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The Relationship of Family Resilience with Relapse in the Schizophrenia Patients at Psychiatric Unit

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Abstract

Schizophrenic patients experience relapse after returning from the Hospital. The family is the immediate neighborhood with schizophrenic patients. Families who can not adapt to stress, then can not perform its functions properly, including the function of family care. The functioning of the family care can be seen from the level of resilience. The aim of this study was to identify the relationship between family resilience and recurrence in schizophrenic patients. This research uses correlational design with cross sectional survey. The population in this study was the family of schizophrenic patients at RSUD Arjawinangun District Cirebon. Sample determination using power analysis with alpha 0.05 and power 0.08 got sample counted 88 family. The sampling technique uses consecutive sampling. The correlation test used is Rank Spearman test. The instrument used is Family Resilience Assessment Scale which has been modified by previous researchers in Indonesia. The results of the research showed that most of the resilience of the family were tough (76.1%) and some were not tough (23.9%). The recurrence of schizophrenic patients rarely relapsed (73.9%) and a small fraction (26.1%). Rank Spearman correlation test results obtained p value=0.001 and correlation coefficient value of 0.88, which means there is a significant relationship between family resilience with recurrence in schizophrenic patients. The conclusions of the study are resilient family resilience, allowing a rare relapse in schizophrenic patients. Arjawinangun Hospital Management Cirebon Regency in making policies to not only pay attention to the needs of patients, but also the needs of families.

Keywords: Family resilience, recurrence, schizophrenia patients.

Introduction

Recurrence in schizophrenic patients is experienced by 60–70% of clients who are not receiving medication therapy, 40% of patients who are only medicated and 15% in patients receiving medical, psychotherapy, and social therapy from health workers, families and communities. Family resilience is the responsibility of the family as a unit to withstand the stressor or state of crisis and the ability of the family to adapt positively, by becoming stronger in dealing with family problems.

Families who have resilience are tough, then they can use the service for people who can help them to get positive benefits. Previous research conducted at RSJ. Dr. Radjiman Wediodiningrat Malang City East Java by Poegoeh and Hamidah (2016), the result of which there is a relationship between roles and responsibilities with family resilience of schizophrenic patients. Suggestions given by Poegoeh and Hamidah (2016) for subsequent investigators to conduct research on the relationship of family resilience with recurrence in schizophrenic patients. The results of preliminary study conducted in Psychiatry Room Arjawinangun Hospital, obtained recurrence data in patients with schizophrenia during 2015 is as much as 77.66%. Patients who recur more than 2 times during the operation as much as 30.06% and patients who relapse1–2 times during the operation of 69.94%. Patients also conducted interviews with 10 patients from patients who underwent treatment and were in the Psychiatric Room of Arjawinangun Hospital who had repeatedly treated in the hospital. From the results of the interview, as many as 5 people said that they are able to treat patients at home and not ensure that schizophrenic patients can recover. Five others say they are schizophrenic, people who care in schizophrenic patients at home.

Predictors of recurrence in schizophrenic patients include patient condition, family factors, treatment factors and health care providers. Research conducted by Farkhah et al. (2017) found the results of a significant relationship between caregiver factor with recurrence in schizophrenic patients. Researchers wanted to study family factors associated with recurrence in schizophrenic patients, this is because other factors have been widely studied, while family factors, especially from resilience has not been widely conducted research in Indonesia.

The problem formulation in this research is "Is there any relation between family resilience with recurrence in schizophrenic patient in psychiatric unit of RSUD Arjawinangun Kabupaten Cirebon?". The purpose of this study was to identify the relationship between family resilience with recurrence in schizophrenic patients in Psyctiary Unit Arjawinangun District Hospital Cirebon.

Method

This research uses correlational design with cross sectional survey. The population in this study was a family of schizophrenic patients as many as 202 families. The technique of determining sample using power analysis with alpha 0.05 and power 0.08 got sample counted 88 family. Sampling technique using consecutive sampling. The data were collected using a family resilience questionnaire that had been used by previous researchers (Poegoeh & Hamidah, 2016) and medical record records of recurrence of schizophrenic patients. Resilience questionnaire consists of three variables, namely belief system, organizational pattern and family communication process. The results of the reliability of the questionnaire test obtained alpha cronbach value 0.996. Recurrence data in schizophrenic patients was taken from hospital medical record documentation within one year before the study was conducted. The correlation test used is Rank Spearman test.

Result

A. Univariate Analysis

1. Family Characteristics

Characteristics of 88 families in this study can be seen through the frequency distribution that includes age, gender, education and occupation of respondents are illustrated in the table as follows:

Table 1 Distribution of Frequency of Family Characteristics

No	Characteristics	Category	Frequency	Percentage(%)
1	Age (Mean = 47.3295)	18–25 yers	2	2.3
		26–65 years	81	92.0
		>65 years	4	5.7
2	Sex	Man	45	51.1
		Women	43	48.9
3	Education	Not Elementary SD	12	13.6
		SD	45	51.1
		SMP	16	18.2
		SMA	14	15.9
		Academy/high Education	1	1.1
4	Work	Not Working	19	21.6
		Labor	24	27.3
		Trader	12	13.6
		Farmers	17	19.3
		Private Employer	2	2.3
		PNS/Retired	1	1.1
		Enterpreneurs	13	14.8

Based on table 1 above, it can be seen that the first distribution of family characteristics is age. Most of the aged families are in the range of 26–65 years old (older adults) of 81 families (92%) and a small percentage of family life spans 18–25 years (young adults) of 2 families (2.3%), the average age of the family in this study was 47 years 3 months. The second distribution of family characteristics is gender. Most of the sexes of the family are male as many as 45 families (51.1%) and the rest are women as many as 43 families (48.9%), but the percentage difference between male and female sex is not much, that is 2.2%.

The third distribution of family characteristics is education. The family education is varied, but the majority of family education is graduated from elementary school as many as 45 families (51.1%) and a small part of family education is a college / college graduate of 1 family (1.1%) and the rest with high school, junior high school and some even did not finish primary school. The fourth distribution of family characteristics is work. Family employment also varies, but the majority of family employment is 24 families (27.3%) and a minority family employment (1%). The rest of the family works as traders, farmers, private employees and some even do not work.

2. Family Resilience

The distribution of family resilience in this study can be seen in the table as follows:

Based on table 3 above, it can be seen that family resilience in the first sub variable is

Table 2 Frequency Distribution of Family Resilience Category

Family Resilience	Frequency	Percentage (%)
Resilience	67	76.1
Not Resilience	21	23.9
Total	88	100.0

Table 3 Distribution of Sub-Variable Frequency, Indicator, High Low category, Frequency and Percentage

Sub Variable	Indicator	Category	F	%
1. Trust system	a. Meaning of the problem	High	68	73.3
		Low	20	27.7
	b. Positive view	High	59	67.0
		Low	29	33.0
	c. Faith and spirituality	High	67	76.1
		Low	21	23.9
2. Organizational patterns	a. Flexibility	High	64	72.7
		Low	24	27.3
	b. Attachment	High	69	78.4
		Low	19	21.6
	c. Social resources & economy	High	72	81.8
		Low	16	18.2
3. Communication pocess	a. Massage clarity	High	66	75.0
		Low	22	25.0
	b. Open emotional expression	High	69	78.4
		Low	19	21.6
	c. Problem solving	High	62	70.5
		Low	26	29.5

belief system. The highest level of confidence in families with high category is in the meanings of 68 families (73.3%) and the most in the low category are positive indicators of 29 families (33%).

The second sub variable is the organizational pattern. The highest number of organizations in the family with the high category is in the indicator of social and economic resources that is 72 families (81.8%) and the most in the low category is in the indicator of flexibility ie 24 families (27.3%). The third sub variable is the communication process. The process of communication in most families with high category is in the open emotional expression indicator that is 69 families (78.4%) and the most with the low category is in the problem solving indicator that is 26 families (29.5%).

3. Recurrence in Schizophrenic Patients

The frequency distribution of recurrence in schizophrenic patients in this study can be seen in the table as follows:

Based on table 4 above, it can be seen that the majority of schizophrenic patients experience recurrence with a rare category (recurrence 1-2 times within a year) as many as 65 patients (73.9%) and a small fraction of schizophrenic patients experience frequent recurrence (relapse > 2 times within a year) as many as 23 patients (26.1%).

B. Bivariate Analysis

Bivariate analysis in this study using Rank Spearman test. The result of bivariate analysis

Table 4 Distribution of Frequency of Recurrence of Schizophrenic Patients

Patient Recurrence	Frequency	Percentage (%)
Rarely	65	73.9
Often	23	26.1
Total	88	100.0

Table 5 Results of Spearman Rank Test Relative Family Resilience Relations with Recurrence in Patients Schizophrenia (N = 88)

	r	P
Family Resilience		0.000
Patient Recurrence	0.880	

* p <0.05

can be seen on the tebel as follows:

Based on table 4.7 above, the result of Rank Spearman test is significancy value (p) = 0.000 (<0.05) indicating there is significant correlation between family resilience and relapse in schizophrenia patient. Spearman correlation (r) value of 0.88 indicates the direction of positive relationship and strong relationship strength.

Discussion

The family resilience of the schizophrenic patients in the Psychiatric Unit of RSUD Arjawinangun Cirebon District is mostly in the tough category, that is 76.1% and the rest are in the non-tough category which is 23.9%. Recurrence in schizophrenic patients in psychiatric unit of RSUD Arjawinangun Cirebon District within one year, most of schizophrenia patients are in the rare category of relapse that is equal to 73.9% and the rest are in frequent category of relapse that is equal to 26.1%.

The interesting question that arises from the results of this study is why the family resilience of schizophrenic patients is mostly in a strong family category, whereas their education and occupation levels are in the low category? Researchers will discuss it from various perspectives, both sociological approach, cultural approach, and the theory of family resilience itself.

In a sociological approach, the city of Cirebon is a city in which there are many activities, including trade, shipping and services. Cirebon is also known as City Guardian, because its founder is a Wali, namely Shaykh Sharif Hidayatullah or better known as Wali Sunan Gunung Jati. Wali Sunan Gunung Jati has instilled Islamic teachings and values to the people of Cirebon (Dewi, 2013). The teachings of Sunan Gunung Jati were adopted in daily activities by the people of Cirebon city and the royal family in the city of Cirebon, namely Kasepuhan Palace, Kanoman Keraton and Kacirebonan Palace until now (Wardiya, 2006).

Cirebon District where the place of this research is one city in West Java Province, Indonesia. Indonesia is one of the countries in Asia that holds Eastern adat (Friedman, 2010). The values in life adopted by the eastern and western countries have a fundamental difference. These values affect a family in behaving, communicating and solving problems, thus determining the level of family resilience.

The values in the eastern countries are: harmony with nature, conformity, harmonious interpersonal relationships, avoidance of conflict and self-control, in a neutral position, not directly in expressing ideas, thoughts and emotions, enduring the suffering experienced without showing it, older people, shared orientation in group achievement, interdependence and formality. Values in western countries include: mastering nature, high competition, expressing thoughts and feelings directly, being able to accept disagreements, showing emotions, liking change and innovation, thinking complaints, this shows a high degree of dignity to the family (Friedman, 2010). This allows family resiliency to be resilient in families with schizophrenic patients.

Families in Asia have a very strong familism, where family interests are above individual interests. The needs of the individual (family members) are under the care of the family, so that the culture in the east is family-focused, in contrast to western culture where the focus is individual (Friedman, 2010). This strong familial attribute makes families tough when faced with problems.

The family resilience of the schizophrenic patient in the Psychiatric Unit of RSUD Arjawinangun Cirebon District is found mostly in the family category of respite, that is equal to 76.1 %% and the rest belongs to

family category not tough, that is 23.9%. This is in accordance with the results of Hamdi et al. (2013) research on family resilience relationship with the implementation of family health care function as pulmonary TB PMO in Kecamatan Sumber Cirebon District, which resulted in 67.5% resilience of Pulmonary TB family in the tough category and the rest are in the non-tough category. Families in Cirebon District are mostly in the category of resilient resilience, because it is influenced by the Eastern adat adopted by Asian countries including Indonesia. Also influenced by the teachings of Sunan Gunung Jati and the existing culture in the city of Cirebon.

Approach the family resilience theory, family resilience can be judged from the level of resilience of the family in facing changes and problems in life experienced. Family resilience consists of three sub-variables that are key to the family in facing the problem or crisis situation, namely family belief system, family organization pattern and family communication process. Each sub variable of family resilience has indicators, that is sub variable of belief system consist of meaning indicator to problem, positive view and faith and spirituality. The organizational variable sub-variables consist of indicators of flexibility, attachment as well as social and economic resources. Sub process variable communication consists of an indicator of message clarity, open emotion expression and problem solving.

Conclusion

Family resilience of schizophrenic patients is largely in the resilient category of family resilience and a small percentage is in the non-resilient family resilience category. The frequency of recurrence occurring in schizophrenic patients is largely in the category of rare recurrence and only a small proportion of patients are in the frequent recurrence category. Statistical test results in this study there is a significant relationship between family resilience with recurrence in schizophrenic patients. The level of the relationship is very strong and positive. Resilient family resilience, allowing a rare relapse in schizophrenic patients, on the contrary resilience of families that are not resilient, allows frequent recurrence in schizophrenic patients.

Suggestion for management of Arjawinangun Hospital of Cirebon Regency should pay attention to family needs of schizophrenic patients. The nurse may perform nursing interventions for the family of schizophrenia patients such as Family Group Discussion (FGD), Family Group Therapy (FGT) or family gathering. Efforts that can be made by the local government of Cirebon district can be the formation of a policy to form a gathering for families of schizophrenic patients. Researchers are further advised to examine the factors affecting the resilience of schizophrenic patient families in Indonesia and the analysts difference in resilience rates between care giver and other family members who provide treatment to schizophrenic patients or family experience in treating recovering schizophrenic patients.

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Relationship between Quality of Nursing Work Life with Nurse Job Satisfaction in Pilot Project of Nurse Clinical Career Implementation

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Abstract

Quality of nursing work life plays an important role and must be considered by a hospital organization for the achievement of nurse job satisfaction. The career ladder is one source of satisfaction and will impact on service quality. The research method used correlational analysis with cross sectional approach. The total samples in this study as many as 193 people. In general, the results showed that most of the respondents (98.4%) had a high quality of nursing work life and when viewed from career level category it was found that all clinical nurses 4 (100%) had high quality of work life and clinical nurses 1-3 (97.9%, 98.4%, 98.7%) most of respondents have high quality of work life. The results also showed that in general, most of respondents (79.3%) had nurses' job satisfaction and when viewed from career level category it was found that most of clinical nurses 1–4 (77.1%; 80.3%; 83.3%; 79.5%) were satisfied with their work. Indicators in the nurse's job satisfaction are the main priorities in the aspects of compensation, working conditions, recognition, independence. Indicators that need to be maintained by the management of Hasan Sadikin General Hospital Bandung are supervision technical, moral values, responsibility, advancement, coworkers. The correlation between quality of nursing work life variable with nurse's job satisfaction is weak, significant and unidirectional in the pilot project implementation of clinical nurse career ladder in Hasan Sadikin General Hospital Bandung. Researchers expect the results of this study can be used as an evaluation for nursing management of Hasan Sadikin General Hospital Bandung. Further research is expected to be able to identify the relationship between the dimensions of the quality of nursing work life with the indicators of nurse's job satisfaction.

Keywords: Career ladder, job satisfaction, QNWL.

Introduction

Things that must be observed by the hospital which is related to problem that arise or that will appear. One of the problems that can not be avoided by a hospital is when the nurse wants to leave the hospital. This is often happened by various hospitals especially when it is done by staff who potentially and most contribute to the progress and service system. The problem arises one of them due to lack of ownership and attachment. The sense of attachment and belonging to hospital services is important because it can increase staff loyalty within the hospital. Because, when staff feel attached and possessed, the staff will give a part of himself totally and understand and help in achieving the goals to be achieved by a hospital. Faced with this, Cascio (2008) looked at ways to create productive human resources, quality, commitment and dedication to work is to pay attention and maintain the quality of working life. An ongoing process whereby each individual continually strives to build relationships with his work environment is called work adjustment. When a person enters the work environment for the first time, his/her behavior leads to the fulfillment of his needs, and he/she will also feel the rewards given by his work environment. If he/she can have a relationship with his/her work environment then he/she will try to defend it. However, if he does not find the relationship, he will try to build that relationship and if it fails it will lead to his leaving the job. When an individual is able to fulfill the requirements of his or her working environment it can be regarded as a satisfactory worker, and if his/her working environment is able to meet the needs of an individual, he can be said to be a satisfied worker (Vidiasta, 2010). Where the existence of this source of satisfaction is not always a factor raises satisfaction but if one of these factors does not exist then the nurse will be dissatisfied. The second factor is the motivator where if the factors exist then it will form a strong motivation so that the quality of work for the better. Examples are recognition, career enhancement and others.

The Implementation of pilot project of clinical nurse career implementation at Dr. Hasan Sadikin Bandung started from line based survey conducted by Susilaningsih, Kurniawan, Somantri, & Yudianto (2013) related to Quality of Work Life Nurse, Quality of Care and Patient Pre-Implementation Satistication of Career Nurse Pattern in Education Hospital.

Based on the results of interviews in January 2017 conducted in the Nursing Committee Committee RSHS, recognized by the Head of Nursing Special Services RSUP Dr. Hasan Sadikin Bandung section, on the implementation of the current nursing career path, it seemes that the development of CPD (Continues Personal Development) is adjusted with the competence in the career path in accordance with the work area of the nurse, the implementation is adjusted to the competency gap of the assessment result and adjusted to the condition and the ability of RSHS. The clinical nurses feel that space is provided in the pilot project of this career path to develop themselves and improve their clinical competence. So that the researcher feel important to do evaluation to same research sample by doing research of relationship between quality of nursing work life with nurse job satisfaction in pilot project of nurse clinical career implementation in RSUP. Dr. Hasan Sadikin Bandung.

Method

This research used quantitative research with correlational analysis method with research approach using cross sectional. The sample used consisted of 193 people. The sampling technique used was purposive sampling. The selection of samples was based on certain characteristics (PK 1–4) which were deemed to have a close connection with previously known population characteristics that had followed the implementation of the clinical nurse career path during the period of implementation of the career path implementation pilot project (> 2 years of service) in the inpatient medical surgical and interne ward. .

Result

1) Quality of Nurse Work life

Table 1 QNWL Average Score

Dimention	Median	Possible Range	Mean	Actual Range
All dimention (42 item)	105	42–168	123.4	106–148
Work life/home life (7 item)	17.5	7–28	21.86	18–24
Work design (10 item)	25	10–40	27.61	25–35
Work context (20 item)	50	20–80	59.59	50–72
Work world (5 item)	12.5	5–20	14.31	13–17

Table 2 Quality of Frequency Distribution Nurse Work Life in General

Dimention	High		Low	
	F	%	F	%
All dimention (42 item)	190	98.4	3	1.6
Work life/home life (7 item)	189	97.93	4	2.07
Work design (10 item)	174	90.15	19	9.85
Work context (20 item)	183	94.82	10	5.18
Work world (5 item)	157	81.35	36	18.65

Table 3 Quality of Nurse Work Life Based on Categories Level of Career Level

Career Level	High		Low	
	F	%	F	%
PK 1	47	97.9	1	2.1
PK 2	60	98.4	1	1.6
PK 3	77	98.7	1	1.3
PK 4	6	100	0	0

Based on the calculation of the total dimensions obtained the actual range value 106–148 with a mean of 123.4 and the middle value of 105 so that it showed that the respondents had met the quality of working life. The overall mean value of the dimension was supported by the average value of each dimension that was all higher than the mean of each dimension.

If seen from the frequency distribution of respondents in general can be seen in the table below:

Based on table 2 illustrated that the respondents from the Kemuning Building and Fresia Building Dr. Hasan Sadikin Bandung almost all respondents had high quality of nurse work life (98.4%). Looking from each dimension, almost all respondents had high quality of nurse work life.

Based on table 3 illustrated that based on career level, it appeared that respondents from PK I–3 almost all had high quality of work life. All nurses in PK 4 appeared to have a high quality of nursing work. This indicates that in general, almost all nurses from each level of career level feel that they have the quality of nurse work life.

2) Nurse Job Satisfaction

Based on the results of the research in table 4, nurses job satisfaction in Dr. Hasan Sadikin Bandung 79.3% was satisfied, so that the level of job satisfaction nurses almost entirely satisfied.

3) Cartesian Diagram of Job Satisfaction

Based on the results of research as shown in table 5, there were 4 indicators located in this quadrant compensation, working conditions, recognition and independence.

Based on the results of research as shown in table 6, there were 5 indicators located in this quadrant that was supervision technical, moral values, advancement, co workers, responsibility.

4) The Relationship between the Quality of

Table 4 Distribution of Nurse Job Satisfication Frequency

Satisfication	f	%
Satisfied	153	79.3
Not Satisfied	40	20.7

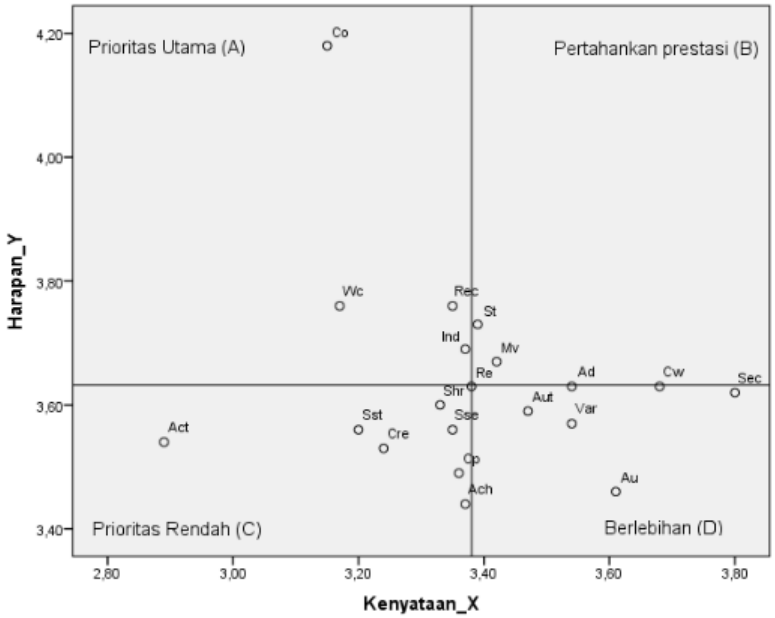

Diagram 1 Cartesian Diagram

Table 5 First Priority Indicator (*Prioritas Utama*)

Aspect	Statement
Compensation	The salary I receive and the work I do
Working conditions	Working environment conditions such as room availability and work equipment
Recognition	The praise I got over work done
Independence	Opportunity to try my own method within doing work

Table 6 Indicators that Need to be Maintained (*Pertahankan prestasi*)

Aspect	Statement
Supervision technical	My supervisor's competence in making decisions
Moral values	Be able to do things which is not contradictory with my consience
Responsibility	Freedom for using own self-assesment
Advancement	Opportunity for improvement in work
Co workers	Relationships interact with co-workers

Nurse Work Life with Nurse Job Satisfaction

The result of Spearman test is 0.246 with p-value 0.001. It can be seen that the correlation value had a value of 0.246 which can be categorized as having a weak relationship and based on the significance test the result showed the value of 0.001, which means the association of the two variables was significant. So it can be concluded that the relationship between the variable quality of nurse work life with nurse job satisfaction

was weak, significant and unidirectional. This means that when the variable value of the quality of work life of the nurse was high, then the variable value of nurse job satisfaction will be high also.

