stanhope & Lancester, 2004; Wang et al., 2011). Internet addiction in adolescents is characterized by the difficulty of controlling the desire to continue using the Internet so that if stopped, it will cause feelings of depression (Yang & Tung, 2014).

The survey conducted by the Indonesian Internet Network Organizing Association (APJII) throughout 2016 found that 51.8% of Indonesia's population used the internet, and 75% of internet users were dominated by teenagers aged 10-24 years. Bandung is the third city with the highest internet users reaching 17.22%, after Jakarta with prevalence reaching 33.3% and Surabaya 22.4%.

The high use of the internet among teenagers can increase the occurrence of internet addiction. The results of the literature search show that internet addiction in adolescents can be influenced by two factors, namely internal factors, and external factors. Internal factors include loneliness (Karimpoor et al., 2013; Saleem, Khan, & Ismail, 2015), low self-esteem (Aydn & Sar, 2011), and neuroticism personality (Ozturk et al., 2015; Dieres & Hirche, 2017). External factors include adolescents who have families that have problems in family function (Tsitsika et al., 2013; Park et al., 2013), study load and peer influence (Wang et al., 2011; Gunuc & Dogan, 2013).

The study of Yen, Chen, and Ko (2007) in Taiwan found family factors such as parental marital status, family economic status, family conflict, and parenting significantly related to drug use and internet addiction. The results of the study are in line with the research of Wu et al. (2016) in China, which found that teenagers who are addicted to the internet come from families who often experienced conflict and divorce. This finding is reinforced by the study of Park, Kim, and Cho (2008), who found that family attitudes, lack of communication in the family, violent behavior in adolescents have a high risk of internet addiction.

In addition to the family factors above, a study by Pattayakorn (2012) toward 341 students in Thailand found that students who have a high study load, the numerous assignments can increase stress resulting in students experiencing internet addiction. This condition is in line with the study of Kandemir (2014) in Turkey, who found that students' academic procrastination behavior is significantly related to stress and internet addiction.

Jun and Choi's study (2015) found that adolescents who experience academic pressure and negative emotions are associated with internet addiction while the study of Akhter (2013) found that academic stress is not significantly associated with internet addiction in teenagers in Pakistan. According to Wang, Zhou, and Lu (2011), the risk factors for adolescents experiencing internet addiction are related to stress, bad relationships with teachers and friends and experiencing conflict within the family. This is in line with Bakken et al. (2009), who stated that groups of adolescents aged 14 to 19 who experience internet addiction because they avoid stress or responsibility.

Several studies have been performed related to internet usage associated with stress in adolescents in Indonesia. Permatasari (2016) conducted a study on the relationship of stress with the tendency of internet addiction in adolescents aged 13-18 years in Surabaya found there is a significant relationship between stress levels and the trend of internet addiction in adolescents. This is in line with the research of Piyike, Bidjuni, and Wowiling (2014) toward 88 adolescents in Manado City who found a significant relationship between stress levels in adolescents with online game addiction. Another study by Karuniawan and Cahyanti (2013) toward

221 adolescents, found academic stress in adolescents has a significant relationship with smartphone addiction. Besides family factors and academic stress, a study by Soh, Charlton, and Chew (2014) found that peer influence has a significant relationship with internet addiction. This result is supported by the study of Gunuc (2016) who found that peer influence is significantly related to online game addiction in adolescents.

A preliminary study conducted on 20 high school students in Andir Subdistrict, Bandung City, found that two students used the internet since elementary school, 12 students used the internet since junior high school, and four people used the internet since high school. Eight students reported that they used the internet for more than 6 hours per day and 12 students used the internet for less than 6 hours per day. All students interviewed confirmed that they often visited the Google site for school assignments, YouTube and online games for entertainment, then social media such as Instagram, Facebook, line, vlog.

Search results for literature abroad and in Indonesia discovered many studies were conducted on the relationship between internal factors such as low self-esteem, loneliness, personality, and internet addiction. In Indonesia alone, studies related to external factors are still few. To strengthen the study results related to external factors connected to internet addiction, researchers felt the need to conduct a study on "The relationship between academic stress, family and peer attachment with internet addiction in high school adolescents in Andir District, Bandung."

Method

This study used a cross-sectional design. The sample in this study amounted to 367 teenagers from 14 high schools. The sampling technique used the random cluster sampling by writing all numbers based on the respondent's attendance number on paper rolls; then by using a glass, it was shaken so that each respondent had the same opportunity and was dropped according to the amount needed. Next, the researcher coordinated with the school to collect data by collecting selected respondents in a room.

The instruments used included the Internet Addiction Test (IAT) to measure the potential of internet addiction, Educational Stress Scale for Adolescents (ESSA) was used to measure academic stress, and Inventory Parents and Peers (IPPA) which was developed by Greenberg and Armsden (2009) to measure the attachment of father and mother as well as peers in adolescents.

The data analysis consisted of univariate, bivariate and multivariate. The bivariate analysis used the Rank Spearman test and Multivariate analysis used logistic regression.

This research received the ethical approval from the Health Research Ethics Commission of the Faculty of Medicine, Universitas Padjadjaran with number 77/UN6.c.10/PN/2017.

Result

This research was conducted for three weeks in 14 high schools in the Andir District of Bandung City. The time of the study began from May 30 to June 16, 2017. The study subjects were high school students in grades 10 and 11.

Based on Table 1, most high school adolescents lived with parents, namely 307 adolescents or 83.4%. Besides that, teens used the internet more to access social media with 56.1%, followed by using the internet to play online games by 17.7%. Most of the teens used the internet < 6 hours/day, amounting to 210 teenagers or 57.2% and the rest as much as 157 teenagers used the internet > 6 hours/day.

Table 2 showed the frequency distribution of academic stress, family attachments and peers. In the academic variable, adolescents experienced more academic stress in the moderate category, amounting to 130 (35.4%). However, this number was not much different from adolescents who experienced academic stress in the high category consisting of 121 adolescents or 31.6% and low categories 116 or 33.0%.

In the family and peer attachments more than half of the adolescents had family and peer attachments in the medium category, each of which amounted to 221 (60.2%) in family attachment and 201 (54.7%) in peer

Table 1 Frequency Distribution of Sociodemographic of High School Adolescents in Andir District, Bandung City (n = 367)

Sociodemography	Frequency	Percentage (%)
Live together with		
both biological parents	307	83.4
One of the biological parents (father/mother)	38	10.3
Guardian	22	6.0
Primary Purpose of Using the Internet		
Social Media	206	56.1
Online Game	65	17.7
Searching for Information	47	12.8
Communication	40	10.9
Online Shopping	8	2.2
Pornography	1	0.3
Duration of Internet usage in a day		
≤ 6 hours /day	210	57.2
> 6 hours /day	157	42.8

Table 2 Frequency Distribution of Academic Stress, Family Attachment, and Peers with Internet Addiction (n = 367)

Sociodemography	Frequency	Percentage (%)
Live together with		
both biological parents	307	83.4
One of the biological parents (father/mother)	38	10.3
Guardian	22	6.0
Primary Purpose of Using the Internet		
Social Media	206	56.1
Online Game	65	17.7
Searching for Information	47	12.8
Communication	40	10.9
Online Shopping	8	2.2
Pornography	1	0.3
Duration of Internet usage in a day		
≤ 6 hours /day	210	57.2
> 6 hours /day	157	42.8

attachment. In contrast, the lowest percentage was in the high attachment category with a rate of 6.2% in family attachment and 14.7% in peer attachment.

Based on internet addiction, half of the total respondents experienced moderate dependence with a total of 201 (54.8%). Meanwhile, adolescents included in the category of internet addiction amounted to 37 (10.1%), and only a few teenagers used the

Table 3 Correlation between Academic Stress, Family Attachments, and Peers with Internet Addiction in High School Adolescents

	Internet Addiction (n=367)	
	r	p-value
Academic stress	0.525	0.000
Family attachment	0.398	0.000
Peer attachment	0.360	0.000

Note: Coefficient correlation Rank Spearman

Table 4 Multivariate Analysis of Academic Stress, Family and Peer Attachment

	Internet Addiction (n=367)				
Variable	**B**	**SE**	**Wald**	**OR**	**p-value**
Family attachment	-1.213	0.297	16.665	0.297	0.532
Peer attachment	-1.461	0.317	21.197	0.232	0.432
Academic stress	-3.729	0.749	24.796	0.024	0.104

Note: *significant at α=0,05

internet in the normal category, amounting to 13 people or 3.5%.

Table 3 showed, the statistical test results found a relationship between academic stress and internet addiction in high school adolescents (p-value = 0.000). The relationship of academic stress with internet addiction showed a strong bond and had a positive relationship direction which meant that the higher the academic stress, the higher the teenager was at risk of experiencing internet addiction.

Furthermore, the results of statistical tests obtained were that there was a relationship between family attachment and internet addiction in high school adolescents (p-value = 0.000). The relationship between family attachment and internet addiction showed a weak correlation and had a positive direction, which means that the lower the family attachment, the higher the risk of teenagers becoming addicted to the internet. Moreover, the statistical tests showed that there was a relationship between peer attachment and internet addiction in high school adolescents (p-value = 0.000). The relationship of peer attachment with internet addiction shows a weak link and has a negative relationship direction which means that the higher the peer attachment, the lower the risk of teenagers experiencing internet addiction.

In the logistic regression analysis, the order of the strength of the correlation or the relationship of the variables that influenced the dependent variable is known from the value of the Exp (B) or Odds Ratio (OR). The results of the multivariate analysis in this study found that the strength of the relationship from the smallest to the largest was academic stress (OR = 0.024), peer attachment (OR = 0.232), and family attachment (OR = 0.297). Based on the OR value of the three variables, the family attachment variable was the most associated variable with internet addiction in adolescents.

Discussion

The characteristics of respondents, internet addiction can occur at any age, and in any socio-economic conditions, however, the main focus of the study was more on adolescence (Kuss, Rooij, Shorter, Griffiths, & Van de Mheen, 2013).

Table 1 showed that 206 (56.1%) respondents used the internet with the primary purpose of accessing social media. Social media is generally used to interact and socialize and establish friendships online (Lenhart et al., 2001). The increasing use of social media among teenagers was caused by various exciting features provided by social media, including teenagers can share information, express themselves by sending pictures that aim to get attention or opinions

from their friends on social media. Also, social media can foster a positive image so that teenagers always give a good impression when on social media (Madden, Lenhart, Cortesi, Smith, & Beaton, 2013).

Description of Academic Stress in Adolescents, table 2 showed adolescents who experienced academic stress were in the moderate category numbering 130 (35.4%) adolescents. The results of this study found the academic stress was a source of the significant stressor for students. Stroud et al. (2009) stated that adolescents who easily experience stress are adolescents ranging in age from 14-19 years, who at that age usually enter junior high school and senior high school. Huan et al. (2008) asserted that high school students are more susceptible to stress due to higher academic demands. As compensation, they use the internet excessively after school.

Description of Family Attachments in Adolescents, table 2 showed that family attachment was in the moderate category, namely 221 (60.2%). The results of this study indicated that adolescents still had secure attachments with their parents. This is due to the family is the principal place for adolescents to form social and emotional conditions, especially the condition of adolescents who are entering the transition period for obtaining the basis in shaping their abilities so that later they become successful people in society. Armsden and Greenberg (2009) suggested parental attachment is a significant predictor of adolescent self-esteem.

The trust of adolescents in their parents is a critical component. Armsden and Greenberg, (2009) revealed that teenagers who trust in their parents would continue to need their parents when they are in a stressful and challenging situation. The study of Yusuf, Osman, Hj, and Teimoury (2014) in Malaysia found that adolescents who have high trust in their parents will prevent them from getting involved in delinquency and help avoid teenagers from risky or distorted behaviors.

Description of Peer Attachment in Adolescents, table. 2 showed that peer attachments were in the moderate category, namely 201 (34.9%). The study results showed peers had an essential role in the lives of adolescents. Attachment changes occur when teens learn and develop relationships with individuals other than families. Peer attachment is a bond that arises between adolescents and peers who are related to thoughts, feelings, and emotions (Baroccas, 2009).

The meta-analysis result by Gorrese and Ruggieri (2012) entitled Peer attachment: A meta-analytic review of gender and age and associations with parent attachments toward 54 studies, reported gender differences in the peer attachment. The results of the meta-analysis show that girls are significantly more attached to their peers than men.

The social support derived from peer groups can cause adolescents to have the opportunity to do various things they have never performed, and learn to take on new roles in their lives so that self-acceptance of peers' environment becomes something that is considered important (Tarakanita, 2008). Wilkinson's (2004) study found adolescence's attachment to peers is interwoven due to the personal experience of adolescents from interactions with their parents.

In adolescence, there is a shift in attachment, where friendship with peers is more than parents. Peers are considered more capable of understanding adolescent's problems, where adolescents can find more personal problems without feelings for peers than parents (Pitman & Scharfe, 2010). The video seeks attachment in the form of advice, advice, and information as adolescents face various life problems. Adolescents like to ask for opinions from peers about things that concern them (Barrocas, 2009).

Relationship between Academic Stress and Internet Addiction in Adolescents, the results of the Spearman Rank test with a value of p 0.000 (< 0.05) and a correlation value (r) of 0.525 indicated that there was a positive relationship between academic stress and internet addiction and the strength of moderate relationships which meant that the higher the academic stress, the higher the level of internet addiction in adolescents.

The General Strain Theory by Agnew 1992 (in Busari, 2016) is a framework that can be used to understand the relationship between academic stress, negative emotions,

and internet addiction as well as various types of tension, including stress and negative social relationships that can lead to deviant behaviors. The study of Jun and Choi (2015) examined the association of academic stress mediated by negative emotions and their relationship with internet addiction to 512 adolescents in Korea. The results of this study indicate that adolescents who experience academic stress may be at risk of internet addiction especially when accompanied by negative emotions.

Prolonged academic stress can also result in losing interest, decreasing concentration and avoiding problems that can cause students to look for other activities to reduce academic stress such as accessing the internet (Jun & Choi, 2015). Adolescents try to reduce academic pressure by switching to computers as a way to minimize academic burden and manage other uncomfortable feelings such as depression and anxiety related to study and school (Tiwari & Shukla, 2014).

According to Wang, Zhou, and Lu (2011), the risk factors for adolescents experiencing internet addiction are related to stress, bad relationships with teachers and friends and experiencing conflict within the family. This opinion is in line with Bakken et al. (2009) who state that groups of adolescents aged 14 to 19 experienced internet addictions because they avoid stress and responsibility.

Relationship between Family Attachments and Internet Addiction in Adolescents, the results of the Spearman rank test to see parental attachment relationships and their relationship to internet addiction obtained a p-value of 0.000 (< 0.05) and a value (r) of 0.398, indicating there was a relationship between family attachments and internet addiction with a negative correlation and weak power relations. This means that the higher the family attachment, the lower the internet addiction in adolescents.

The results of this study are in line with the Developmental Model of Adolescent Problem Behavior by Ary et al. (1999) in Kuss et al. (2013) which state the lack of attachment to the family will cause a lack of monitoring to adolescents which will cause them to be involved in a problematic problem. Wright and Cullen (2007) state that when adolescents have a greater attachment to their parents and positive family interactions, adolescents feel obliged to act in the right way to please their parents and vice versa adolescents in families with low levels of conflict and family ties will refuse supervision and monitoring from parents.

According to Galambos, Barker, and Almeida (2003), the closeness and presence of physical parents can maintain a safe attachment in adolescents. This finding is in line with the study of Yen, Cen, and Ko (2007) in China who studied 3662 students, which found that there was a relationship between the lack of adherence of parents and adolescents and low family function to be one of the causes of adolescents experiencing internet addiction.

According to Davis (2005) when parents do not give sufficient attention and lack of parental support, adolescents tend to have an unstable psychological condition, and then add to the environment of fierce social competitions. Parents who focus on their children's academic achievements can cause adolescents to experience pressure. To compensate for this psychological stress, adolescents maintain their fulfillment, by building relationships and affection through cyberspace (Kim & Haridakis, 2009). Adolescents who have negative feelings can contribute to the risk of internet addiction. In this case, parents play a role in giving direction, counseling, advising, explaining clear differences between right and wrong and providing protection in daily activities (Xiong, 2004; Yadav & Nikalje, 2006).

An approach that focuses on parental involvement and communication through good quality communication is a promising way to prevent adolescents from becoming addicted to the Internet (Park, Kim, & Cho, 2008; Van den Eijden, Spijkerman, Vermuls, Van Rooij & Engels, 2009). This is in line with Floros and Siomos (2013) stating the need for the role of parents to care for and protect their children and respect their autonomy will reduce the motivation of adolescents to experience internet addiction.

Relationship of Peer Attachments to Internet Addiction in Adolescents, the results of Spearman Rank correlation analysis

between peer attachments and internet addiction obtained a p-value of 0.000 (< 0.05) and a value (r) of 0.398 which showed there was a relationship between peer attachment and internet addiction in adolescents with a negative and weak link. It means that the higher the peer attachment, the lower the risk of internet addiction in adolescents.

The meta-analysis conducted by Gorrese and Ruggieri (2012) on 44 studies related to parent and peer attachment in adolescents, found that parental and peer attachments shared important meanings for adolescents. Teenagers need a safe and comfortable figure beside parents to listen to their various problems, give advice and support. The study also found that there were differences in attachments between boys and girls in general where girls were more attached to peers than boys. This is due to adolescent girls tend to have a higher level of trust and communication than adolescent boys.

In adolescence, individuals tend to seek closeness and comfort in the form of suggestion or advice to peers when they feel they need it (Barrocas, 2009). Communication and trust are also a product of a strong relationship, where both parties feel interdependent with each other (Armsden & Greenberg, 2007). Santrock (2003) states that through peer interactions, adolescents learn about patterns of reciprocity. Adolescents explore the principles of honesty and justice by overcoming disagreements with peers; they also learn to observe the interests and views of peers to facilitate the process of integrating themselves into ongoing peer activities.

According to the Peer Cluster Theory by Oetting and Beauvais, 1987 (in Albert, Chein, & Steinberg, 2013) peer is an active socialization agent and will actively shape other adolescents' behavior by changing their beliefs and attitudes that are in accordance with their peers. Peers who have negative behaviors will be a model for others to behave negatively (Bandura, 2001). Therefore adolescents can directly learn and adopt beliefs using the internet which will result in adolescents experiencing internet dependence (Urban, 2010).

Adolescents need friends to interact and socialize. Teenagers who have fewer friends will tend to overuse the internet to compensate for social interactions in the real world (Peter et al., 2005; Amichai & Hamburger, 2003).

The Most Related Factor between Academic Stress, Family Attachments, and Peers with internet Addiction in Teens Adolescents. The result of multivariate analysis using logistic regression test obtained one variable that was most significantly related to internet addiction, namely family attachment with OR 0.297.

The study results are in line with the statement of Bowly (in Santrock 2002) which states that adolescents who experience a period of transition in life cause complex changes in the relationship of parents and children during adolescence. The increasing age of puberty will show a decrease in attachment to parents physically but remain stable for some matters. When teenagers experience stress and pressure, the need for close figures with parents is still vital. At the age of adolescence, having a more intimate relationship with peers is very important. However, parents will always provide the first sense of security in adolescents because the fixed figure has been established for a long time, Grendberg (in Santrock, 2005).

The relationship between adolescents and their parents helps create a strong emotional bond, one of which is seen from the quality of communication. Communication is an important indicator in the relationship of adolescents and parents which may cover various things including issues related to sex, religion to peers so that communication between parents and adolescents must always be maintained (Pearson & Child, 2007). The poor communication of adolescents with parents causes adolescents more often to engage in risky behavior, one of which is excessive internet use (Essau, 2008).

The first growing trust builds the attachment between parents and children. Trust focuses on children's beliefs that parents are consistently there for them. Trust in adolescents to parents has the nature of the extent to which adolescents perceive that parents will always be there, feel dependent on parents, trust parents and get a sense of security from parents (Barrocas, 2008). For this reason, it is essential for parents to

become figures who are always there when teenagers need them.

Conclusion

Study results show that there are relationships between academic stress, family attachments and peer attachments to internet addiction in adolescents. Of the three variables, the family attachment variable has a significant influence on internet addiction in adolescents. A proper family attachment can contribute to the psychological well-being of adolescents. A close relationship with parents can reduce the teenagers' free time being used excessively on the Internet and online social activities.

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Efforts in Hypercholesterolemia Treatment Using Turmeric (Curcuminoid) Extract Phytotherapy on Obese Patients: Preclinical Study

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Abstract

Hypercholesterolemia is an escalation in total cholesterol levels in the blood which can cause various cardiovascular diseases, hypertension, and stroke. Obesity is one of the risk factors of hypercholesterolemia. Turmeric extract (a curcuminoid) therapy including phytotherapy can be used to overcome hypercholesterolemia. This research aims to identify hypercholesterolemia with turmeric extract for obesity patients. The method used in this research was quasi-experimental with one group pretest and posttest design. The sampling technique used in this research was purposive sampling. The research subjects consisted of 18 respondents who met the criteria of hypercholesterolemia (total cholesterol> 200 mg/dl) or with obesity who had a body mass index (BMI)> 25 kg / m^2) and they were not taking cholesterol-lowering drugs. Subjects were given turmeric extract with a dose of 1 gram/day for 28 days. Before and after the intervention, total cholesterol levels of respondents were examined. Data analysis was done by using t-paired test. The results showed that the average total cholesterol level before the patient was given turmeric extract therapy was 234.44 mg/dl and 202.06 mg/dl after the treatment. There was a significant decrease in the average cholesterol level after they were given turmeric extract therapy with p-value 0.0001 (α <0.05). The results showed that there was a significant decrease in cholesterol levels, although it was still included in the category of borderline high cholesterol levels. Researchers suggest that respondents continue their turmeric extract therapy with a low cholesterol diet until their total cholesterol levels achieve the normal state.

Keywords: Hypercholesterolemia, obesity, turmeric extract.

Introduction

Hypercholesterolemia is an escalation in total cholesterol levels in the blood. Hypercholesterolemia occurs due to a disturbance of fat metabolism which can cause a rise in blood fat levels. Blood fat levels increase possibly from a deficiency of lipoprotein enzymes, lipase, or abnormal receptor of low-density lipoprotein (LDL). It can also be caused by genetic abnormalities which results in a dramatic increase in cholesterol production in the liver or a decrease in the ability of the liver to cleanse cholesterol in the blood (Jeong, 2005). Hypercholesterolemia is a major cause of atherosclerosis associated with coronary heart disease (CHD), cerebrovascular ischemia and peripheral vascular disease (Goodman, 2007). Coronary heart disease (CHD) or cardiovascular disease is currently one of the primary and first causes of death in developed and developing countries including Indonesia. In Indonesia, there were around 36 million people or about 18% of the population of Indonesia who suffer from the fat disorder, of that number 80% of patients died suddenly with a heart attack (Jempormase, 2016).

A risk factor for hypercholesterolemia is in people with obesity. Obesity can be determined by calculating the body mass index (BMI) by weight in kilograms divided by the square of the body height in meters. If the BMI is > 25 kg/m2, it is categorized as obesity. Results of research in Ghana show that out of 207 men > 18 years old living in peri-urban communities there were 24.6% of subjects in overweight conditions with BMI > 25 kg/m2 (Frederick, 2016). Also, people with obesity will be more at risk for various diseases such as atherosclerosis, obstructive sleep apnea, cardiovascular disease, and hypertension. Firmansyah's research reinforces the findings, which suggests that obese people are 8.499 times more at risk of developing hypertension than people who are not obese. A person with obesity will have more body fat and the risk of causing fat deposits in the blood vessels (Firmansyah, 2017).

Fat deposits in the lining of the blood vessels (cholesterol plaque) make the blood vessels drain and the blood flow to be less smooth. Cholesterol plaque on the blood vessel wall is fragile and easily break, leaving a "wound" on the walls of blood vessels that can activate blood clot formation. Due to narrowing and hardening of the cholesterol plaque, this blood clot can quickly and completely block the blood vessels.

This narrowing and hardening, if it is severe enough, will cause inadequate blood supply to the heart muscle, causing pain or chest pain referred to as angina. If it continues, it will cause the death of heart muscle tissue called myocardial infarction, and its spread causes heart failure. According to the National Cholesterol Education Program the Adult Panel Treatment III (NCEP APT III), the total normal cholesterol levels are < 200 mg/dl; cholesterol levels > 200 mg/dl are considered high and cholesterol levels > 240 mg/dl very high.

Hypercholesterolemia can cause various diseases and treatment efforts are needed so that cholesterol levels can be in the normal range. The use of cholesterol-lowering drugs that are widely used such as lovastatin, simvastatin can reduce cholesterol levels but the use of drugs that are not good enough if it is very often for the body and it also can cause side effects.

WHO recommends the use of traditional medicines including herbs in the maintenance of public health, prevention, and treatment of diseases, especially for chronic and degenerative diseases as well as cancer. The use of traditional medicine, in general, is considered safer than the use of modern medicine. It is because traditional medicine has relatively fewer side effects. Treatment or prevention using herbs, parts of plants or preparations made from plants is known as phytotherapy. The Food and Drug Supervisory Agency (BPOM) has stipulated nine superior medicinal plants that have been studied or tested clinically. Nine medicinal plants are sambiloto, guava, Dutch teak, java chilli, ginger, red ginger, mengkudu, salam and turmeric.

Turmeric (also turmeric in English) or curcuma (Dutch) is a type of root that contains curcuminoid consisting curcuminoid compounds and their derivatives. Curcuminoid is a combination of polyphenolics and other

active substances contained in turmeric roots (Mirzabeigi, 2015).

Turmeric is an agricultural commodity produced abundantly by the people in the area of West Java. Yielded from rhizomes or tuber roots, it has many uses in the community, such as a cooking ingredient. In the field of health, turmeric is widely used to make herbal medicine. One of the well-known, long, and hereditary uses in the community is asem kunyit made from turmeric juice added with brown and tamarind sugar, believed to be useful for smooth skin, dysmenorrhea, blood glucose levels and body fat for obese people. So far, the use of turmeric is for traditional herbal medicine. The development in health research shows that turmeric has proven to be useful as an antioxidant, anti-inflammatory, antibacterial, antiviral, tumor prevention, and cardioprotective agent with the role of anti-angiogenesis in various organs including adipose tissue (Zhao, 2017). Adipose tissue is fat deposits under the skin layer which is a source of energy, insulation and padding for organs. If it is excessive, it will cause various disorders in the body with the formation of cholesterol plaque deposits in the blood vessels that can lead to ischemia, coronary heart disease, and stroke. This increase in cholesterol or hypercholesterolemia is found mostly in people with excess body weight and obesity.

Using turmeric to reduce blood cholesterol levels has been proven through experimental animal, preclinical, and human testings (clinical testing). A reference for preclinical research on animals related to obesity is a study by Shao (2012). It discussed curcumin therapy for the prevention of fat increase, insulin resistance, and obesity through the decomposition of liver fat and adipocyte inflammation. The study observed mice for 28 weeks with 16 weeks of high-fat diet and 28 weeks of curcumin extract. The results showed decreased insulin and leptin resistance, weakening of cytokine inflammation, and increased burning of fatty acids. The results of the study concluded that mice with a high-fat diet and curcumin extract consumption reduced the expression of lipogenic genes in the liver and inflammatory response in adipose tissue. Additionally, curcuminoid therapy has been applied in clinical trials for healthy people (such as DiSilvestro, 2012), where 19 adult respondents aged between 40 and 60 received low doses of 80 mg curcuminoid extract/ day for four weeks. Their blood and salivary samples showed a significant decrease in plasma triglyceride levels, decreased salivary amylase levels accompanied by an increase in anti-free radical activity (DiSilvestro, 2012). The same type of respondents also took part in Lao's study which focused on the administration of curcuminoid extract with therapeutic doses from 500-12,000 mg per day. Only 7 out of 24 respondents (30%) showed a minimum effect of toxicity, while most of the respondents were able to tolerate it, there was no presence of curcumin in the blood serum of respondents who consumed doses of 500; 1,000; 2,000; 4,000; and 8,000 mg; and only two respondents perscribed with 10,000 and 12,000 mg had low levels of curcumin in blood serum (Lao, 2006). Based on the description, a hypothesis can be formulated showing that the treatment of turmeric extract can be used as an anti-hypercholesterolemic therapy. Besides being a therapy using natural ingredients, turmeric can be well-tolerated by the body and useful for the treatment of hypercholesterolemia. However, the development of such research in the country is currently still at their clinical stage, especially in hypercholesterolemic patients.

Method

The study subjects were hypercholesterolemic patients with obesity. The number of samples used a paired numerical formula, and 18 respondents fulfilled the prerequisites. Respondents must also meet the inclusion criteria of obesity by measuring body mass index (BMI) using the calculation of body weight (kg) divided by squared height (meters) to obtain the BMI values > 25 kg/ m^2 or clients with hypercholesterolemia (total cholesterol > 200 mg/dl) based on the measurements of total cholesterol levels via cholesterol check instrument namely the ultra cholesterol meter. Furthermore, the respondent must be registered as a patient in Puskesmas Cimahi Selatan. In this study,

the ethical clearance (120/KEP/STIKES-A-YANI/VIII/2017) was obtained from the Health Research Ethics Committee Stikes Jenderal Achmad Yani Cimahi.

Making the Turmeric Extract, the material for turmeric extracts comes from turmeric tuber roots obtained from traditional markets in the Cimahi City. They are washed, thinly sliced, and dried for a week. Subsequent drying is done using an oven for an hour. Then the dried product is mashed to its powder state with a food processor. The powder is weighed for each sachet so that they contain a gram. Furthermore, dried turmeric powder was extracted using the infusion method. The infusion method of turmeric extract consisted of 1 gram of dried turmeric powder added with 100 ml of mineral water heated at 900C for 15 minutes by using two pans arranged in stages. The powder and 100 ml of mineral water were poured on the top layer while the bottom pan was filled with enough mineral water to avoid overcooking. Below is a picture of how to make turmeric extract:

Figure 1 How to make turmeric extract

After 15 minutes the boiling process was complete, and the extract floated in the top boiling pan to be poured into a glass and consumed after cooling.

Phytotherapy Procedure, turmeric extract is one way to take substances that are in turmeric root. The use of turmeric extract to overcome various disorders or diseases in the body such as hypercholesterolemia and obesity is known as phytotherapy. The therapeutic dose of the turmeric extract is based on evidence-based studies in research articles (Lao, 2006) which is as much as 1 gram/day. The duration of the therapy was 4 weeks (28 days), based on the research DiSilvestro (2012) made. It states that the treatment of turmeric extract for 28 days can reduce plasma triglyceride levels. Respondents were asked to drink turmeric extract every day at 5:00 p.m.

Cholesterol total examination, total blood cholesterol levels were measured by extracting blood from the fingers of the patient using a lancet and read from a strip using the Acon Mission Ultra cholesterol system.

The nature of the research is that of a quasi-experimental with one group pretest and posttest design. The sampling technique used purposive sampling and obtained as many as 18 respondents with hypercholesterolemia patients with obesity. Furthermore, the results of the research data were tested for normality. A skewness test obtained the BMI data as 0 = 0.785 ≤ 2, cholesterol level data before therapy = 0.466 ≤ 2, cholesterol level data after treatment = 1.19 ≤ 2. Thus, it can be concluded that BMI data related to cholesterol levels before and after the treatment were normally distributed and can use the parametric tests. Then the parametric analysis used the dependent t-test. Data collection was conducted in October 2017 at Puskesmas Cimahi Selatan in Cimahi.

Result

The effects of turmeric extract phytotherapy with a gram daily dosage for 28 days on 18 respondents appear in the following tables:

Based on Table 1, a respondent (5.6%)

Table 1 BMI Distribution

BMI Category	f	%
Underweight	1	5.6
Normal	3	16.7
Overweight	8	44.4
Obesity	6	33.3
Total	18	100.0

Table 2 Average Cholesterol Levels Before and After Treatment of Turmeric Extract

Variable	Mean	Median	St. Deviation	Min-Max	p-Value
Before	234.44	228.00	21.217	207–264	0.0001
After	202.06	201.50	35.112	147–285	

belonged to the underweight category, three respondents (16.7%) in the normal weight category, eight respondents (44.4%) in the overweight category (44.4%), and six respondents (33.3%) as the obesity category. Table 2. Average Cholesterol Levels Before and After Treatment of Turmeric Extract

Based on Table 2, the average cholesterol level before the intervention was 234.44 mg/dl with a standard deviation of 21.217. The average cholesterol level after the treatment 202.06 mg/dl with a standard deviation of 35.112. The results of paired t-test yielded the p-value = 0.0001 ($\alpha < 0.05$), leading to the conclusion that there is a significant effect of turmeric extract therapy on the reduction of Cholesterol levels. Research Limitations, this study has its limitations, namely the absence of trials on animals and the subsequent clinical stage research needed to learn more about the benefits of turmeric extract in helping to lower cholesterol levels.

Discussion

Based on the results of the study in Table 1, a respondent (5.6%) belonged to the low weight category, 3 respondents (16.7%) in the ideal/normal weight category, 8 respondents (44.4%) in the overweight category and 6 respondents (33.3%) as the obesity category. Body mass index (BMI) is a measure of nutritional status by calculating the ratio of height and weight. BMI is one of the parameters that can be used in determining the criteria of a person's body proportions because BMI correlates with the total amount of body fat in humans and it can describe a person's weight status (Linta, 2008).

In identifying overweight and obesity in adults, BMI is used since measuring body fat directly is difficult. It is reinforced by the Sandhu, which states that there is a positive relationship between BMI and triglyceride levels in people aged 31–61 years (Sandhu, 2017). Adults, especially over 30 years, are overweight since their organs generally begin to decline in function, the metabolic rate begins to wane, and food accumulation occurs. The condition worsens due to habits that allow high food consumption and the lack of physical activities. Some factors that influence obesity are genetic, damage to the hypothalamus lateral and ventromedial parts that drive appetite; overeating patterns; lack of activity, emotion, socio-cultural, economic and drug environment. As their age increases, people tend to engage in less physical activity and diet will change along with increased financial capacity. These factors cause the body mass without fat to decrease, while the fat tissue will increase so that the value of cholesterol in the blood will also be high. However, fat removal from the blood in each person varies: an individual may be able to consume large amounts of animal fat and never have total cholesterol levels of more than 200 mg/dl, while another individual who undergoes a strict low-fat diet may never have cholesterol levels total below 260 mg/dl. It may be related to genes and the variety of speed of lipoproteins entry to and exit from the bloodstream.

Research conducted by Linta in East Java found a relationship test showing a significant relationship between moderate and positive levels between BMI and abdominal circumference with blood cholesterol levels with p-value = 0.018 ($\alpha < 0.05$). It entails an increase in BMI and abdominal circumference followed by the rise in blood cholesterol levels. BMI and abdominal circumference are predictors of cholesterol levels in the blood. Research by Sitepu (2014) attempted to show the relationship between BM and lipid profile. It involved the prevalence of BMI with a body weight of 4%, a normal weight category of 45%, the preobesity category of 41%, and a 10% obesity category. Twenty-two (55%) male and thirty (56%) female adult patients had excess BMI, but the statistical tests using Spearman obtained p-value > 0.05, showing an insignificant relationship. Other researches indicate differences in results, showing that most of the respondents are in

the normal weight category and only a few respondents fit in the obese category. Also, there is a difference in the relationship test which shows that previous studies did not show a relationship between BMI with a lipid profile. The similarity of the results of earlier studies lies in the fact that they included people belonging to the underweight category. From the discussion, the authors concluded that the increase of BMI is not always congruent with an increase in cholesterol levels. Most of the respondents belonged to the overweight and obesity categories with an increase in cholesterol levels, but there were also respondents who were in the normal weight and underweight categories experiencing an increase in cholesterol levels. However, to facilitate the screening of patients with hypercholesterolemia, BMI and other measurements such as abdominal circumference can be used.

Furthermore, the results of the study in Table 2 found the average cholesterol level before therapy of turmeric extract was 234.44 mg/dl, while the average cholesterol level after turmeric extract intake was 202.06 mg/dl. Hypercholesterolemia occurs when total cholesterol exceeds 200 mg/dl. It has been proven to be a risk factor for atherosclerosis which can lead to acute coronary syndrome, stroke and hypertension.

Turmeric has a beneficial ingredient for the body such as yellow curcumin (curcuminoid), essential oils, as well as high minerals such as potassium, calcium, iron and magnesium. Curcumin in turmeric is an antioxidant because turmeric does not contain cholesterol and is rich in fiber; it will control low-density lipoprotein (LDL) in the blood. As an antioxidant, turmeric is widely used to increase appetite, improve digestive function, reduce blood fat (cholesterol) and help inhibit blood clotting (Bagschy, 2012). Curcumin can protect the body from several types of degenerative diseases by preventing the occurrence of fat peroxidation. The hydroxyl group in the chemical structure of curcumin can inhibit peroxidation activity and it is also known that its function as an antioxidant plays a significant role against hyperlipidemia activity (Suryantoro, 2007).

In this study, each respondent received 1 gram of turmeric extract taken every day for 28 days. The result of paired t-test shows p-value = 0.0001 ($\alpha < 0.05$) which leads to the conclusion that there is a significant effect of turmeric extract on the decrease of cholesterol levels. It is because turmeric rhizome extract can inhibit the increase in blood serum cholesterol levels because it inhibits the reabsorption of exogenous cholesterol and increases the enzyme Hmg-CoA so that fat synthesis can take place (Muchtadi, 2003). It proves the potency of curcumin in inhibiting the Hmg CoA enzyme and cholesterol formation from free fatty acids. Furthermore, the results of this study indicate that there is a mean decrease in cholesterol levels even though the average decline has not yet reached the normal cholesterol category. It may be due to the absence of rules for limiting fat consumption in respondents. Thus the formation of fat from external factors can trigger an increase in cholesterol, triglyceride and LDL levels so that curcumin acting as an inhibitor of the Hmg-CoA reductase enzyme is not optimal. The intake of foods containing fat levels is closely related to the educational background of respondents. The influence of education is closely associated with the mindset in determining attitudes and actions, including applying a high-fat diet that requires a good knowledge of the right types and portions of fat for patients with hypercholesterolemia.