Discussion

1) Quality of Nurse Work life Generally and Based on Categories Career Level

Looking from the results of the research in table 1, it can be concluded that there was improvement of quality of work life after the implementation of nurse career level. This was evident from the increase in the average score of nurse job quality in 2013 which was 115.22 (based on survey line conducted by Susilaningsih, Kurniawan, Somantri, and Yudianto (2013)) to 123.4. Seeing from table 2, there was an increase compared to the year of 2013 which is 47% (based on survey result conducted by Susilaningsih, Kurniawan, Somantri, and Yudianto (2013) to 98.4% with high quality of life. MOH (2006) mentioned that career path had 4 components that comprise career path, career goals, career planning and career development so that the dimensions of the quality of work life of nurses increase.

Improvement of the quality of work life of nurse on almost all of these respondents was the result of RSUP Dr. Hasan Sadikin nursing management business Bandung that already pay attention to the quality of nurse work life. This is in line with research by Rivai and Sagala (2009) that explain the quality of work life is a systematic effort of an organization to provide employees with greater opportunities to influence work and staff's contribution to the achievement of hospital goals.

Researcher argued that the quality of work life becomes an important and core of service. Where if the organization of hospitals, especially nursing can ensure nurse get a high quality of work life then the nurses will provide themselves as a whole and focus in the service. The nurse will show high loyalty and cooperation to the organization of the hospital. The nurses are also assured of being bound and possessed so that it will help the organization to achieve the organization's goals.

In work life/home life, this dimension can be defined as the relationship between the nurse life experience in his/her workplace and the life at home. Brooks & Anderson (2005) meant that job implementation is influenced by the life of nurse at home, and vice versa. The results of the research in table 1, on the dimensions of work life/home life appeared high, it was shown from the actual range of 18-24 with a mean of 21.86 and the middle value of 17.5.

The results of the research on table 2 for the dimension was also increase compared to the result of line based survey conducted by Susilaningsih, Kurniawan, Somantri, and Yudianto (2013) where at the actual range of 12-21 with the mean of 16.72 (low category). The increase in the distribution of respondents also experienced an increase that was originally only part of the respondents (59%) (high category) and increase to almost entirely (97.93%). This indicated that almost all respondents were able to balance between the fulfillment of work need with the fulfillment of life at home.

Researchers argued that this increase occurred because the organization had concerned nurse staff on aspects of life in the work environment that ultimately affect life at home. Implementation of career path that was implemented also gave a positive influence on the increase in this dimension. The organization had implemented flexible working hours and the nursing staff that had the right to apply for work or holidays. The head of the room seemed to consider the request and tried to grant the request, although not all requests were granted due to labor requirements. The culture of tolerance built between nursing staff also looks so high that each other can help so nurses were not too tired.

A 24-hour nursing service enabled the nurses to work full and divided by shift. From this dimension it appeared that nurses still have a good quality of work life because nurses had been able to manage themselves to work according to shift. The nurses seem to still had energy after work because when nurses had time off during work. Matters related to the dimensions of work life/home life causes the nurse to feel to get a better

quality work life so that almost all nurses can feel comfortable when returning home even while working.

In the work design dimension, this dimension can be defined as a combination of nursing work and describes the actual work performed by the nurse. Brooks and Anderson (2005) considers that the important things that should be in this dimension are staff forming and staff palcement, sharing of workload and autonomy in work. The results of the research in table 1, on the work design dimension was high, it was shown from the actual range value 25–35 with the mean value of 27.61 and the middle value of 25. The results of this study increased compared to the result of line based survey conducted by Susilaningsih, Kurniawan, Somantri, and Yudianto (2013) where at the actual range of 15–31 with a mean of 24.29 (low category).

The increase in the distribution of respondents is also seen in Table 2 which encountered an increase that was initially only part of the respondents (52%) (high category) and increased to almost entirely (90.15%). It indicated that the work design dimension was good. Researcher argued that the improvement of the work design dimension is based on the clarity of the division of labor based on the clinical authority of each nurse.

Implementation of nursing career path helped the organization of hospital to be able to divide the work based on nursing career level. The division of career nurse level gave the limits in accordance with the competence and authority of each nurse, so that the nurse can be more clear in providing services. Matters related to the implementation of career path directly affected the reduce of workload due to work done in accordance with the clinical authority of each nurse. Nurses also became more independent and had enough time to complete the work so as to provide quality services to patients. And nurses would feel satisfy in working.

However, hospital nursing management should still be concerned about the workload. This is because from the interview results found that the respondents complained about the need for additional nurses who were available at their place of work. The lower number of nurses will lead to an increase in work volume as this will affect the division of labor and workload. It should be of great concern to the management of the hospital, particularly the nursing field to reconsider the need for the number of nursing personnel taking into account the characteristics of the working properties of each work unit in relation to the focus of the study, the scope of the work and the intervention base (internal disease unit and surgical unit).

Implementation of this clinical nursing career path provided space for the organization to provide work in accordance with the clinical authority and competence it had in order to achieve organizational goals. Each individual had their respective duties and roles and works together, in order to achieve the stated and agreed objectives in the form of organizational vision. Group members in this case were nurses performing task roles, building groups and maintaining their individual roles as nursing service provider. so as to achieve organizational goals.

In the work context dimension, this dimension can be explained as a nurse's work practice setting and exploring the impact of the work environment on the patient and nurse system. Based on Brooks and Anderson (2005), the work context dimension is closely related to the dimension of work design, but it contains a broader aspect. The dimensions of the work context include management, supervision, relationships between colleagues and the work environment. The results of the research in table 1, on the work context dimension is high, it is shown from the actual range value 50–72 with a mean of 59.59 and the mean value of 50.

The results of this study were both in the high category with the result of line based survey conducted by Susilaningsih, Kurniawan, Somantri, and Yudianto (2013) where at the actual range 41–74 with a mean of 59.59. The increase occurred in the distribution of respondents (table 2), which was originally only part of the respondents (42.2%) (high category) and increased to almost entirely (94.82%). This indicates that almost all respondents experienced an increase in the work context dimension.

Gibson (2011) said that the employee participation as a concept of applied management in developing and implementing decisions directly affects their work. Employee

engagement is part of a motivational program derived from the facilities and assumptions described by experts and supports human relations in the work environment.

Almost of all respondents also stated that they were involved in the decision making done by the supervisor. Rastegari (2010) explained that the increased involvement of nurses in the execution of care and decision making will reduce the stress of the soul, stopping from work and even absenteeism. These things can support the creation of good quality of work life. Workers will feel part of their organization if they are involved in all organizational activities.

Almost all respondents stated that they received good performance supervision and obtained feedback from supervisors. The nurses felt that with direct supervision from the supervisors the nurse could feel direct feedback and be able to ask or even gain new experiences. In addition, feedback can also be a tool to provide rewards in order to provide motivation to nurses.

Researcher viewed that almost all nurses have good interpersonal relationships with peers, superiors, supervisors, doctors, and with other health workers. This showed that a healthy work climate was realized due to a conducive working environment. Based on the results of observations during the research field, it appeared that nurses to each other related in harmony and it is also intertwined with doctors and other health workers. Rastegari (2010) stated that factors in the work environment can increase the productivity of human resources.

One of the components in this dimension is how communication has already occurred and affected collaboration on other health workers. Good communication can prevent conflicts within the organization and it can improve productivity and performance. Collaboration is necessary in the order of health services. Collaboration of nurses with other health personnel can affect the work satisfaction of nurses and will impact on improving the quality of care of health care in hospitals.

In the work world dimension, Brooks and Anderson (2005), stated that this dimension illustrates the effects of broad social environmental influencesand the effects of changes in nursing practice on the quality of nurse work life. In other words, this dimension includes about how people's perceptions of nursing professions and socio-economic conditions occur in the environment outside the workplace (Brooks & Anderson, 2005).

The results of the research in table 1, the dimensions of work world was high, it was shown from the actual range value 13–17 with mean value 14.31 and the mean value of 12.5. It was as high as the value of the result of line based survey conducted by Susilaningsih, Kurniawan, Somantri, and Yudianto (2013) where at the actual range of 10–20 with mean value 14.35. The increase occurred in the distribution of respondents (table 2), which was originally only part of the respondents (45.9%) (high category), to almost all respondents (81.35%). This indicates that almost all respondents experienced an increase in the dimensions of work world.

The increase showed that the knowledge of the community related to the nursing profession has also increased because almost all respondents feel the increase. This is in line with Rastegari research (2010), that the level of public knowledge of the nursing profession should be improved through interviews and explained that in health services in addition to medical services, nurses also have a good and effective role. In addition, nurses must work with the media to increase knowledge of nursing roles to the community.

2) Nurse Job Satisfaction

Based on the results of research in table 4, nurse job satisfaction in Dr. Hasan Sadikin Bandung was 79.3% satisfied so that the level of nurse job satisfaction almost entirely satisfied. This indicates a correspondence between nurse expectations and the reality / experience gained. This is in accordance with a study by Colquitt et al (2010) which says that job satisfaction is a pleasant emotional as a result of job assessment and work experience. Nurses who are satisfied with their work will be visible from the way the nurse respond to their work. Nurses with positive job satisfaction experience will definitely improve performance in doing activities.

Nurse work satisfaction becomes the most

basic thing to be considered because it is in accordance with the theory of Maslow that states that humans have 5 basic human needs namely psychological needs, security and comfort, social, ego and self-actualization. Where the lowest needs must be met ahead of other needs. If employees are not satisfied with their work, when employees will have low motivation, so in the work they usually do not get excited and have some errors and others.

In this study still appearsed a small part (20.7%) of nurses that were not satisfied with its their job. Some aspects that affect nurses' job satisfaction according to Robbins (2006) are related to challenging jobs, worthy income, working conditions and supportive friends. Based on the results of interviews while accompanying the questionnaire, respondents felt not satisfied with the income earned, although actually increased compared to before the implementation of nurse career level. Researchers argued that satisfaction and dissatisfaction is a subjective judgment and concerned about each individual nurse associated with the desired expectations and the reality obtained.

The results of the researcher's analysis of respondents job dissatisfaction based on individual characteristics. Individual characteristics are variables that are often analyzed in the field of behavioral organization science because these variables have an impact on job satisfaction. Psychological research on gender variables has found that men are more aggressive and more likely to have hope for success, so men tend to be more dissatisfied with their work than women. Kreitner & Kinicki (2010) stated that the increasing of one's working year will increase of job satisfaction. Long work period will tend to make an employee or nurse feel more comfortable in an organization, such as having been adapted to the environment long enough so that an employee will feel comfortable with his job. It shows that less work will show dissatisfaction with the job.

3) Cartesian Diagram of Nurse Job Satisfaction

Primary Priority Indicator

Based on the theory that was proposed by Martilla and James (1977) in Supranto (2007), the attributes included in this quadrant should be increased and become the top priority in order to achieve total nurse job satisfaction

The indicator that lies in this quadrant is with respect to the compensation with the salary statement I receive and the work I do. This is in accordance with the aspects that affect job satisfaction according to Robbins (2006) is a decent wage. Indicators in this quadrant should be the top priority of improvement for the realization of nurse job satisfaction. This is in accordance with Robbins and Judge (2006) in which a reasonable reward is the desire of all employees of the payroll system. If the salary is felt fair then there will be satisfaction. According to Mondy and Noe in Panggabean (2002) (in Robbins & Judge (2013)), salary is a financial compensation given to workers/employees on a regular basis and is the most important award in the organization. This is in accordance with the theory of Two Factors which is the theory of Frederick Herzberg (1959) in As'ad (2003) compensation is a source of dissatisfiers/ dissatisfiers where the existence of the source of this dissatisfaction is interpreted with if these factors are not met it will bring dissatisfaction at staff. So that nursing management of Dr. Hasan Sadikin should pay attention to this indicator as a top priority in order to create nurse job satisfaction. The next indicator is working conditions with a statement of working environment conditions such as the availability of room and work equipment. This needs to be a priority because in accordance with the aspects that affect job satisfaction according to Robbins (2006) that is working conditions that support. This is supported by Robbins and Judge (2002) who mentioned the need for more modern facilities and with more adequate equipment. Nitisemito (2000) also mentions the factors that affect working conditions such as a clean environment, good ventilation, harmonious working relationships between staff, noise levels. Working conditions are an important factor in providing employee job satisfaction so that this indicator should be increased because it will increase the responsibility towards quality improvement and productivity.

Based on the theory of Two Factors which is Frederick Herzberg's theory (1959) in

As'ad (2003) working conditions is a source of dissatisfiers where the existence of a source of dissatisfaction is interpreted with if these factors are not met it will lead to dissatisfaction with the staff. So that nursing management of Dr. Hasan Sadikin should pay attention to this indicator as a top priority in order to create nurse job satisfaction.

Based on Theory of Work Adjustment that Dawis disclosed, Lofquist, and Weiss (1968), if an employee can have a relationship with his working environment then he will try to defend it. However, if he does not find the relationship, he will try to build that relationship and if it fails it will lead to leave the job. When an individual is able to fulfill the requirements of his or her working environment it can be regarded as a satisfactory worker, and if his or her working environment can meet an individual's needs, then he can be said to be a satisfied worker.

The third indicator is recognition with the praise statement which I get for the work done. Praise according to Winardi (2004) is a form of reward that can affect the psychological aspect and is a social award. This is in line with Mahmudi (2005) which stated that praise is an important element in the reward system is psychological and social awards. Reward is an educational tool that is easy to apply and pleases employees. Therefore, praise is necessary to generate employee motivation. Management of Dr. Hasan Sadikin Bandung should prioritize this because this is in accordance with the theory of two factors Herzberg in As'ad (2003) which divides 2 categories based on the characteristics of one of the categories Motivators. Under this category, it is important for management to provide recognition by praising the performance that has been done. If praise is given it will form a strong motivation so that the quality of work becomes better. Motivator factors are also a source of job satisfaction so that when prioritized by the organization it will lead to job satisfaction.

The last indicator in this quadrant is independence with an opportunity statement to try my own method of doing the job. This is in accordance with Robbins (2006) about the aspects that affect job satisfaction is a challenging job. One of the challenging job indicators is a job that provides an opportunity to use the knowledge, skills and skill that is in the employee. Hackman and Oldham (1980) mentions that there is an autonomy dimension to that aspect in which employees have the freedom to be able to use the working methods to be used. Freedom given to employees will enable employees to explore themselves and show initiatives to do their own work to the end.

Indicators that Need to be Maintained

Based on the theory put forward by Martilla and James (1977) in Supranto (2007), quadrant B shows the factors that are considered very important that have been successfully implemented according to the wish/ expectation of the nurse and very satisfying (high satisfaction) so it must be maintained. The indicator that lies in this quadrant is with respect to supervision technical with the statement of my supervisor's competence in making decisions.

This is in accordance with Herzberg's Two Factor theory (1959) in As'ad (2003), the Hygiene Factors category which is a factor that proves to be a source of dissatisfaction eg supervision technical such as decision making and other technical related matters whose existence affects satisfaction. So the organization of hospitals must pay attention and maintain that there is no dissatisfaction. This factor appears to be in accordance with the wishes of nurses and has been done by the organization so that must be maintained.

The next indicator of moral values with the statement is able to do things that are not contrary to my conscience. According to Weiss, Dawis, England, Loqfuist (in Vidiasta, 2010), moral values are an intrinsic dimension which, when considered, lead to job satisfaction in employees. This is in accordance with Motivator Factor on Herzberg's Two Factor Theory (The Factor Theory) in As'ad (2003) which will increase the nurse's job satisfaction because the individual feels doing things that are not against his conscience.

Another indicator is advancement with an opportunity statement for progress on the job. This indicator is important to maintain because this indicator conforms to the theory of Two Factors which is Frederick Herzberg's

theory (1959) in As'ad (2003). Where the source of job satisfaction/motivators category/satisfiers which if this factor exists and maintained it will form a job satisfaction that give rise to a strong motivation so that the quality of work becomes better. This advancement itself is related to nurse career development which has been supported by the implementation of nurse career clinic. Therefore, the implementation of the nurse career clinic in path must be maintained to maintain the nurse job satisfaction.

Another indicator is co workers with relationship statements interact with colleagues. This is important to be maintained by the organization of hospital because according to Robbins (2006), supportive colleagues is an important aspect to achieve job satisfaction nurse.

The last indicator in this quadrant is the responsibility with the statement of freedom using self-assessment. In this indicator the nurse must remain responsible with the nursing services provided. This indicator is important to maintain because this indicator is in line to the theory of Two Factors which is Frederick Herzberg's theory (1959) in As'ad (2003). Where is the source of job satisfaction / motivators category/satisfiers which if this factor exists and maintained it will form a job satisfaction that gave rise to a strong motivation so that the quality of work for the better.

4) The relationship between quality of nurse work life with nurse job satisfaction

Brooks and Anderson (2005) stated that the quality of work life is a concept that describes the perception and view of the nurses that will fulfill their life needs through work experience in the organization so that nurses can have maximum productivity and get personal satisfaction on the fulfillment of their needs. Job satisfaction of the nurse according to Colquitt et al. (2010) is emotionally pleasurable as a result of job assessment and work experience. So in other words describes a person's feelings towards his work. Employees with positive job satisfaction experience will improve performance in their activities and vice versa. Mullin in Wijono (2010) said that the role of the organization affects employee satisfaction so that in this case the role of the organization is very important in maintaining the quality of nurse job which can improve the satisfaction of each individual nursing staff.

The results of this research indicated that both variables have a significant relationship and direction. This is in line with the study which was conduted by Zulkarnain (2011) that a positive relationship between the quality of nurse work life with job satisfaction would show favorable conditions between the nurses staff and the organization. The results of a positive quality of work life will show an increase in job satisfaction. It is also in line with research by Marlinda and Turnip (2017) which revealed that there is a positive and significant relationship between quality of work life and job satisfaction. In the research was mentioned that the application of good quality of work life will increase the work satisfaction of his staff. Similar opinion expressed by Dipodjoyo (2015) said that there is a significant relationship with the positive direction between the quality of work life with job satisfaction. It appears that the higher the quality of work life will be the higher the employee job satisfaction.

This is in accordance with the research of Sudarsono (2007) which states that job satisfaction is significantly positively correlated to QWL. The higher a person's job satisfaction the higher the QWL. We believe that the quality of the nurse's work life supports a hospital to apply a process that is sensitive to the needs of its staff and provides nurse staff the opportunity to plan their own working lives. This is supported by Hadi (2008) which stated that the quality of work life intended as an organizational strategy that manifests and maintains staff work satisfaction with the aim of improving the working conditions of individuals and organizations and benefits for employers.

Individuals will feel useful and have a stake in the organization, communication will be well established between the leadership and staff even with colleagues so that it will create job satisfaction. Job satisfaction itself is individual and will certainly differ from one individual to another. Job satisfaction is very important because it will lead them to the improvement of attitude and work behavior.

Therefore, every organization, especially nursing management of a hospital must really understand the job satisfaction of each of its staff to improve the behavior of its staff in working. If an organization does not pay attention to the quality of work life, the nurse job satisfaction will not happen. And will create adverse situations and conditions for the organized life and individual staff itself such as the decrease in nurse productivity, so as to provide nursing services that are not optimal to the patient. Another possible condition is the desire of the nurse to leave the hospital which may disturb the stability of the service because the service provider's resources are reduced.

When looking at the correlation coefficients, these two variables had a weak relationship (0.246). It can be seen from tables 2 and 4, where there were unequal number of respondents who have high quality of nurse work life (98.4%) and nurse job satisfaction (79.3%). Therefore, the management of Nursing Hospital must fix the things that become the main priority to achieve nurse job satisfaction. The staff of the nurse must obtain fair and reasonable compensation, for it is necessary to prepare and administer a system and structure of direct and indirect compensation that were competitive and could prosper the life of the employees according to position in the organization and socioeconomic status in society.

Both variables must be addressed together in order to obtain favorable results for the organization and each individual nursing staff.

Improvement had been done by Dr. Hasan Sadikin since 3 years ago with the holding of action research (implementation of nurse career clinical system). The results that seem to increase from the quality of work life in the current line based survey and research, should be used as motivational materials RS to further refine the system.

Conclusion

The conclusions that can be drawn from the results above and discussion are: Quality of nurses work life at Dr. Hasan Sadikin Bandung had a high quality (average value above the middle value (105)) as much as 98.4% (190 respondents), Nurse job satisfaction at Dr. Hasan Sadikin Bandung was quite satisfied as much as 79.3% (153 respondents), Indicators in the nurse's job satisfaction were the main priorities in the aspects of compensation, working conditions, praise, independence. Indicators that need to be maintained by the management of Dr. Hasan Sadikin Bandung namely technical supervision, moral values, responsibility, progress of work, co-workers, The relationship between quality of nurse work life with nurse job satisfaction was weak, significant and in line with pilot project of nurse clinical career in Dr. Hasan Sadikin Bandung.

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Comparative Effectiveness of Cognitive Behavioral Therapy 5 Sessions and 12 Sessions Toward to Post Traumatic Stress Disorder on Post Flood Disaster Adolescent

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Abstract

Flood disaster conduced 2375 refugees and traumatic in adolescent with symptoms of Post Traumatic Stress Disorder as many as 15 people in Garut regency. The impact of PTSD on adolescents reduced brain volume, behavioral changed and short-term memory lost. The psychotherapy that proved to be effective overcome PTSD was Cognitive Behavioral Therapy (CBT) 12 sessions but the empirical evidence in Indonesia, the 12 session of CBT intervention was too long, tedious, and caused doubts to the therapist so that 5 session CBT intervention was considered more flexible and efficient. The purpose of this study was compare the effectiveness of PTSD scores pre and post intervention of CBT 5 sessions and 12 sessions toward of PTSD on post flood disaster in adolescent. This research used Quasi Experiment Design with Pre test and Post test approach Two Group Design. The first group was given CBT 5 sessions and the second group was given CBT 12 sessions with the total number of adolescent respondents were 38 people (aged 12–18). The sample was chosen by used Consecutive Sampling at two evacuation sites in Cilawu and Tarogong Kidul subdistrict, Garut regency, West Java, Indonesia. The results of this study pre and post intervention in both groups decreased of PTSD score which difference of median value of 6.00 on CBT 5 session and average difference of 7.58 on CBT 12 session with significancy (p-value < 0.01) and the result analysis test on the effectiveness of both interventions (p-value > 0.05) with significancy number 0.648. The conclusion was no significant difference between the effectiveness of the CBT group of 5 sessions and the CBT group of 12 sessions. There needs comparison of more than 5 sessions and less than 12 sessions for next research.

Keywords: Adolescent, Cognitive Behavioral Therapy (CBT), flood disaster, Post Traumatic Stress Disorder (PTSD).

Introduction

Based on the Indonesian Index of Disaster Prone which has been released by BPBD in 2016, Garut regency ranks first as disaster-prone areas in the category of Regency/ City in Indonesia because it has 12 types of disaster risk. Flash floods occurred in seven districts in Garut regency which resulted in 2375 people had to evacuate. According to Undang-undang (Indonesian Law) No.24 2007, disaster can be defined as an event or series of events that threaten and disrupt people's lives and livelihoods which caused by natural, non-natural and human factors resulting in human casualties, environmental damage, possessions, and other psychological effects.

Javaid et al. (2011) define the psychological impact as the consequence that occurs because a person is separated from the family members and their care, lack of basic living as well as other psychological impacts. According to Celebi and Metindogan (2010), boys are found to react more aggressively to disasters and externalize behavioral problems, while girls were reported to respond to traumatic events due to disasters with more internalization, which means they are more likely to experience depression.

These psychological impacts are reinforced by Goenjian et al. (2009) who discovered that teenage children in Armenian exposed symptoms of depression after an earthquake occurred in that country 6.5 years ago. This finding is supported by research conducted by Hizli, Taskintuna, Isikli, Kilic, and Zileli (2009) who found symptoms of depression in adolescents that occurred 4 years after the quake in Turkey. This is seen as a subjective experience and a negative perception of the disaster that later developed into PTSD.

PTSD is a profound anxiety disorder and inability accompanied by repetitive trauma symptoms, avoidance behaviour, difficulty sleeping and difficulty concentrating (APA, 2000). According to Mulvihill (2007), disaster experience is a factor that causes trauma symptoms and becomes a stressor. According to the National Center for PTSD (2016), PTSD symptoms are characterized by 3 major symptoms. The first is Re-Experiencing which is the repetition of the experience of trauma (flashback) and nightmares (nightmares). The second is Avoidance: emotions become superficial, avoiding activities and places, thinking, feeling or having conversations related to trauma, or losing interest in all things. The last one is Hyper-Arousal which has 2 or more indications such as difficulty sleeping and difficulty maintaining it, difficulty concentrating, irritability/explosive emotion and shock reaction or excessive alert (Hypervigilance).

The 3 major PTSD symptoms described above are considered to contribute to physical and mental health problems. Mulvihill (2007) states that physical and mental health problems occur because PTSD can employ both short-term and long-term effects. Short-term effects of PTSD is an increase in cortisol, which then affects immune behaviour and responses. On the other hand, the long-term impact of PTSD results in mental disorders and physical ailments such as irritable bowel syndrome, rheumatoid arthritis and autoimmune disorders.

The view concerning the short-term and long-term effects of PTSD is supported by research conducted by Carrion, Weems, Richert, Hoffman, and Reiss (2010) who found that adolescents aged 10–16 years old with post-traumatic stress symptoms can significantly diminish the amount of brain tissue and prolong cortisol and grey volume of left ventral Frontal Cortex. Research by Carrion et al. (2009) previously also found that adolescents with 10–17 year of age range who experienced post-traumatic stress symptoms also showed the reduced activation of the right hippocampus and the severity of avoidance symptoms, which then correlated with a decrease in the left hippocampus so that the decreasing activity of the hippocampus affects verbal memory.

Another theory regarding PTSD is also presented by Yang et al. (2014), suggests that teenagers with PTSD after 4 months due to natural disasters possess a deficit in emotional control. This statement is similar to the opinion expressed by Zhang, Zhang, Zhu, Du, and Zhang (2015) in a study of adolescents with PTSD after 3 months of earthquakes occurrence. These youths

showed somatic symptoms of insomnia (83.2%), fatigue or lack of energy (74.4%), abdominal pain (63.2%), dizziness (58.1%) and headache (57.7%). This is in accordance with the invention proposed by Lanius et al. (2010), which shows that PTSD disorders harm a child's neurobiology, impair the brain function of neurological hypersensitivities such as decreased perception, cognitive and affective, and psychological hypersensitivities such as the disintegration of confidence in life, deficits in short-term memory/mechanic memory areas that will result in severe mental deterioration.

Points to be considered in overcoming PTSD are very important in preventing the emergence of long-term and short-term effects, as well as preventing neurological and psychological damage from these adolescents (Mulvihil, 2007). According to Gillies, Taylor, Gray, O'Brien and D'Abrew (2013) who have conducted 14 meta-analysis studies, state that non-pharmacologic treatment of PTSD in teenagers can be accomplished by conducting CBT therapy that proves to be more significant than other types of psychotherapy. According to Stuart (2016), Cognitive Behavior Therapy (CBT) is one action that can be performed to succeed PTSD problems. Furthermore, according to the National Center for PTSD (2016), CBT can be given to teenagers who suffer PTSD.

Cognitive Behavior Therapy (CBT) is an act that overcomes children's cognitive distortion in order to avoid maladaptive responses from reality misconceptions and improved logic. The findings of research by Kenardy, Cobham, Nixon, McDermott, and March (2010) show that interventions using CBT with the early intervention can reduce symptoms of traumatic stress and prevents chronic disorders as well as disabilities in children with acute PTSD after injury.

Research conducted by Diehle, Opmeer, Boer, Mannarino and Lindauer (2015) on forty-eight school and adolescents (8–18 years old) at the Center de Bascule Amsterdam trauma center with backgrounds on the causes of trauma, the action of CBT showed a substantial decrease from before and after the intervention of hyperactive symptoms which is also a symptom of depression in PTSD. McMullen, O'callaghan, Shannon, Black, and Eakin (2013) also conducted a study on 50 boys aged 13–17 who were traumatized by war or engaged in war. After being given the treatment of CBT in the intervention group, there was a very significant reduction in PTSD symptoms such as depression, anxiety symptoms, and aggressive behaviour.

The outcomes of this study are corroborated by former research conducted by Roberts D Clin Psy, Kitchiner, Kenardy, and Bisson (2009) who found that a proven effective CBT technique employed in acute PTSD is 12 Trauma Focus CBT sessions. Similarly, according to O'Donnell et al. (2014) who studied 64 children aged 7–13 years old with post-traumatic stress symptoms at Tanzania Orphanage due to parental loss by giving Trauma Focus CBT 12 sessions. The results of this treatment showed that CBT can decrease sadness and depression significantly with value ($p < 0.01$).

According to Smith et al. (2007), a decrease of PTSD symptom on 92% of intervention group can be seen after given the CBT at least 10 weeks. Similarly, research conducted by Cohen (2010) shows that CBT in adolescents give a more significant effect on 12 therapy sessions.

According to Putranto (2016), the old version of CBT therapy by using sessions up to 12 times is not in accordance with Indonesian culture. In his writing, he mentioned that the therapeutic process up to 12 times made the meeting too long, too expensive, complicated, boring and could lower the belief in the therapist ability. This is in line with the opinion expressed by Della (2012); Muqodas (2011) mentions that the cognitive-behaviour therapy counselling process should be adjusted to the existing culture in Indonesia.

In Indonesia, especially in the field of nursing, the duration of CBT therapy in general is 5 sessions. This is evident from a study conducted by Nyumirah (2013) who applied CBT as much as 5 sessions in schizophrenic patients in improving their social interaction ability. Other studies conducted by Sudiatmika, Keliat, and Wardani (2013) compare the effectiveness of CBT as much as 5 sessions and REBT

(rational emotive behavior therapy) which finally showed the result of the decrease of violent and hallucinating behavior symptoms as much as p-value < 0.05, thus CBT and REBT is recommended in nursing orders.

Furthermore, research on disaster-related nursing conducted by Erwina (2010) shows the result of decreasing of PTSD symptoms in the population of age group 20–55 years after the earthquake in West Tawar Barat Village, West Sumatera Province. The result of this study shows a decrease which was seen significantly at p-value < 0.05 after given 5 CBT sessions, but the research of CBT effectiveness in adolescent, especially post-disaster in Indonesia, has never been done.

The phenomenon that occurs in Garut regency, based on the results of the Westaria Bandung Psychology Bureau Study, found that there are several severe trauma conditions in 15 children who lead to symptoms of PTSD after 1 month of flooding (Tarmizi, 2016), even 2 of 15 children should undergo continuous therapy.

Based on the results of this study, the researcher is interested in comparing "whether 5 sessions of Cognitive Behavioral Therapy are more effective than 12 sessions of CBT in diminishing the signs of Post-Traumatic Stress Disorder in Youth Post Disaster Banjir Bandang In Garut District of West Java?", Which is necessary to acknowledge that this study has not been done in previous studies.

Method

This research was done by using Quasi-Experimental Design. The research design is performed by using Pre-test and Post-test of Two Group Design. Methods of the study employed 2 treatment groups. The first group received treatment in the form of 5 sessions cognitive behavioural therapy. The second group received treatment in the form of 12 sessions cognitive behavioural therapy. Before getting the intervention, all groups will be given initial pre-test measurement, and after CBT intervention is done they will be given the post-test measurement to assess the PTSD score. This research was conducted on Garut regency of West Java in teenagers who are in the evacuation area. The duration of the study is 6 weeks which begins on 24 March to 6 May 2017, with the frequency of CBT intervention treatment group 1 and 2 done twice a week, with a duration of 60 minutes in a single meeting.

There are several types of data analysis used in this study, which consists of univariate and bivariate tests.

Univariate Analysis

The researchers conducted Univariate analysis depicting the age of respondents, their gender, education, and factors that caused the respondents to lose their family. The statistical results are in form of mean, median, mode, standard deviation, and proportion of research variables (Supranto, 2007) which then tested homogeneity with Mann Whitney test for age, Chi-Square test for Gender and family loss, and Kolmogorov-Smirnov test for education.

Bivariate Analysis

This study applied the Bivariate analysis that compares the score of PTSD symptoms based on CPSS on the respondents. In order to comprehend the results of pre-intervention and post CBT intervention in 5 sessions CBT group, it was found that the data were not normally distributed and thus had to use the Wilcoxon test. On the other hand, data were found normally distributed on the 12 sessions CBT group, hence researcher used paired t-test. Thus, in order to compare the effectiveness between the 5-session CBT and the 12-session CBT of both groups by using the Mann Witney test analysis with a statistical significance level of 95% (alpha = 0.05).

Result

This research was conducted in two shelters of flash floods or banjir bandang victims in the districts of Cilawu and Tarogong Kidul, Garut Regency. The total number of adolescents who still occupied the shelter location were as many as 88 teenagers. This study began on March 24, 2017, and ended on May 6, 2017. The total number of respondents divided into two groups was 38 respondents of adolescents aged 12 to 18 years. The group who were given 5-session Cognitive

Behavioral Therapy (CBT) on adolescents as many as 19 respondents and a group given 12-session Cognitive Behavioral Therapy on adolescents as many as 19 respondents.

The data presentation from the results of the research will first describe the characteristics of respondents in the form of percentage for each characteristic. Bivariate analysis explained the difference between mean values of PTSD symptoms before and after CBT intervention in each of the two treatment groups. As for the situation found in the study in adolescents given CBT 5 sessions, the average anxiety of the child was higher than that of the adolescent given CBT 12 sessions. In the implementation process, teenagers who received 5-session CBT still felt less with a 5-session meeting, which was inversely proportional to teenagers getting CBT 12 sessions, from the 10th session of teenagers beginning to show that they were bored.

The Characteristics of Respondents

Based on the data below, researchers have obtained the results of homogeneity test data based on the characteristics of respondents in the 5-session CBT group and 12-session CBT. It was found that the p-value was > 0.05, which means there was no difference in the two CBT groups.

The Differences Result of PTSD Score Before and After The Intervention of 5-session CBT and 12-session CBT.

Based on table 2, it can be seen that the median score of PTSD in 5-session CBT group before the intervention was 14.00 (IQR = 6). While in the 12-session CBT group, the PTSD score was 16.32 (SD = 5.132). The median score after the intervention had been given to 5-session CBT group was 8.00 (IQR = 3), whereas in 12-session CBT group, the average PTSD score was 8.74 (SD = 3.314). The treatment before and after intervention in both groups was found that there was a decrease of PTSD score, that is the difference of the median value of 6.00 on 5-session CBT group and the difference of 7.58 mean score on 12-session CBT group.

The results of the analysis on the 5-session CBT group were performed with the Wilcoxon test, with the p-value 0.00. This value can be interpreted as the difference of PTSD score before and after the 5-session CBT intervention. Similarly, with the analysis result on the 12-session CBT group, there was a difference in PTSD score before and after the 5-session CBT intervention with the significance of p value = 0.00 performed by paired t-test because the data was normally distributed.

The Result of Scores Differences of Before and After Intervention based on PTSD Symptom Components between 5-session

Table 1 The Distribution of Frequency, Percentage, and Homogeneity Test Respondent Characteristics in 5-Session CBT Group and 12- Session CBT group

No	Characteristics	5-session CBT		12-session CBT		p value
		f	%	f	%	
1	Age					
	a. Early Youth (12–13 th)	8	42.1	6	31.6	0.767[b]
	b. Middle-age Youth (14–17 th)	9	47.4	12	63.2	
	c.Late Youth (> 17th)	2	10.5	1	5.3	
2	Gender					
	a. Boys	8	42.1	9	47.4	0.744[b]
	b. Girls	11	57.9	10	52.6	
3	Education					
	a. Elementary School	5	26.3	3	15.8	1.000[c]
	b. Junior High School	7	36.8	8	42.1	
	c. Senior High School	7	36.8	8	42.1	

4	The Loss of family member					
	a. Lose	2	10.5	4	21.1	0.660[b]
	b. Not Lose	17	89.5	15	78.9	

Information:
a): p-value was obtained by using Mann Whitney since the data about respondents' age was not normally distributed
b): p-value was obtained by using Chi-Square
c): p-value was obtained by using Kolmogorov-Smirnov Test

Table 2 Differences Result of PTSD Score Before and After The Intervention of 5-Session CBT and 12-Session CBT.

Group	PTSD Score	Before		After		p value
		Median Mean	IQR SD	Median Mean	IQR SD	
5-session CBT (n=19)	(0-51)	14.00	6	8.00	3	0.00[a]
12-session CBT (n=19)	(0-51)	16.32	5.132	8.74	3.314	0.00[b]

a = with Wilcoxon test
b = with paired t-test

Table 3 The Differences between The Components of Before and After PTSD Symptoms on 5-Session CBT and 12-Session CBT.

Group	The Components of PTSD Symptoms	Before		After		P Value
		Median Mean	IQR SD	Median Mean	IQR SD	
CBT 5 sesi	Re-Experience	6	2	2	2	0.000[a]
	Avoidance	5	2	5	3	0.009[a]
	Hyperarousal	3	3	1	3	0.003[a]
CBT 12 sesi	Re-Experience	7	5	3	3	0.001[a]
	Avoidance	5	5	2	3	0.002[a]
	Hyperarousal	5.58	2.89	3.26	2.02	0.000[b]

a = the data was not normally distributed, then it was tested by using the Wilcoxon Test.
b = it is normally distributed data, then it was tested by using the Paired T-Test.

Table 4 The Results of Differential Test Analysis Score of 5-Session CBT and 12-Session CBT

The Analysis Result	n	Median (minimum-maximum)	p value
5-session CBT	19	7.00 (3–16)	0.648
12-session CBT	19	6.00 (3–17)	

CBT and 12-session CBT.

Based on table 3, it is clear that the analysis results of each component of the PTSD symptom (i.e. re-experience, avoidance, and hyperarousal) in both the 5-session CBT group and the 12-session CBT group, there was a significant difference between before and after the intervention. On the other hand, it can be perceived in more detail on each PTSD symptom, that 5-session CBT interventions on the re-experience and hyperarousal components, only the median value decreased, while the median avoidance did not.

In the 12-session CBT intervention group, for each component of the PTSD symptom (ie re-experience, avoidance, hyperarousal),

it was found that all had decreased.

The Differences in the Effectiveness of 5-session CBT and 12-session CBT on Adolescents with PTSD

In table 4, since the score of p-value was > 0.05 with significant number 0.648, it can be concluded that there is no notable difference between the effectiveness of the 5-session CBT group and the 12-session CBT group.

Discussion

From the results of statistical test analysis in Table 4.4 this study, it is known that there is no difference in the effectiveness between 5-session CBT group and 12-session CBT group to PTSD adolescent post disaster with the p-value of 0.648. There are several factors that are likely to affect the absence of any difference from these two CBT interventions. The first, when observed from the difference between median and average scores on each 5-session CBT group and 12-session CBT group, the score of 6 and 7.58 did not differ much. Secondly, the teenagers in 5-session CBT group still want the treatment to be extended, while in 12-session CBT group, the teenagers started to feel bored from the 10th session, thus affecting the final result of PTSD score.

The PTSD score differences between 5-session CBT and 12-session CBT was associated to the given CBT series. In a 5-session CBT that refers to the FIK-UI module (2009) and was developed by the researchers, it was found that 5-session CBT technique emphasized on two major therapeutic components: cognitive therapy and behavioural therapy. In cognitive therapy, adolescents are taught to train and to overcome their negative thoughts, whereas, in behavioural therapy, adolescents are taught to identify behaviour and develop behaviour plans. In this 5-session CBT group, it can be perceived that more adolescents were affected by PTSD compared to the 12-session CBT group.

Given the number of adolescents who had more PTSD impacts on the outcomes of 5-session CBT, it can be seen that some of the effects of PTSD experienced by adolescents, 18 adolescents (94.7%) found it difficult to rejoice, 17 adolescents (89.5%) had problems carrying out tasks, and as many as 17 teens (89.5%) faced difficulties dealing with their schoolwork. This has an impact so that the need for cognitive and behavioural sessions on a 5-session CBT was insufficient for the respondents. Meanwhile, in a 12-session CBT series developed from the CBT module by Rosello and Bernal (2007), which is a combination of CBT therapy that has been used in depressed adolescents who later investigated CBT trauma-focused PTSD techniques, so the 12-session CBT therapy sequence was not contains only cognitive and behavioral therapies but also therapeutic aspects of adolescent relationships with others, such as teaching assertive techniques, communication exercises, active listening and PTSD explanations for teenage association and PTSD focus trauma.

The above findings can be seen from the results before the intervention of 12-session CBT about the impact of PTSD on the problem of friendship: after being treated by using 12-session CBT, the total number from 9 adolescents (47.4%) were decreased to only 1 adolescent (5.3%) affected daily PTSD. From this, the researcher then assumed that research needs to see other CBT sessions that are not limited to 5 sessions and 12 sessions, such as 6-session CBT, 8-session CBT and 10-session CBT.

Another factor that contributed to the absence of the difference in the effectiveness of the 5-session CBT and the 12-session CBT, is the teenagers who are in the 5-session CBT group still wants the process to be continued. While on the other hand, in the 12-session CBT group, starting from the 10th session the adolescents already experiencing boredom that obviously affects the PTSD score outcome. The result of this 12-session CBT intervention then supports the opinion put forward by Putranto (2016) who states that CBT intervention with 12 sessions is considered too long, and will lead to boredom. This is in line with some theories that CBT is a problem-focused therapy, the interaction between mind, emotion, behavior, physical reactions, the environment and one's

perspective on the problem, with the role of CBT that teaches individuals to identify patterns of negative thinking, their feelings which led to physical reactions and behavior change (Nasir & Muhith, 2011; Up, 2016). Another theory is that CBT is a pioneer in active therapy, directly on time-limited targets and a structured approach (Sage, Sowden, Chorlton, & Edeleanu, 2008). Consequently, the success of CBT therapy also involves the respondent's interaction to the given treatment, emphasized that CBT therapy is a therapy that changes people's point of view and the positive mindset to a problem based on the willingness of the respondents themselves.

The results of this study also support the opinion expressed by Erwina (2010), who states that CBT therapy should be flexible, with a varying number of sessions and can be arranged to the needs and objectives of the therapy. Thus, based on the results of this study, the researcher considered the demand for specific instruments to assess the need for the number of times a CBT session could be given according to the PTSD score, as well as the impact that the respondent experienced before determining how many CBT sessions shall be given.

As for the comparison between PTSD score before and after 5-session CBT intervention and 12-session CBT intervention, it was found that 5-session CBT has a significant value equal 0.00, and 12-session CBT also holds a significant value equal to 0.00. The results of the 5-session CBT study were consistent with the previous study conducted by Erwina (2010) which provided 5 sessions of CBT interventions for the respondents aged 20-55 years and obtained a significant p-value of < 0.05.

It can be seen from the median score of PTSD symptom component (i.e. re-experience, avoidance, hyperarousal) that the median value of avoidance before intervention in the 5-session CBT group is 5. After the intervention, the value is not decreased, still worth 5. This finding, of course, is different from the 12-session CBT intervention group, which for each component of the PTSD symptom (i.e. re-experience, avoidance, and hyperarousal) all of which decreased. This is probably due to anxiety factor in 5-session CBT respondents which is higher than respondents teens in 12-session CBT.

Furthermore, according to Bryant et al. (2010), the lack of response to CBT intervention is strongly influenced by the feelings of fear or anxiety that existed before the intervention, because the fear affects the amygdala work becomes excessive so that a person with severe anxiety will have difficulty managing his anxiety.

In this research process, the researcher gave intervention on 5-session CBT in overcoming the PTSD symptoms by generating anxiety which is part of CBT technique in dealing with PTSD. CBT itself affects a person in thoughts, feelings, behaviours that mutually influence each other (Manassis, 2009). Nasir and Muhith (2011) also state that CBT therapy concentrates on the problem by cognitive reconstruction so that in giving CBT, a person's perception of an event and mindset deviation are changed towards positive thinking on the willingness of the respondents themselves.

According to Baihaqi (2016), individual's cognitive processes vary from simple to complex. One's cognitive processes include perceptions in detecting and interpreting stimuli from diverse senses at an event, so the perception that a person experiences is a process that forms symbols and settles in his/her mind. It is seen when the provision of CBT therapy about what is felt by teenagers due to flash flood (banjir bandang), so some teenagers leave a sense of fear about the recurrence of that disaster. This then leads to anxiety that is more difficult to overcome by the respondents themselves, thus evolving into avoiding talking about the incidence of disasters that actually affects the anxiety.

In addition to the number of sessions perceived by teenagers, the possibility of other factors that affect non-declining PTSD score is the factor of the severity of avoidance symptoms. According to Carrion et al. (2009), the severity of avoidance symptoms is associated with decreased volume of the left hippocampus. In addition, in the study conducted by Carrion et al. (2009), this has been demonstrated on the basis of MRI imaging studies, so that in adolescents of the 5-session CBT, the investigators assumed it is important to fulfil the need for MRI imaging

and further medical therapy.

The results of the 12-session CBT group before and after the intervention showed significance p-value of 0.00. In the difference of component of PTSD symptom on the 12-session CBT group, it was known that the median score for re-experience, avoidance, and hyperarousal value have decreased after the intervention with the mean of PTSD before and after the intervention was 7.58 higher than median PTSD value before and after the 5-session CBT intervention with the score of 6.

The results of this study are consistent with preceding studies conducted by Robert (2009) and evidence of the effectiveness of CBT contained in the study of O'Donnell et al. (2014), who states that CBT can be given as many as 12 sessions. There are several factors that play a role in the results of this study. First, the system support factor in 12-session CBT group. Secondly, the impact factor of PTSD in the 12-session CBT adolescence group was smaller compared to the 5-session CBT group.

Based on some existing opinions, it is known that social factors in the form of system support are very influential in strengthening the coping mechanism in a person so that stress and trauma are not prolonged. The support system can be in the form of facilities obtained by the victims (Rusmiyati & Hikmawati, 2012; Tang, Liu, Liu, Xue, & Zhang, 2014). The support system obtained by CBT group 12 sessions is that they have occupied the shared house or flat given by the government, even though the location is not in urban, large number of residents, far from school or university, market and other sources. This resulted in adolescents who have adequate support system role in coping mechanism to solve their problems.

The second is a much smaller PTSD impact factor in the 12-member CBT teenage group, as the role of mid-teens more than 12 (63.2%). According to Wilson and Hockenberry (2012), mid-teens have abstract thinking skills that have advanced better, as well as their cognitive function that began to be interested in social problems, politics or philosophy. With the ability to think better abstract then the adolescent will be more capable of solving the problem and they are able to change the negative perception of the disaster experience turned into a positive way of thinking.

The other roles affecting the impact of PTSD are the respondents' gender. This statement is supported by epidemiological findings from Cohen's (2010) study which affirms that adolescent girls aged 12-17 are almost two times higher diagnosed with PTSD than male adolescents. The results of the epidemiology are supported by the opinions of Hamblen and Barnett (2016) which suggest that gender and age have an essential role and that women have double potential trauma due to low serotonin synthesis. Statistically in CBT group of 12 sessions, the percentage of women is lower than the percentage of the 5-session CBT group that is 52.6% and 57.9%, so it is possible that this factor plays a role in the difference in the decrease in PTSD score.

Based on the results of this study, it has been statistically proven that 5-session CBT and 12-session CBT interventions have the ability to decrease PTSD score with a significant p-value of 0.00. It is generally related to the cognitive and emotional abilities of teenagers that have developed and completed in the cognitive and emotional abilities of adults so that adolescents are able to spontaneously solve the problem (Piaget, 1972). The cognitive function of the adolescent includes the ability to think abstractly, reasonably, proportionally and solve problems by thinking systematically, thereby making the problem solved at once (Herlina, 2013). Thus, it can be understood that 12-session CBT interventions can be given to post-disaster PTSD adolescents, whereas 5-session CBT not only is given to adult respondents who experience post-disaster PTSD but can also be assigned to adolescents with symptoms of PTSD, especially age 12-18 years with a shorter time and less boredom.