The research that supports the results of this study was conducted by Hasanah in Surabaya who examined the effect of turmeric rhizome extract intake at 500 mg taken twice daily for seven days to reduce total cholesterol, LDL, and increase HDL levels on ten dyslipidemia patients. The results showed a significant decrease in their total cholesterol, LDL levels and increase in HDL levels with a p-value < 0.005 (Hasanah, 2016). The results of previous studies are consistent with this research where the administration of turmeric extract can reduce total cholesterol levels.

The results of this study prove that turmeric extract can be used in anti-hypercholesterolemic therapy. It is well known that hypercholesterolemia is a risk factor for various diseases, such as hypertension, atherosclerosis and stroke. Turmeric therapy can be used as a promotive and preventive action in the nursing profession to prevent

and control various kinds of diseases that potentially caused by hypercholesterolemia. Turmeric therapy can also be applied as one of the nonpharmacological interventions to improve nursing care services.

This study has its limitations, namely the absence of trials on animals and the subsequent clinical stage research needed to learn more about the benefits of turmeric extract in helping to lower cholesterol levels.

Conclusion

Based on the results and the discussion of the study, it can be concluded that the increase in BMI is not always followed by the rise in cholesterol levels even though the results of the study indicate that excess body weight and obesity have a higher risk of developing hypercholesterolemia. Furthermore, it can be concluded that phytotherapy of turmeric extract can significantly reduce total cholesterol levels in hypercholesterolemic patients or with obesity.

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The Effect of InGDEP on Type 2 Diabetes Patients' Knowledge and Self-Care

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Abstract

In the recent years, there is an increasing number of the diabetes incidence worldwide. Self-care is believed as one of key in chronic disease management. In order to increase the capability to self-care, diabetics patients need to be empowered with the knowledge and skills through an educational program. There were some existed diabetes educational programs, however for developing country such as Indonesia, there was a need to develop a culturally relevant diabetes education program. This study was aimed to identify feasibility and the effect of the Indonesian Group-based Diabetes Education Program (InGDEP) on knowledge and self-care behaviors among type 2 diabetic patients. This quasi experimental with one group pre-and post-test only design involved 62 diabetic patients and 16 health professionals who actively delivered the program in four community health centers (Puskesmas). Data were collected using Diabetes Knowledge Questionnaire (DKQ) and Summary of Self Care Activities (SDSCA). Paired t-test used to analyze the effect of the InGDEP on the knowledge, self-care, and biometric measurement (HbA1c). The knowledge score for pre-test was 13.2+3.9 and post-test was 16.1±3.5, self-care activities score for pre-test was 3.31±1.10 and post-test was 3.99±1.27 and the HbA1C level was 10.56±2.32 The results showed there was the significant effect of InGDEP on diabetes patients' knowledge, some changes in self-care and biometric measurements even though it was not significant. The program also can be accepted by the health professionals where there was a good team work in delivering the educational program. It can be recommended that the InGDEP has an effect in improving knowledge and self-care among diabetics' patients, however since the effect on self-care and biometric changes was not significant, further research related to the factors that influence the self-care and biometric changes is needed.

Keywords: Active involvement, behavior, self-management.

Introduction

Worldwide, there is a significant increase in the number of people with diabetes, where one of the 11 adults suffers from diabetes (WHO, 2014). Data from International Diabetes Federation (IDF) (2015) showed that the incidence of diabetes in 2015 was 415 million people were suffering from diabetes, and it is estimated that in 2040 the number will grow to 642 million people. Moreover, the data also indicated that there are 193 million cases of diabetes, where around 5 million was undiagnosed (IDF, 2015).

Diabetes Mellitus is also known as "lifelong disease", cannot be cured, and people need to live with the condition after being diagnosed. Although diabetes cannot be cured, it can be controlled, and diabetic patients could life normally with their condition. Diabetes self-management (DSME) is the key aspect for managing chronic diseases and should be delivered in newly diagnosed people with DM (Funnell & Piatt, 2017). Diabetes self-management has been known as the effective program that can help people with DM manage their condition well. Diabetes self-management program focused on the changing behavior in maintaining the life style, diet management, activity and exercise. The diabetics patients need to perform a favorable behavior that known as self-management. The self-care behavior is an action in maintaining and managing the environment in order to regulate the function of a person and integrates the condition to maintain the quality of life (D'Souza et al., 2017). According to Indonesian Endocrinologist Association [PERKENI] (2015) one of the cornerstones in the managing DM is by providing the educational program. Health professionals need to actively provide some information regarding diabetes management, thus diabetics patients could have significant knowledge and skills in managing diabetes. All the health professionals especially who involved in providing health care directly to patients have some obligation which is become a support system for patients through their role as educators.

Providing health information through health education program for people with diabetes known as diabetes self- management education (DSME). This program has goals on empowering patients with knowledge and skills in order the diabetic patients able to perform proper self-management independently. There are several educational programs for diabetics' patients that has been developed and proven as an effective program in increasing knowledge and skills. Dose Adjustment for Normal Eating (DAFNE), Diabetes Education and Self-Management for Ongoing and Newly Diagnosed (DESMOND) are some of the diabetes education program that have been implemented in several countries especially in developed countries (DAFNE study group, 2003; Davies et al., 2008; Deakin & Whitham, 2009). These programs in general have the same impact in lowering the glucose level of diabetics' patients, improve patients' understanding of diabetes and its management, and also improve the lifestyle of diabetics patients (Malini, Copnell, & Moss, 2017). However, those programs were effective where all the systems have been established. For country like Indonesia, where most of the health professionals were overload with their jobs, where the ratio between nurse and patient is still 87 per 100,000 people, there is a need for an alternative and effective approach in conducting a structured health education program. Thus, in order to support their job, a suitable program with their situation. Moreover, the materials especially regarding the diet and activity alternatives information, not all the information from the established program suit to Indonesian situation. Some of information such as food choices and activity alternatives need to slightly changes to match with Indonesian setting.

In choosing a health education program that would suit for Indonesian society requires some consideration including cultural, ethnic, accessibility and geographical issues. Thus, the Indonesian Group-based Diabetes Program (InGDEP) was developed as a culturally relevant education program with Indonesia situation (Malini, Copnell, & Moss, 2017). However, the implementation of the program in the previous research is limited to only small number of patients. Further investigation is needed to prove that the program has similar impact to

other respondents with different cultural background such as in West Sumatera. The aim of this study was to investigate the feasibility and the effect of InGDEP to the glycemic control, self-care knowledge and behaviors among people with T2DM.

Method

This study used quasi experiment with one group pre-and post-test only. There were 62 people with type 2 DM that live in working area of community health center (Puskesmas) in Solok city, West Sumatera that recruited based on some criteria namely willing to participate during four sessions of educational program in a month; able to read; able to do activities independently; no complication because of diabetes yet; age between 35–65 years old. This study also involved four health professionals from each Puskesmas, consist of nurse, doctor, nutritionist, and public health who act as the team member of educational program and attended two-days training provided with local diabetes educators prior program implementation. Training materials cover diabetes and its management and conveyed in the active learning style.

Diabetes Knowledge Questionnaire with 24 questions (DKQ-24) developed by Garcia, Villagomez, Brown, Kouzekanani, and Hanis (2001) was used to measure T2DM patients' knowledge. The questionnaire consisted of six domains including the definition of diabetes; recognize the diabetes symptoms; perception towards the diabetes management (diet, activities, lifestyle, and complication). The high scores indicate a better understanding on diabetes. Summary of Diabetes Self Care Activities (SDSCA) by Toobert, Hampson, and Glasgow (2000) was used for measuring T2DM patients' self-care behaviors. It consisted of diet, exercise and activities, foot care, medication and smoking behavior. For all the four components were measured using the average days of people with diabetes performed it. For the smoking components, it was measured by asking whether the respondents smoking or not, if the answer was yes, the respondents need to provide the number of cigarettes in a day. Both questionnaires have been translated into Indonesian and have been applied in some research (Malini, 2015). For the glycemic control, within cooperation with local government health laboratory which have obtained ISO, this study conducted a measurement of the HbA1c. The HbA1c were measured before the program started (baseline result) and were measured again three months after the respondents finish the program. Between at the end of program until the second measurement of HbA1c, the respondents were visited by the researcher once a week to examine their self-care behavior recorded in the diary including diet intake, activities and foot care. The data analysis was measured using the paired t-test to identify the changes of knowledge and self-care behavior, and also the glycemic control before and after attending the program. The program consisted of two days educational training for health professionals as the educator team, four education sessions provided by the educator team to the group of patients once a week for a month. Each session last for 45–60 minutes. After the whole session finished, regular home visit was conducted once a week for one month. The total length of the educational sessions and home visits were two months.

This study was conducted in accordance with good clinical practices as defined by Helsinksi Declaration for research using human as subjects (World Medical Association, 2001). The study was approved by the ethical committee of Faculty Medicine, Universitas Andalas, and also granted permission from The Health Office of Padang, West Sumatera.

Result

There were 62 respondents completed the four sessions of educational program, with around 16 health professionals in four Puskesmas actively delivering the program. The mean age of participants was 49.7 years old, and the mean of patients were diagnosed with diabetes was 4.2 years. Post test score of patients' knowledge (16.1+3.5) was significantly higher ($p = 0.021$) than the pre-test score (13.2+3.9). Meanwhile, there is

Table 1 DKQ 24 Score Before and After Attending the Educational Program InGDEP for People with Type 2 Diabetes in 2017 (N=62)

Variable and domains	Pre Test	Post Test	p Value
Diabetes Knowledge	13.2±3.9	16.1±3.5	0.021
Definition of Diabetes	2.3±1.2	3.1±1.1	
Recognize the Symptoms	3±1.5	2.5±0.8	
Perception of Diabetes	0.2±0.4	0.9±0.8	
Diet	1.8±0.7	2±0.7	
Life Style	2.7±1.1	3.9±1.1	
Diabetes Complication	3.2±1.0	3.6±0.6	

Table 2 SDSCA Score Before and After Attending the InGDEP for People with Type 2 Diabetes in 2017 (N=62)

Variable and Domains	Pre Test	Post Test	p Value
Self-Care Behaviors	3.31±1.10	3.99±1.27	0.043
Diet	3.16±1.59	4.32±1.62	
Exercise	1.23±1.48	2.83±2.02	
Foot Care	4.05±1.56	4.69±1.52	
Medication	4.52±3.21	4.57±3.10	
Blood Check	1.00±1.14	3.14±3.27	
Number of Smokers (n (%))			
No	62 (100)	62(100)	
Yes	0 (0)	0 (0)	

significant changes for self-care behaviour. There were some changes, the post test of HbA1c scores, the three months measurement after the program, (10.56±2.32) significantly lower (p=0.001) than the pre-test score (12.48±2.61).

Discussion

This study measured the effect of InGDEP in improving knowledge, behaviours and the glycaemic control (HbA1c) by comparing between pre and post test. Based on the analysis, this study found that InGDEP has some influence on changing the knowledge related to diabetes (pre 13.2 ± 3.9; post 16.1 ± 3.5; p value = 0.021). This result indicates there is increasing of knowledge of respondents towards diabetes and its management. The improvement of knowledge was followed by the changes in self-care behavior. Before the program, most of the respondents performed the self-care behavior was 2 days in average, after attending the program, it increases to 3 days in average (see Table 2 for SDSCA from 2.31 to 3.99). Even the number of days of performing self-care behavior only increase by one day, it still shows significant changes. Meanwhile, patients' glycemic control improved indicated by lower HbA1c level after three months, however generally the level of HBA1c is still above normal for people with diabetes (value of 8.5–9.0).

The diabetes education program is performed in order to improve knowledge and skill of people with diabetes in performing self-management toward their illness. Based on the results of the study, the average age of respondents is 49 years old, this shows that diabetes is experienced by people in the productive age. It is expected that at this age,

some person would be on the best performance of their careers and life. Within the diagnosis of diabetes, it meant that this person should consider their productivity should be suit to their health status. On the other hand, people at their productive age, tend to have sedentary lifestyle that can lead to diabetes or make the condition with diabetes worse if they cannot perform diabetes self-management well. In terms of, length of diabetes experience, the average time would be 4.2 years, shows that most of the respondents in this study have experience chronic condition. The chronic condition meant that people who experience it, need to have significant knowledge and skill on managing their disease in order to prevent further complication.

The result of this study shows some changes on knowledge, self-care and followed by the glycemic control. The implementation of group-based diabetes education program has some expected impact. The awareness of respondents towards the definition of diabetes, the symptoms and its complication have some impact on how they willing to perform the self-care behavior in daily routine. Ideally, people with diabetes need to manage their intake nutrition, exercise, lifestyle, foot care and medication every day. The involvement of health professionals in the program provide social support which is needed by people with chronic disease. It is believed that the involvement of health professionals could increase the awareness of diabetes patients with their self-care management includes diet, foot and eye care (Ruggeri et al., 2018). The role of health professionals in diabetes management considered as significant role in improving knowledge and skill through a diabetes education program.

Diabetes education program has been proven could enhance the knowledge and change behavior when there is some support to the patients. Study of Sari, Haroen, and Nursiswati (2016) shows that educational program has an impact in increasing the foot care among people with diabetes when the family involvement was existing.

The measurement of self-care using the SDSCA shows that in general that most of the respondents still do not perform the expected behavior every day. However, in terms of category, there is a difference in the frequency of changes in diet, exercise and foot care category before and after attending the program. This change indicates that most of the respondents aware that diet and exercise are important for their condition. For the foot care, most of respondents are Moslem, so it should become their habits for the respondents to check their foot every day. However, in this study, the foot care was not performed everyday due to there is still limited information on patients how they should perform foot care. However, for the blood glucose level checking, most of the respondents did not have the Glucotest, thus they only perform it when they attend to the Puskesmas once a week. Some of the respondents only check their blood glucose once a month or if it is necessary. All of the respondents in the study taking the drug orally to control blood sugar levels, the majority of respondents do some exercise and activities, but not much in accordance with the rules of activity, exercise in diabetes patients which consider the intensity, the durations, and endurance that is appropriate.

The increase in the value of knowledge is significant because health education was designed to improve knowledge and ability through a learning process and active involvement from the health providers. This study has proven that a diabetes education program that conducted by multi health professional could increase the knowledge and self-care of people with diabetes. Health education program consider as the best way in providing support for people with chronic disease. It is expected that the program would beneficial not only for the person who suffer the disease but also for the family in preventing and improving potential health problems in future. A study conducted by Siwi, Putri, Yudianto, and Kurniawan (2013) found that there is significant relationship between knowledge and self-care of diabetes management. The study found that through providing information to patients and family, the health behavior is improved.

There is some limitation to this study

which the involvement of family member has not explored further yet. A study by Sari et al. (2016), the family involvement has significant impact on the ability of diabetics' patients in conducting foot care. Family involvement is a very necessary supports for diabetics' patients in the treatment against the disease. Theory and research aforementioned explain that health education can enhance the ability of patients to perform self-care activities. The group-based education program has several advantages compare to individual approaches, the excess of which education is more attractive, dynamic intervention, and has social aspect of support to each member (Mensing & Norris, 2003). Thus, it is recommended that for the further development of the proposed educational program in this study need to include and emphasize more on the family involvement.

The InGDEP as a group-based model in health education program provides not only health information materials, but also there was a sharing of experiences among patients with patients and between patients with health care professionals in Puskesmas (Malini et al., 2017). During the implementation of the program, based on the observation conducted by the researcher, most of the session would contain some process of sharing information among the attendee both health professionals and patients, health professionals are the expert in the health related information, meanwhile the patients are the expert of their health condition. The presence of being valued as a person who knew better of the health condition make the patients seem more open to health professionals.

Research conducted by Shrader, Martin, and Cogdill (2013) found that the education program on diabetics patients who exercise in groups is effective in controlling blood sugar, HbA1c levels, systolic blood pressure, resulted in weight loss, and increase the knowledge of the patients. It can be concluded that providing health education effect on self-care behavior, but the influence is greater when health education conducted in groups, structured and involved a multidiscipline of health professionals. Educational group session which involved multidiscipline health professionals provide reinforcement to the patient, where the patients would feel that many health professionals concerned with their health condition. Thus, the program provided supports not only for the patients but also for the health professionals since they worked together as a team which enhance interprofessional collaboration.

This study has some limitation. First, the education program was implemented for research goals only, thus, the sustainability of the program need to be further investigated. Second, this study need to explore more on how the experience and perspective of all the participants involved in this program, so, qualitative research method need to be implemented in future research. This present study has provided a new insight of diabetes education program should conducted even further research need to conduct to measure the effectiveness of the education program.

Conclusion

The implementation of InGDEP as a diabetes educational program has been successfully enhanced knowledge and self-care of people with diabetes in three Puskesmas. The program has increased the knowledge and self-care activities especially in diet, exercise, and lifestyle. The group-based approach that used in this proposed education program provide a supporting environment for the patients since in the group approach, patients could learn from each other's.

For the measurement of HbA1c level, there is some decrease from the basis line level steadily to the three months level after patients completed the educational session. InGDEP has shown significant changes in knowledge, even though the self-care did not change significantly. However, in term of the active involvement, all respondents and health professionals felt some benefits of the program. It is expected that in future the program will be developed more, and the further research is still needed to search the effectiveness of the program.

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The Effect of Spiritual Emotional Freedom Technique (SEFT) on the Self Concept of Breast Cancer Patients with Mastectomy

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Abstract

Mastectomy is a breast cancer surgical therapy that can lead to permanent changes in a woman's appearance. This change can cause negative changes in a woman's self-concept. If the disruption of self-concept continues, it will cause emotional weakness. Individuals will be depressed and feel anxious continuously, emotional frustration is getting worse, making individuals create self-destruction. For this reason, therapy is needed that can overcome this negative self-concept problem from Emotional Freedom Technique (SEFT) Spiritual Therapy. The aim of this study was to identify the effects of SEFT therapy on self-concept in women with breast cancer with a mastectomy. This study used a quasi-experimental design with one group pretest-posttest design approach with inclusion criteria willing to be a research subject, aware, no hearing loss or cognitive impairment of self-concept, never had SEFT therapy, interacted with family and community at least 1 week after mastectomy . This therapy was carried out for 3 days in 33 subjects. Data were analyzed by Chi square statistical test with 95% CI with a significance of $p < 0.05$. The results of this study were before given SEFT treatment from 33 respondents, there were 4 respondents (12.1%) who had a positive self-concept, and the majority of 29 respondents (87.9%) had negative self-concept. After SEFT treatment there was an increase in self-concept of respondents with positive self-concept as many as 10 people (30.3%) and still had negative self-concept as many as 23 people (69.7%). The results of the analysis showed that there were differences in self-concept before and after SEFT with a value of $p = 0.05$. Nurses are encouraged to exercise this ability and use this therapy as a therapy to prevent self-concept disorders in breast cancer patients with mastectomy.

Keywords : Breast cancer, patients, mastectomy.

Introduction

Cancer is a non-communicable disease that is still the biggest cause of death in humans around the world. WHO data shows that in 2012, the death rate of the world's population due to cancer reached 8.2 million cases. It is even expected to increase to 22 million cases in the next 2 decades. In Indonesia alone, the prevalence of cancer is 0.14%. Cancer is the number seven cause of death in Indonesia, however, based on age, cancer prevalence is in the age group 45-54 years where the age is still a productive age (Balitbang Basic Health Research Ministry of Health, 2013). Of the many types of cancer, cervical and breast cancer ranks highest in Indonesia with a case of 0.08% in cervical cancer, and breast cancer with a prevalence rate of 0.05% (Balitbang Basic Health Research Ministry of Health, 2013).