Research Limitation

As for the limitations of this study, the first is the number of sessions that are still not sufficient for the adolescents in 5-session CBT group. This is likely to affect the score

that is not much different from the 12-session CBT group. The boredom of teenagers in the 12-session CBT group that is felt to be too long may affect the final score that is not much different from the CBT group of 5 sessions. Secondly, there is no specific instrument to assess how many sessions should be given and according to the PTSD score as well as the impacts that occur. Thirdly, there are still a few components of undescended symptoms that are not supported by follow-up examinations such as MRI imaging.

Conclusion

There was the difference of PTSD score from before and after intervention in 5-session CBT group. From the result of paired statistic test by using Wilcoxon test, it can be seen that there is a significant difference between PTSD score before and after 5-session CBT intervention is given, so it can be concluded that there is a decrease of PTSD score by using 5-session CBT on adolescent who suffered flash floods or banjir bandang in Garut regency, West Java. There was a difference of PTSD score from before and after intervention in 12-session CBT group. The result of paired statistic test by using the paired t-test, it can be perceived that there is significant difference between PTSD score before and after intervention of 5-session CBT, so that it can be concluded that there is a decrease of PTSD score by using 12-session CBT on adolescent who suffered flash floods or banjir bandang in Garut regency, West Java. The results of the effectiveness difference test between the two groups of 5-session CBT and 12-session CBT by using Mann Whitney test that there is no difference of meaning so that the researcher concludes there is no distinction of effectivity between those two. 5-session CBT and 12-session CBT can minimize PTSD scores from the mediocre reaction category to a mild reaction category in which either 5-session CBT and 12-session CBT can be used in chronic phase PTSD adolescents as it can suit client conditions during the intervention and 5-session CBT considered in its use because it is more efficient and does not cause boredom to adolescent clients. For further research, this study can be employed as a basis for comparing CBT interventions in more than 5 sessions and less than 12 sessions, as well as making instruments that specifically examine the needs of CBT sessions according to PTSD scores and their impact.

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Analyzing Factor that Affecting of Ventilator Associated Pneumonia

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Abstract

Background: Ventilator associated pneumonia (VAP) has been known to be the most common nosocomial infection in Intensive Care Unit (ICU). VAP increases length of care, cost, morbidity and mortality of patients in ICU. The ICU of RSMH Palembang have already been doing prevention of VAP incidence through VAP bundles, but the number of incidence were still high. Purpose: This study aimed to identify the factors associated with VAP incidence among the patients in ICU RSMH Palembang. Method: this study was quantitative study with kohort prospective approach. Samples were recruited from ICU RSMH Palembang using consecutive sampling technique for 4 months period (n=61). Data were collected using a questionnaire package consisting of a demographic questionnaire, CPIS instrument, APACHE II, an observation sheets that measure duration of using antibiotics, duration of using ventilator, reintubation and hand hygiene compliance. Data were analyzed using descriptive quantitative and logistic regression analysis. Results: VAP occured in 12 patients (19.7%). Bivariate test result with α:5% have shown that APACHE II (p:0.043), duration of using antibiotic (p:0.023), duration of using ventilator (p:0.001) and reintubation p:(0.001) were related to the incidence of VAP. Logistic regression analysis shows that reintubation (OR=0.035; CI 95%:0.28-0.658; p=0.013) and duration of ventilator > 5 days (OR=0.082; CI 95%: 0.09-0.74; p=0.026) were significant factor that affecting VAP. Conclusion. Reintubation was the most related factor with VAP incidence. It is recommended for doctors and nurses to conduct a proper and thorough assessment before extubation to minimalize the risk of reintubation.

Keywords: ICU, Risk factor, Ventilator Associated Pneumonia, VAP.

Introduction

Ventilator associated pneumonia (VAP) is the most common nosocomial infection amongs adult patients in critical area with prevalence incidence between 15–45%. VAP give a bad impact for patients, family, even healthcare institution (hospital) because VAP could prolongs duration of ventilator and prolongs hospital stay until 7–9 days with mortality rate over 50%. Each of patient with VAP drives up hospital cost between $10.019–$13.647 for diagnostic and medicine (Galal, 2016; Jaimes, La, Go, Mu, & Ramı, 2007; Klompas et al., 2014; Teo, 2012; Wiryana, 2007).

VAP incidence were affected by many factor. According to Persatuan Dokter Paru Indonesia or PDPI (2003), risk factors of VAP consist of endogen factor (host) and exogen factor which interact each other to make colonization of pathogen micro-organism on upper respiration tract or gastrointestinal. Some of research found that the most significant factor were from host, especially high of APACHE II score on ICU admission (Brotfain et al., 2016; Karatas, Saylan, & Kostakogl, 2016; Tseng et al., 2012).

Centres For Disease Control or CDC (2003) explains some condition that can causes VAP beside host factor; increases of colonization in orofaring and gastrointestinal tract; aspiration that invaded lower respiration tract and condition that could prolong duration of ventilator. Antibiotic therapy was one of condition which could increase colonization on orofaring (PDPI, 2003). Some of study said that long course of antibiotic is one of significant factor that could lead to VAP (Karatas, Saylan, & Kostakogl, 2016; Lahoorpour, Delpisheh, & Afkhamzadeh, 2013).

Conditions that can cause an aspiration are supine potition, nasogastric tube, reintubation, immobillization due to trauma, surgery procedure on head, thoracic, neck and abdominal (CDC, 2003). Patients with prolong duration of ventilator could experience VAP because of high risk to get contamination from medical staff hands. The study found that adding one day of mechanical ventilation can increases microorganism pathogen until 13–55%. That is why, the duration of ventilator > 5 duration is a significant factor that related to VAP incidence (Sheng et al., 2014).

Contamination from medical staff hands was one of the factor that can prolong duration of ventilator (CDC, 2003). Study of 352 patient that use mechanical ventilation in India found that patients who got controling and preventing infection intervention and treat with alcohol-based handrub have low incidence of VAP better than patients who didn't get intervention (Saramma, Krishnakumar, Dash, & Sarma, 2011). From the conditions that can caused an aspiration and VAP, a number of studies have shown that reintubation were the most common and significant factor that affecting on VAP (Joseph, Sistla, Dutta, Badhe, & Parija, 2009; Karatas, Saylan, & Kostakogl, 2016; Sheng et al., 2014).

The average prevalence of VAP on RSMH Palembang were 6.55% in 2015. This incidence exceed the indicator number for quality standard from minister of health (2016) which is <5.8%. On January-July 2016, the average prevalence of VAP in GICU RSMH were 4.25% and this was the highest incidence of nosocomial in RSMH. This VAP incidence were pretty high than others vertical hospital that have the same level which is RSHS Bandung with prevalence were 2.76% on 2016.

A number of efforts had already done to decrease VAP incidence including applying VAP bundles based on CDC. VAP incidence which were still high eventhough prevention program already done, was one of the reason to conduct a research in GICU RSMH. Previous research have shown that the most significant and common factor of VAP consist of APACHE II score, duration of antibiotic theraphy, duration of ventilator, reintubation and hand hygiene compliance. These factors were coming from international research which has many differences with Indonesian characteristics such as patient condition and physician skills when performing ventilator-related actions including intubation. So that, further research is needed as a basis to improve management and reduction of VAP in Indonesia.

Method

This study was an observational analytic study using a prospective cohort design. Population of this study were all GICU patients who used ventilator in RSMH Palembang amounted to an average of 40 people per month. A total of 61 patients were taken as a sample using consecutive sampling with inclusion criteria of patients who used ventilators > 48 hours without pneumonia at ICU admission and have aged > 17 years.

This research conducted in GICU RSMH. Variables that measured in this study consist of dependent variable which is VAP and independent variables which are APACHE II score, duration of antibiotic, duration of ventilator, re-intubation and hand hygiene compliance. Instruments in this study consist of CPIS instruments, APACHE II instruments, WHO hand hygiene compliance audit form, and VAP daily surveillance forms. CPIS is a valid instrument in enforcing VAP diagnosis (Cass, Mckeown, Kelly, & Member, 2011). The assessment consist of clinical signs of pneumonia, radiology, laboratory and results of micro-organism culture, which consistent with CDC criteria for Pneumonia 1 and 2 (CDC, 2014). Research process begin with preparation by doing inform consent to patient's family. If they are willing to participate, we calculated APACHE II score on first 24 hours of admission and CPIS score was counted on the first and second duration of hospitalization, patient that have CPIS score > 6 was selected as a sample. Sample were monitored at day 3, day 4 and every 3 days until patient leaves ICU or dies. Duration of antibiotics, duration of ventilator and re-intubation were monitored from admission until patient leaves or die in ICU. Observation of hand hygiene compliance was conduct every 30 minutes by assistant who got trained by researcher. Data analysis in this study consisted of univariate analysis, bivariate analysis with chi square, and multivariate analysis with regression logistic.

Result

Table 1 Patient Charactheristic (N=61)

	Charactheristic	f	%
Gender	Male	37	60.7
	Female	24	39.3
Age	Teenager = 17-25 years old	11	18
	Early Adults = 26-35 years old	7	11.5
	Late Adults = 36-45 years old	17	27.9
	Early Elder = 46-55 years old	10	16.4
	Late Elder = 56-65 years old	8	13.1
	Geriatrics = > 65 years old	8	13.1
Conscious Level	Compos Mentis (14-15)	0	0
	Apatis (12-13)	2	3.3
	Delirium (11-10)	24	39.3
	Somnolen (9-7)	14	23
	Stupor (6-4)	13	21.3
	Coma (< 3)	8	13.1
Cause of Admission	Surgery	50	82
	- Emergency	28	56
	- Elective	22	44
	Medical Disease	11	18
	- Emergency	7	63.6
	- Other Units	4	36.3

VAP	Yes	12	19.7
	- Death	5	41.7
	- Life	7	58.3
	No	49	80.3
	- Death	10	20.4
	- Transfer to Other Unit	39	79.5
APACHE II Score	High (> 20)	23	37.7
	Low (< 20)	28	62.3
Duration of Antibiotics	Long-course antibiotics	15	24.6
	Short-course antibiotics	46	75.4
Reintubation	Yes	19	31.1
	- Autoextubation	3	15.7
	- Fail of extubation	11	57.8
	- Migration/clotting	4	21.0
	No	42	68.9
Duration of Ventilator	> 5 duration	29	47.5
	< 5 duration	32	53.5
Hand Hygiene Compliance (Mean: 84,7)	Yes	33	54.1
	No	28	45.9
Causative Organism	*Acinetobacter calcoaceticus*	6	54.54
	Klebsiella Pneumonia	2	18.18
	Stapyloccoccus Aureus	2	18.18
	Escherichia Coli	1	9.09
Criteria of VAP	Pneumonia 1	11	91.67
	Pneumonia 2	1	8.3
	Pneumonia 3	0	0
Type of VAP	Late Onset	11	91.67
	Early Onset	1	8.3

1. Univariate Analysis

Table 2 Bivariate Analysis Of Risk Factors For VAP

Variable	p Value
APACHE II Score	0.043*
Duration of Antibiotics	0.023*
Duration of Ventilator	0.001*
Reintubation	0.001*
Hand Hygiene Compliance	0.751*

*chi square

2. Bivariate Analysis

We found that APACHE II score, duration of antibiotic theraphy, duration of ventilator and reintubation were associated with VAP in GICU RSMH Palembang, after analysis with alpha level 5%.

3. Multivariate Analysis

After regression logictic analysis, we found that reintubation and duration of ventilator were the most significant factor that associated with VAP (have the highest OR number) where as reintubation was the most affecting factor. The probability of VAP occurring in patients with re-intubation and duration of use of the ventilator > 5 days was 92.2%, for patients experiencing re-intubation with ventilator duration <5 days was 15.39% and patients not reintubating but using ventilator > 5 days was 13.8%.

Table 3 Multivariate logistic regression analysis of risk factors for VAP

Variable	B	SE	Wald	OR (95% CI)	p Value
Duration of Ventilator					
- > 5 duration	-2.502	1.123	4.965	0.082	0.26*
- < 5 duration				(0.09–0.74)	
Reintubation					
- Yes	-2.003	0.808	6.139	0.135	0.013*
- No				(0.28–0.658)	
Constanta	4.086	1.121	13.288	1	0.000

*□=0.05

Discussion

In this study, APACHE II score that influences VAP could be caused by the characteristics of respondents who have GCS <10, elder age and history of emergency surgery. Respondents with low consciousness was tend to lost their cough and swallowing reflexes, this may increase the risk of aspiration that causes VAP (Augustyn, 2007). According to CDC (2003) elderly patients tend to have a high gastric pH or>4. This condition causes microorganism to multiply more easily and aspirate to lower respiratory tract causing VAP. Sheng (2014) have stated that emergency operations affecting VAP because most of emergency operations were experienced by trauma patients that likely to be exposed to larger infections due to open port de entry. In this research, 28% patient admission on ICU caused by emergency surgery have a higher risk to get VAP.

The results of statistical tests show that duration of antibiotics affecting on VAP incidence. The results of this study are consistent with a meta-analysis of six randomized control trials which states that using antibiotic over a 10-day or long course may increase the incidence of VAP than 7–8 days. Using antibiotic for 7–8 days significantly reduced the incidence of VAP and preventing multi-resistant antibiotic bacteria from spreading and becoming emerging disease (Pugh, Grant, Rpd, & Dempsey, 2015).

The statistical test results show that hand hygiene compliance didn't influenced VAP incidence. The results of this study differ from random control trial by Trick (2003) which stated that used of ring and lack of hand hygiene compliance is associated with increased incidence of VAP. A total of 45.9% of respondents were treated by disobedient staff and the average hand hygiene compliance was 84.7%. Interventions which were observed in this study were only ventilator-related measures such as nebulizer, suction, oral hiegene, circuit replacement, ETT plaster replacement, tracheostomy care, intubation and sputum culture retrieval. However, because of the observation is only 30 minutes based on KEMENKES guidance of surveillance, there are some actions above

were not documented and can not represent compliance for 24 hours. Therefore, the next researcher were suggested to make an observation in a longer time.

Statistical result shows duration of ventilator > 5 days influenced VAP incidence. This results consistent with retrospective study from Sheng et al. (2014) who stated duration of ventilator > 5 days affecting VAP incidence because of bacteria colonization that increased 13–55% each day every additional of ventilator days. The research was looking at the oral health status of patients with ventilators found that gram-negative bacteria increased 50% on fourth day and seventh day of where as the number of bacteria in oral more than in the tracheal (Munro et al., 2006). Another study comparing clorhexidine and povidon iodine also suggested that there was a decrease in the amount of bacteria colonization to 82% after oral hygiene (Widani et al., 2015). Therefore, it is important for nurses performed oral hiegene appropriately to decrease duration of ventilator and prevent VAP.

The statistical test shown that re-intubation affecting on VAP incidence. Based on nosocomial infection concept by Depkes (2009), infection chain consist of hosts, agents (microorganisms) and environments that influenced each other. Hosts that are vulnerable (in this case that have a high APACHE II) may be exposed to VAP due to the presence of an agent (microorganism causation) brought in by transmission from medical staff, environmental or hand contact. Re-intubation process injures epithelial tissue or mucous membranes becoming a port de entry for microorganism. These results also consistent with study that stated environment and hosts interact each other to make an infection, therefore it's important to maintain environmental conditions (Sunartyasih & Kartikasari, 2013). This result also consistent with Karatas et al. (2016) who stated that patient with re-intubation have a risk to get VAP 9-fold higher with p value <0.001 because of aspiration from oropharyngeal bacteria that have been contaminated with flora colonization into the pulmonary parenchyma. Re-intubation could be prevented by using Non Invasive Ventilator (NIV), preventing the ETT from sudden removal and planning extubation according to the weaning protocol (Coppadoro, Bittner, & Berra, 2012; Sheng et al., 2014). The incidences of re-intubation in GICU RSMH mostly caused by extubation failure. Therefore, it is important to give a training about extubation preparedness assessment for nurses and doctors in ICU.

Conclusion

Risk factors that affecting VAP incidence in GICU RSMH Palembang are APACHE II score, duration of antibiotic, duration of ventilator and re-intubation. From the four factors above, the most influential factor on VAP were the duration of ventilator and re-intubation.

Nurses should pay more attention to patients with high risk of VAP including patients with high APACHE II scores (>20), duration of antibiotics > 8 days, re-intubation, ventilator duration > 5 days. Critical nurses must also calculate APACHE II in the first 24 hours of admission, perform proper oral hygiene, exercise strict antibiotic surveillance, conduct an extubation readiness assessment for preventing VAP. The hospital should make a policy about using antibiotics <8 days, making policy and training related to proper hygiene oral protocols, making policy and training related to extubation decision making and extubation techniques for clinicians and critical nurses.

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The Effects of Sundanese Kacapi Suling "Ayun Ambing" Music Therapy to The Level of Anxiety on Chronic Renal Failure Patient Undergoing Hemodialysis

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Abstract

One of the most common psychological problems found in patients with chronic renal failure (ESRD) undergoing hemodialysis is anxiety. Unresolved anxiety can have a negative impact on physiological and psychological conditions that can aggravate the condition of the disease. Traditional Sundanese music therapy Kacapi Suling "Ayun Ambing" has a slow tempo and soft so that it can be used as a therapy. The design used was a Quasy Experimental, with a pretest-posttest control group design approach, involved 46 patients divided into control groups (23) and intervention groups (23) taken by purposive sampling. The intervention group get given music a week 2 times with time 30 minutes for 2 weeks. Anxiety levels were measured using HARS (Hamilton Anxiety Rating Scale) before and after intervention. The control group received standard interventions provided by the Hospital. Data were analyzed by parametric and non-parametric test with Paired t test, Independent t test and Mann Whitney test. Differences of average before and after in two groups with the tested paired t test showed no significant difference with p value <0.05 whereas for differences in the average change of scores between the intervention and control group with independent t test showed there was a significant difference with p value 0.05. An implication of this research and literature review were that Sundanese Kacapi Suling Music could be considered and applied as a complementary theraphy to decrease the anxety of client, particularly ESRD undergoing hemodialysis.

Keywords: Anxiety, Chronic Kidney Failure, Hemodialysis, Music Kacapi Suling.

Introduction

The number of patients undergoing hemodialysis in 2014 worldwide reaches up to 1.5 millions, and around 60,000 patients die each year previously. The number is estimated to go up as the ratio of chronic kidney disease increases from 20–25%. To pinpoint, the number of Indonesian patients undergoing hemodialysis reaches to 22,304 people in 2011, 24,524 in 2012, 27,782 in 2013, and 28,882 in 2014, escalating 10% per annum. Let alone the fact that 60% of them are adults and the elderly, 2,476 of whom had died each year (Namawi, 2013; Sari & Hisyam, 2015). The data were collected in the Medical Record and Hemodialysis Room at Regional General Hospital (RSUD) Syamsudin Sukabumi. The number of patients in the last 3 years increases by 2.5%: In 2013, 2014, and 2015, the number of patients are 2,593; 2,741; and 2,760; in that order.

Hemodialysis is a form of therapy that replaces the function of chronic kidney failure in order to excrete toxic substance from blood and dispose excessive liquid. This therapy, surprisingly, causes some psychological problems such as anxiety, depression, and stress (Mahdav, Gorji, Yazdani & Ardebil, 2013).

A research done by Macharon et al. (2014) in Lebanon, Beirut says that, out of 51 respondents, 50% of them experience anxiety, 45% depression, and 5% suicidal thoughts. Cukor et al. (2008) did similar thing to 70 randomly chosen hemodialytic patients in America, showing that 45.7% of them experience anxiety and 40% depression. Meanwhile, Mollahadi, Tayyebi, Ebadi and Daneshmndi (2010) in Teheran, Iran claim that, out of 147 respondents, 63.9% experience anxiety, 60.5% depression, and 51.7% stress. Judging from these data, it is quite obvious that the number of occurences regarding anxiety problem over chronic kidney disease, remains high compared to other psychological problems like depression and stress. There are factors causing anxiety for these patients are pain while injection around the fistulae, hemodialytic complication, dependence on other people, difficulty maintaining job, financial crisis, fear of death, loss of sexual impulse or impotence, disrupted idea of self, role shift in family, and change in social interaction (Finnegan, Jennifer & Veronica, 2013; Wang & Chen, 2009).

Some actionable steps that the nurses can take is through collaboration and independent actions (Holly, Crosby, & Carol, 2006). Independent actions include complementary therapy, that is hypnotherapy, relaxation tecnique, aromatherapy and intervention of music (Mahdavi, Gorji, Yazdani, & Ardebil, 2013).

Patimah, Suryani, and Nuraeni (2015) lament that the relaxation technique, along with zikir (remembrance of Allah), is able to trigger relaxation response, therefore lowering the anxiety level. Meanwhile, Gorji, Davanloo, and Heidarigorji (2014) claim that the benson's relaxation technique can lower anxiety level, reduce pain and stress. Anastasia, Bayhakki, and Nauli (2015) state that providing aromatherapy through lavender inhalation after five minutes can lower the anxiety indicated by slow heart rate, the feeling of comfort, and relaxed state of mind. A research of Fauzi, Lestari, and Pranowowati (2016) conclusively believe that hypnotherapy proves significant effective to lower anxiety level of chronic kidney disease patients undergoing hemodialysis.

Another complementary therapy is music intervention, provided to patients based on their cultural background, passion, and religious belief. These interventions entail classical and traditional music (Martinez, 2009). Classical music, despite sounding unfamiliar for most Indonesians, proves useful to lower the anxiety level of the patients.

On the other hand, cultural factor and music's popularity will create more distractions and give a sense of relaxedness than unpopular music (Huang, Good, & Zauszneiwski, 2010). One popular traditional music in Sunda is kacapi suling. The kind of music used for this research is the "Ayun Ambing" song, accompanied by the sounds of flute and harpischord. Based on the analysis result of Bapak Nanang (2016) from Universitas Pendidikan Indonesia, the song has 50–75 Hz frequency, 121 Kilobyte per second (Kbps), 76 desible with slow tempo, sung by the parahiyangan group.

"Ayun Ambing" was an effective choice

to lower anxiety level of the patients undergoing hemodialysis, compared to other complementary therapies. This is because the song is an auditorial trigger with distinctive stimulus for the hearing. The strings from guitar and the sound from the flute, intertwine beautifully, enabling the listener to express their feelings and oozing a sense of belonging. All of this result in a feeling of peace and a harmony of soul and body (Firman, 2012; Larasati, 2012).

The song is simple in terms of melodies and therefore popular among the Sundanese. It is ear-catchy for both patients and the nurses (especially when providing independent healthcare) (Kurdita, 2015). Moreover, such therapy is more affordable, and done by our client due to its invasiveness, and it requires no professional help like other complementary therapies (Damayanti, 2016).

This is proven by Supriadi, Hutabarat, and Monica (2015) who highlights that the song brings about a relaxing and peaceful effect, thus lowering the blood pressure. Lengga (2015) claims that the music, with 50-60 Hz frequency, made to listen to for 20-30 minutes to primary hypertension patients, reduces the systolic pressure and increases diastolic pressure. Other research on breast cnacer patients undergoing chemotherapy was done by Dian (2014), who claimed that around 16-40% patients in RSUP Hasan Sadikin Bandung vomit less on the intervention group than on the control.

The nurses play the role in providing healthcare to adult patients by noticing their Bio-Psycho-Socio-Spiritual aspect. Thus, it is hoped that the provided healthcare shall consider not only the patients's physical problems but also their psycho-socio-spiritual aspect.

That being said, it is necessary to conduct more research regarding the effect of therapy of kacapi suling music "Ayun Ambing" on the anxiety level of chronic kidney disease patients undergoing hemodialysis in the Hemodialysis Room at RSUD Syamsudin Sukabumi. The general purpose of this research is to identify the effect of therapy of kacapi suling music "Ayun Ambing" on the anxiety level of chronic kidney disease patients undergoing hemodialysis.

Method

This research applies a quasi-experimental design through pretest and posttest control group. Based on the total population in the 6 months period and previous research studies, the number of respondents is 46 patients undergoing regular hemodialysis therapy during 3 months data collection period. The samples were divided to 23 respondents on the intervention group, and the other 23 to control group using purposive sampling. The instrument used is music therapy, which is an MP3 (Music Player 3) file containing a Sundanese kacapi suling music called "Ayun Ambing".

The intervention' respondents were made to listen to it 2 times for 30 minutes total: 15 minutes before the the therapy and 15 minutes after. The data sampling were done 2 times, including 1 time pretest on the first week and another on post-test on the early fourth week with a 3-day interval after intervention. This song was made to listen on the second and third week for intervention group. While the control group uses the hospital's standards without music that was used in intervention' respondents.

The anxiety variable was measured using the Hamilton Anxiety Rating Scale instrument (HARS). The researcher did not test the instrument due to existing anxiety-based research using similar instrument. Shear et al. (2001) said that validity and reliability testing should be done to prove the accuracy of the instrument. The result shows that the instrument has a quite high reliability level (0.81) with the scale correlation interval 0.65, and validity as high as 0.77. Naviati (2010) uses the instrument which has been translated into Indonesian using validity test as high as 0.92, meaning that the item in the instrument is valid.

The result of data normality pre- and post-intervention to the control and intervention group is distributed normally. Therefore, to see the average score difference before and after on both groups, we use paired t test. To measure the average score difference of anxiety level on both groups we use independent t test.

The therapy of Sundanese kacapi suling music "Ayun Ambing" aims at easing

anxiety and stress, triggering relaxed state of mind, reducing depression and overcoming insomnia. The music is not limited to the psychological problem only but can also be applied to patients with medical, surgical, and terminal illness.

Result

Based on the general characteristics of the respondents in Table 1, the control and intervention group are dominated by results from late adults (41–60 years old), female, highschool graduates, undergoing hemodialysis for 7–12 months. The result of homogeneity test by using Chi Square test—based on the appropriate assumption-- for all aspects of characteristics obtains the value of $p > 0.05$, meaning that the characteristics in both groups are similar.

Table 2 shows the pre-intervention anxiety level control and intervention group with moderate (82.2% and 100%) and significantly not different from the p value = 0.325 ($p>0.05$). The anxiety level after the intervention in control group is mostly moderate (69.9%), then not anxious (17.4%). Meanwhile, on the intervention group, a decrease on the anxiety level occurs as most of them are not anxious (56.5%), then moderate (26.1%). The result after the intervention is significantly different between the intervention and the control group with $p=0.000$ ($p<0.005$).

The paired t test on table 3 shows a significant difference on the average anxiety level before and after on the control group with $p < 0.05$. Such decrease is apparent on the control group (Picture 1) where red line and blue line intersect and sometimes overlap.

Picture 1 Difference of respondents's anxiety before and after intervention on the control group

shows a significant average difference of anxiety before and after the intervention of music "Ayun Ambing" on the intervention gorup with $p < 0.05$. The decrease of anxiety score is also apparent in Picture 2 where the red line and blue line are far from each other.

Table 5 shows that, based on the comparative test result using independent t test, there is an average difference on anxiety before on the control and intervention group with $p < 0.05$. This indicates a significant

Table 1 Distribution of Frequency, Percentage and Homogeneity Test of Respondents on Control and Intervention Group (46)

Characteristics	Control Group (n=23)		Intervention Group (n=23)		*p*
	f	%	f	%	
Gender					
Male	10	43.5	7	30.3	0.359
Female	13	56.5	16	69.6	
Age (old)					
<20 years	0		0		
20–40 years	6	26.0	4	17.4	
41–60 years	10	43.5	12	52.2	0.558
>60 years	7	30.4	7	30.4	
Education					
Elementary	6	26.1	8	3.8	
Middle	5	21.7	2	8.7	0.651
High	7	30.5	8	34.8	
University	5	21.7	5	21.7	
Length of Therapy (months)					
<6	4	17.4	2	8.7	

7–12	12	52.2	11	47.8	0.951
>12	7	30.4	10	43.5	

*Chi Square

Table 2 Comparison of Frequency on Anxiety Level of Respondents in Control and Intervention Group

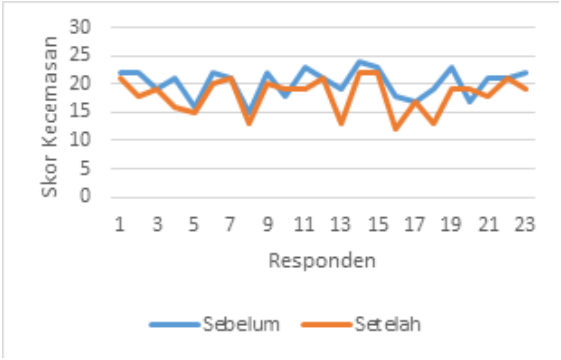
Measurement	Group Control						Group						*p*
	Not anxious		Light		Moderate		Not anxious		Light		Moderate		
	f	%	f	%	f	%	f	%	f	%	f	%	
Before	0	0	4	17.4	19	82.6	0	0	0	0	23	100	0.125
After	4	17.4	3	13.0	16	69.6	13	56.5	4	17.4	6	26.1	0.000

*Chi Square

Table 3 Average Difference of Respondents's Anxiety Before and After on The Control Group

Time	Mean	SD	T	p
Before	20.26	2.490	6.676	0.000
After	18.13	3.065		

*paired t test

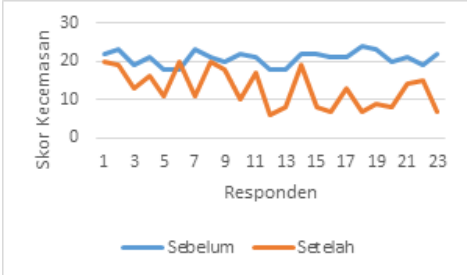


Picture 1 Difference of Respondents's Anxiety Before and After Intervention on The Control Group

Table 4 Average Difference of Respondents's Anxiety Before and After on The Intervention Group

Time	Mean	SD	t	p
Before	20.83	1.800	10.271	0.000
After	12.87	4.948		

*paired t test



Picture 2 Difference of Respondents's Anxiety Before and After Intervention on the Intervention Group

Table 5 Average Difference of Respondents's Anxiety Before Iintervention Between Control and Intervention Group

Time	Mean	SD	t	p
Control	20.26	2.940	0.882	0.050
Intervention	20.83	1.800		

*independent t tets

Table 6 Average Difference on Respondents's Anxiety Level after the Intervention between Control and Intervention Group

Time	Mean	SD	t	p
Control	18.13	3.06	3.509	0.000
Intervention	12.87	4.95		

*)Independent t test

Table 7 Difference of Average Margin Change on Respondents's Anxiety after Intervention Between Control and Intervention Group

Time	Mean	SD	t	p
Control	2.13	2.32	4.839	0.000
Intervention	7.96	5.29		

average difference on anxiety before the intervention of "Ayun Ambing" music to both groups.

Table 6 shows that, based on comparative test results using independent t test, there is an average difference on anxiety after on the control group and intervention groupw ith $p < 0.05$. This indicates a significant average difference on anxiety level after the intervention of "Ayun Ambing" music for both groups.

Table 7 shows that, based on comparative test results using independent t test, there is an average change on anxiety after on the control group and intervention group with $p < 0.05$. This indicates that the Sundanese kacapi suling "Ayun Ambing" music therapy lowers the anxiety level more significantly than standard therapies.

Discussion

The aim of this research is at identifying the effect of the Sundanese kacapi suling music "Ayun Ambing" on the anxiety level of chronic kidney disease patients undergoing hemodialysis. The result shows that decrease occurs in both groups, with higher rate in intervention than in the control group. The effects were shown on both before and after differences of both intervention groups and significant improvement values.

Table 2 in general the anxiety level on the control group on the pre-measurement, the majority (82.6%) experience anxiety followed by light (17.4%) while the value has shown that most has undergone moderate anxiety (69.6%), not anxious (17.4%) and light (13.0%). Based on the values before and after, it is found out that there is a decreasing anxiety level change in the control group.

However, the average anxiety level after the intervention is relatively stable. The decrease is only slight. Table 3 shows that change. Larasati (2012) claims that the slow decrease of anxiety level in the control group may be caused by some factors such as the possibility of the respondent for not liking the song in particular and losing focus while therapy, thus resulting poorly. Moreover, Firman (2012) said that another cause is that the patients fears medical equipments such as hemodialysis machine and syringe, that the patients basically are not interested in the song in particular and excessive pain during treatment (particularly around the fistulae area).

The anxiety level before the intervention group is moderate (100%). The value after the intervention group mostly is not anxious (56.5%), then moderate (26.1%), and light

(17.4%). Generally, the result of research shows that in the intervention group, there is a larger decrease in the anxiety score compared to the group control. According to the result of the research analysis, there is a contribution of the "Ayun Ambing" music for the intervention group in overcoming anxiety. Previous research, too, claims similar view, concerning a lower patient's thorough participation rather than a completely inactive participation (Firman, 2012). In this research, there are few respondents with huge decrease of anxiety. Table 4 shows the average change, enabling the respondents to feel comfortable with the "Ayun Ambing" music when listening to it. The respondents are free to think and recall their past experiences that make them happy to make them relaxed and anxiety level lowered. This is in line with what Kurdita (2015) has said that the "Ayun Ambing" music makes them feel relaxed, peacful, emotionally and spiritually stable, and psychologically intact.

Table 5 shows the analysis result using independent t test, where there is a significant avergae difference pre-measurement on the control and intervention group with p value < 0.05%. The result of this research says that the majority of respondents who have not been given intervention the "Ayun Ambing" music, experience anxiety on a moderate level.

McGrandles and McCaig (2010) claim that the anxiety is made available for individuals to focus on important problems and cast aside other things so that the person has a selective and directed concern. The anxiety is caused by many factors. Baraz et al. (2013) said that patients undergoing hemodialysis for more than 20 times often experience anxiety due to vascular access problem, the length of hemodialysis and the following effects, which include muscle cramp, hypotence, headache, and breast pain. On the other hand, according to Leghari et al. (2015), the anxiety comes due to personality reasons, an A-type person will be more likely to experience anxiety than a B-type person.

Veerapan, Arvind, and Ilayabharthi (2012) claim that other causes include change of self concept, self-control loss, and fear of future due to illness complication, and fizzling of work performance. This is also similar to Zachariah and Gopalkrishnan's arguments (2012), claiming that the anxiety experienced by these patients are caused by asthma, pain around the fistulae area, anxiety of the illness condition and of whether the illness cannot be cured, and fear of death.

The analysis on the table 6 using independent t test, there is a significant average difference aftern the intervention of the "Ayun Ambing" music on the control and intervention group with p value < 0.05. There is an average decrease anxiety level due to the relaxation response that occurs during the therapy. The traditional music is complementary toward phramacological therapy, retaining aesthetics and therapeutic aspect, which is able to relax and rejuvenate the patient's physiology condition and bring back their mood in good places (Supriadi, Hutabarat & Monica, 2015). One of the benefits of Sundanese music is that it overcomes anxiety and increases positive feelings for both medical and surgical patients (Dian, 2014).

Moreover, the average decrease of anxiety level may be caused by such factor as social support, seen as a coping mechanism, where the presence of other people help someone reduce anxiety and distraction from the hospital (hemodialysis room) and the healthcare providers; these all may affect one's way of thinking (Klaric et al., 2009). It has been proven that when the researcher conducts a research, the respondents were waited by their family members or friends, but some were not.

The independent t test result shows that there is a significant difference in the average decrease of anxiety level between the group that has been made to listen the "Ayun Ambing" music and the group that obtain standard hospital therapy with the value of 0.000 ($p < 0.05$). A bigger average decrease of anxiety occurs in the intervention group due to the occurring relaxation effects during the therapy. The patients seemed comfortable and less anxious or painful during hemodialysis because the music helps them control their breath, heart rate, brainwave rate and revives emotional and physiological condition (Supriadi, Hutabarat and Monica, 2015). The result of this research also is similar to that of Firman's (2012), that the "Ayun Ambing"

music therapy proves effective to lower the anxiety level of patients prior to operation.

Larasati (2012) says that the patients were given the "Ayun Ambing" music, resulting in creating the feeling of happiness, stimulating sympathetic nerves, thus accelerating recovery over patient's stress. The anxiety experienced by the patients may improve stimulation toward the sympathetic nerve systems, repair respiratory system, maintain the need of oxygen and miocardial stimulation through traditional music. It is believed that such music synchronizes well with the hemodialysis machine, resulting in a peaceful state of mind (Firman, 2010).

Conclusion

The conclusion of this research is that there is a significant effect from the Sundanese kacapi suling music "Ayun Ambing" as a therapy to lower the anxiety level of chronic kidney disease patients undergoing hemodialysis. The results show that there is a change on anxiety level using the music therapy rather than standard therapy. The music therapy is used as one of the treatment media or alternative therapy, knowing that it has the power to cure illness and improve one's thinking ability.

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Effect of Wound Care Using Robusta Coffee Powders on Diabetic Ulcer Healing in Sekarwangi Hospital Sukabumi

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Abstract

Diabetic ulcer is one of the most disabling diabetic related complications. It requires specific wound care techniques that not only facilitate the healing process but also minimize the infection and other healing barriers. This study was aimed to identify the effect of wound care using Robusta coffee powders on diabetic ulcer healing. This quasi experiment with the Pretest-Posttest Control Group Design study involved 32 patients with diabetic foot ulcer who consecutively recruited from Sekarwangi Hospital in Sukabumi – West Java. Patients who met the criteria; GDS 70–250 mg/dl and never received wound care using Robusta Coffee Powder were equally divided into two groups (intervention group received wound care using Robusta Coffee powders and cleaned every two days, while the control group received daily conventional wound care). Wound healing process was measured using Bates-Jensen Wound Assessment Tool (BWAT) twice; pretest (week 0) and posttest (week 2nd). Data were analyzed using dependent and independent t-test. The results suggested there was no significant different of respondents' characteristics between both groups. The result showed that mean of posttest scores, either in intervention group or control group were significantly lower (p=0.000) than the mean of pretest scores. Additionally, the different score between posttest and pretest in the intervention group (16.25+4.768) was significantly higher (p=0.000) than that in the control group (6.25+3.444). These findings indicated that the effect of wound care using Robusta Coffee powders on diabetic ulcer healing process is more evident than the conventional dressing. It is important for the hospital staffs to consider wound care using Robusta Coffee powders as a strategy in managing diabetic ulcer

Keywords: BWAT Scores, diabetic ulcer, gangrene, Robusta Coffee, wound healing

Introduction

Diabetes mellitus (DM) is a group of metabolic disease characterized with hyperglycemia that occurs due to abnormalities of insulin secretion, insulin insufficiency or both (PERKENI, 2015). This disease currently becomes one of serious health problem in Indonesia. The data noted that Indonesia is one of top ten countries with highest population ages 20–79 years who suffer from DM in the world. In the year of 2010–2011, the number of people who suffer from DM in Indonesia ranges from 7–7.3 million and it predicted became double in 2030 (11.8–12 million people) (Shaw, Hughes, Lagan, Bell & Stevenson, 2007; Whiting, Guariguata, Weil, & Shaw, 2011).

Beside the number of diabetic patients that continuously increase, DM also identified as one chronic disease that frequently result in complications. One of the most common complications is diabetic ulcer. It is estimated that 15% of patients with diabetic will experience ulcer under lower extremities. According to some observation of the study in England among the neuropathic patients, the incident of occurrence ulcer diabetic gangrene at the beginning of the first year is about 7%. Neuropathic, deformity, plantar high pressure, uncontrolled blood glucose level, and male gender are the contributing factors to ulceration occurrence. Meanwhile 7% up to 20% suffers of foot ulcer need to be amputated. Foot ulceration is the main cause around 85% of the amputation on lower extremity among patients with DM (Fryberg et al., 2006).

Management of diabetic ulcer/gangrene started from the early detection of diabetic foot disorder, metabolic control, mechanical control, control of vascular injuries, infection control and health education (PERKENI, 2015). Once diabetic ulcers occurred, wound care is one of vital components in managing diabetic ulcers. Diabetic foot ulcer characteristics require specific wound management that not only facilitates the healing processes but also able to prevent and fight the wound infections and others inhibiting factors that commonly found in patient with DM.

The development of wound care techniques currently has been in grant progress and some of them have already applied to overcome the drawbacks of the conventional wound care. One of the developed techniques is wound care using Modern Wound Dressing. Modern Wound Dressing effectively improves diabetic wound healing process with the higher costs effectiveness (Ismail et al., 2009). However, some of Modern Wound Dressing products are imported and might emerge the financial issues. Therefore, other wound care technique or methods that not only potent to improve diabetic healing process but also utilize the searchable and affordable price materials is compulsory.

In Indonesia, some natural products are commonly used as materials to treat the wound. One of the most common one is honey (Aftria, 2004). It has been reported that honey effectively improve wound healing including diabetic ulcer (Alam, Islam, Gan, & Khalil, 2014). However, big varieties of honey in Indonesia cause difficulties in finding the pure and standardized honey product that met the criteria for wound care used (Martyarini & Najatullah, 2011). Another natural product is coffee powders that commonly used to treat the wound by people who live in coffee field area (Yuwono, 2014).

Some literature suggested that coffee seeds contain of caffeine, an alkaloid compound xanthin and chlorogenic acids (CGA) including the polyphenol compounds that have antioxidant roles. These substances are higher in Robusta Coffee than Arabica coffee or the other plants (Johnston, Clifford, & Morgan, 2003; Sukohar, Wirakusumah, & Sastramihardja, 2013). The CGA in coffee have biological functions such as antibacterial, antioxidant, and anti-inflammation activity (Liang & Kitts, 2015). These might provide benefits for improving diabetic ulcers conditions that commonly faced infection and healing problems. Additionally, coffee powders also minimized the malodor that commonly found in gangrene. It might further potentially improve patients' convenience.

Robusta Coffee not only commonly used as an materials for wound care as part of traditional medicine for some Indonesian people but also passed the pre-clinic test using animal in the laboratory setting. The laboratory test in alloxan-induced-mice

noted that Robusta coffee powders speed up the wounds closure by increasing the number of lymphocytes, plasma cells, macrophages, fibroblasts, and the blood vessels that further enhance the healing process. Study in clinical setting already conducted by some researchers and found that this wound dressing technique was effectively improve diabetic ulcer healing (Kenisa & Istiati, 2012; Susanto, Puradisastra, & Ivone, 2010). However, those studies did not clearly explain the technique wound dressing applied and its healing measurement tool used. Therefore it is important to further identify the effect of wound care using Robusta Coffee Powders on diabetic ulcer healing in Sekarwangi Hospital Sukabumi."

Method

This research applied Quasi-experimental with pretest and posttest control group. As many as 32 DM patients with diabetic ulcer were consecutively recruited from Sekarwangi Hospital Sukabumi – West Java and then divided equally into two groups; intervention group (16 respondents) and control group (16 respondents). The intervention group received standard intervention for diabetic patient from hospital and received wound care using Robusta Coffee Powders as well as washed/clean and change the dressing every couple days, while the control group received the standard therapy for diabetic patients from hospital and received conventional wound care (using NaCl 0.9% gauze and/or Povidine iodine) as well as washed/clean and change the dressing every day.

The wound/diabetic ulcer healing was measured twice in the pre intervention and two weeks after treatment applied using Bates-Jensen Wound Assessment Tool (BWAT). BWAT is a wound assessment tool developed by Barbara Bates Jensen (2001) consisted of 13 items to assess the wound including size, depth, edges, undermining, necrotic tissue type, amount of necrotic tissue, granulation and epithelialization tissue, exudate type and amount, surrounding skin color, peripheral tissue edema and induration. Each item has five categories with an associated score. It had been tested and had strong Inter-rater reliability (0.91 for time 1 and 0.92 for time 2, $p<.001$) (Pillen et al., 2009).

Before data collection run, the authors conducted the laboratory test to certify that the Coffee Robusta powders used were safe for wound care. This study applied the ethical principles and gained the ethical clearance from Universitas Padjadjaran Ethical Committee on May 3rd, 2017 Letter of ethical clearance No 566/UN6. C10/PN/2017.

Data collection was conducted on May 8rd. until July 4th, 2017 in Surgical Inpatient Ward and Out-Patient Department of Sekarwangi Hospital Sukabumi West - Java. The collected data were analyzed descriptively and tested for the normality. The normality test found that the data of wound healing score, either pretest or post-test in both groups were normally distributed. Further analysis conducted to identify the different of the wound healing score either pretest-posttest in each group (dependent t-test) or between groups (independent t-test).

Result

Table 1 Frequency, Percentage and Homogeneity of the Respondents' Characteristics in the Intervention Group and Control Group (n=32)

Characteristic	Group				p
	Intervention		Control		
	f	%	f	%	
Age					1.000
50–60 years	12	75	15	93.75	
60 years	4	25	1	6.25	
Sex					0.529
Male	4	25	3	18.75	

Female	12	75	13	81.25	
IMT					0.350
< 18.50	1	6.25	2	12.5	
18.50–25.99	15	93.75	14	87.5	
GDS					1.000
<200 mg/dl	12	75	14	87.5	
200–250 mg/dl	4	25	2	12.5	
Wound Type					0.585
Post Debridement & Amputation	7	43.75	4	25	
Ulcer > 4 weeks	9	56.25	12	75	
Length of Ulcer					1.000
1–4 weeks	7	43.75	8	50	
>4 weeks	9	56.25	8	50	
Treatment					1.000
Antibiotic & Insulin	15	93.75	15	93.75	
Insulin	1	6.25	1	6.25	

Table 2 The Pre and Post Test Mean Scores and It's Different in Intervention and Control Group

BWAT Score	Average (SD)	Difference (SD)	IK 95%	t	p
Intervention Group					
Pre Test Score	44.44 (5.621)	15.75 (1.247)	13.09–18.40	12.634	0.000
Post Test Score	28.69 (7.209)				
Control Group					
Pretest Score	42.56 (6.066)	6.563 (3.444)	4.727–8.398	7.622	0.000
Posttest Score	36.00 (6.240)				

Table 3 The Pre-Post Mean Score Difference and Post Test Mean Score Difference Between Intervention and Control Group

Score	Mean	SD	t	p
Intervention Group Post test	28.69	7.209	-2.793	0.005
Control Group Post test	36.00	6.240		
Intervention Group Difference	16.25	4.768	6.588	0.000
Control Group Difference	6.56	3.444		

Table 1 showed that generally both groups were dominated by pre elderly ages, females, blood glucose level less than 200 mg%, normal body mass index, more than 4 weeks diabetic ulcers, and received antibiotic and insulin therapy. It also signified there was no significant different between both groups (p>0.05) in terms of those characteristics.

The dependent t test analysis suggested that mean of posttest score was significantly lower (p=0.00) than mean of pretest score either in the intervention or control group. It is indicated there were significant improvement of diabetic ulcer healing in both groups.

The table noted that the posttest mean score in the intervention group was significantly lower (p=0.005) than that in the control group. It indicated that diabetic ulcer wound healing score in the intervention group was significantly better than that in the control group. This finding also clarified by the further analysis that showed pre-posttest mean different score in the intervention group was significantly higher (p=0.00) than that in

the control group.