Breast cancer therapy modalities include surgery, chemotherapy, hormonal therapy, monoclonal antibodies (therapeutic genes) and immunotherapy (Gnant, 2015). In surgical procedures for breast cancer, usually is removal of the breast known as mastectomy. Mastectomy, as a surgical treatment for breast cancer, results in permanent changes in a woman's appearance. Breasts are considered part of women's identity in Indonesia and various other cultures (Koçan, 2016). Breasts represent femininity, sexuality, beauty, motherhood, and breastfeeding babies (Cebeci, 2011). The loss of one of these attributes can cause a negative change in one's self-concept (Arroyo, 2011).

Self-concept is an individual's way of seeing his personality as a whole, involving physical, emotional, intellectual, social, and spiritual, including the individual's perception of the nature and potential that they have, the interaction of individuals with others and their environment, values related to experience and objects, as well as their goals, hopes and desires (Sunaryo, 2004). Self-concept is of two types, namely positive self-concept and negative self-concept (Stuart & Sundeen, 1991). Individuals who have a negative self-concept believe and perceive that they are weak, helpless, unable to do anything, incompetent, failed, unfortunate, unattractive, disliked and lose interest in life. Meanwhile, individuals who have a positive self-concept will be optimistic, self-confident and always be positive about everything, as well as the failures experienced.

Mastectomy will affect self-concept including one's body image. Body image is defined as a mental picture of a person's body, attitudes about physical self, appearance, and state of health, wholeness, normal functioning, and sexuality (Fobair, 2006). For some individuals, changes in appearance can cause negative body image and various psychosocial problems. Negative body image among breast cancer sufferers includes dissatisfaction with appearance, loss of femininity and perceived body integrity, unwillingness to see yourself naked, feeling less sexually attractive, self-awareness of appearance, and dissatisfaction with surgical scars (Fobair, 2006) Some studies emphasize that breast cancer patients can experience changes in body image, self-concept, emotions, behavior, family dynamics, and the role of patients and their families (Özbaş, 2006: Arroyo, 2011).

If the disruption of self-concept continues, it will lead to emotional weakness. Individuals will be depressed and feel anxiety continuously, emotional disappointment that gets worse, makes individuals create self-destruction. Negative self-concept if it is continuously allowed to develop makes the body easily sick, despair and depression because of the lack of a strong inner endurance. As a result it interferes with the nervous and immune systems such as being easily agitated, anxious, scared, worried, easily runny, coughing and diseases that are actually considered light and trivial but have a huge impact on health (Berterö, 2002). For this reason, a therapy that can overcome the problem of negative self-concept is needed.

Spiritual Therapy Emotional Freedom Technique (SEFT) including relaxation techniques, is one form of mind-body therapy from complementary and alternative therapies in nursing. SEFT is a technique of combining the body's energy system (energymedicine) and spiritual therapy by using tapping methods at certain points on the body. SEFT therapy works on a principle more or less the

same as acupuncture and acupressure. All three try to stimulate key points along the 12 energy pathways (energy meridians) of the body. The difference between the methods of acupuncture and acupressure is that the SEFT technique uses spiritual elements, the method used is safer, easier, faster and simpler, because SEFT only uses tapping (Zainuddin, 2009; Thayib, 2010; Saputra, 2012).

Research on EFT, which is the root of SEFT has been carried out in various areas. EFT is able to reduce symptoms of Post Traumatic Stress Dysorder (PSTD) (Swingle, Pulos, & Swingle, 2005), able to reduce eatingphobia in children (McCarty, 2008, in Zainuddin, 2009), making Traumatic Brain Injury (TBI) sufferers quieter, cure phobia in just 30 minutes (Benor et al., 2008; Craig et al., 2009; Wells et al., 2000; Baker & Siegel, 2000 in Zainuddin, 2009). In addition EFT is very significant in overcoming fear, paranoid, obsessive, depression, and other psychological disorders (Waite & Holder, 2003; Church, Geronilla, & Dinter, 2006 in Zainuddin, 2009).

The application of SEFT was carried out by Anwar (2011) on patients with specific phobias. The results of his research show that SEFT therapy can reduce excessive fear. Hakam et al. (2009) conducted a SEFT intervention study to reduce pain in stage IIb cervical cancer patients. However, studies related to the effects of SEFT on self-concept, especially patients with mastectomy have not been found.

Method

The design of this study is a quasi experiment with the one group pretest-posttest design, namely in this design in a group of research subjects 2 measurements were taken in patients who experienced self-concept disorder due to mastectomy, namely the first measurement (pre-test), then an intervention in the form of Spiritual Emotional Freedom Technique (SEFT). The provision of SEFT therapy to the study subjects was carried out for ± 10 minutes, with the following time allocation: ± 3 minutes for the set-up phase and ± 7 minutes for the tune-in phase and the tapping done simultaneously. After being sure that the research subject did it correctly according to the procedure, the research subjects were required to do therapy at least 1 time a day. Every subject had SEFT therapy, so the subject of the research must give a chechlist on the list of exercises at home. Interventions continued at home will be carried out by researchers using the telephone. After 3 days of intervention, a period of time considered sufficient based on several studies, the research team will conduct a home visit to measure the self-concept of the subject measured again (posttest). The research subject was taken in M. Djamil Hospital Padang in the section of Surgery in February - December 2017. The population in this study were all breast cancer patients who had undergone a mastectomy and had undergone outpatient care and had interacted with family and society. The sample in this study were patients with breast cancer patients who had undergone mastectomy and met the inclusion and exclusion criteria. The sample size required in this study was 33 people with sampling taken by consecutive sampling based on the inclusion and exclusion criteria made by the researcher. The inclusion criteria in this study were willing to be a research subject, aware, not having hearing or cognitive impairment experiencing self-concept disorder, had never done SEFT therapy. While the exclusion criteria in this study were subjects experiencing impaired consciousness due to the disease process, the study subjects dropped out of the study by refusing to continue the intervention before the intervention time was completed (<3 days).

The independent variable in this study was Spiritual Emotional Freedom Technique (SEFT), while the dependent variable was self-concept. Self-concept instruments that are used first are tested for validity and reliability. Respondent characteristics data (employment, education) are explained by percentage and proportion values. Bivariate analysis using Chi Square statistical test using a significance level of 0.05 and a 95% CI degree of confidence.

Result

Of the 33 breast cancer sufferers who mastectomy, it was found that the highest respondent age was in the range of 34-42 years, namely 13 respondents (39.4%) and the highest respondents' education was elementary school (SD) as many as 18 respondents (54.5%). Respondents generally married as many as 33 respondents (100%), Muslim 24 respondents (72.7%), where they generally worked only as housewives as

Table 1 Characteristics of Respondents

Characteristics of Respondents	f	%
Age		
- 25–33 year	6	18.2
- 34–42 year	13	39.4
- 43–51 year	10	30.3
- 52–60 year	2	6.1
- 61–69 year	2	6.1
Pendidikan		
- Elementary School (SD)	18	54.5
- Junior High School (SMP)	8	24.2
- Senior High School (SMA)	6	18.2
- College	1	3.0
Pekerjaan		
- Government Employees	1	3.0
- Wiraswasta	6	18.2
- Enterpreneur	4	12.1
- Farming	5	15.2
- Housewife	17	51.5

Table 2 Frequency Distribution of Self-Concept of Women with Breast Cancer (N = 33)

Self Concept of Women with Breast Cancer with mastectomy	Before therapy		After therapy		p
	f	%	f	%	
Positive	4	12.1	10	30.3	0.05
Negative	29	87.9	23	69.7	

Table 3 Frequency Dstribution and Percentage of Self-Concept Components in Women with Mastectomy

Self Concept Components	f	%
Self-image		
Positive	13	39.4
Negative	20	60.6
Self Ideal		
Reality	8	24.2
Not Reality	25	75.8
Self-Esteem		

High	12	36.4
Low	21	63.6
Role		
Satisfied	8	24.2
Dissatisfaction	25	75.8
Self Identity		
Identity Clarity	16	48.5
Identity Unclear	17	51.5

many as 17 respondents (51.5%). The results of the study regarding the characteristics of respondents in brief can be seen in table 1.

This study shows that from 33 women with breast cancer with mastectomy who became the research respondents obtained the following data that before being given SEFT treatment there were 4 respondents (12.1%) who had a positive self-concept, and the majority of 29 respondents (87.9%) who have negative self-concept. But after the SEFT treatment there was an increase in self-concept, namely respondents with positive self-concept as many as 10 people (30.3%) and still have negative self-concept as many as 23 people (69.7%). After being tested with chi-square statistical tests there were differences in self-concept before and after SEFT. The results of this study can be seen in table 2.

When viewed from the components of self-concept which consists of several components namely self-image, self-ideal, self-esteem, role, and self-identity before therapy can be described as follows.

Self-image from the results of the study note that there were 20 respondents (60.6%) had a negative self-image, this can be seen in table 3. Analysis of data that shows the negative self-image of respondents supported by the expression of respondents revealed that they disliked her breasts (69.7%), worried that her breasts were no longer beautiful (54.5%), were unable to function as women (12.1%), and realized that their sexual attractiveness had disappeared (51.5%).

Self-ideal from the results of the study, as many as 22 respondents (66.7%) had an ideal self that was not reality. Data analysis that shows the ideal of women with breast cancer that is not reality is supported by the expression of respondents who stated that 33.3% did not want to look beautiful in front of loved ones, 12.1% expressed resignation not wanting to be a full woman, 6.1% no longer hope that the relationship with their loved ones will remain harmonious and happy, and 30.3% deny the current condition because they want the shape of their breasts to return to normal as other women. This can be seen in table 3.

Self esteem from the results of the study note that as many as 21 respondents (63.3%) have low self-esteem, this is supported by data showing that 12.1% revealed that during breast cancer her husband always ignored him, 6.1% did not sincerely received by the family, 36.4% lost faith and enthusiasm in living their lives, 33.3% revealed that due to breast cancer, prevented them from doing their daily activities, and 69.7% were ashamed if other people know the disease they are experiencing. The data can be seen in table 3.

Role there were 25 respondents (75.6%) who did not have satisfaction in the roles they performed. As many as 33.3% were not able to do a good job so they had to be assisted by others, 24.2% were no longer able to care for their families properly, 54.5% were no longer able to serve their husbands, 33.3% no longer participate in social activities in the community, and 45.5% stated that since suffering from breast cancer they are not able to serve their husbands to the maximum. The data can be seen in table 3.

Personal identity from the results of the study note that as many as 17 respondents

(45.5%) have no clarity in the identity of this can be seen in table 3. Analysis of data that shows identity uncertainty supported by 57.6% said breast cancer made them not become women in full, 9.1% despair could not make her husband happy, 12.1% could not be a good mother of her children, 42.4% was prevented from hanging out with people around her, and 42 .4% expressing the inferior shape of her breasts is not as beautiful as before.

Discussion

Based on Table 2, it is known that the self-concept of women with breast cancer after mastectomy was carried out, the majority had negative self-concept, namely 29 respondents (87.9%). According to Puckett (2007) when a woman is diagnosed with breast cancer, not only has an impact on her physical but also on her emotional and mental state, which can then affect her relationship with others. They begin to be alone, and the response to rejection of the truth of the diagnosis continues to occur (Elvira, 2008). They judge negatively their physical appearance and feel dissatisfied with their physical condition (Chris, 2005). Patients with breast cancer will display a negative impression such as shame and low self-esteem towards others. The feeling of shame and inferiority felt by breast cancer sufferers is related to the physical condition that is felt to be imperfect anymore and not in accordance with what he expected (Chris, 2005).

In the self-image can be seen that as many as 23 respondents (69.7%) said they did not like performance breasts anymore after suffering from breast cancer, 18 respondents (54.5%) worried about the shape of her breasts is not beautiful anymore after suffering from breast cancer, 4 respondents (12.1%) feeling unable to function as a woman because of having imperfect breasts and 17 respondents (51.5%) revealed that her sexual attraction was gone after suffering from breast cancer. According to Hawari (2003) breast is one of the characteristics of secondary sex which has an important meaning for women, not only as one of the identities that she is a woman, but has a separate value in terms of biological, psychological, psychosexual and psychosocial. This is also corroborated by Taylor (1995), that breast loss will change the physical appearance of the patient and can affect the way he views the body image. Women feel inferior, neglected, feel imperfect as a woman. Plus other treatment effects, which can make him experience nausea, vomiting, hair loss, and menopausal symptoms. A woman who has not experienced menopause, because of the effects of treatment she has experienced menopause earlier. He felt this could threaten his marriage life.

On ideal self was also found that as many as 4 respondents (12.1%) showed despair and expressed that they could not be women as a whole, 3 respondents (6.1%) said they did not expect the relationship with loved ones to remain harmonious and happy after suffering from cancer breast. As many as 2 respondents (6.1%) said they could not maximize themselves in carrying out their functions as mothers in the family and as many as 10 respondents (30.3%) denied the current condition, wanting their breasts to return to normal as other mothers in general. Women become less perfect because as a mother can not breastfeed her child (Herawati, 2005).

Based on the study also found that self-esteem as many as 29 respondents (87.9%) stated that even though they had breast cancer, their husbands never ignored them and as many as 31 respondents (93.3%) stated that their families would continue to accept sincerely even though their condition was like that. This shows that the support and acceptance of various parties is very meaningful for patients with breast cancer. The results of this study are supported by research conducted by Anggraini (2006) that the need for social support for women with high breast cancer. This is also consistent with Sharp's (2000) opinion in Abraham and Shanley (1997) that women diagnosed with breast cancer need high levels of social support needs. Social support according to Keliat (1998) including spouses, parents, children, relatives, friends, health team, superiors, counselors and so on. The above opinion is also corroborated by the opinion of Koopman et al. (1998) that breast cancer

sufferers experience enormous life stress so they desperately need social support. From the results of the study also revealed that only 21 respondents (63.7%) had confidence and enthusiasm in carrying out life while as many as 11 respondents (36.3%) lost faith and enthusiasm in living a life. According to cancer patients, when the verdict came, they were discouraged because they thought of expensive costs and negative things due to side effects of surgery and chemotherapy. Even imagined death before the eyes or prolonged pain during treatment (Elvira, 2008).

From role respondent the results of the study found that 11 respondents (33.3%) revealed that since suffering from breast cancer, they could not do the job well, and as many as 8 respondents (24.2%) said they were not able to care for the family properly. And as many as 11 respondents (33.3%) since suffering from breast cancer cannot do social activities in the community. The results also found that as many as 18 respondents (54.5%) claimed to be a wife, they were not able to serve their husbands to the maximum. Psychological factors experienced by cancer patients often affect their views on organs and sexual function, namely role disorder, thus affecting their inadequate feeling in sexual function.

From self identity respondent found that as many as 19 respondents (57.6%) stated that breast cancer prevented them from associating with the people around him and strengthened by the answer from the respondent's statement that 19 respondents (57.6%) claimed to be women they were inferior because the shape of her breasts is not as beautiful as before. In line with the research conducted by Chris (2005) on self-concept in women with post-operative breast cancer, it was found that feelings of shame and inferiority that are felt by the subject relate to the physical condition that is felt incomplete again and not in accordance with what he expected. Patients with breast cancer post operative action will feel they do not have the ability to do both activities and to establish socialization relationships with others. Physical conditions that are no longer intact cause cancer sufferers to feel that they have weaknesses that have an impact on the feeling of not having the ability to do something.

Based on chi-square statistical test there are differences in self-concept before and after SEFT performed with a value of $p < 0.05$. The results of Richman's research (2010) also explain that emotional stress that continues continuously can ultimately increase the level of individual anxiety and can even cause depression. Emotional pressure that comes from the experience of a chronic disease will generate various feelings and stress reactions, including frustration, anxiety, anger, denial, shame, grief and uncertainty. Those who experience chronic diseases coupled with mastectomy therapy, sometimes become very sensitive and vulnerable. His whole life changed, at least temporarily. They are overshadowed by memories of the past while facing uncertain current and future realities. The things about death, dependence, powerlessness and lower self-esteem will surface.

SEFT therapy includes relaxation techniques, is one form of mind-body therapy from complementary and alternative therapies in nursing. This technique combines the body's energy system (energy medicine) and spiritual therapy which is used as one of the therapeutic techniques to overcome emotional and physical problems, namely by tapping the nerve points (body meridians). Spiritual in SEFT is a prayer that is affirmed by the client when it will begin until the therapy session ends, namely in the set-up, tune-in and tapping phases. In the set-up phase, patients are asked to pray to God with a sense of khusyu', sincere and surrender that whatever problems and pain they are experiencing right now, we are sincere in accepting and we surrender their healing to God Almighty. In the tune-in phase, it is done by feeling the pain experienced, then directing the mind to the place of pain, accompanied by heart and mouth saying a prayer: "O God I am sincere, I am resigned ..." or "O God I sincerely accept my pain this, I surrender to you my healing ". Along with this tune-in we do the third phase, namely tapping. In this process (tune-in accompanied by tapping), we neutralize negative emotions or physical

pain. Patients are also asked to say a prayer with certain sentences when each meridian points are tapped lightly during tapping (Zainuddin, 2009).

Sumiati (2010) mentions in her book that prayer is part of worship, it is an acknowledgment that a person depends on the only God who creates man and the universe. With this recognition, a sense of security arises in the human soul, that there is a very close supporter of his life, which will not make him sad. The value of worship is very important in reducing emotional stress so that it affects the process of hypertension and its prognosis. By increasing worship motivation and worship, it will strengthen one's mental and psychological well-being and get calm. With the remembrance of Allah, the day will be calm and serene, as the word of God in the Qur'an Al-Rad (13:28). God said: "Those who believe and their hearts are at peace with the remembrance of Allah. Remember, only by remembering Allah is the heart serene" (Sumiati, 2010).

The influence of spiritual aspects on healing, disease management, anxiety and acceptance of death has been the concern of nurses. Nursing care includes human spiritual recognition and support. The spiritual character in nursing shows the recognition that unseen and untouchable natural factors influence thoughts and behavior. This introduction includes religion and supernatural beliefs. When people feel external strength and influence from physical existence and time, they are said to have experienced the metaphysical aspects of spiritual character. Supporting and allowing patients to talk about their beliefs will bring them closer to the source of their spiritual drive. This helps provide strength and healing (Hudak, 1997).

Some of the descriptions above explain that the benefits of a spiritual approach for patients are to provide calm, hope and strengthen mentally during illness or while undergoing treatment in a hospital. Patients become more relaxed in their daily lives. Smeltzer (2004) states that relaxation produces responses that can combat stress responses. That's where the power of SEFT therapy uses spiritual elements.

Conclusion

Before SEFT therapy, the majority of respondents (87.9%) had negative self-concept and only 12.1% had a positive self-concept in themselves, after the SEFT treatment there was an increase in self-concept, namely respondents with positive self-concept as many as 10 people (30.3%) and still have negative self-concept as many as 23 people (69.7%).

There are differences in self-concept in women who suffer from breast cancer with mastectomy after being treated with SEFT therapy with a value of $p = 0.05$. It is advisable for nurses to be able to train this SEFT ability as a complementary therapy and can teach patients and families so that they can do it independently. For nursing managers can consider making the results of this study as a basis for preparing nursing care plans or operational standard procedures for patient care.

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Implementation of Roles and Functions of Case Managers

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Abstract

Case management is an intervention strategy used by health care providers and systems to support clients, coordinate health services, and facilitate results in both price and quality. In this model of care, the case manager plays an important role in ensuring that the case management service flow is well implemented. This study aims to see how the role of case managers in carrying out their functions such as utility assessment, planning, facilitation and advocacy, service coordination, evaluation, and post-discharge follow-up. The research method used is the mixed method sequential exploratory design. This method explores the work experience of a case manager in the field, then composes a measuring instrument, and then seeks to quantify the role and function of the case manager. The population in this study was the case managers in the Kemuning and Fresia Building at Dr. Hasan Sadikin General Hospital Bandung amounting to 36 people. The research sample was divided into two, in the qualitative stage the number of participants as many as 5 people was determined by purposive sampling technique, and the quantitative stage used a total sampling of 36 people. The results showed that the qualitative analysis of the assessment function identified indicators of ability to collect data, analysis, and stratification of patients; in the planning function the ability to determine goals, take joint decisions and identify problems were identified; in the facilitation function and advocacy, the ability to be identified as an educator, protector of patient rights and solution provider were identified; in the service coordination function, the ability for team communication and communication between lines were identified; in the evaluation function the ability to evaluate patients and self-evaluation were identified; and in the post-discharge follow-up function the ability related to continuity of service was identified. In the implementation, the case manager carries out those functions, 4 functions are still carried out improperly by most respondents such as the joint decision making, team communication, patient evaluation, and self-evaluation.

Keywords: Case management, case manager, role and function.

Introduction

Improving the quality of services in hospitals is intended to change one's work culture, change the service process, and improve service outcomes. The target of the service outcome is the outcome of the patient's quality, professional outcome and economic outcome (Wijono, 2008). The transition of the service model from traditional to patient -centered care is one form of effort carried out to achieve good service quality. Patient-centered care is care that respects and is responsive to the choices, needs and personal values of the patient and ensures that value is a guide for clinical decisions (Aeni, 2014). Panel study experts agreed on a nursing model namely case management as an effort to realize the preference or the right of patients to determine treatment choices according to their needs and expectations (Morales-Asencio, 2010). Corresponding to this, Huber (2010) states, this philosophy has reached its time. Patient-centered case management is a model that is currently gaining popularity in all health services in the world.

Case management is an intervention strategy used by health-care providers and in health-care systems to support clients, coordinate health services, and facilitate results in both price and quality (AHC, 2016). In this model patients and families have the freedom to select services based on the patient's perspective and consideration of the patient's medical and non-medical conditions. The case management model requires a case manager with varying abilities and quality skills, namely someone who is creative with good communication skills. Case managers must be able to anticipate unexpected events and improve this by prioritizing health team collaboration without putting aside patients and families by not hearing and understanding what they expect (AHC, 2016). Professionally, the case manager has the ability to explore the patient's background and help both individually and in team by gathering information and sharing practices so as to help make the system function more efficiently.

A case manager must be able to carry out its functions, namely conducting assessments and case discussions, active interaction with patients, coordination with the patient's family and health professionals, and close coordination with the hospital. A study conducted by Elwyn, Williams, Roberts, Newcombe, and Vincent (2008), analyzed 121 cases of management by five APNs (Advanced Primary Nurse) as case managers during a period of 12 months. Of the 121 patients in the primary care setting, 73 of them have received very positive benefits from this case management approach. According to the case managers' perspective their intervention through this approach has not led to deterioration of any patient. The success of the 73 patients is due to the case manager's ability to carry out assessment functions and coordination of services as well as terminal service facilitation.

Based on the 2015 KARS guidelines on 'Guidelines for DPJP Management and Case Managers', there are six functions that must be carried out by the case manager, namely utility assessment, planning, facilitation and advocacy, service coordination, evaluation, and post-discharge follow-up (KARS, 2015). The guidelines are considered more relevant since they have been used as a guide by hospitals in Indonesia.

Based on interview results of the researcher with the building supervisor at Dr. Hasan Sadikin General Hospital Bandung (RSHS Bandung) during the field experience in December 2016, the building supervisor conveyed that the existence of the case manager at RSHS Bandung still had to be adjusted both in structure and function. Under whose control does the case manager work and what is the difference between the work of the case manager and other functions such as the Head Nurse, team leader, or with other care providers, so that the actual role and function of the case manager can be identified, implemented and evaluated. In line with the previous opinion, Nucki Nursjamsi Hidayat, the Medical and Nursing Director of RSHS Bandung, in a seminar entitled "Integrated Patient Care" in December 2016, stated that the position of the case manager is vital in the integrated pattern of patient care, since the case manager is a patient service manager (MPP) who is in charge of leading every professional careprovider (PPA) as well as being a liaison to the patient. The existence of

a case manager especially in RSHS Bandung must be supported and utilized. There are still some points that must be improved such as competency and also the optimization of the case manager's ability to carry out their roles and functions even though each case manager has been given training in this regard.

The previous opinions are in accordance with what is sensed by the case manager. Study results from Mamuaja, Tambun, and Kaunang (2016) state, there are difficulties faced by nurses in carrying out their roles and functions as a case manager due to lack of understanding and underlying knowledge. A functioning case manager will get better job satisfaction administratively, pride in what they receive, and have a positive impact on the organization (Lynn & Kelley, 1997).

Paying attention to the phenomena captured in the background, the problem in this study is that the case manager functions have not been identified such as utility assessment, planning, facilitation and advocacy, service coordination, evaluation, and post-discharge follow-up at RSHS. Therefore the researcher was interested to find out about the implementation of the role and functions of the case manager at Dr. Hasan Sadikin General Hospital.

Method

This study used the mixed method sequential exploratory design (Creswell & Clark, 2007). The study was conducted in three phases. The first phase was an exploratory study to obtain information about the implementation of the role and functions of the case manager. Information was obtained through in-depth interviews with 5 informants, namely nurse case manager with a professional education background from Ners (BSN + 1 year internship program) and work experience of more than 10 years. The explored information through these depth-interviews focused on the case manager functions including utility assessment, case management plan, facilitation and advocacy, service coordination, service process evaluation both clinically and administratively, and post-discharge follow-up (patient is sent home or transferred). Analyses of the results of qualitative studies and literature reviews were used to determine indicators of case manager functions, which were then used to develop research instruments (2^{nd} phase of research). The instrument design was developed through the preparation of grids based on the indicators that were set in the previous stage; the content validity of the instrument contents was carried out by four panel experts. Then the construct test was conducted on 67 items from 6 sub-variables that had been through the content validity. A total of 48 items were valid and reliable, and represented the 6 sub-variables, so this instrument was used to collect the data quantitatively in the third phase of the study. In the third phase of the study, a survey was conducted on the implementation of case manager functions in the Kemuning inpatient surgery ward and Fresia internal medicine ward involving all the case managers who served in the two inpatient units, with a total of 36 nurse case managers. The quantitative descriptive data analysis was performed to determine whether the implementation of case manager functions in the six sub-variables above was appropriate or not, it was appropriate if the percentage of respondent answers was $\geq$ standard range, and not appropriate if $<$ standard range (Sugiyono, 2010). The default range is the maximum percentage - interval. Maximum percentage (100%), minimum percentage (25%), range (100% - 25% = 75%), interval (75%: 2 = 37.5%), standard range (100% - 37.5% = 62.5%). So the implementation of the case manager function is appropriate if the percentage is ≥62.5%, and is not appropriate if <62.5%.

Result

Analysis of qualitative data

Utility assessment, the theme related to the utility assessment was associated with the ability of a case manager in performing the process of collecting data regarding the clinical and social conditions of the patient. The analysis process aimed to see all the best needs and possibilities for patients. Participants' opinions regarding utility assessment functions were that in carrying out the utility assessment function there were

some qualities required of a case manager, such as the ability to collect data, and analyze data, and stratify patients.

Planning, the theme related to planning functions is how in this process the case manager prepares a patient care plan or commonly known as the case management plan. The case management plan is prepared jointly by involving patients, families, and caregivers in hospitals, payers, and others. The planning reflects the feasibility/ suitability, quality and cost effectiveness of clinical treatment and patient needs, including discharge planning. Participants' opinions regarding planning functions were revealed that in the implementation of the planning function there were three things that the case manager must have. Those were the ability to set goals, make collaborative decisions, and identify problems.

Facilitation and Advocacy, this function includes the interaction between the case manager and team members, contractors, management, and patients/families to maintain continuity of service. The case manager is also expected to represent the interests of patients by advocating for each treatment option that can be received in each line including the patient's return plan.

Participants' opinions regarding facilitation and advocacy functions were showed that in the implementation of facilitation and advocacy functions there were three factors that the case manager must possess, which were the ability to provide education, protect the rights of patients, and provide solutions.

Service Coordination is carried out to maintain the continuity of services and ensure the fulfillment of patient care needs. Such as medical care, nursing care, pharmaceutical care, nutritional care, and administrative care. This is carried out by building good communication between patients and the health team and related units. The objectives are to have a common understanding and action so as to minimize service fragmentation. The most important thing is to maintain harmonization and coordination among professional caregivers who remain intertwined. Opinions of participants regarding this function were showed that in the implementation of service coordination functions, each case manager must have good communication and coordination skills to each line.

Evaluation is carried out to conduct a thorough assessment of the treatment process clinically and administratively, in this case, to what extent is the case manager able to evaluate service utilization, clinical pathway implementation, including quality control and costs. Evaluation coverage starts from admission to discharge. The opinions of participants regarding this function were revealed that in the implementation of evaluation functions, each case manager must have the ability to conduct patient evaluations and self-evaluation.

Post-discharge follow-up, this theme discussed the case manager ability to provide certainty, clarity of time, and security when returning or transferring patients from one place to another. This was done by identifying each potential problem that would be faced by the patient when going home, identifying the patient's needs either simple or complex, as well as making a checklist for patients after being at home. Following were the participants' opinions regarding the post-discharge follow-up functions it revealed that the implementation of the post-discharge follow-up function was carried out to ensure the continuity of services in a safe and timely manner.

Quantitative Analysis

Utility Assessment, moreover, the distribution of respondents in the utility assessment function in Table 1 above informed, from the three indicators on the utility assessment, the case manager function was implemented appropriately by more than half of the respondents, which was the highest percentage of suitability in collecting data.

Planning, based on the distribution of respondents in the planning function in accordance with Table 3, it could be informed that in two indicators, namely the determination of objectives and identification of problems, the suitability of implementation was more than 50%, while in the collaborative decision indicator, the suitability of implementation only reached 39%.

Facilitation & Advocacy, the information in Table 3 above, illustrated that of the three indicators on the facilitation and advocacy functions, most of the implementation was appropriate, the highest suitability was in the function as education provider.

Service Coordination, the information in Table 4 illustrated that in the service coordination function, more than 50% of the case managers performed inter-line coordination functions appropriately, while in the function related to team communication, less than 50% of the case managers implemented their functions appropriately.

Evaluation from Table 5 above, it could be informed that only a small number of case managers implemented the evaluation function, both patient evaluation and self-evaluation appropriately.

Post-discharge Follow-up, distribution of implementation suitability of post-discharge follow-up plan function in case managers showed that more than half of case managers (64%) implemented the function of post-discharge follow-up plan appropriately, and the rest (33%) of case managers implemented the functions in appropriately.

Discussion

Utility assessment is a function, where a case manager is expected to have competence in collecting patients' clinical, social, and financial information by conducting in-depth interactions with patients/families and other support units. Utility assessment is a process starting from patient identification,

Table 1 Distribution of Implementation Suitability of Utility Assessment Functions of Case Managers

Indicator	Criteria	f	%
Collecting Data	Appropriate	26	72
	Inappropriate	10	28
	Total	36	100
Analyzing Data	Appropriate	20	56
	Inappropriate	16	44
	Total	36	100
Stratification of Patient	Appropriate	19	53
	Inappropriate	17	47
	Total	36	100

Table 2 Distribution of Implementation Suitability of Planning Functions of Case Managers

Indicator	Criteria	f	%
Setting Goal	Appropriate	20	56
	Inappropriate	16	44
	Total	36	100
Collaborative Decision	Appropriate	14	39
	Inappropriate	22	61
	Total	36	100
Problem Identification	Appropriate	21	58
	Inappropriate	15	42
	Total	36	100

Table 3 Distribution of Implementation Suitability of Facilitation and Advocacy Functions of Case Managers

Indicator	Criteria	f	%
Education Provider	Appropriate	30	83
	Inappropriate	6	17
	Total	36	100
Protector of Patient Rights	Appropriate	23	64
	Inappropriate	13	36
	Total	36	100
Soluble	Appropriate	26	72
	Inappropriate	10	28
	Total	36	100

Table 4 Distribution of Implementation Suitability of The Service Coordination Function of Case Managers

Indicator	Criteria	f	%
Team Communication	Appropriate	17	47
	Inappropriate	19	53
	Total	36	100
Inter-line Coordination	Appropriate	22	61
	Inappropriate	14	39
	Total	36	100

Table 5 Distribution of Implementation Suitability of Evaluation Function of Case Managers

Indicator	Criteria	f	%
Patient Evaluation	Appropriate	13	36
	Inappropriate	23	64
	Total	36	100
Self-evaluation	Appropriate	10	28
	Inappropriate	26	72
	Total	36	100

problem analysis, and patient stratification. In qualitative analysis, participants stated that with the appropriate educational experience and background, they could easily carry out utility assessment functions. In carrying out its function a case manager must have qualified knowledge and clinical experiences, and with these clinical competence can analyze and determine the patient needs.

Problem analysis ability is vital for a case manager and is needed since the initial phase of the case management model, namely the problem identification and problem stratification will determine the success of the next phase.

The results of the descriptive analysis on the utility assessment function showed that the case manager function was implemented appropriately by more than half of the number of respondents, the highest percentage of suitability in collecting data. Thus, the implementation of utility assessment functions was carried out, ranging from collecting data/conducting studies, analyzing data, to determining the stratification of patients. The results of this study are in accordance with the study result of Kgasi (2010) that most case managers (91.7%)

are able to study patients indicate their competence in exploring information and needs of patients and families. Additionally, 79.2% of case managers are able to build and determine actual and potential problems of patients. The case manager's competence in performing utility assessment functions is certainly inseparable from the organization's readiness to support it, such as the legitimacy of the case manager's position, educational background and work experience, and the strengthening of roles through periodic training.

According to Cesta and Tahan (1998), a case manager must record the clinical competences they have in assessing the needs of patients and families, exploring actual and potential health problems, setting treatment goals and desired outcomes through the nursing process; planning, implementing, evaluating and coordinating other treatments and activities to meet the needs of patients and families, using therapeutic modalities, sophisticated treatments and technology. The previous opinion is appropriate to the practice standard of CMSA (2010) which explains that a case manager must be able to conduct patient assessments in both health and psychosocial aspects, then analyze and calculate patient needs. The utility assessment involves a case manager and patient in identifying issues, strengths, and any information needed during the planning process (SHS, 2013).

Planning is a function, performed by a case manager who is expected to have the competence in drawing up plans for the implementation of patient service management. The planning reflects the feasibility/suitability, quality and cost effectiveness of clinical treatment and patient needs, including discharge planning. Planning is a process starting by determining service goals, making decisions together with teams, patients and families, and identifying other problems that may be faced by patients and families. This was implied by the participants' statement such as how the DPJP (the doctor responsible for the patient) determined the direction of service and patient care in general, and the case manager was responsible for carrying out these provisions. The attitude of the patient and family who fully submitted the service to the officer in charge, the informal discussion process before decision making, and the case manager's efforts to explore every possibility that could be given and might occur to the patient.

The results of the descriptive analysis of the planning function showed that in two indicators namely the determination of objectives and identification of problems, the suitability of implementation was more than 50%, while in the collaborative decision indicator, the suitability of implementation only reached 39%. This was in accordance with the participants' opinions in the interview process which stated that it was difficult for them to sit together because each team member was busy. In addition, participants also stated that often patients and families fully entrusted the service to the officer in charge. This then became difficult when the critical and constructive attitude of the patient and family were needed. Basically, in carrying outpatient services with a case management approach, the case manager works and coordinates collaboratively with various professions, and collaborates with patients and families in establishing interventions (Fraser, Perez, & Latour, 2015). Therefore, the collaborative decision making including the involvement of patients in this process is very important in planning care. Herein lays the essence of patient-centered care.

The facilitation and advocacy functions include the interaction between MPP and PPA members, payer representatives, and patients/families to maintain continuity of service. Representing the patient interests is at the core of MPP's role; however, this role also reaches out to other stakeholders. MPP advocates for treatment options that can be received after consultation with the DPJP, including a safe return plan. Facilitation and advocacy functions, based on the results of qualitative analysis, are used by the case manager in the process of educating patients and families, protecting the rights of patients, and providing solutions to every problem faced by patients and families. The participants reported how they provided information to patients ranging from admission to discharge from the hospital, monitored the services received by patients both in the room and in

other units, as well as being with patients in solving any problem faced by patients during the treatment.

The results of the descriptive analysis on the facilitation function and advocacy showed that, of the three indicators, namely as education provider, protector of patient rights and solution provider, most of the implementations were appropriate, the highest suitability was in the function as educator, in fact, the implementation of facilitation and advocacy functions as part from the responsibility of a case manager was already functioning.

The responsibility of the case manager is set in the case management practice standard (CMSA, 2010), that the case manager is expected to be able to facilitate any coordination, communication, and collaboration between patients and other stakeholders to achieve treatment goals and maximize the positive outcomes of patients. The above can be achieved if the case manager is always close to the patient by providing a lot of constructive information and education, protecting the patient's rights by direct supervision of the services that the patient gets, as well as providing certainty and the best decision for the patient in every problem encountered. The essence of this process is how to make interactions between the case manager and team members, payers, management, and patients/families to maintain continuity of service. The case manager is also expected to represent the interests of patients by advocating for each treatment option that can be received on each line including the patient's return plan. The technical matters that can be conducted by the case manager on facilitation and advocacy functions are among others (KARS, 2015):

1) Ensure that the patient's examination is appropriate and necessary and is carried out within a predetermined time frame.
2) Communicate with DPJP-PPA regularly during hospitalization and develop an effective working relationship. Helping the DPJP to maintain the expected costs and patient outcomes.
3) Promote the utilization of clinical resources to be effective and efficient.
4) Offering alternative forms of care to patients according to their needs, both because patients are willing to be sent home or need a long term care that is vulnerable to hospital financial regulations.
5) Provide advocacy to patients, enhance collaborative relationship to maximaze the ability of patients and families to make medical decisions.
6) Working with hospital managers and DPJP, provide advocacy on behalf of patients to determine the best service implementations for patients while communicating to patients about the quality facilities available.
7) Providing clinical information to payers and finding the necessary care authorizations.
8) Helping patients and families develop a discharge plan, including coordination with medical services in the community and if necessary, admission to post-treatment care facilities, among other rehabilitation services or skilled care facilities.