Discussion

This research proves that wound care using Robusta Coffee Powder as a complementary therapy has positive effect on diabetic ulcer healing. The result of this research supports the previous study findings conducted by Yuwono (2014) found that diabetic ulcers' healing process in Robusta Coffee Powder group is significantly faster than patients who received wound care using NaCl 0,9%. However, our study applied different method of dressing. Yuwono (2014) washed the ulcers only for the first treatment then adding some coffee on the surface of ulcers. Coffee powders were changed daily for four weeks until the healing process occurred. In the other hand, in this study dressing technique applied Robusta Coffee Powder as the primer dressing and washed the ulcers using NaCl 0,9% before applied. The cleaning procedures of ulcers using NaCl 0.9% is performed every two days, but changing or adding new coffee is done every day.

The basic rational of the cleaning up the ulcers every couple days is to clean the ulcer surface from the debris and necrotic tissues. Atiyeh, Dibo, and Hayek (2009) noted that wound cleaning is an important factor in chronic ulcer treatment. This procedure effectively removes the debris, foreign bodies and necrotic tissue that inhibit wound healing process. Wound washing has been assumed as one of best methods to clean the ulcers. The liquid used for ulcer cleaning should be nontoxic, effective for reducing number of microorganism, and less causing hyper-sensitive reaction to the skin (Boateng, Matthews, Stevens, & Eccleston, 2008).

In many cases, since chronic wound mostly develop biofilm and wide necrotic tissues, mechanical cleaning of wound bed using debridement techniques sometimes is required. The debridement to be the best option in managing biofilms (bacteria) that are resistance to the antibiotics use, either irrigated or topically applied (Jones, Cochrane, & Percival, 2015). For this reason, the significant diabetic ulcer healing found in both groups in this study must be consider to be part of debridement effect. As presented earlier, 43.75% respondents in the intervention group and 25% respondent in the control group were recruited after performed debridement. Surgical debridement quickly changes the wound status from chronic wound into acute wound.

The diabetic ulcer conditions and healing are influenced by some factors: progressively hyperglycemia, pro-inflammatory, peripheral artery disease, and peripheral neuropathy. Fourth conditions above together causing the same malfunctioning immune cells, inflammatory responds become ineffective, endothel cell dysfunction, and choroidal disorder (Tellechea, Leal, Veves & Carvalho, 2010). When the coffee applied on the ulcer, generally Coffee was assumed as one of natural materials which accelerate wound healing because it facilitates a TIME concept (Tissue Managemen, Infection or Inflamation control, Moisture balance, Edge of wound) in healing diabetic ulcers. There are some mechanisms that potentially improve ulcer healing. First, coffee applies tissue management by making ulcers become acid (Arimbi & Yuwono, 2016).The area of ulcers which are relatively acid can destruct, the abnormal collagen from the base of ulcers, decrease the activity of protease (MMPs) by inhibiting spending of TNF a, improving angiogenesis, the activity of macrophages (Gethin, 2007). In terms of angiogenesis potent, it assumed able to help the hypoxia problem that commonly found in chronic wound. As commonly known, oxygen is required for fibroblasts replication, migration, run the function as well as collagen maturation. Therefore, wound healing process will impede in hypoxic condition (Hanson, Bents, & Hematti, 2010; Kartika, 2005; Schreml et al., 2014).

Second, coffee identified able to control infection and inflammation because it contains CGA which is antibacterial (Z. Lou et al., 2011). The Robusta Coffee powders contain caffeine, chlorogenic acids (CGA), trigonelline, carbohydrate, fat, amino acids, organic acids, volatile aroma and pH mineral around 5.67-5.73. The acidic wounds area will reduce the activity of protease and stimulate tissue oxygenation. Additionally, it will reduce bacterial toxic substance (ammonia), destroy abnormal collagen in the ulcer base,

increase angiogenesis, increase macrophage and fibroblast activity as well as control the activity of protease enzyme (Gethin, 2007).

CGA is assumed able to shorten inflammatory phase by inhabiting interleukin 6 (IL–6) releases. When the wound is able to come out from the inflammation phase then it goes to proliferation phase. This phase is started 2–3 days after the wound and is marked by fibroblast movement to the wound. Generally, it is overlapped with the inflammation phase, signed by epical a proliferation and migration above matrix in the ulcer (re-epithelializes). Inside dermis, fibroblast and endothelial cells seem stand out and support capillary development, collagen establishment, and the formation of granulation tissue. In the ulcer base, fibroblast produces collagen and also glycosaminoglycan as well as proteoglycan, which are the main a components of the extracellular matrix. Collagen and blood vessels are formed at the edges of the wound for supporting wound healing and wound closure (Lobmann, Schultz, and Lehnert, 2005).

The high contain of CGA in coffee has many advantages to produce pharmacological efficacy (Farhaty, 2017). CGA has biological function as antioxidant, inflammatory activity, and antibacterial because it prevents the development of positive and negative bacteria including staphylococcus aureus (Liang & Kitts, 2015; Yaqin & Nurmilawati, 2016). Chlorogenic acid (CGA) also contributes to reduce free radical and inhibit oxidation reaction and stimulate collagen synthesis by fibroblast, which contribute against the ulcers power (Alexandru et al., 2015). Additionally, CGA has the power of antioxidant activity by increasing dismutase superoxide, catalase, quotation and reducing the concentration of lipids, cell protein and nucleic acids. With antioxidant potent it able to keep the form of cell membrane and cell function through attacking antigen/infectious agents (dos Santos, Almeida, Lopes, & de Souza, 2006; Hebeda et al., 2011; Winarsi, 2005). These mechanisms strengthen the effect of antibiotic therapy in supporting wound healing process. As the information presented earlier, all respondents in this study prescribed with antibiotic therapy. Therefore the significant healing process occurred in both groups should be carefully considered as part of the antibiotic therapy effect provided.

Third, coffee has potent to keep moist. Coffee powder absorbs exudates will beneficence in preventing over-moist conditions and further accelerates the healing process (Yuwono, 2014). This moist condition is basic strategy in managing any types of wound. Additionally, this potent also assumed provide benefit for edema management. The state of the tissue hypoxia can be caused by a state of edema on wounds in which edema condition in the wound enlarge the distance between capillaries, so the local oxygen perfusion will progressively reduce so that it impedes the process of wound healing (Hanson, Bents, & Hematti, 2010; Kartika, 2005; Schreml et al., 2014).

Fourth, wound edge factors. The acid of caffeic, luteolin and apogent are the high antioxidants which stimulate collagen synthesis by fibroblast. These potent to further contribute on ulcers stability and strength. (Arimbi & Yuwono, 2016; Liang & Kitts, 2015; Yuwono, 2014).

This study also found that patients in the control group who received the conventional wound care using NaCl 0.9% dressing also showed significant diabetic ulcer healing. The conventional wound dressing applied moist NaCl 0.9% gauze and sometimes added with providence iodine 10% as primary dressing and dried gauze as secondary dressing. Principally, this dressing technique able to develop wound's moist environment that required for facilitating wound healing. However, the moist condition created by this technique inadequately longer. Additionally it requires changing and cleaning the wound daily that sometimes disturb new tissues growth. These disadvantages minimized the conventional dressing technique in improving diabetic ulcer healing (Ismail, Irawaty, & Haryati, 2009). This lower effect in this study is clarified in the compared result of ulcer healing scores between control and intervention group.

Another therapy may contribute to this study's results is hyperglycemia management. Respondents in this study were prescribed insulin for maintaining their blood glucose. It also evident that most of patients

showed controlled blood glucose level (<200 mg%). High blood glucose identified as the significant inhibiting wound healing factor. Leucocyte that run inflammation and fight the infection will unable to work well in the hyperglycemic conditions (Chodijah & Pandelaki, 2013).

The age of respondents involved in this study also may contribute to the ulcer healing process in this study. As showed in respondents' characteristic most of respondents in this study were pre-elderly age, particularly in the control group. The different results may be found if the involved respondents come from elderly age. It is also commonly known that elderly age closely related to wound healing problem (Guo & Dipietro, 2010).

Research Limitation

Some of diabetic ulcers observed in this study are post-surgical diabetic ulcers. This debridement process may contribute to the significant wound healing in both groups, since the surgical debridement performed provides ideal conditions for wound healing process by changing the state of the wound environment from chronic into acute conditions. Therefore, further studies are recommended to further clarify the effect of wound care using Coffee Robusta on diabetic ulcer healing with concern on controlling the confounding factors including debridement procedures.

Conclusion

This study is aimed to identify the effect of wound care using Coffee Robusta powders on diabetic ulcer healing. In conclusions, there is a significant effect of wound care using Robusta Coffee powders as a complementary therapy on diabetic ulcer healing. The effect is significantly larger compared to the conventional dressing using NaCl 0.9%. It is important for healthcare professionals in Sekarwangi Hospital Sukabumi - West Java to consider this wound care technique to be part of diabetic ulcer management..

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The Effect of Home Heart Walk on Fatigue Among Heart Failure's Patients

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Abstract

Heart failure is a physiologic state in which the heart cannot pump enough blood to meet the metabolic needs of the body. Fatigue is a major problem that arises in heart failure patients. One intervention to reduce fatigue is Home Heart Walk (HHW). The aim of this research was to determine the effect of HHW on fatigue among heart failure's patients. This research used Pretest-Postest Design Pre-experiment design, at RSUPN Dr Cipto Mangunkusumo & RS PGI Cikini during May-July 2015, involving 50 heart failure patients with functional class 2 & 3.The nurse teached HHW to heart failure patients with a six-minute walking procedure with five meter's distance in the hospital and then the exercise is continued at home within two days for six weeks. The result obtained majority of the respondents is clasification heart failure's functional class two (76%). Before & after HHW's intervention, the majority of normal pulse rate from 90% become 100%.The test results showed there was significant difference in the degree of fatigue before and after HHW's intervention (p=0.000) and there is a relationship between respiratory rate on the degree of fatigue (p=0.043). The conclusion is HHW can reduce fatigue in heart failure patients during six weeks. Therefore it is recommended for nurses to teach HHW and motivate patient to have self-exercise.

Keywords: Fatigue's Degree, Home Heart Walk, Heart Failure's Patients.

Introduction

Non-communicable diseases have been a significant disease burden to the world that consist of cardiovascular disease, diabetes, cancer and chronic respiratory diseases (WHO, 2010). Globally, cardiovascular disease is the number one cause of death (AHA, 2015). Cardiovascular disease consists of atherosclerosis, hypertension, coronary heart disease, congenital heart disease, myocardial infarction and heart failure (The Office of Research on Women's Health (ORWH), 2012). Among the cardiovascular diseases, heart failure disease is now recognized as the foremost public health problem (McMurray & Stewart, 2014).

Heart failure disease has experienced an increase of incidences, reaching 5.7 million people above 20 years old (Sakata & Shimokawa, 2013) and with more than 650,000 cases diagnosed annually in the United States (AHA, 2013). Heart Failure's patient recorded in the United Kingdom about 900,000 people and diagnosed with heart failure 30–40% every year. Increased heart failure's patients show a bad marked prognosis in the progression of heart failure in the United Kingdom (National Institute For Health & Clinical Excellent, 2010). Indonesia, the incidence of heart failure, based on the symptoms of heart failure, reaches as many as 530,068 people (0.3%) and based on the doctor's diagnosis, 229,696 people (0.13%) (Kementrian Kesehatan RI, 2013). According to the data gathered by a medical colleague in RSUPN Dr. Cipto Mangunkusumo, the incidence of heart failure patients extended to as many as 839 people (March–May 2015).

Heart failure's patient experience many disorders both physically, psychologically, socially, even spiritual and financial. Heart failure disease affects dyspnea (shortness of breath / gasping), orthopnea (shortness of breath time lying down), paroximal noctural dyspnea (shortness of breath of sleep with choking feeling), cough, muscle weakness, pale skin, cold and sweating, oliguria as long as day and nocturia during the night and fatigue (Ignativicus & Workman, 2013; Black dan Hawks, 2009). Heart failure's patient experience decreased cardiac output causing hypoxia tissue and slow down the disposal of metabolic waste that eventually tired easily (Black dan Hawks, 2009).

The study in Hospital Ostra in Sweden of 1,127 heart failure's patients found 53% incidence of fatigue symptoms. In another study at Cleveland's hospital in Ohio, among the 276 respondents of heart failure's patients, found prevalence of extreme fatigue as many as 119 respondents (43.1%), compared to the symptoms breath-shortness when lying down as many as 65 respondents (23.6%) and the symptoms chest pains as many as 51 respondents (18.5%). Other results obtained the higher classification Functional Class then the incidence of symptoms of fatigue is increasing where it found the prevalence of symptoms of severe fatigue is found in heart failure's patients with classficition functional class IV as much as 85.4% (Patel, 2008; Albert et al., 2009). Fatigue leads to decreased physical activity and quality of life and recurrent heart failure disease so that the patient requires a regular exercise of physical activity at home (Black & Hawks, 2009; Selig et al., 2010).

Nursing's intervention that can be done to reduce fatigue's symptoms are with health education, fluid restriction and salt diet restriction, rest, medication, motivation and exercise (Philipson et al., 2013; deWit & Kumagai, 2013). Heart failure's patient think that applying physical activity at home is more difficult than applying drug management, diet or fluid restriction (Du et al, 2011). Lack of physical activity in heart failure's patients occurs because heart failure's patient feel less confident to do exercises at home Cardiovaskular Health Network (CHN), 2008).

Physical exercise is proven to be good, safe and beneficial for heart failure's patient, but it has not been widely applied. Heart failure's patient who do physical exercise for 30 minutes only 45%, heart failure's patients who do a little physical exercise just 53% and heart failure patients who do not do physical exercise amount 23% (McCarthy et al., 2015). Heart failure's patients who do not adhere to and disobey in cardiac rehabilitation exercise caused by several factors are old age, low education level, low socioeconomic, less motivation for exercise and lazy so that

nurses should encourage and suppress the importance of physical exercise to heart's failure patients (Conraads et al., 2012).

Nurses as professional health workers have an important role in helping patients in fulfilling self care patients where nurses play a role in promotive & educative (Tomey & Alligood, 2010). Self care of heart failure patients in the form of nutrition diet management, drug management, physical activity training, weight monitoring and signs of physical decline (Uly, 2014). Self care theory is related to physical activity where it is found that 56.2% heart failure's patient have low self care caused by less activity (Wahyuni & Kurnia, 2014).

Orem self care's theory is applied to heart failure's patient undergoing cardiac rehabilitation. The use of orem model training methods based on individual needs and cardiac rehabilitation exercises can improve the ability of self care in heart failure's patients. Research shows a significant difference of 0.001 statistically ($p < 0.001$) with rehabilitation exercise, self care and health education (Jahabin et al., 2014).

Heart rehabilitation is a program that combines exercise, health education and counseling about risk factors for heart failure's patient. The phase of cardiac rehabilitation consists of phase I (inpatient), phase II (immediately after ambulatory care), phase III (shortly after ambulatory), and phase IV (maintenance of ambulatory conditions) (Smeltzer et al., 2010; Black & Hawks, 2009).

American Heart Association recommended that heart failure's patients should follow the home-based cardiac rehabilitation program in the form of a six-minute walking exercise (AHA, 2014). One intervention such home-based walking exercise for heart failure's patient (Du et al., 2011) and used to reduce the occurrences of fatigue symptoms (Suharsono, 2011) is the Home Heart Walk (HHW).

Suharsono's study (2011) found that there was a decrease in the degree of fatigue from scale 12 (medium level fatigue) to scale 11 (low level fatigue) with Home Based Exercise Training so that heart failure's patient can do Home Based Training Exercise to improve functional capacity and quality of life independently at home. Home Heart Walk is one of the second phase heart rehabilitation sections where heart failure's patient performs a walking exercise in six minutes with five meters distance and is monitored and followed up via phone by the nurse (Du et al., 2011; Smeltzer et al., 2010; & Black & Hawks, 2009). Home Heart Walk is beneficial as one of the home based training exercise interventions (Du et al., 2011) and is used to reduce symptom fatigue's degree who felt by heart failure's patient (Suharsono, 2011).

There are several differences between Home Heart Walk's study and home based training exercise examined by Suharsono (2011). The first difference is Suharsono's Research (2011) only followed 23 heart failure's patients with functional class I, II, and III which resulted in the finding of less respondents and lack of uniformity of respondents where heart failure's patients with functional class I (no limitation of physical activity) can not be equated with heart failure's patient with functional class II (slight limitation of physical activity) and III (marked limitation of physical activity). Re-research is needed with more respondents and more uniform in the selection of respondents where in this study followed by 50 heart failure's respondents with functional class II (slight limitation of physical activity) and III (marked limitation of physical activity).

The second difference is Suharsono's study (2011) conducted in one hospital that is RSUD Ngudi Waluyo Wlangi. Suharsono's research resulted in a generalization process for heart failure's is difficult and needed re-examination again in two hospitals for the generalization process. The Heart Heart Walk Research was conducted at two hospitals, RSUPN Dr. Cipto Mangunkusumo hospital and PGI Cikini hospital so easy to do the generalization process for Home Heart Walk training to heart failure's patients.

The third difference is in Suharsono's study (2011) found less length of time interval of training intervention. Suharsono's study is only three times a week for 4 weeks. This condition results in less accurate results obtained because the timing is too little. Therefore, longer retrospective studies are required. The respondent Heart Walk Walk Research is done over time within 6 weeks every two days so the result and the

symptoms of fatigue felt less.

The problem's formulation in this resercher is: How the effect of Home Heart Walk to fatigue's degree on heart failure's patients. The general purpose of this researcher is to know the effect of Home Heart Walk on the fatigue's degree in heart failure's patients. The Specific objectives of this researcher are: 1) to know the description of respondent characteristics include age, sex, Body Mass Index (IMT) and heart failure's classification class. 2) identify the condition of heart failure seen from blood pressure, pulse rate, respiratory rate, degree of fatigue and mileage in heart failure's patients. 3) to know the difference in the degree of fatigue before and after the Heart Heart Walk intervention. 4) analyze the relationship of confounding variable to the fatigue's degree after Heart Heart Walk intervention. 5). analyze the effect of Home Heart Walk on fatigue's degree and analyze the different fatigue's degrees between men and women. 6). analyze the meaning of Home Heart Walk every week. Based on the above, the researcher's hope is this research can be useful for heart failure's respondents.

Method

This study utilised Pra Eksperiment One Group Pretest–Postest Design. The study population are heart failure's patients who hospitalized and visit the heart polyclinic at RSUPN Dr. Cipto Mangunkusumo Hospital and RS. PGI Cikini Hospital, Jakarta. Fifty (50) respondents were picked as samples using purposive sampling with inclusion criteria are as follows: men and women over the age of 20 years, suffering from heart, were required to sign a written consent, visit the heart polyclinic, the respondents included hospitalised patients who were allowed by the doctor to go home and perform Home Heart Walk, did not experience any limitations or restrictions in running and have to be reachable by researchers by public transport in a distance of less than 30 KM of RSUPN Dr. Cipto Mangunkusumo's Hospital and PGI Cikini's Hospital in Jakarta.

Home Heart Walk is a structured self-monitoring intervention program that is used to monitor the physical functional capacity of heart failure's patients and combines between regular exercise and follow-up by phone. Home Heart Walk is a home-based activity intervention adopted on a Six Minute Walking Test (6MWT). The six minute walking test is chosen because it is simple, safe, cheap and has the ability to consider future data (Du et al., 2011).

Home Heart Walk's intervention was done once every two days within the period of 6 weeks. Every week, the researchers would come to the patients' domicile to administer the Home Heart Walk exercises and check the patients' blood pressure, pulse and respiratory rate, and degree of fatigue and record them as data to prevent contraindicative symptoms of Home Heart Walk. Researchers would also contact the patients on the phone to inquire about their progress of the Home Heart Walk exercises and the walking's distance accomplished by the patient.

After 6 weeks, the patients' blood pressure, pulse, respiratory rate, walking's distance and the degree of fatigue were taken and documented on the observational data sheets. The instruments used were blood tension meters, weight scales, height-measuring instruments, stopwatch, two small cones, a chair, a 5-meter rope, record the traveling distance achieved by the respondents and Home Heart Walk observation sheets.

Variables in this study, there are several variables that are independent variables, dependent variables, and confounding variables. Independent's variabel in this study: Home Heart Walk's intervention and dependent's variabel is fatigue's degree and confounding's variable are age, sex, Body Mass Index (BMI), heart failure classifications, systolic and diastolic blood pressure, pulse rate and walking's distance are important to examine because of these factors that affect fatigue. Confounding's variables not studied were the consumption of beta blocker drugs, anemia, symptoms of distress, depression and anxiety as it caused limitations of the sample in the study.

Data analysis includes univariate and bivariate. Univariate analysis was used to describe characteristics of respondents: age, sex, Body Mass Index (BMI), heart failure classifications, systolic and diastolic blood

pressure, pulse, respiratory rate, degree of fatigue and and walking distance. In contrast, bivariate analysis used wilxocon test for 2 different tests; spearman correlation test to analyze the relationship of age, IMT, systolic and diastolic blood pressure, pulse rate and walking distance on the degree of fatigue; two independent man whitney test to ascertain the relationship of the sex types and heart failure classifications on the degree of fatigue. The degree of fatigue was assessed according to the subjective data (The Modified Borg Scale) and objective data with observation respiratory rate, blood pressure and pulse rate (Heart Foundation, 2014; Crapo et al., 2002).

In nursing science, fatigue experience is said to be subjective data (DS) (Falk, 2007). DS by asking what is the scale of fatigue based on Modified The Brog Scale Percevied Excertion? to heart failure's patient (Heart Foundation, 2014; Crapo et al., 2002). Data Objective (DO) with calculating respiratory rate and observation pulse rate nad blood pressure. Normal respiratory rate 14-20x/min (Black & Hawks, 2009). DO respiratory rate above 20 x/min indicates patients experiencing tachypnea or difficulty breathing rate (fatigue) (Heart Foundation, 2014; Lewis et al., 2011). The DS based on DO is matched to the Modified The Brog Scale Percevied Excertion (Heart Foundation, 2014; Crapo et al., 2002).

Result

Tabel 1 Characteristics of Respondents

No	Characteristics	F	%
1.	Age		
	26-45	8	16
	46-65	20	40
	Above 65	22	44
2.	Gender		
	Male	32	64
	Female	18	36
3.	BMI		
	Underweight (<18.5 Kg/m2)	3	6
	Normal (18.5-24.9 Kg/m2)	25	50
	Obese (>30 Kg/m2)	13	26
4.	Heart Failure Classification		
	Functional Class 2	38	76
	Functional Class 3	12	24

Tabel 2 Characteristics of Heart Disease

No	Variable	Before HHW Intervention		After HHW Intervention	
		Frequency	%	Frequency	%
1.	Systolic				
	Hypotension	1	2	0	0
	Normal	16	32	24	48
	Prehypertension	18	36	22	44
	Hypertension Stage 1	10	20	4	8
	Hypertension Stage 2	5	10	0	0
2.	Diastolic				
	Normal	19	38	24	48

	Prehypertension	20	40	21	42
	Hypertension Stage 1	8	16	5	10
	Hypertension Stage 2	3	6	0	0
3.	Pulse Rate				
	Bradycardi	5	10	0	0
	Normal	45	90	50	100
4.	Respiratory Rate				
	Normal	10	20	44	88
	Tachypnea	40	80	6	12
5.	Fatigue's				
	2 (Light Fatigue)	0	0	4	8
	3 (Medium Fatigue)	1	2	25	50
	4 (Medium Severe Fatigue)	14	28	20	40
	5 (Severe Fatigue)	26	52	1	2
	6 (Severe Fatigue)	7	14	0	0
	7 (Very Severe Fatigue)	2	4	0	0
6.	Walking Distance	202.44 meter		254.76 meter	

Tabel 3 Different Paired Test Results Fatigue's Degree Before HHW's Intervention and After HHW's Intervention

No	Variable	p Value
	Fatigue's Degree	
1.	Subjective Data (fatigue's degree)	0.000
2.	Objective Data (respiratory rate)	0.000

Tabel 4 Relationship of Confounding Variables on Fatigue Degree After Home Heart Walk Intervention

Variable	p-Value	r-Correlation
Age	0.301	r=0.149
Gender	0.808	r=-0.243
BMI	0.559	r=-0.085
Heart Failure Classification	0.318	r=-0.999
Systolic Blood Pressure	0.450	r=0.109
Diastolic Blood Pressure	0.407	r=0.120
Pulse Rate	0.339	r=-0.122
Respiratory rate	0.043	r=0.287
Walking Distance	0.127	r=-0.219

Tabel 5 Effect of Home Heart Walk on Fatigue and Differences in Fatigue's Degree Between Men and Women

Variable	p-Value	Mean Fatigue's Degree
Home Heart Walk	0.000	-
Male	-	25.14
Female	-	26.14

Tabel 6 Home Heart Walk Meaning Results Every Week

	Weeks 1 & 2	Weeks 3 & 4	Weeks 5 & 6
	Days 1 & 7	Days 15 & 21	Days 29 & 37
Subjective's data: fatigue's degree after Home Heart Walk	0.000	0.024	0.048
Objective data: respiratory rate after Home Heart Walk	0.118	0.029	0.029

1. Univariate Analysis

Based on Table 1, it was known that the majority of respondents were heart failure classification functional class 2 with 76%.