Service coordination is a function where the case manager plays a role in coordinating and integrating social services/case management functions into patient care, discharge planning, return processes and coordinate the provision of social services to patients, families, and other people who are important to enable them to deal with the effects of the disease on the patient's family function and to obtain maximum benefit from the health services. In carrying out these functions, the case manager is expected to have competence in establishing good communication with the team and coordinate on each line, such as management, finance, payers, and other units. The participants stated that it was difficult to adjust the time for direct communication as each team member was busy. The two-way communication pattern was used between the information provider through documentation and others. The participants stated that the most important thing was that information was conveyed. Regarding the inter-line coordination, the participants stated it was not difficult because they already knew each other and were facilitated by the room. By coordination is meant here, the clinical and administrative coordination. Other than as a form of anticipation of duplication of actions, coordination is also performed when undesirable things occurred and have not been identified previously. The participants stated that there were certain mechanisms regarding

this matter and they just followed the established path. The results of the descriptive analysis of the service coordination function showed that more than 50% of the case managers performed inter-line coordination functions appropriately, while in the function related to team communication, less than 50% of the case managers implemented their functions accordingly.

This finding is in accordance with the results of a study by Kgasi (2010) that reports, the majority of case managers are competent to determine appropriate clinical information and coordinate treatment using rapid treatment to determine the patient's needs. An important key aspect in the case management approach is the implementation of holistic and patient-centered care (Fraser, Perez, & Latour, 2015). Therefore, efforts from the case manager are needed to ensure integrated interventions to reduce service fragmentation. With integrated and intact services, continuity of care can be realized, potential problems at each stage of care can be identified and monitored, and overall services become effective and efficient. Service coordination aims to maintain continuity of service and ensure the fulfillment of patient care needs (KARS, 2015).

Evaluation, results of the qualitative analysis showed that in the evaluation function, each case manager should have the competence in evaluating patients and conducting self-evaluation. Evaluation of patients is usually done indoors and carried out by the case manager in his/her capacity as a nurse; however, evaluation focused on individual patients is still difficult. This was implied in the participant's statement which stated that the case manager admitted that it was still difficult to initiate evaluations together with patients, even though it was done, it was informal. This was due to the difficulty of adjusting and finding the right time with the related parties. As for self-evaluation, participants stated that there was no specific format used by the case manager in reporting the results of activities so that participants found it difficult to see to what extent they were successful in carrying out their the role.

This was supported by results of the descriptive analysis that only a small proportion of respondents carried out the evaluation function appropriately. The evaluation and follow-up process is an important process. This process is not only to see to what extend the plan has been implemented, but also to collect data which can later be reused if the patient is re-treated in a hospital or other service providers. The evaluation process is also an opportunity to share information, experiences and competences among team members during the patient's care period. Evaluation can measure and provide a comparison between achievements with planning, conducting self-evaluation, seeing inequality of service, strengths and opportunities, reflecting every element related to the process, and developing findings during the process into effective practices (SHS, 2013). Evaluation is also expected to show to what extent the case manager has carried out his/her role and functions, thus the performance of each case manager can be assessed. With this assessment, the existence of a case manager can be accounted for and appreciated.

Post-Discharge Follow-up, the role of the case manager in the post-discharge follow-up function is to ensure the continuity of service is safe and timely. The participants stated that they always prepared patients and families before the transition. This was performed by providing counseling to patients and families regarding the patient's condition and how to provide care to patients, as well as ensuring that each element and team was ready when the patient was mobilized. The participants also added that they frequently also helped patients and families by visiting the patient's home when needed. This also aimed to ensure the continuity of patient care when outside the hospital. The result of the descriptive analysis found that service continuity was conducted appropriately by the majority of respondents (64%).

The case management process is the manner in which case management functions are performed by case manager, including client identification (screening), assessment, stratifying risk, planning, implementation (care coordination), monitoring, transitioning and evaluation (Marfleet, Trueman, & Barber, 2013).

Case management is a collaborative model

and patients are part of every professional device so they are included in the process. Thus, it can be said that case management is a process, and case managers are part of the process (Cohen & Cesta, 2005). It is essential that the case management system is built, enforced and cultured in advance by the hospital. Some hospitals support each case manager to follow the patient starting from admission to hospital discharge. The transition period or exit can also occur internally and externally. Patients who will be transitioned or discharged from the hospital need clarity and certainty regarding the clinical and administrative conditions and also elevate the social and cultural aspects of the patient when returning home. Thus, careful planning and implementation (SHS, 2013) need to be done. They should focus on realizing and ascertaining the extent of the patient's condition and then developing a follow-up plan to ensure continuity of service. Continuity of service is meant that when patients move or return home, the intensity of care they get is proportional and planned.

Conclusion

The study on the implementation of the case manager functions at Dr. Hasan Sadikin General Hospital qualitatively identified three function indicators in the utility assessment, namely collecting data, analyzing data and stratifying patients. The quantitative analysis of these functions is implemented appropriately by more than half of the respondents; the highest percentage of conformity is in collecting data functions. In the planning function, three functions are identified qualitatively, namely determining goals, collaborative decisions, and problem identifications. The quantitative analysis of the functions showed two indicators, namely the determination of objectives and identification of problems have reached the conformity of implementation more than 50%, while in the collaborative decision indicator, the suitability of implementation has only reached 39%.

In facilitation and advocacy, functions are identified qualitatively as education providers, protecting the patient's rights and providing solutions. The quantitative analysis of these functions shows that most of the implementations are appropriate; the highest suitability is in the function as education provider. In the context of the service coordinator, team communication and inter-line coordination functions are qualitatively identified. In the quantitative analysis, more than 50% of case managers have performed the inter-line coordination function appropriately, whereas for functions related to team communication less than 50% of the case managers have implemented their functions appropriately. In the evaluation function, two functions are identified qualitatively, namely patient evaluation and self-evaluation. Of these two functions, only a small number of case managers have implemented the evaluation functions both patient evaluation and self-evaluation appropriately, and finally, the function of the post-discharge follow-up plan identified the important function of ensuring continuity of service. In this context, more than half of the number of case managers has implemented the appropriate function of the post-discharge follow-up plans.

The initial findings of the case manager function both obtained through qualitative and quantitative studies at this hospital are important as a hospital that pioneers the position of nurse case manager, the identification of functions and their implementations can be information for future evaluation and improvement, therefore the existence of a case manager can truly be a bridge between practitioners/ health professionals and patients, and other stakeholders; coordination of services can be realized, integrity and continuity of patient care can be carried out well, and eventually, the patient gets the best possible of care, patient safety and the quality of care and patient satisfaction can be maintained.

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Quality of Nurse Work Life in Pangandaran Health Center

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Abstract

Quality service is the main goal of the health care system, where the purpose of service quality is to ensure that the services or products of nursing services are produced according to the patient's standards/ desires. The purpose of this study was to find out the quality of work life of nurses in the Puskesmas. This study uses correlative design that connects the characteristics with the quality of the work life of nurses. The research sample was 48 nurses in Puskesmas who were taken by total sampling. Comparative test was carried out using Mann Whitney, Kruskall Wallis, and Spearman tests adjusted for the type of data The results are displayed in the form of numerical data tables consisting of middle values, deviations and probability values. The total quality of work life of nurses in Pangandaran Health Center was 145.83 where the value obtained was below the average standard value of 150. Likewise for the aspect of work environment, relations with managers, work conditions and job perceptions which had a mean below the standard mean while the support service aspect has an average of 19.31 while the average standard is 18. Based on the comparative analysis, gender and age have no relationship with the quality of work life (p value > 0.005), while the level of education, the number of teams and salaries have a relationship with quality working life of nurses in Pangandaran Health Center (p value < 0.001). This means that nurses have not felt well in their work, except in the aspect of support service in this aspect nurses have felt satisfied and prosperous in getting support from other teams/officers. Likewise, the level of education, the number of teams and salaries have an influence on the quality of the worker's life.

Keywords: QNWL, quality of nursing work life.

Introduction

Quality service is the main goal of the health care system, where the purpose of service quality is to ensure that the services or products of nursing services are produced according to the patient's standards/desires. Patients as recipients of care become a benchmark of the success of the services provided, whether it is in accordance with the quality expected by the patient, or not (Nursalam, 2012).

The uniqueness of service users has implications for the services provided. Care activities are one of the core of hospital services. As the spearhead of service, the demand for quality service (service of excellent) becomes a necessity. The implementation of care is a humanitarian activity, but with a professional approach, because it is based on a standardized plan and procedure (Kotler & Keller, 2012).

Law No. 38 of 2014 states that Nursing Services is a form of professional service which is an integral part of health services based on nursing knowledge and tips aimed at individuals, families, groups, or communities, both healthy and sick (State Gazette of the Republic of Indonesia, 2014), with this the nursing service becomes very important in a health service in a health agency.

The Community Health Center (Puskesmas) is a health service facility that organizes public health efforts and first-rate individual health efforts, by prioritizing promotive and preventive efforts, to achieve the highest level of public health in its working area (State Gazette of the Republic of Indonesia, 2014) .

Improving the quality of service is very necessary to be able to ensure accountability of Puskesmas services, therefore to support this, each Puskesmas needs to be assessed in the form of accreditation. In accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 75 of 2014 in Article 1 paragraph 8 states that Puskesmas accreditation is an acknowledgment of the Puskesmas provided by an independent accreditation organizing institution established by the Minister after being assessed that the Puskesmas has met the Puskesmas service standards set by the Minister to improve quality of service for Puskesmas on an ongoing basis (State Gazette of the Republic of Indonesia, 2014).

The accreditation process is designed to improve the culture of safety and culture of quality in health service agencies, so that it always strives to improve the quality and safety of its services (Director General of Health Ministry of Health Republic of Indonesia and KARS, 2011).

One of the effects of district development and with a determined vision, especially to achieve security and comfort in one of the activities carried out by the Pangandaran district government is to try to improve the community health status in its territory. At present the health index of Pangandaran population is at 76.68 higher than the health index of West Java Province which is 74.01 (Health Index, 2015).

Pangandaran Public Health Center accepts patients who need hospitalization, even though there is very little energy, where there are only 2 nurses on duty at night and day with a large number of patients.

Based on this explanation, the researchers considered it important to examine the service quality of Pangandaran Health Center, especially in the aspect of quality of work life of nurses as a reference for Puskesmas which would later develop into hospitals.

Quality of work life is not a single job design, but rather focuses on all aspects of the work climate or work culture (Luthans, 2011). Quality of work life is a system that includes ways to improve the quality of life by creating better jobs (Nawawi, 2001). In nursing management, the concept of quality of work life (QWL) is known as quality of nursing work life. Quality of nursing working life is a perception or assessment of nurses regarding all dimensions that affect the quality of work life that is related to their experience in working in order to achieve organizational goals (Luthans, 2011).

Based on some of the above understanding, it can be concluded that the quality of work life is the perception of the worker in this case the nurse to the system so that it will affect the work climate and work culture

Factors that influence quality of nursing work life (QNWL), which are influenced by organizational characteristics, the nature of nursing work, appreciation of values, human

resources, collective relationships, and career development (Sirin & Sokmen, 2015).

The dimensions of the quality of work life of the nurse were further developed into 5 factors (Sirin & Sokmen, 2015), namely:

1.Work Environment, which contains opinions from the public about the nursing profession, communication with other health teams, assistance in improving competencies through continuing training and education, action policies and procedures in nursing, security in work and respect from leaders towards nursing.

2. Relation with Managers which contains nurses' perceptions of communication with leaders, supervision activities, feedback and appreciation from supervisors to their employees.

3.Work Conditions, which contain perceptions of the severity of work, the balance between work and family and work time.

4. Job Perception which contains autonomy in carrying out work activities, acceptance from other teams and the mechanism at work.

5. Support Service which contains assistance that can be obtained other than from the health team, available infrastructure.

Method

This research is a quantitative research with analysis using descriptive and correlative to relate the characteristics of nurses to the quality of their work life. Samples from this study were all nurses at Pangandaran Health Center.

Nurse's Quality of Work Life Quality Instrument uses the Brooks' Quality of Nursing Work Life Questionnaire instrument Quality of Work Life in the form of a modified Likert scale construction based on variables into 5 subvariables consisting of: Work Environment, Relations with Manager, Work Conditions, Job Perceptions, and Support Service (Sirin & Sokmen, 2015) and for the question items were developed by the researcher so that there were 50 question items using a Likert scale in the 1–5 range.

The quality of work life data was analyzed using descriptive analysis using middle values (mean, median) and deviation values (standard deviation, range of values) for the variable quality of work life.

The analysis of the relationship between individual characteristics and the dependent variable (quality of work life) was carried out in a comparative test, with mann whitney test, wallis and spearman kallkall adjusted to the type of data.

To ensure that this research is of high quality, the researchers used several ethical principles of research including respondents not including personal identities (personal identities were only written by researchers on separate sheets) and guaranteed confidentiality of data from respondents. To see the willingness of the respondent beforehand the respondent was given an explanation of the purpose and benefits of the study, where in this study all respondents were willing to become research respondents marked by signing the informed consent sheet provided by the researcher.

Result

The results of the study for the demographic data of respondents can be seen in Table 1 below.

Table 1 Characteristic of Respondents

Variable		Frequency	Percentage
Gender	Male	31	64.6
	Female	17	35.4
Education of Nurse	Diploma III	16	33.3
	Strata 1	11	22.9
	Ners	11	22.9
	Non Ners	10	20.8
Teammate	4 peoples	26	54.2
	5 peoples	22	45.8

Take home pay	< 2,500,000	20	41.7
	> 2,500,000	28	58.3
Age (year)	Mean	31.22	
	Minimun-maximum	21–50	
	Standar Deviation	5.34	

Table 2 Quality of Nursing Worklife

Variable	Average	Mean	Standar Deviation	Rentang Skor
42 Item-Scale	150	145.83	60.46	63–202
• Work Environment (12 items)	36	35.29	14.94	15–51
• Relation with Managers (5 items)	15	14.50	6.73	5–21
• Work Conditions (12 items)	36	33.94	13.96	16–48
• Job Perception (15 items)	45	42.88	19.32	17–60
• Support Service (6 items)	18	19.31	6	9–27

Tabel 3 The Relationship between the Characteristics of Officers and the Quality of Work Life

Variable	Frequency	Mean	Min-Max	Standar Deviation	p value
Gender					
Male	31	145.67	63–202	59.8	0.720[1]
Female	17	146.11	63–200	63.49	
Level of Education					
Diploma 3	16	132	64–202	61.31	< 0.001[2]
Strata 1	11	183.72	64–200	39.86	
Ners	11	201.2	154–200	13.07	
Non Ners	10	91.63	63–122	23.25	
Jumlah Tim					
4 peoples	26	188.04	63–202	30.12	< 0.001[1]
5 peoples	22	95.95	63–200	47.8	
Gaji/penghasilan					
< 2,500,000	20	79.4	63–154	28.35	< 0.001[1]
> 2,500,000	28	198.67	125–202	13.89	
Age	48	31.23	21–50	5.34	0.206[3]

Table 1 shows that most of the respondents in this study were men (64.6%) with the majority being nursing teams with nursing diploma III education (33.3%), with 5 team members (45.8%) and most have income (salary) per month above 2.5 million rupiah (58.3%) and the average age of officers and nurses in Pangandaran Health Center is at the age of 31.22 years which means being in early adulthood and is a productive age.

Table 2 are the results of the analysis for the quality of the working life of nurses.

Table 2 shows that the mean (mean) total quality of nursing work life (145.83) is below the average mean value of 150. Likewise for the sub-variable value of the quality of the working life of nurses, all are below the standard mean value except for subvariable

support services where the mean value (19.31) is above the standard mean value (18).

To see the relationship between the characteristics of officers and the quality of work life, because the results of the normality test obtained data were not normally distributed, then all analyzes used non-parametric analysis. The results can be seen in table 3 as follows.

Based on the data in table 3, it can be seen that female respondents have a greater quality of work life compared to men, while for the education aspect it is seen that nurses who have a bachelor's degree and complete the professional profession program have a higher quality of work life compared to other levels of education . For the number of members in the team, it was felt that with a total of 4 members, this would provide more prosperity with a higher value compared to the larger number of team members, as well as for income, where an income of > 2.5 million per month would provide quality value higher working life compared to those whose income is < 2.5 million per month.

In the table also can be seen that gender and age do not have a relationship with the quality of work life (p value > 0.005), while the level of education, the number of teams and salaries of the quality of work life of nurses in Puskesmas Pangandaran (p value < 0.001).

Discussion

The quality of the working life of the nurse is a reflection of the satisfaction of the nurse which has implications for several dimensions of life of the nurse itself, among the lives at home, the work environment, working conditions and the perception of the nurse about his work.

The quality of work life of nurses and other employees in Pangandaran Health Center is below the midpoint value (mean) which means that nurses and employees at Pangandaran Health Center have not felt well-being in their work, except in the support service aspect which has a value above the midpoint which means this aspect health (especially nursing) already feels a feeling of satisfaction and prosperity in getting support from other teams/officers in Pangandaran Health Center.

The motivation theory of Herzberg, the dimensions of the quality of work life is one of the factors maintaining the work motivation, which means that the quality of work life can be one of the factors of dissatisfaction for nurses, when the quality of work life is low, dissatisfaction will occur and the effect on low work motivation and vice versa (Marquis & Houston, 2008).

The work context dimension is the process of setting the work of nurses and exploring the impact of the work environment on the system (Brooks & Anderson, 2005) where in this study is included in the aspect of work environment, work condition and Relation with Managers which contains how nurses adapt to the environment, cooperation with the environment, comfort of work and policy (work envirionment) also analyzed how perceptions of workload, the effect of work on family, energy, division of work time and also the income earned (Work Conditions) and how nurses relate to the head of the Puskesmas (Relation with Managers) (Sirin & Sokmen, 2015). Based on the results of the study obtained has a lower value than the theoretical midpoint which means that nurses and health workers have not felt welfare in accordance with the aspects mentioned above.

The aspect of support service based on the results of the study has a higher value than the middle value. This support service aspect contains the support system from the existing staff at the Puskesmas, the ease of obtaining and using facilities and infrastructure as well as assistance to provide maximum nursing care from other staff (Sirin & Sokmen, 2015). In accordance with the results means that nurses and health workers in Puskesmas Pangandaran have felt good team work function in carrying out activities, for example cooperation in handling patients, division of tasks among officers and feeling of assistance from other staff when nurses carry out pickets at the Puskesmas.

Support Sevices aspect is part of work design where in this dimension describes the composition of the work done is actually done by the nurse (Luthans, 2011).

Herzberg stated that the dimension of quality of work life is one of the factors maintaining the motivation of work, which means that the quality of work life can be one of the factors of dissatisfaction for nurses, when there is a low quality of work life, dissatisfaction will occur and affect low work motivation. (Marquis & Houston, 2008).

Balanced compensation and a feeling of comfort while working are the most important things in improving employee welfare (Inda, 2013), as well as what is found in the relationship analysis above, it can be seen that the higher the income of the respondent it will relate to the welfare of the respondent with the direction of the relationship positive, which means that the higher the adequate income (with an average of 198.67) will give a feeling of satisfaction and prosperity for nurses and officers in the Pangandaran Health Center.

Even the level of education and the number of teams can also influence the quality of work life of nurses/officers where in the results it can be seen that when the education level of nurses has reached the level of higher education, the welfare of health workers is getting better, but the number of teams involved shows that the number of team members 4 people have a better impact on the quality of the worker's life.