Based on Table 2, it was known that before Home Heart Walk intervention, the majority of pulse rate normally with 90%. After Home Heart Walk intervention, the majority of pulse rate, all respondents become normal with 100%.

2. Bivariate Analysis

The data tested is the subjective data degree of fatigue with the results modified the borg scale 0–10 and ordinal categorical data. Objective data with mean (x/min) and categorical data ratios.

Table 2 shows that statistically there is a difference in the fatigue's degree before and after the intervention Home Heart Walk, assessed on subjective data (Fatigue's degree) with a p-value of 0.000 (<0.05) and objective data (respiratory rate) with a p-value of 0.000 (<0.05).

From table 4 obtained statistically there is a significant relationship between respiratory rate and fatigue's degree with p-value 0.043 (<0.05) & r = 0.287. There was no significant relationship between age (p-value=0.301; r=0.149), gender (p-value=0.808; r=0.243), BMI (p-value=0.559; r=0.085), heart failure classification (p-value=0.318; r=-0.999), systolic blood pressure (p-value=0.450 & r=0.109), diastolic blood pressure (p-value=0.407 & r=0.120), pulse rate (p-value=0.399 & r=-0.122), walking distance (p-value=0.127 & r=-0.219) on fatigue's degree after Home Heart Walk intervention. The meaning of this data obtained respiratory rate has a significant relationship with fatigue's degree whereas when the respiratory rate increases then the fatigue is felt to increase. But if the respiratory rate decreases then the fatigue is felt to decrease. This is evidenced from the results of this study: before HHW intervention, respiratory rate tachyapne (80%) dan fatigue's degree on scale 5 (severe fatigue). After intervention HHW, respiratory rate normal (88%) and fatigue's degree on scale 3 (light fatigue)

In searching for the results of the effect Heart Heart Walk on fatigue's degree, the researchers used paired samples test taken from subjective data fatigue and objective data respiratory rate. In searching for different degrees between men and women, the researchers separated fatigue's degree male and female and then treated with the wilxocone test.

Table 5 obtained statistically there is an effect Home Heart Walk on fatigue's degree with p-value 0.000 (<0.05) and heart failure patient female feel more fatigue than male. The average value of fatigue felt by female is 26.14. The average fatigue value perceived by male is 25.14.

In searching for the results of Home

Heart Walk every week, researchers used the wilxocon test by including subjective data and objective data on weeks 1 and 2, weeks 3 and 4, and weeks 5 and 6

From table 6 analyzed first and seconds weeks (days 1 & 7), the patient felt a different fatigue's degree after the Heart Heart Walk's intervention with p-value 0.000 (<0.05) although in the objective data did not show any difference in respiratory rate after the Home Heart Walk's intervention with p-value 0.118 (> 0.05).

In the Third and Fourth weeks (day 15 and 21), the patient felt different fatigue's degree after the Heart Heart Walk intervention with a p-value of 0.024 (<0.05). This result is supported by objective data that is difference of respiratory rate after Heart Heart Walk intervention with p-value 0.029 (<0.05).

On fifth and sixth weeks (29th and 37th days), the patient felt different degrees of fatigue after the Heart Heart Walk intervention with a p-value of 0.048 (<0.05). This result is supported by objective data that is difference of respiratory rate after Heart Heart Walk intervention with p-value 0.029 (<0.05). Statistically concluded the meanings of Home Heart Walk in third and fouth weeks where the subjective data (fatigue's degree) with p-value 0.000 (<0.05) and the objective data with p-value 0.029.

Discussion

The effect of Home Heart Walk on the fatigue's degree among the heart failure patients was statistically proven to be significant. Researchers assume that the Home Heart Walk can reduce the fatigue's degree as it is a form of physical exercise that can improve cardiac output through increased cardiac contractility and improve ventricular pump performance so as to reduce shortness of breath & fatigue. Adequate cardiac output leads to increased oxygen to the tissues and the body can respond to energy formation. Increased oxygen and this energy can reduce fatigue felt by heart failure patients (Lewis et al., 2011; Smeltzer et al., 2010). Based on the results obtained statistically the relationship between respiratory rate to fatigue's degree where seen from pulse rate.

In heart failure's patient found typically respiratory rate exceeding 20 x/min and can cause shortness of breath. In heart failure's patients dilated ventricle which is the elongation of muscle fibers that increase the volume in the heart chamber. Dilatation causes an increase in preload and cardiac output because a muscle will be stretched will contract stronger. But dilation has its limitations as a compensation mechanism. Muscle fibers if stretched beyond a certain point will be ineffective. Dilated heart requires more oxygen. Hearts that are dilated with normal blood flow will experience oxygen deprivation. Hypoxia in the heart will reduce the ability of muscle contraction and the patient will be easy fatigue (Black & Hawks, 2009). Based on the above, it can be concluded that the higher the respiratory rate, the higher the degree of fatigue but the lower the respiratory rate, the lower the degree of fatigue.

From data confounding this research is age. The results obtained statistically that there is no significant relationship between age to fatigue's degree. According to the researchers, the results of this study occurred because of the lack of varied age of respondents who participated in this study in all categories and mostly in elderly people. Age affects the risk and severity of coronary heart disease. Age 20 or 30 years may occur angina and myocardial infarction. More coronary heart disease in people older than 40 years, 65 years or older (Black & Hawks, 2009). The results of this study are similar to the results of research conducted by Evangelista et al. (2008) of 150 patients with heart failure from the western medical center of the United States, there was no correlation between age to fatigue with p-value 0.67 (>0.05). Thus, age has no significant relationship to the fatigue's degree because cardiovascular disease and heart failure can be exposed to all types of age.

It was statistically found that there was no significant relationship between sex to fatigue's degree. According to the researchers, the results of this study occurred because of the lack of equality between men and women and mostly in male gender in this study. Coronary heart disease is the number

one killer in both sexes (male and female) in the United States. Males have a higher risk of having a heart attack at a younger age, which is smoking and hypertension. Menopausal women, taking oral contraceptives, smoking or hypertension, will be more likely to develop coronary heart disease (Lewis et al., 2011; Black & Hawks, 2009). The results of this study are similar to the results of the research conducted by Chen et al (2009) on 105 heart failure patients from three hospitals in North Taiwan, there was no correlation between sexes with fatigue with p-value 0.38 (>0,05). Thus, sex does not have a significant relationship on the fatigue's degree because heart disease, especially heart failure can be exposed to men and women.

The results obtained statistically there is no significant relationship between BMI to fatigue's degree. According to the researchers, the results of this study occurred because of less varied IMT respondents on all categories of BMI. Obesity IMT increases the extra burden of the heart and forces the heart to pump harder to deliver blood to the tissues. Obesity increases the risk of coronary heart disease because it is associated with elevated cholesterol, triglycerides, high blood pressure and diabetes (Lewis et al., 2011; Black & Hawks, 2009). The results of this study are similar to the results of research conducted by Fink et al. (2009) of 87 heart failure patient from two central medical centers in Chicago, there was no correlation between BMI on fatigue's degree with p-value>0.05. Thus, BMI has no significant association to the fatigue's degree because the more related to heart disease is increased cholesterol, triglycerides, high blood pressure and diabetes.

Based on the results obtained statistically there is no significant relationship between the classification of heart failure on the fatigue's degree. According to researchers, the Heart Heart Walk exercise improves ventricular pump performance and reduces the burden of myocardium resulting in increased cardiac output and reduced fatigue. Based on the theory, functional class II's classification indicates a mild limitation in physical activity and functional class III's classification indicates medium the limitation of physical activity. Regular aerobic exercise is done to improve ventricular pump performance, reduce myocardial burden and improve complaints and functional capacity. Thus, the functional class' s classification is not related to fatigue's degree because Home Heart Walk exercises can improve ventricular pump performance and reduce myocardial burden so that cardiac output increases and fatigue decreases.

From the results obtained statistically there is no significant relationship between systolic and diastolic blood pressure on fatigue's degree. According to researchers because Home Heart Walk exercise can improve ventricular pump performance and reduce the burden of myocardium so that cardiac output increases, blood pressure becomes stable and the fatigue's degree decreases. Based on the theory, heart failure decreased cardiac output resulting in decreased blood flow and oxygenation so that systolic and diastolic blood pressure became low (Smeltzer et al., 2010; Lewis et al., 2011). Heart failure patients are recommended for physical exercise because physical exercise can improve ventricular pump performance, contractility and improve hemodynamics (Black & Hawks, 2009). Thus, there is no significant association between systolic and diastolic blood pressure on fatigue's degree because home heart walk exercises can improve ventricular pump performance and reduce myocardial burden so that cardiac output increases and fatigue decreases.

Statistically, it was found that there was no significant relationship between pulse rate on the fatigue's degree. According to the researchers, heart rate's heart failure patient will be bradycardia, tachycardia or palpitations and Home Heart Walk exercises can increase cardiac output so that the pulse becomes stable. Based on the theory, heart failure's patient experienced a failure of ventricular compensation resulting in decreased cardiac output resulting in pulse rate will experience bradycardia or tachycardia or palpitations. Heart failure's patient are encouraged to follow a physical exercise rehabilitation program that can increase myocardial contractility and increase stroke volume and improve pulse rate (Ignatavicius

& Workman, 2013; Smeltzer et al., 2010; Black & Hawks, 2009). Thus, there is no significant association between pulse rate on the fatigue's degree because the Home Heart Walk exercise can increase cardiac output so that the pulse rate becomes stable and adequate oxygen intake in blood and fatigue is felt to be reduced.

The results obtained statistically there is no significant relationship between walking distance on fatigue's degree. According to the researchers, the results obtained walking distance is inversely proportional on the fatigue's degree obtained. The further walking distance during the Heart Heart Walk exercise, the ventricular pump performance gets stronger, oxygen increases and fatigue decreases. The researchers' assumptions are supported by the results of this research conducted by the researchers themselves where during the first Home Heart Walk exercise, the fatigue's degree that was felt on the scale of 5 (fatigue in the heavy stage) and the walking distance was only 202.44 meters. After six weeks of Heart Heart Walk exercise, fatigue degree's scale 3 (medium stage fatigue) with 254.76 meter distance. Thus, the result of the walking distance is inversely proportional on fatigue's degree where the greater the distance, the less the fatigue is felt.

Based on the results obtained statistically the meaning of Home Heart Walk every week. Based on the results obtained statistically the meaning of Home Heart Walk every week. The results showed the first and second weeks, the fatigue's degree (subjective data) is significant where the patient feels the suggestion or feeling has recovered from the fatigue's degree although the objective data has not shown cure (not significant) where there has been no decrease in respiratory rate. The Heart Walk Walk exercises are most effective starting in the third and fourth weeks to decrease the fatigue's degree. In the Home Heart Walk journal is held for 9 months (Du et al., 2011). But according to researchers, Home Heart Walk may be done at least six weeks in order to get quick results and useful for respondents in reducing the fatigue's degree.

Statistically obtained heart failure's patient women feel more fatigue than men. The average value of fatigue felt by women is 26.14. The average fatigue value perceived by males is 25.14. According to researchers, this result occurs because women more easily describe the fatigue than men. The results of this study are similar to the results of research conducted by Tang, Yu, and Yeh (2009) on 107 patients with heart failure in the central medical center of North Taiwan, got the average fatigue value felt by women (226.64) higher than the perceived fatigue by men (203.05). Based on the theory, heart failure patient's female sex more feel fatigue because women more easily expose the physical symptoms of weakness in the complaints of fatigue than men (Tang, Yu, & Yeh, 2009). Women tell more about fatigue than chest pain. Easily tired during light activity is a sign and symptom of decreased cardiac output or heart failure (Black & Hawks, 2009). Thus, women more easily expressed fatigue than men.

The results of this study found that heart failure's patients who were taught (teaching) and given support (supportive) Heart Heart Walk exercise proved to overcome fatigue. The final result of the implications of nursing action Self care orem for nurses to teach (teaching) health education through Home Heart Walk exercise and support (supportive) Heart Heart Walk exercise with independent and routine so that the role of nurses to be minimal, the role of patients maximum (independent).

Conclusion

Home Heart Walk exercise was proven to be effect for reducing the fatigue's degree among the heart failure patients for six weeks especially the fatigue degree declined in particular after the third and fourth weeks. Researchers proposed the continuous development of the study by comparing the effectiveness of the Home Heart Walk when done every day, once every 2 days, and once a week on the fatigue's degree among heart failure patients with a control group. The study suggestions to contribute to the development of nursing services in all

hospitals where nurses can obtain knowledge about the physical activity therapy known as Home Heart Walk. Nurses are to teach the Home Heart Walk exercise and motivate heart failure's patient to do the exercises at home on a regular basis. The research also advocates that educational institutions should incorporate the research results as their teaching materials. Research also suggests that the respondents implement and carry on doing Heart Walk Home exercises every two days at home independently.

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The Origin and Development of Grounded Theory: A Brief History

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Abstract

Grounded theory is an inductive research method that provides for the systematic generation of theory using qualitative or/and quantitative data generated from interviews, observation, or written sources such as documents, or some combination there of gained by a rigorous research method. Nowadays there has been much used of grounded theory as qualitative methodology in nursing and other health disciplines, Grounded theory has been an important methodology for nursing research. The aim of this brief article is to explain how grounded theory came about.

Keywords: Glaser, grounded theory, nursing, qualitative research.

Introduction

In recent years the grounded theory has been growing popularity in the world and a rise in the use of grounded theory (GT) method as an approach in qualitative research, and is often used in disciplines such as nursing. There are thousands of publications of studies using grounded theory methods and seminal texts that can be used by researchers and doctorate students to guide their study and ensure the rigour of their research. Among the various methods of qualitative data analysis, grounded theory provides researcher with unique tool for theoretical development (Mediani, 2017; Jones, 2005). The aim of this short methodological review is to explain the historical overview, evolution of grounded theory, theoretical, and philosophical roots of grounded theory which is useful for novice researchers. The paper can be read with my previous paper, "An Introduction to Classical Grounded Theory" (Mediani, 2017).

What is grounded theory method?

Grounded theory is known as an inductive, comparative methodology that provides systematic guidelines for gathering, synthesizing, analyzing, and conceptualizing qualitative data for the purpose of theory construction that explains, at a broad conceptual level, a process, an action, or interaction about a substantive topic (Glaser & Strauss, 1967; Strauss & Corbin, 1990; Charmaz, 2000). Meanwhile, according to Glaser (1978, 1992, 1998) Grounded Theory is a general research method that provides for the systematic generation of theory from data obtained by a rigorous research method. As a general methodology, grounded theory can use either qualitative data of any type such as video, images, text, observations, interviews etc or quantitative data, or a combination of these (Glaser, 1978, 1992, 1998). The key point here is that theory generated is grounded in the data.

Grounded theory differs from other various qualitative methods for two reasons, (1) "it is unencumbered by explicit expectations about what the research might find, or by personal beliefs and philosophies" (Pole & Lampard, 2002, p.206), therefore allowing the researcher to formulate discoveries without prior knowledge, and (2) "It is an approach that leaves itself open to charges of relativism" (Pole & Lampard, 2002, p.206), meaning that the results and theoretical assumptions are not uniquely valid (Jones, 2005). Grounded theory is known as a tool for analysis social phenomena, particularly when there is little known about the situation under investigation (Glaser & Strauss, 1967). Using grounded theory provides the advantage of investigating an unknown area, to see what real social problems identified. It is therefore, will provides researcher with an opportunity to gather data inform the research and consequently developing the theoretical principles that are relevant to the situation under investigation, rather than the converse relationship which is more normally used with the conventional methods (Jones, 2005).

Historical overview of discovery of grounded theory

The grounded theory approach is both a way to do qualitative research and a way to create inductive theory (Glaser & Strauss, 1967; Mediani, 2017). The grounded theory was first developed during the 1960s by American sociologists Barney Glaser and Anselm Strauss (Artinian, 2009; Glaser, 1992; Strauss & Corbin, 1990). At that time, grand theory (logic-deductive theorising) and theory testing (verification) were the predominant approaches to knowledge development (Glaser & Strauss, 1967). As sociologists, Glaser and Strauss felt driven by the lack of rigour and theoretical grounding in social science studies, and by the criticisms directed to qualitative research by those who considered quantitative studies to be the only viable means of enquiry (Hallberg, 2006). The two theorists came from different philosophical and research backgrounds and had made equally important contributions towards the creation of the grounded theory (Glaser, 1992; Wuest, 2012). Anselm Strauss graduated from the University of Chicago, which specialised in qualitative research and symbolic interactionism, and he was influenced by pragmatist writings. His training and fields of interest contributed to the grounded theory method. He was trained

in symbolic interactionism by Herbert Blumer and Everett Hughes, a school of thought where strong tradition emphasised the importance of interaction between human behaviour and social roles (Blumer, 1969; Hallberg, 2006; Walker & Myrick, 2006). On the other hand, Barney Glaser came from a tradition of quantitative research at Columbia University, where he developed an inductive perspective that combined both quantitative and qualitative research (Hallberg, 2006; McCann & Clark, 2003; Walker & Myrick, 2006). This perspective embraced the importance of theory generation from the perspective of participants (Creswell, 2013). Glaser was influenced by Paul Lazarsfeld, an innovator in the field of quantitative methods (Glaser, 1992; Hallberg, 2006; Walker & Myrick, 2006) and also Glaser's teacher when he was studying quantitative and qualitative mathematics at Columbia University.

Paul Lazarsfeld and his work on qualitative analysis influenced Glaser's conceptual ideas of grounded theory (Glaser & Strauss, 1967; Glaser, 1998, 2005). Lazarsfeld's research strategies were similar to those used in the grounded theory process (Martin & Gynnild, 2011). According to Glaser (2005), Lazarsfeld influenced him with four important methodological contributions to the development of grounded theory: the index formation model to generate concepts; the interchangeability of indicators to generate concepts; constant comparative analysis, and the core variable analysis model. The first two originated directly from Lazarsfeld's work, while the constant comparative analysis technique was discovered and developed by Glaser (Glaser, 2005).

In 1965, Glaser and Strauss worked together on a study of the sociology of illness that resulted in an article entitled "Awareness of Dying" (Glaser & Strauss, 1965), in which they sought to develop an abstract theory of the interactions between patients and staff in hospitals at the end of life, rather than to a provide a descriptive analysis of events or attitudes (Glaser & Strauss, 1967). The approach they developed was a systematic method of discovering theory from data involving inductive processes (Glaser & Strauss, 1967). During this study Glaser and Strauss became aware that the methodology they used was original. "The Awareness of Dying" article provided the first account of grounded theory and marked the introduction of this research approach as an alternative to other more established research methodologies (Elliott & Lazenbatt, 2005). This article was highly acclaimed, and as such the authors received a lot of attention from the scientific community, which led to their decision to present grounded theory more formally by publishing a book on it (Glaser, 1992).

Two years later, Glaser and Strauss published the methodology for qualitative research that they had developed during the Awareness of Dying study, in the book, Discovery of Grounded Theory: Strategies for qualitative research (Glaser & Strauss, 1967). They named their new method 'Grounded Theory' and presented this as a new approach to research, developed during their study of dying (Glaser & Strauss, 1967). This discovery resulted from their attempts to improve the theory-research gap that had not been bridged by studies using logical deductive reasoning as the method of inquiry (Eaves, 2001; Jeon, 2004). Grounded theory was therefore designed to provide an alternative to the verificational research tradition prevalent in sociology at that time (Glaser & Strauss, 1967). In addition, Glaser and Strauss developed the grounded theory approach in response to the then prevalent view of quantitative research as the predominant model for social science research (Charmaz, 2000).

Glaser and Strauss (1967) found that qualitative research consisted of detailed description, mostly giving background to quantitative studies but generating little theory. At the same time, quantitative researchers were developing rigorous methods for testing and reproducing facts (Glaser & Strauss, 1967). Glaser and Strauss (1967) explained that the rationale for grounded theory was to generate and develop theory through interplay with data collected during research projects. They demonstrated how to generate a substantive theory from data originating from reality by using an inductive research method. Consequently, grounded theory has been presented as an inductive research method that aims at generating theory through the

emergence of that theory from substantive data (Glaser & Strauss, 1967). This was the beginning of the classical grounded theory methodology (Schreiber & Stern, 2001).

Evolution of grounded theory

After the publication of The Discovery of Grounded Theory (1967), Glaser and Strauss continued to work together to conduct many collaborative research projects, and wrote four more books from their study on dying: Time for dying (Glaser & Strauss, 1968); Anguish: Case study of a dying patient (Glaser & Strauss, 1970); Status passage (Glaser & Strauss, 1971), and Chronic illness and the quality of life (Glaser & Strauss, 1975).

In 1978, Glaser published the advances in grounded theory methodology as Theoretical sensitivity, the purpose of which was to provide practical insights into the methodological processes involved in generating a grounded theory. Glaser (1978) provided step-by-step guidance for conducting the grounded theory process, and for theoretical coding, basic social processes, and theoretical sorting. Nine years later, Strauss published his own text, Qualitative analysis for social sciences (Strauss, 1987), which was intended to make grounded theory more accessible because there was still criticism about Glaser's use of 'abstract terms and dense writing' in Theoretical sensitivity (Charmaz, 2000). However, other writers disagreed with this criticism and continued to recommend Theoretical sensitivity as a good resource for the grounded theory student (MacDonald & Schreiber, 2001).

In 1990 Strauss and Glaser parted ways when Strauss published Basics of qualitative research: Grounded theory procedures and techniques with Juliet Corbin (Strauss & Corbin, 1990). Glaser argued that this book misrepresented grounded theory. Moreover, Glaser disagreed with many of the stances taken by the book, criticising Strauss and Corbin's method for producing description rather than theory, and for imposing preconceived codes on data (Glaser, 1992). Glaser responded with the book Basics of grounded theory: Emergence vs. forcing (Glaser, 1992). Since 1992, Glaser has developed grounded theory alone. The method elaborated by Glaser is often called Classic Grounded Theory or Glaserian Grounded Theory.

Theoretical and philosophical roots of grounded theory

Grounded theory has its roots in the social sciences (Chenitz & Swanson, 1986; Crook, 2001; Cutcliffe, 2000; Eaves, 2001; Goulding, 1999; Hutchinson & Wilson, 2001; Milliken & Schreiber, 2001). Grounded theory's philosophical origins are attributable, at least in part to symbolic interactionism as developed by School of Sociology Chicago between 1920 and 1950 (Benoliel, 1996; Chenitz & Swanson, 1986; Glaser & Strauss, 1967, Glaser, 1998). Symbolic interactions (SI) is a theory about human behaviour (Chenitz & Swanson, 1986).