This study has limitations, including the nursing work quality of life instruments in the literature review using more resources from Brooks and Anderson (2005) and until now no improvement has been found on the instrument, to overcome this, researchers try to adapt the theory from Brooks and Anderson (2005) with the theory of Sirin and Sokmen (2015) where before the instrument is used, the researcher tests the validity constructively to ensure that the instrument can be used.

Conclusion

Based on the results of the study, it can be concluded several things as follows;

Means of quality of work life of nurses in Pangandaran Health Center is below the midpoint value (average) which means that nurses in Pangandaran Health Center have not felt well-being in their work, except in the aspect of support service which has a value above the midpoint which means that this aspect of the nurse feel satisfied and prosperous in getting support from other teams/officers in Pangandaran Health Center. Subsequent analysis found that gender and age do not have a relationship with the quality of work life, while the level of education, the number of teams and salaries of the quality of work life of nurses in Pangandaran Health Center.

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Factors Affecting Low Back Pain among ICU Nurses

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Abstract

Low back pain is a pain syndrome that is often felt in the lower back region accompanied by spreading to the legs. It is often associated with work-related musculoskeletal disorders. This condition is often experienced by the Intensive Care Unit (ICU) nurses, from mild to severe LBP, which may affect the productivity of work and physic of the nurses. Aim to analyze and explore the factors that affected the number of low back pain incidents in ICU nurses in hospitals in the Banten Province. This study used the correlational analytic method with a cross-sectional approach. The study sample was 82 ICU nurses, obtained by total sampling. Data collection used the LKQ questionnaire (Low back pain Knowledge Questions) and observation sheets. Data analysis used the Chi-square and multiple logistic regression analysis with a prediction model. Knowledge factor p (0.001), height p (0.021), night shift frequency p (0.003), and weight with a p-value (0.021) had a significant relationship with low back pain, whereas the ICU space environment factor p (0.668), work period p (0.462), and age p (0.079) did not have a significant relationship with low back pain. From related factors, knowledge had the most significant relationship with low back pain incident (OR = 38.62). This study has significantly proven that knowledge, height, weight, and frequency of night shifts affected the low back pain in ICU nurses. The nurse's knowledge factor is the most influential factor of low back pain incident in ICU nurses. Increasing the ICU nurse's knowledge about body biomechanics by following training and developing standard operating procedures. It is suggested to reduce the amount of excessive night shift burden ICU nurses, select and setting criteria for nurses working in the ICU.

Keywords: ICU, low back pain, musculoskeletal disorder, nurses .

Introduction

Low back pain is a pain syndrome that occurs in the lower back area and is known as a work-related musculoskeletal disorder due to work (Meliala, 2005; Putri, 2014). The results of a previous study conducted by June and Cho (2010) in Korea, using a cross-sectional study of 1,463 ICU nurses in 22 hospitals, showeds that 90.3% of nurses experience low back pain (with results 21.9 % always, 40.7% once a week, and 27.7 once a month); 18.3% of nurses have to undergo treatment therapies.

In Indonesia, the low back pain incident among ICU nurses is increasing. However, researchers have not yet determined the definitive data on the number of low back pain incidents in ICU nurses that occur nationally. Data are still limited in each region of the research location. A previous study conducted by Panjaitan (2004) at the Materna Hospital in Medan from February to May 2004 with a sample of 20 ICU nurses used action research, found that 11 nurses (55%) have moderate low back pain, 9 nurses (45%) experienced mild low back pain, and none experienced severe back pain.

Based on preliminary study data conducted at Banten Regional Hospitals including the Cilegon Regional Hospital, information was obtained that out of 16 ICU nurses; eight nurses had experienced mild back pain without having therapy or treatment while working in the ICU, four nurses had low back pain with having therapy or used a corset. While at Dr. Dradjat Prawiranegara Regional Hospital, Serang, out of 17 ICU nurses, only four nurses experienced low back pain. In the ICU of Adjidarmo General Hospital, Rangkasbitung, from 18 nurses, most of them experienced or complained of low back pain. In Pandeglang Hospital the number of ICU nurses was 14 people, seven experienced low back pain, this complaint caused some to have permission not to work. As for Banten Provincial Hospital, out of 17 ICU nurses, five people suffered from low back pain and underwent therapy. Based on the data above, it concluded that many ICU nurses had low back pain.

Low back pain has a significant impact on nurses, especially those who working in the ICU. The nurse staff is one of the hospital resources which is quite large in number and has a role that significantly determines the quality of service of a hospital. On the other hand, nurses as individuals are assets of companies that need protection against all work-related risks (Harianto, 2001).

Knowledge of good posture will free a person from spinal pain while poor posture is often the main reason for someone suffering from illness or low back pain (Nekada, 2011). The environmental factor in the ICU is a risk factor for the emergence of low back pain problems. For example, according to Bos et al. (2007), in their study in the Netherlands identified that ICU nurses complained of low back pain due to environmental ergonomics, such as the narrow size of the room, slippery floors, equipment that is difficult to reach and an environment that requires bending.

According to literature the incident of low back pain increases and reaches its peak at around 55 years of age (Sinaki, 2000; The Norwegian Back Pain Network, 2002). In general, skeletal muscle complaints begin to be felt at 25-65 years of working age (Tarwaka et al., 2004).

Previous research found indicated that low back pain incidents in ICU nurses occurred due to the lack of knowledge about the body posture, and being overweight as the burden on the weight of the joints may cause LBP (Fathoni, 2009; Kozier & Erb, 2009; Nurhasanah, 2012). Meanwhile Nurhasanah (2012), found that out of 34 respondents identified, 20 respondents experienced low back pain with a percentage of 58.8% and 17 nurses experienced low back pain in the obese category (85%).

According to Heuch et al. (2015), the Body Height factor has the potential to cause low back pain. Fathoni (2009) identified that height is related to the length of the body's axis as the burden of the anterior and posterior arm to lift the body's weight. While results of the statistical analysis conducted by Widiyanti (2009), showed no significant relationship between height and low back pain. Height as a risk factor for low back pain is still debated.

Few studies found that there was another factor that can trigger the problem of low back pain was too many night shifts which was related to reduced sleep time and poor

quality of rest after evening service hours (Abedini, 2014; Mueke, 2005).

According to June and Cho (2010), the work period is also one of the factors that influence ICU nurses to experience low back pain. The 2–4 year working period is most at risk of experiencing low back pain. Working period fo more than five years tend to reduce the risk of LBP due to the nurse has already had more working experience in applying biomechanical techniques to the activities.

Based on the information above, the incidence of low back pain in nurses, especially those working in the ICU, is quite high. The impact on nursing services for patients in the ICU with nurses who experience low back pain is significant. There are no previous studies examine the factors that affect the number of low back pain incidents among the ICU nurses so that further research is needed.

The purpose of this study was to explore the factors that affect the low back pain incident among nurses at the hospital's Intensive Care Unit in the Banten Province.

Method

This study design used the descriptive correlational analytic method with a cross-sectional approach. The population used in this study was all ICU nurses from 5 regional hospitals in the Banten Province totaling 82 nurses. The sampling technique used in this study was total sampling because the population was less than 100. The inclusion criteria were ICU nurses who were willing to become respondents.

In this study, the instrument used in data collection to assess nurses' knowledge was the LKQ questionnaire (Low back pain Knowledge Questions) developed by Maciel et al. (2009), consisting of 16 questions and was back-translated by experts from the Faculty of Culture Universitas Padjadjaran. Also, observations were carried out for data collection on ICU environment variables using observation sheets by comparing ICU Standards guided by the Directorate General of Medical Support Services and Health Facilities Ministry of Health (2012). The face and content validity of the LKQ instrument was carried out as well as the internal consistency of the LKQ instrument assessed using Cronbach's alpha coefficient. The level of significance for the statistical test was set at 5 percent or $p < 0.05$ (Maciel, 2009). The measurement of low back pain incident used a structured instrument, a development result of the researcher which contained one question about complaints of discomfort, pain in the lower back due to work performed by nurses in the ICU. The observations were stated as "0 = LBP", and "1 = not LBP" with a nominal measurement scale.

Data analysis to see the correlations used the Chi-square and to determine the dominant independent variable used the multiple logistic regression analysis with prediction models. Before the implementation, this study obtained approval from the Ethics Committee of Padjadjaran University.

Result

Univariate analysis, table 1 showed data from 82 nurses who worked in the ICU in the Banten Province Hospitals and found that 74 which was almost all nurses experienced (90.2%) low back pain incidence, and 8 (9.8

Table 1 Frequency Distribution of Low Back Pain Incident in ICU Nurses at Regional Hospitals in Banten Province in 2017

Incident of Low back pain	(N=82)	
	N	%
Low back pain	74	90.2%
Not Low back pain	8	9.8%
Total	82	100%

%) did not experience low back pain.
Bivariate analysis, table 2 illustrated the results of the distribution of the Frequency of Relationship between the factors that affected the Low back pain incident in ICU nurses at regional hospitals in the Banten Province in 2017.

Table 2 showed the low back pain incident was most seen from the respondents' lack of knowledge, height more than 163 cm, the frequency of night shifts was six times or more in a month, and overweight. The results of statistical tests indicated a significant relationship with p-value < 0.05.
The Low back pain incident seen from the ICU environment, work period and age had a p-value > 0.05. So there was no significant relationship between the incident of low back pain with the ICU's environment, work period, and age.

Multivariate Analysis

Table 2 Frequency Distribution Relationships between Factors that Affected the Low Back Pain Incident in ICU Nurses at Regional Hospitals in the Banten Province in 2017

Factors that Influence Low Back Pain Incident	N (%)	Incident Low Back Pain		p value
		LBP	Not LBP	
Knowledge				
Less Knowledge	76 (92.7%)	94.7%	5.3%	0.001
Good Knowledge	6 (7.3%)	33.3%	66.7%	
ICU Room Environment				
Not According to Standard	65 (79.3%)	90.8%	9.2%	0.668
According to Standard	17 (20.7%)	88.2%	11.8%	
Height				
< 163 cm	29 (35.4%)	79.3%	20.7%	0.021
> 163 cm	53 (64.4%)	96.2%	3.8%	
Frequency of Night Shifts				
< 6 Times/Month	14 (17.1%)	64.3%	35.7%	0.003
≥ 6 Times/Month	68 (82.9%)	95.6%	4.4%	
Work period				
< 5 Years	44 (53.7%)	93,2%	6,8%	0.462
> 5 Years	38 (46.3%)	86,8%	13,2%	
Age				
< 35 Years	63 (76.8%)	93.7%	6.3%	0.079
> 35 Years	19 (23.2%)	78.9%	21.1%	
Weight				
Obese	53 (64.6%)	96.2%	3.8%	0.021
Not Obese	29 (35.4%)	79.3%	20.7%	

Table 3 Frequency Distribution Results of Bivariate Selection Analysis on Variables that Influence Low Back Pain Incident in ICU Nurses at Regional Hospitals in The Banten Province in 2017

Variable	p value
Knowledge	0.000
Height	0.016
Frequency of Night Shifts	0.002
Weight	0.016

Table 4 Frequency Distribution of Multivariate Model Analysis Results on Variable of Factors Affecting Low Back Pain Incident in ICU Nurses at Regional Hospitals in the Banten Province in 2017

Variable	OR Value (Exp B)	C Interval	
		Lower	Upper
Knowledge	38.62	2.29	651.7
Weight	7.09	0.751	67.105
Night Shift	6.77	0.787	58.327
Height	0.10	0.01	1.09

Bivariate Selection Analysis, table 3 showed the bivariate selection results for the variables of Knowledge, Height, Frequency of Night Shifts, and Weight had a p-value < 0.25, so a multivariate analysis could be performed on these variables.

2) Multivariate Modeling Analysis

Table 4 illustrated that from the multivariate analysis it turned out that the knowledge variable had the most significant relationship with the incident of low back pain. While the variables of weight, night shift frequency and height were confounding variables. The results of the analysis found that Odds Ratio (OR) of the knowledge variable was 38.62.

Discussion

The results of the univariate analysis in this study showed a picture of the high incident of low back pain in ICU nurses at regional hospitals in the Banten Province with a percentage of 90.2%. The results of this study identified that nurses working in the ICU room experienced a lot of low back pain due to several factors such as knowledge, age, ICU space environment, height, weight, night shift, and working period. This statement is in accordance with the study results from June and Cho (2010) in Korea, who conducted a cross-sectional study from August to October 2007 with a total sample of 1,463 ICU nurses as respondents in 22 hospitals, where 1,365 respondents (93%) filled out questionnaires, and it found that 90.3% experienced low back pain.

According to Iglarsh et al. (2003), low back pain complaints are usually felt by ICU nurses if they are handling tasks such as lifting and transferring of objects that are irregular in shape and moveable (e.g., patients), and are aggravated by the increasing frequency of work and time. This shows that low back pain experienced by ICU nurses is not due to accidents at work, but due to the demands of daily work, which aggravates the static burden on the back muscles, causing pain in the lower back or low back pain.

Bivariate, Relationships between Knowledge Level and Low Back Pain Incident in Intensive Care Unit Nurses at Regional Hospitals in the Banten province

The bivariate analysis results in this study found that there was a significant relationship between the level of nurses' knowledge of low back pain and the low back pain incident in ICU nurses; this was indicated by the value of p = 0.001 (p < 0.05). Based on the respondent distribution, most of the respondents were those with less knowledge, they experienced low back pain. Result of this current study is in accordance with the study results of previous research conducted in Turkey which has showed there was a significant relationship between knowledge and low back pain incident with F = 94.271, (p < 0.05) (Karahan & Bayraktar, 2013). This is in line with other study conducted by Sebastian (2013) in India, who concluded that nurses need to be given knowledge of body mechanics to prevent low back pain in nurses.

In this current study the researchers revealed that ICU nurses respondents in the Banten Province mostly lacked knowledge about low back pain (92.7%), causing nurses working without paying attention to the proper posture following the principles of body mechanics. This was identified by the number of nurses who lacked knowledge, and experienced low back pain was as many as 94.7%.

The absence of an education or training program on biomechanical principles in work was identified in several regional hospitals in the Banten Province. For this reason, an education or training program on biomechanical principles in practice and procedures for mobilizing patients needs to be implemented in the ICU room. According to Schneider, Peterson, McGlothlin, and Blue (2004) that, training for nurses on how to treat patients well using biomechanical techniques is very important to prevent low back pain in nurses.

Relationships between Nurses' Age and Low Back Pain Incident in ICU Nurses at Regional Hospitals in the Banten Province, statistical tests of this current study identified that between low back pain incidences and age of the respondents showed no significant relationship with the value of $p = 0.075$. Based on the respondent distribution, most of the respondents who were aged < 35 years experienced low back pain compared to respondents who were aged ≥ 35 years. This statement is in line with a cross-sectional study in Nigeria conducted by Tinubu et al. (2010), which shows the relationship between low back pain and the age factor of nurses obtains the highest result in the age group 31–40 years (68.4%), and the lowest was in the age group above 50 years (37.5%). Since age is a confounding factor during the work period, this factor must be adjusted to determine the relationship with the job.

The low rates of low back pain in senior nurses that are related to age and clinical practice experiences are usually due to having structural tasks and handling fewer patients (Tinubu, 2010). Another explanation is that senior nurses have better knowledge and experience about how to prevent and overcome work problems related to physical burden compared to those who are younger. (Arrighi et al., 1994).

The findings at regional hospitals in the Banten Province revealed that many ICU nurses under the age of 35 had low back pain because they were the executing nurses who directly handled patients (93.7%). The workload of the executing nurse can cause a worker to suffer or get a work-related disorder so that this will have an impact on the health of a nurse, one of them is low back pain. (Sumanggando, 2017).

Based on the identification of this study, further research is needed regarding the ideal age factor for ICU nurses.

Relationships between ICU Room Environment and Low Back Pain Incident in Intensive Care Unit Nurses at Regional Hospitals in the Banten Province, from the results of the analysis of the relationship between the two variables above, it could be concluded that there was no significant relationship between the ICU environment and low back pain incident. Based on the distribution, most of the ICU environment which was not in accordance with the standard gave a low back pain rate. Likewise, the ICU environment that conformed to the standards contributed considerably to lower back pain.

The Directorate of Medical Support Services and Health Facilities of the Indonesian Ministry of Health (2012), has set a standard for the ICU room. The ICU room must be designed to support all essential care functions, the floor area used for each patient's bed can accommodate the space needs of all equipment and the staff who are related to patients for treatment needs.

The findings in regional hospitals in the Banten Province showed that of five hospitals, only one hospital met the standards. However, all of these five hospitals contributed to the low back pain incident. Four hospitals that did not meet the standards would run the risk of causing danger of low back pain. Hospitals with ICU rooms that already met the standards could still cause low back pain problems because the attitudes and behavior of nurses who worked were not in accordance with proper biomechanics.

Based on the results of this study, environmental factors played an important role in creating a risk of low back pain. The existence of technological advancements, increasingly advanced knowledge, and sufficient funds allocation, apparently the ICU environmental factors needed to consider safety factors.

Relationships between Height and Low Back Pain Incident in Intensive Care Unit Nurses at Regional Hospitals in the Banten Province, from the results of the analysis of the relationship between the two variables above, it could be concluded that there was a

significant relationship between nurse height and the incidence of low back pain. Seen from the respondent distribution, this is in line with the results of a research conducted by Kurniawidjaja (2014), who found there was a significant relationship of the back arch with the level of LBP risk (p = 0.024). Further analysis also proved that the curvature of the back was more than or equal to 60^{o} had 11 times more chance to increase the ergonomic risk when compared with the back arch angle which was less than 60^{o}.

The study results in regional hospitals in the Banten Province showed the characteristics of ICU nurses were that their height was more than 163 cm, and in working tended to impose situations that pose a risk of low back pain without using assistive devices.

Based on the identification results of this study, the height factors can be included in the selection process for ICU nurses by considering the body weight. The ideal height for ICU nurses needs further studies.

Relationships between Weight and Low Back Pain Incident in Intensive Care Unit Nurses at Hospitals in the Banten Province, the statistical tests results between the two variables above showed there was a significant relationship. Based on the respondent distribution, most respondents who had obese weight experienced low back pain. This statement was in accordance with the results of Nurhasanah's study (2012), regarding the relationship between body weight and the low back pain incident (p = 0.001).

Body weight contributed to the risk of low back pain since excessive weight could provide excessive burdens for joints and also affected the shift of the center of gravity which tended towards the front, causing fatigue and low back pain (Van Dieen, 1997). Based on the study in regional hospitals in the Banten Province, it was identified that many nurses with obesity experienced low back pain. The absence of provisions or limits on weight for nurses working in the ICU could be seen in the tendency of nurses with excess weight to work in the ICU. The monotonous daily work routine and poor lifestyles tend to obesity. Obesity in ICU nurses makes it difficult to make movements in work, and with a heavy workload in the ICU, it will worsen the risk of low back pain. It should be considered that obese nurses do not work in the ICU room.

Relationships between Frequency of the Nurse Night Shift and Low Back Pain Incident in Intensive Care Unit Nurses in Hospitals in the Banten Province, the statistical tests results between the two variables above showed was identified a significant relationship. Based on the respondents' distribution, most of the respondents had a shift frequency of 6 times a night or more in a month experienced low back pain. This statement is in accordance with the results of a study conducted by June and Cho (2010) in Korea, stating that there is an influence between the frequency of night shifts and the incident of low back pain (p = 0.018). Nurses who get night shifts more than six times a month have a higher risk of low back pain compared to those who work less than six times a month (June & Cho, 2010).

Garland (2012); Heffner et al. (2011); Mertens et al. (2015); and Roehrs et al. (2012), identified that reduced sleep time and poor quality of rest due to excessive night shifts can affect autonomy, neuroendocrine and neuroimmunological systems that can stimulate the inflammatory response, slow down the process of restoring damaged tissues and increase pain sensitivity.

The researcher identified that nurses in the ICU in the regional hospitals in Banten Province had a high frequency of night shifts with high rates of low back pain, there were even some ICU nurses who were night shift' specialists or only worked on consecutive night shifts, especially unmarried nurses.

Based on the results of this study, it was necessary to review the distribution of night shift schedules for ICU nurses to be more evenly distributed, and preferably in one month less than five times of night shifts. The addition of the number of ICU nurses might be a solution to reduce the amount of excessive night shift burden.

Relationships between the Nurse's Length of Employment and Low Back Pain Incident in Intensive Care Unit Nurses at Hospitals in the Banten Province, based on the respondents' distribution, most of the majority of respondents who had a work period of fewer than five years experienced low back pain. The statistical tests results

between the two variables above showed no significant relationship (p = 0.462). This finding is in accordance with the study results by Meliyanti (2012), regarding the relationship between tenure and low back pain disorder which was not significant with p = 0.258.

Monotonous physical work carried out for a long time without work rotation can cause fatigue, which can increase the risk of skeletal muscle injury, one of which is in the lower back of the worker (Meliyanti, 2012). A work period of less than or equal to 5 years has a high rate of low back pain, due to lack of experience and as an executing nurse obviously, the workload is quite high.

The ICU nurse's work period did not have a meaningful relationship. However, this factor contributed to the incident of low back pain in ICU nurses. Therefore, as one of the considerations for ICU nurses, it was necessary for the hospital institution to apply a rotation system of fewer than five years.

Multivariate, based on the respondents' distribution, the knowledge variable had the most significant relationship. The results of the analysis found that Odds Ratio (OR) of the knowledge variable was 38.62. It means that respondents who had poor knowledge about low back pain would be at risk of suffering low back pain by 38 times higher than respondents who had good knowledge about low back pain after being controlled by the variables of weight, night shift frequency, and height.

Geller (2001) reveals that knowledge or cognitive is a fundamental domain in shaping one's actions. Before a worker adopts a new behavior, he/she must first know what the meaning or benefits of the behavior are for him/her. So that a worker will implement safe behavior if he/she already know the purpose and benefits for his/her security and what dangers will occur if he/she does not implement it (Annishia, 2011).

From this currente study results, it expected that there should be an increase knowledge of biomechanics for ICU nurses by routinely conducting training, or in-service educational programs, health promotion in the form of posters and posters in the ICU. The selection process opened up more significant opportunities in the proportion of higher levels of nurse education. The development of Evident Base Practice in the field of nursing needed to be improved. Further research is needed for ICU nurses in the hospital environment required to be developed so that it could explore knowledge about other factors associated with low back pain among ICU nurses.

Conclusion

From the study results can be concluded that the majority of nurses working in the ICU room of regional hospitals in the Banten Province have experienced low back pain. Several factors in this study proved to have a significant relationship to the incident of low back pain, namely knowledge factor, night shift, height and, weight. While other factors based on study results such as the ICU environment, work period, and age do not have a significant relationship with the incident of low back pain in ICU nurses, but these three variables are substantially important variables related to the low back pain incident. Of the three factors associated with the low back pain incident in ICU nurses, the knowledge factor is the most influential factor because knowledge is a fundamental basis in forming a person's behavior. A worker will apply safe conduct if they already know the purpose and benefits of their security and what danger will occur if they do not implement it.

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Effect of Family Support Intervention towards Quality of Life with Elderly's Hypertension in Community

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Abstract

The quality of life of the elderly is influenced by physical, psychological, social and environmental factors. These four factors desperately need family support as a support system for the elderly. This study aims to determine the effect of family support intervention on the quality of life of elderly hypertension in Community Area Cipayung Puskesmas East Jakarta. The research method used quasi-experiment with control group design. The sampling strategy used multistage random sampling with 30 samples for the intervention group and 30 for the control group. This study were implemented during four weeks. Statistical test using dependent t-test and independent t-test. There was a significant difference in the mean elderly quality of life with hypertension after the intervention of family support program in the intervention group compared with the control group (M= 93.67 ± 6.08, p-value 0.012). In conclusion, this study showed that there were differences in mean older people quality of life with hypertension in the intervention group compared with the control group after the intervention of family support program. The resulting family support interventions can serve as the foundation for policy and health service providers in order to implement various interventions related to family empowerment to improve the quality of life older people with hypertension in the community.

Keywords: Family support intervention, hypertension for older people, quality of life of older people.

Introduction

Multiple chronic diseases associated with the aging process can have an effect on the ability of the elderly to function independently so as to have an impact on their quality of life (Lueckenotte, 2000). Hypertension is the highest health problem in the elderly. Elderly with long suffering from hypertension certainly needs support from the family because it can affect their quality of life. This is in line with the research of Zulfitri (2006) that chronic diseases really need support from the family, especially emotional support, which can increase the enthusiasm and motivation of the elderly to behave and behave healthy.

National Basic Health Research (2013) shows the prevalence of hypertension in Indonesia obtained through measurement at age >18 years of 25.8% and will be higher in elderly. The prevalence of hypertension is a health problem for the highest elderly according to age group, which is 45.9% (55–64 years); 57.6% (65–74 years); and 63.8% (over 75 years) followed by arthritis and stroke.

Data of Puskesmas Kecamatan Cipayung (Community Health Center of Cipayung District) related to NCD (Non-Communicable Disease) Hypertension in July 2017 that was from 10 existing Puskesmas Kelurahan, Cipayung Community Health Center relatively had a greater number of hypertension patients than Kelurahan Bambu Apus. According to officers, Kelurahan Cipayung has a good record and complete as well as officers and health cadres are cooperative. The highest health problem data in the last 6 months from September 2016 was Hypertension and ARI. Blood pressure test results during Prolanis (Chronic Disease Management Program), a group of patients with hypertension on 12 September 2017 showed 30% of patients still have high blood pressure despite taking medication and following Posyandu activities regularly.

The higher the incidence of hypertension and the resulting impacts, require support from all parties, especially the family as a support system for clients. Family support conducted synergistically with community participation can improve the elderly's ability to overcome problems, besides generating new intervention strategies for sustainability in health care.

Family support is the assistance provided by other families that will provide physical and psychological comfort to people faced with stressful situations (Taylor, 2006). Someone feels the benefit of the aid received because it will give satisfaction. Some research results suggested there was a relationship between family support and quality of life of patients with Type 2 DM (Yusra, 2011). There was a relationship between family support and depression levels in the elderly where the higher the family support, the lower the depression level (Kristyaningsih, 2011). The same study from Herlinah (2013) stated there was a relationship between emotional support, reward, information and instrumental in the behavior of elderly in controlling hypertension. And information support was the dominant factor towards elderly's behavior in controlling hypertension.

Emotional support given by the family is positively related to quality of life while instrumental support can reduce well-being because it creates dependence on that support (Reinhardt, Boerner, & Horowitz, 2006 in Riasmini, 2013). This is in accordance with the function of the family which is to give love and security, pay attention, fulfill financial needs, maintain relationships with family members and the community and provide care if the elderly are sick.

Based on research from Badriah and Jahar (2017), the physical and psychological changes that parents with DM have experienced affect the family support they had received. Another study by Thanakwang (2015) suggests that emotional and instrumental support is greater received from family members and significantly anticipated support associated with a sense of psychological well-being of older parents. Results of research conducted by Xie, Peng, and Yang (2017), social support and positive psychological intervention should be established and introduced accordingly with the physical disabilities of parents, to protect them from depressive symptoms. Family support is needed for elderly to improve the quality of life because the elderly can be declared to have a good level of quality of life if they express the level

of inner, physical, and social satisfaction, convenience, and happiness. At present, there is no specific study regarding the influence of family support interventions on the quality of life of elderly people with hypertension, especially in the community. So this is what underlies the authors to conduct research on the effect of family support intervention programs on the quality of life for elderly people with hypertension in the community working area of Cipayung Health Center. The aim of the study was to identify the influence of family support intervention on the quality of life of the elderly with hypertension.

Method

This research was a quasi-experiment with control group design. This study compared the group that implemented the family support intervention to a group with no family intervention as a control group. This design used two measurements, before and after the treatment. Population in this study were all elderly with hypertension who were in the community of Cipayung Sub-District Health Center in East Jakarta. The sampling strategy uses a multistage method cluster. Data on elderly hypertension were obtained from the Cipayung Sub-District Health Center where researchers took 1 village out of 10 existing villages with the most hypertensive patients and selected Cipayung Village. From Cipayung Village which consists of 8 RWs elected RW 01, 02, and 03 with the most hypertensive sufferers.

The number of samples used as the subject of the study was determined using the sample formula of the average difference in the two independent groups, namely 32 respondents for the intervention group and 32 for the control group. Sampling fulfilled the inclusion criteria of the elderly who were the age of the pre-elderly (45–59 years), the elderly (60 years and over), and living with the family (children, grandchildren, or relatives); have hypertension; able to communicate, read and write; and willing to be a respondent. The exclusion criteria were the elderly who had a total bedrest. The drop out criteria was disruption/having other utilities during the intervention; did not present at family training meeting; and did not do the post-test at the end of the study. The number of samples to the end of the study were 30 respondents in the intervention group and 30 respondents in the control group. Decreased number of samples (Drop Out) due to not doing post-test at the end of the study (there were 4 respondents).

Support interventions were carried out for approximately 4 meetings in 4 weeks, which were divided into the first week of the pre-test, second week family support training in 1 day for 3 hours, week III observation of family support given, and week IV post-test. Elderly with hypertension pre-test at week I related to quality of life and family support given. And at the end of intervention in week IV will be reassessed (post-test). Pre-test and post-test contain family abilities related to knowledge, attitudes, and skills in supporting elderly people with hypertension. On the second week all families in the intervention group attended training on how to do hypertension treatment and other forms of family support. The family was given a guidebook "Forming Family Support to the Elderly with Hypertension" to facilitate understanding and implementation of family support. In third week the family checks out what forms of family support have been given to the elderly for approximately one week.

Ethical procedures are applied in this study where respondents are protected by self-determination and autonomy aspects where respondents have the freedom to determine whether they are willing or refuse to take research without coercion from any party by signing an informed consent; privacy where the confidentiality of respondents is maintained and only uses information from respondents for the purposes of this research; anonymity where the name of the respondent is only used in the process of conducting research; and confidentiality where the researcher maintains the confidentiality of the respondent's identity and the information provided is only used in research purposes. This research has received ethical approval with the number LB.02.01/KE/L/150/2017 from the Unit for the Study of the Ethics of Health Research BPPSDM Jakarta Health Ministry Polytechnic II.

Result

In this section, we describe the characteristics of the elderly consisting of age, sex, education, suffering duration, taking prescribed medications, checking blood pressure, routine exercise and cholesterol examination results. The number of respondents in the intervention group was 30 elderly and in the control group 30 elderly. Table 1 shows that the intervention and control groups have almost the same characteristics, namely: the majority of the pre-elderly are 45–59 years old, female, and the majority are elementary school. Table 2 shows that the characteristics of the elderly in the two groups were almost the same in taking antihypertensive drugs that were prescribed and routinely controlled blood pressure. Whereas for the long time suffering from hypertension, in the intervention group the most at 1–5 years and in the control group less than 1 year. Table 3 shows that in both groups most had done regular exercise and the results of cholesterol checks when most were abnormal (hypercholesterolemia).

Table 1 Distribution of Elderly Characteristics Based on Age, Gender, and Education

Variable	Intervention Group		Control Group		Total	
	N	%	N	%	N	%
Age						
Pre-elderly (45-59 years)	20	66.7	14	46.7	34	56.7
Elderly (60 years and above)	10	33.3	16	53.3	26	43.3
Gender						
Male	8	26.7	9	30	17	28.3
Female	22	73.3	21	70	43	71.7
Education						
Unschooling	2	6.7	7	23.3	9	15
Elementary (Primary) School	11	36.7	10	33.3	21	35
JHS	9	30	8	26.7	17	28.3
SHS	7	23.3	5	16.7	12	20
Academy/College	1	3.3	0	0	1	1.7

Table 2 Distribution of Elderly Characteristics Based on The Suffering Duration, Taking Routin Medication, and Checking Blood Pressure Control

Variable	Intervention Group		Control Group		Total	
	N	%	N	%	N	%
Suffering duration						
1. < 1 years	4	13.3	17	56.7	21	35
2. 1-5 years	18	60	8	26.7	26	43.3
3. > 5 years	8	26.7	5	16.6	13	21.7
Taking prescription medication						
1. Yes	27	90	22	73.3	49	81.7
2. No	3	10	8	26.7	11	18.3

Controlling blood pressure						
Regular control	26	86.7	18	60	44	73.3
Irregular control	4	13.3	12	40	16	26.7

Table 3 Distribution of Elderly Characteristics Based on Routine Exerciseand Cholesterol Examination Results

Variable	Intervention Group		Control Group		Total	
	N	%	N	%	N	%
Routine Exercise						
Yes	19	63.3	11	36.7	30	50
No	11	36.7	19	63.3	30	50
Cholesterol Examination Results						
Normal (<200 mg/dl)	10	33.3	9	36.7	19	31.7
Abnormal	20	66.7	21	63.3	41	68.3

The results of the equality test analysis on the characteristics of the elderly showed no difference in age (p value 0.079); gender (p value 0.575); education (p value 0.683); exercise regularly (p value 1.000); Cholesterol examination results when (p value 0.067); and quality of life (p value 0.068) between the intervention group and the control group.

The results of the analysis of the equality of knowledge, attitudes and family behavior regarding support given to elderly hypertension showed that there was no difference in knowledge, attitudes and family behavior regarding support given to elderly hypertension between the intervention group and the control group (p value 1.000; 0.472; 0.359).

The results of the analysis showed that there were significant differences in the average family attitudes and behavior after the family support intervention program in the intervention group compared to the control group (p value 0.027 and 0.004). This explains that family attitudes and behavior are better after a family support intervention program in the intervention group compared to the control group.

The effect of family support intervention program on the quality of life of elderly people with hypertension in both groups can be seen in table 5 where the p value is < 0.05. This explains that the accepted hypothesis means that there is a difference in the average quality of life of the elderly with hypertension

Table 4 Analysis of Family Abilities after Intervention Family Support between Groups

Variable	Group	N	Mean	SD	P Value
Knowledge	Intervention	30	6.10	2.45	0.911
	Control	30	6.03	2.14	
Attitude	Intervention	30	24.27	3.40	0.027
	Control	30	22.50	2.55	
Behavior	Intervention	30	24	4.83	0.004
	Control	30	20	5.36	

Table 5 Description of the Quality of Life of The Elderly after The Family Support Intervention Program between Groups

Variable	Group	N	Mean	SD	P Value
Quality of Life	Intervention	30	93.67	6.08	0.012
	Group	30	88.50	9.07	

after a family support intervention program or in other words the elderly feel satisfaction related to their quality of life after a family support intervention program is carried out.

Discussion

The results showed that there was a significant difference in mean of the quality of life of elderly with hypertension after the family support intervention program in the intervention group compared to the control group (p-value 0.012). This explained that the quality of life of elderly with hypertension turned high after the family support intervention program or in other words, elderly felt satisfied related to the quality of life after the intervention. This supported the assertion that improving the quality of family-provided care was one way to streamline the cost of treatment (Zarit, 2015).

The quality of life of the elderly includes the physical realm that consists of comfort, energy, fatigue and rest; psychosocial one that encompasses positive and negative feelings, self-esteem, body image and self-appearance; a degree of independence that embodies physical activity, drug dependency and work capacity; social relationship that involves personal relationships, social support, sexuality activities; the environment of the opportunity for elderly to obtain information; and the spiritual (Pangkahila, 2007). Family experience in caring for the elderly related to perceived cultural values of the family, illustrates that the elderly have a position in the family as parents who must be respected, valued and cared for well. Besides that, the elderly also have an important role in the family because they have advantages, have extensive experience so that their opinions are still needed in decision making and can be used as role models for their children (Riasmini, 2013).

Elderly with long suffering from hypertension certainly needs support from the family because it can affect their quality of life. Herlinah's research (2013) states that there is a relationship between emotional support, appreciation, information and instrumentals with the behavior of the elderly in controlling hypertension. And information support is the dominant factor in the behavior of the elderly in controlling hypertension. Social support from family and friends can improve the health of the elderly through various mechanisms including real support and emotional support (Fiori, Antonucci, & Cortina, 2006 in Riasmini, 2013).

The family support intervention program that provided in the design of training on the family in caring for the elderly with hypertension had a significant relationship to improve the quality of life of the elderly. This was in accordance with the research that there was a significant relationship between emotional support, appreciation, and information with the quality of life of PLWHA. The final result of the multivariate analysis showed that the most dominant support was related to the quality of life of PLWHA (Agustanti, 2006).

This is in line with the statement that multiple chronic diseases associated with aging processes can have an influence on the ability of the elderly to function independently so as to have an impact on their quality of life (Lueckenotte, 2000). Elderly with a chronic illness desperately needs support from the family especially emotional support, which can increase the spirit and motivation of the elderly to show attitude and behave healthily (Zulfitri, 2006).

The family support intervention program that provided was part of the health promotion aspect to improve health and the quality of life to achieve a happy and useful old age; health services aspect to improve the quality of health services for elderly care; and the

elderly nursing aspect aimed at maintaining the health and life spirits of the elderly by improving the promotive, preventive, and curative caring which were the components in supporting the quality of life of the elderly (Hardywinoto & Setiabudhi, 2005). This was in line with Heller's (2015) study which stated that family support intervention provided benefits in improving elderly welfare and access to health care and satisfaction.

The emotional support provided by the family was positively related to the quality of life whereas instrumental support can decrease the well-being as it set up dependence on the support (Reinhardt, Boerner, & Horowitz, 2006 in Riasmini, 2013). This was in line with the family function of providing love and security, giving attention, meeting financial needs, maintaining relationships with family members and the community. Families that support each other, a deliberative decision-making, a very close relationship and plenty of time to be together are a series of unity in a balanced family (Kaakinen, 2015). Results of research conducted by Xie, Peng, and Yang (2017), social support positive psychological intervention should be established.

Conclusion

Family support intervention program affected the quality of life of elderly people with hypertension in the intervention group compared to the control group. This can be seen in the difference in the average quality of life of the elderly with hypertension between the two groups. It is expected that the Puskesmas can improve and maintain the activities carried out during the Posyandu for Elderly or Posbindu PTM or Prolanis by providing counseling about family support given to the elderly with hypertension; monitoring and evaluating families with elderly people with hypertension through home visits; and implementing a family empowerment program with once a month training every RW. For further research, it is expected that the old family support intervention activities will be extended to 2 months and monitoring reading the guidebook with the checklist and using qualitative research designs to explore the experiences of families caring for elderly people with hypertension.

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