An assumption of grounded theory is that people actively shape the worlds in which they live through the process of symbolic interaction, and that life is characterised by variability, complexity, change and process (Glaser, 1992). Symbolic interactionism was developed by Mead (1934) and advanced by Blumer (1969), and represents not only a theory of human behaviour but also an approach to studying the lives, conduct, actions and interactions of humans within societal groups (Annells, 1996; Chenitz & Swanson, 1986; Blumer, 1969). Symbolic interactionism is concerned with the meaning of events to people and the symbols they use to convey those meanings (Baker, Wuest, & Stern, 1992). It focuses on the experiential aspects of human behaviour or on how people define events and reality, and on how they act according to their beliefs (Chenitz & Swanson, 1986). Symbolic interactionism holds that people are in a continual process of interpretation and definition as they move from one situation to another (Eaves, 2001).

Blumer (1969) identified three assumptions that underpin symbolic interactionism: firstly, people act and react to things and people on the basis of meanings that these have for them; secondly, meanings stem from interaction with others, and finally, people's meanings are modified through an interpretive process that they use to make sense of and manage their social worlds. Blumer (1969, p. 3) emphasises that meaning

is central to symbolic interactionism and argues that to ignore the 'meaning of things toward which people act is seen as falsifying the behaviour under study'. Thus, human behaviour is the result of an interpretive process in which people assign meaning to the events and situations that they encounter (Baker et al., 1992). Meaning is one of the major elements in understanding human behaviour, interactions and social process (Goulding, 1999; Jeon, 2004). According to this paradigm, individuals engage in a world which requires reflexive interaction instead of an environmental response (Goulding, 1999). People are purposive in their actions and will act and react to environmental cues, objects and other factors, according to the meaning these hold for them. These meanings evolve from social interaction which is itself symbolic because of the interpretation attached to various forms of communication such as language, gesture, and significant objects (Goulding, 1999). The meanings are modified, suspended or regrouped in the light of changing situations (Schwandt, 1994). Symbolic interactionism emphasises that individuals and groups are active participants in creating meaning within situations (Chenitz & Swanson, 1986). People, individually and within groups, construct their realities from the symbols around them, through interaction (Cutcliffe, 2000). Through social interactions, human beings become aware of what others are doing or of what they are willing to do (Aldiabat & Le Navenec, 2011). Using the perspective of symbolic interactionism, grounded theory therefore, provides a means of studying human behaviour and interaction, creating a new perspective and understanding of common behaviour at both an interactional and symbolic level (Chenitz & Swanson, 1986).

The symbolic interactionism perspective has implications for research because the meaning of the event must be understood from the participants' perspective, and behaviour must be understood at the symbolic and behavioural levels, and examined in interaction (Chenitz & Swanson, 1986). In addition, Chenitz and Swanson (1986) suggest that this perspective is useful in complex situations, to examine emerging or unresolved social problems. Methodologically, the researcher is required to enter the world of the participants under study to observe and examine the human interactions and interpretations that occur in order to fully understand them (Chenitz & Swanson, 1986; Goulding, 1999). The researcher examines behaviour in the setting in which it occurs, in terms of social interaction and shared meanings (Chenitz & Swanson, 1986). In order to understand the phenomenon under study the researcher must be both an observer and a participant (at least in imagination) in the participants' world and further must be a translator of this understanding into the language of the researcher's discipline (Chenitz & Swanson, 1986). Using these principles as the basic foundation, Glaser and Strauss developed a more defined and systematic procedure for collecting and analysing qualitative data (Glaser, 1998, Glaser & Holton, 2004; Goulding, 1999). Thus, symbolic interactionism provides a guiding framework for the collection of data about meanings, and how they change through social and physical time and space (Aldiabat & Le Navenec, 2011; Chenitz & Swanson, 1986; Glaser, 1978, 1992, 1998).

Grounded theory is based upon assumptions that both knowledge and people are dynamic, and the context facilitates, hinders, or influences human goals and the psychosocial process (Benoliel, 1996). Based on this assumption, grounded theory's main aim is developing and understanding the knowledge of human behaviour—how individuals construct and reconstruct their lives in the light of their experiences, and the meanings they assign to these in order to discover the basic social process (Glaser, 1978; MacDonald & Schreiber, 2001; Milliken & Schreiber, 2001). I found in my study that grounded theory has the potential to provide insight into a complex phenomenon, like nurses' pain management practice when caring for hospitalised children experiencing pain (Mediani, 2014). Thus, in grounded theory the researcher needs to comprehend participants' behaviours as they understand them. This can be achieved by learning about participants' interpretation of self in the interaction, and sharing their definition. Symbolic interactionism directs grounded theorists to assume that meaning is made

and constantly changed through interaction, and to become embedded in social context (Wuest, 2012).

Conclusion

Grounded theory is a natural product of post-positivist movement and symbolic interactionism. Symbolic interactionism is the source of grounded theory's foundational assumptions and has contributed to the philosophy guiding the development of grounded theory methodology. The epistemological underpinning of grounded theory makes it important in nursing research, which is premised on an interpersonal process between nurses and their patients (McCann & Clark, 2003). A grounded theory approach is applicable to a wide variety of issues relevant to clinical practice and can make valuable contribution to the development of a theoretical base for clinical nursing practice (Elliott & Lazenbatt, 2005; Mediani, 2017).

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Development of Team Cohesiveness Measurement Instruments in Interprofessional Collaborative Practice in Health Care

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Abstract

Health care management has an obligation to always provide safe, sustainable, comprehensive, quality and satisfactory health care for both the service user and care provider. The management and culture are built through the Interprofessional Health Care Collaborative Practice Model (MPIPK), which are implemented through four model components, i.e. the clinical pathway of patient management, team management of patients, patient care integrated documentation, and interdisciplinary patient problem solving through interdisciplinary case conference forums. In order to realize interprofessional collaboration practices, a cohesive climate is required that supports group functions and performances, and an instrument is needed to measure the team cohesiveness of this model. This research was conducted to develop a team cohesiveness measurement instrument in the interprofessional collaboration of health care. The instrumentation research design was carried out through the following steps: 1) Preparations of the instrument design commenced from the synthesis theory related to collective culture and individual culture on four components of the model; 2) Validation of the contents of the instrument with related experts; 3) Construct validation with 237 healthcare practitioners in an accredited hospital setting. Expert judgment results on instrument relevance (CVI) ranged from 0.77 to 0.91, the essence of instrument contents (CVR) was in range (+) 0.27 - 0.63, CVI and CVR scores indicated the relevant and essential content of the instrument. Test results of all constructed items were valid (0.283 - 0.847) and reliable, α Cronbach on 4 components (0.792 - 0.963) so, it is feasible to be used to measure the team cohesiveness.

Keywords: Collective culture, individual culture, instrument, interprofessional collaboration.

Introduction

Patient problems in the scope of health care services including hospital management cannot be handled completely by one scientific discipline and profession only. Various professions of different scientific disciplines contribute to solving patients' problems, sharing roles and responsibilities through interprofessional collaborations.

An interdisciplinary/interprofessional collaboration is a process of cooperation and problem-focused role sharing (Petri, 2010), the elements necessary for a successful interdisciplinary collaboration are awareness of roles, interpersonal relationship skills, and supported genuine endeavors. Combining various disciplines, personalities, and a range of skills in one process can lead health professionals to explore and discover potential problems and areas that need improvement and create a work environment based on mutual trust, appreciation and mutual desire to do the best for the patient (Huber, 2010). Interdisciplinary collaborations will be developed and realized when the professionals involved in handling the same problem grow and learn in a mutually supportive situation, mutual trust, mutual respect for the professional role, and the willingness and ability to share roles in decision-making, and interventions. In brief, the interdisciplinary collaborative practice can be realized if practitioners have an attitude that promotes a collective culture namely the tendency to behave collectively characterized by more share expertise than the tendency to promoting the individual culture who prioritized personal autonomy. Both the collective and individual cultures are needed in teamwork, but cohesive teams are indispensable in the collaborative practice. A cohesive team is a team in which the partnership pattern is supported by the practitioner's attitude to promote the collective culture rather than the individual culture.

The partnership pattern in the patient management and problems has been developed by Susilaningsih (2011) through an Integrated Inpatient Service Model, hereinafter referred to as the Interprofessional Health Care Collaborative Model. This collaborative model is constructed due to the patient care in the hospital should be carried out with priority to the patient safety, fully implemented, sustainable and qualified. The involvement of many health workers with different scientific backgrounds, different profession cultures, and existence of power imbalances can lead to fragmented, overlapping and potential prone services to patient safety issues. WHO (2009) reveals that 70–80% of errors in health care are caused by poor communication and understanding within teams; good teamwork may help reduce patient safety problems.

Teamwork will be cohesive if professionals prioritize share expertise mechanisms rather than personal autonomy. Share expertise is an important characteristic of collective behavior while personal autonomy becomes an important feature of individual behavior. To assess the cohesiveness of the teamwork, an instrument is needed to measure collective behavior and individual behavior in the interprofessional collaborative process on the 4 components of the Interprofessional Health Care Collaborative Model in the inpatient setting of the hospital, namely the integrated patient management pathway through an integrated clinical pathway, interdisciplinary team management of patients, integrated documentation and joint problem-solving through interdisciplinary case conference.

The existence of valid instruments for measuring team cohesiveness in interprofessional collaborations is essential. The reference search for the existence of instrument to evaluate interprofessional collaboration (Reeves et al., 2010) has obtained 11 types of instruments which included: the Interaction Process Analysis (Bales, 1976) which creates categories and understanding of interactions within groups; the System for multiple levels of observation of Groups (Bales & Cohen, 1979) which measures the individual behavior based on three dimensions: prominence, sociability and task orientation; the Team Effectiveness Questioner (Poulton & West, 1993; 1994) which measures team effectiveness in 4 dimensions: teamwork, organizational efficiency, health care practices, and patient-centered care; the Team Climate Inventory (Anderson & West, 1994; 1998) is developed to measure team objectives,

team participation, quality and support for innovation; the Multidisciplinary Collaboration (Carroll, 1999) measures the perception of collaboration based on 18 vignettes. The focus of measurement is a general collaboration, patient care process, communication, and teamwork; the Collaborative Practice Questioner (Way et al., 2001) measures the perception of collaborative practice between the health profession and social workers, its focus is on communication, decision-making, coordination, and collaboration; the Index of Interdisciplinary Collaboration (Bronstein, 2002) measures the perception of collaboration with a focus on interdependence, professional activity, ownership of common goals and reflection on processes; the Role Perception Questionnaire (Mac Kay, 2004) measures the perceptions of health professionals and social workers on their respective roles and roles of collaborative partners; The Team Survey (Delva & Jamieson, 2005) measures four factors: team identification and communication, metacognition of team goals and performance, team potential and team roles; the Aston Team Performance inventory (2010) measures factors affecting the team effectiveness consisting of team and leadership processes and the team's overall performance; the Interprofessional Collaboration Scale (Kenaszchuk et al., 2010) measures the perception of collaboration between physicians, nurses and other health professions.

Of the 11 instruments relating to the interprofessional collaborative practice outlined above, none has measured the cohesiveness of teams in the context of implementing interprofessional collaborative models that have four components, namely the integrated patient management pathway through integrated clinical pathways, interdisciplinary team management of patients, patient care integrated documentation, and joint problem-solving through interprofessional discussions. Thus, it is important to develop a team cohesiveness tool in the practice of integrated health care services.

Method

The preparation of team cohesiveness instruments in the interprofessional collaboration of health services was conducted as follows: 1) The synthesis of the theory related to the context variable to be measured. The team cohesiveness was determined by the tendency toward behavior that led to the individual and collective culture of the practitioners. The individual culture is more dominated by personal and professional autonomy, while share expertise is an important feature of collective culture (Cohen, 2005); 2) Developing dimensions and indicator variables. The dimension whose team cohesiveness would be measured based on 4 components of the interprofessional collaborative model in health care (Susilaningsih, 2011) were the clinical pathway of patient management, team management of patients, patient care integrated documentation, and joint problem-solving through interprofessional discussions. The collaborative indicators referred to the four key ingredients needed to build interdisciplinary cooperation (Sullivan, 1999) were: the sense of control, information sharing, attention to overlap of responsibilities or areas of concern, and structuring interventions; 3) Developing grids and specifications related to the dimension and indicator of each variable. The instrumental grid was developed as follows: the instrument would measure the team cohesiveness in 4 components of the interprofessional health care collaborative model. Each component contained a statement comprising the four key points needed to build an interdisciplinary cooperation in relation to the components to be measured then; it determined which principal points in such interdisciplinary cooperation indicated the collective culture and individual culture; 4) Making notes of the instrument items. Writing down the instrument items referring to the process of numbers 1–3; 5) The content validation was based on the expert judgment and construct validation. The content validation process was performed by requesting an expert's opinion on the content of the instument to establish

the content validity index (CVI) regarding the relevance of the instrument items, and the content validity ratio (CVR) to determine if the instrument items were essential or not. The assessment was conducted by five experts consisting of a professor and hospital service management practitioner, a medical practitioner – a pediatrician (K) with expertise in infections, a Master of Nursing and Nursing Practitioner in the Intensive Care Unit, a Nursing Doctor with expertise in the field of HIV/AIDS, and a Professor of Pharmacy. The CVI (content validity index) for each statement item was determined based on the expert judgment in the range of 1 (irrelevant) - 2 (somewhat relevant) - 3 (relevant) - 4 (very relevant). CVI items were calculated on the basis of the number of experts assigning values 3 and 4 divided by the number of experts who gave the scores (Larsson, Tegern, Monnier, Skoglund, Helander, & Persson et al., 2015). The CVI was expected to be 0.8 or more (Polit & Beck, 2006). The CVI was required to revise items, replace or discard certain items.

As for the Content Validity Ratio (CVR), the expert was required to give a score for each item, 1 (not essential), 2 (important but not essential), and 3 (essential). CVR was calculated by counting the number of experts who scored "3" (essential) minus (N/2) divided by (N/2) or by the following formula:

CVR=(ne-N/2)/(N/2)

Where ne = the number of experts who gave a score of 3, N is the number of experts. In this study, the number of experts was 5. The range of values is from +1 to -1. A + value indicates that at least half of the total number of experts judges the item to be essential. The CVR Mean is an indicator of overall test content validity (Lawshe, 1975).

The test for the construct and reliability of the instrument was performed on 237 health care practitioners in KARS accredited hospitals, consisting of doctors and case managers (44), Nurses with minimum PK III (175), clinical pharmacy practitioners (7), nutritionists (11). The test for instrument validity and reliability were performed, the validity test used the Pearson Product Moment test while reliability used Alpha Cronbach.

In this study, the sample was 237 people. The r table (n-2) at n ≥ 200 was 0,195, thus the instrument was valid if above 0,195.

Result

The presentation of research results included the contents of the instrument on four components of the model, expert assessments of CVI, CVR, construct validity and reliability of the instrument.

Instrument contents: Based on the instrument grids, the components of the clinical pathway model and team management of patient, each consisted of 18 items with 9 items leading to a collective culture tendency and 9 items leading to an individual culture, whereas in the components of integrated documentation of patient care and joint problem-solving through interprofessional discussions, each consisted of 16 items with 8 items leading to the tendency of collective culture, and the other 8 items to the individual culture.

Relevance and essence of the instrument contents. Table 1 presented the relevance of the instrument contents (CVI) and Table

Table 1 Expert Rating toward Instrument Relevance Content/Content Validity Index (CVI)

No	Model Component	Number of Item	Range Index per Item	CVI	Explanation
1	Clinical Pathways of Patient management	18	0–1	0.83	The number of items with index below 0.75: 3 items, revision of language structure and context
2	Team management of patient	18	0–1	0.82	The number of items with index below 0.75: 3 items, revision of language structure and context

3	Integrated documentation of patient care	16	0–1	0.91	The number of items with index below 0.75: 2 items, revision of language structure
4	Joint problem-solving through interprofessional discussions	16	0–1	0.77	The number of items with index below 0.75: 4 items, revision of language structure

3 presented the essence of the instrument content (CVR) as follows:

The expert assessment for CVI on 4 components of the interprofessional health service collaboration model stated the highest index was on patient care integrated documentation while, the lowest was on the component of joint problem-solving through interprofessional discussions. Indexes of all four components of the model showed three of them were > 0.8, one component was < 0.8 but more than 0.75. So, in general, the

Table 2 Revision of Instrument Item Contents based on Expert Judgment on the CVI Test

Model Component	No of Item	Content of Statement/Item	Revision of Item
Clinical pathways of patient management	11	I do/follow the visits together in an interdisciplinary area (wing) where I work. (Expert Comments/EC: more to collective culture)	I provide a cross-disciplinary view of expertise on visits
	13	I do not need to explain the action I take for patients to my colleagues in the team. (EC: necessary, explaining does not mean reducing autonomy)	I explain the actions I take for patients to my colleagues in teams when necessary
	14	I do medical/nursing intervention independently, without consulting my colleagues. (EC: Necessary, moreover, in a medical intervention)	I perform clinical interventions according to my competence and level of clinical authority
Team management of patient	5	I dare take risky measures to hone my skills (EC: -)	I take risky action if it is for the patient rescue
	9	I use my expertise as the main basis in acting, thereby discussing the condition of patients with my work partners, is an inefficient activity (EC: Discussion is needed to build understanding)	I use my expertise as the main basis in acting, discussing the condition of the patient with my colleagues/partners partners when necessary
	18	I am willing to do any job although sometimes it is beyond my capacity for the realization of safe health care for patients (EC : -)	I make the best effort in my work to achieve patient safety
Integrated Documentation of patient care	5	I feel no need to pay attention to the documentation of care done by other health professionals because it will not affect my work. (EC: -)	I pay attention to the documentation of care made by other health professionals when related to my work

	15	I only document what I consider important according to my professional judgment, although all health professionals have a responsibility to fill patient data correctly and accurately. (EC: -)	I document what I consider important according to my professional judgment
Joint problem-solving through interprofessional discussions	5	I do not discuss the mistakes in decision making or interventions in patients on interdisciplinary discussions, because I know the mistakes I have made and try to prevent them next time. (EC: mistakes need to be discussed as a learning process for oneself and other people)	I discuss the mistakes I make in either decision making or patient interventions in interdisciplinary discussions, so that the same error will not recur
	9	I use my expertise as the main basis of action, therefore discussing the patient's condition for solving the problem interdisciplinarily is inefficient (EC: discussion is needed to build understanding)	I use my expertise as the main basis of action, and discuss the patient's condition to solve the problem interdisciplinarily when necessary
	10	I refuse to explain the rationale for the professional actions I take, in interdisciplinary discussions on cases. (EC: this principle of accountability should be explained)	I explain the rationale for the professional actions I take, in interdisciplinary discussions on cases
	14	I just want to talk about the scope that I handle according to my role and function, because every profession has its own role and autonomy (EC: -)	I speak of the scope that I handle according to my role and function, because every profession has its own role and autonomy

four components of the content model were relevant.

Furthermore, the expert judgment results on the content essence of the instrument/ content validity ratio (CVR) were illustrated in Table 3.

Table 3 showed the expert assessment for CVR on 4 components of the interprofessional

Table 3 Expert Assessment of Content Essence of Instrument/Content Validity Ratio (CVR)

No	Model Component	Number of Item	Index Range per Item	CVR	Explanation
1	Clinical pathway of patient management	18	-1 s.d +1	0.53	The number of items with a ratio below 0 (negative): 3 items, revision of language structure and context
2	Team management of patient	18	-1 s.d +1	0.27	The number of items with index below 0 (negative): 7 items, revision of language structure and context
3	Integrated documentation of patient Care	16	-1 s.d +1	0.63	The number of items with index below 0 (negative) : 2 items, revision of language structure and context

4	Joint problem-solving through interprofessional discussions	14	-1 s.d +1	0.28	The number of items with index below 0 (negative): 4 items, revision of language structure

health service collaborative model, the highest ratio was on the component of integrated documentation of patient care, and the lowest was on the component of team management of patient. In each component, there was a CVR smaller than 0 (negative) and the context and structure of the language were revised according to the expert's input. In general, a positive CVR (> 0) meant the content items were essential.

The results of the construct test in Table 5 above showed that the overall items on the four components of the interprofessional collaboration model were valid, the lowest validity score was on the team management of patient component 0.283 > 0.195, and

Table 4 Revision of Instrument Contents Based on Expert Assessment on CVR Test

Model Component	No of Item	Content of Statement/item	Revision of item
Clinical pathway of patient management	12	I do health counseling for patients and their families, if necessary	I conduct health counseling for patients and their families, so they understand and be involved in the necessary care
	13	I do not need to explain the actions I take for patients to my colleagues in the team (Expert comment / EC: Necessary)	I explain the actions I take for patients to my colleagues in the team when necessary
	14	I do medical / nursing interventions independently, without consulting my colleagues (EC: depending on the level of intervention)	I perform clinical interventions according to my competence and level of clinical authority
Team management of patient	2	I make decisions quickly and act independently in performing my duty to serve the patient	I make the right decision and act according to my clinical competence and authority in performing my duty to serve the patient
	4	I am willing to do the work that should be the responsibility of my colleague/partner if it is for the sake of the patient	I am willing to do an overflow job (according to SPO) if it is for the benefit of the patient
	5	I dare take risky measures to hone my skills (EC: -)	I take risky action if it is for the patient's rescue
	9	I use my expertise as the main basis for acting, thereby discussing the condition of patients with my colleagues/partners, is an inefficient activity (EC: Discussions are needed to build understanding)	I consider my skills as the main basis for acting, discussing the patient's condition with colleagues/partners when necessary
	10	I reject the task that is not within my authority	I reject the overwhelming task that is not within my authority

	17	I feel satisfied if I can direct my colleagues/partners to work hard to realize the target group	I feel satisfied if I can direct my colleagues/ partners work according to the scope of responsibility and authority
	18	I am willing to do any job although it is sometimes beyond my capacity to do so for the realization of safe health care for the patient (EC : -)	I make the best effort in my work to achieve safe patient health care.
Integrated documentation Of patient care	5	I feel no need to pay attention to the documentation of care performed by other health professionals because it will not affect my work (EC: Necessary)	I pay attention to the documentation of care that other health professionals make when it comes to my work
	15	I only document what I consider important according to my professional judgment, even though all healthcare professionals have a responsibility to correctly and accurately fill in patient data	I document what I consider important according to my professional judgment
Joint problem-solving through interprofessional discussions	5	I do not discuss the mistakes in making decisions or interventions in patients in interdisciplinary discussions, because it is important that I know the mistakes I have made and will try to prevent them next time (EC: mistakes need to be discussed as a learning process for oneself and others)	I discuss the mistakes I made in either decision-making or interventions in patients in interdisciplinary discussions so that the same error will not recur
	9	I use my expertise as the main basis of action, therefore discussing the patient's condition for solving the problem interdisciplinarily is inefficient (EC: discussions are needed to build understanding)	I use my expertise as the main basis of action, and discuss the patient's condition to solve the problem interdisciplinarily when necessary
	10	I refuse to explain the rationale for the professional actions I take, in interdisciplinary case discussions (EC: this principle accountability should be explained)	I explain the rationale for the professional actions I take, in interdisciplinary case discussions
	14	I just want to talk about the scope that I handle according to my role and function, because every profession has its own role and autonomy (EC: -)	I speak of the scope that I handle according to my role and function, because every profession has its own role and autonomy

Tabel 5 Test of Construct Validity and Reliability (N=237)

No	Model Component	Number of item	Validity Score	α Cronbach	Explanation
1	Clinical pathway of patient management	18	0,283 – 0,613	0.792	All items are valid and reliable
2	Team management of patient	18	0,338 – 0,687	0.872	All items are valid and reliable
3	Integrated documentation Of patient car	16	0,479 – 0,662	0.915	All items are valid and reliable
4	Joint problem-solving through interprofessional discussions	16	0,641 - 0,847	0.963	All items are valid and reliable

Alpha Cronbach on the four components in the range of 0.792 - 0.963 indicating that the instrument as a whole was reliable.

Discussion

The development of instrument grids and instrument items is an important key in the development of instrument items. The grids are grouped into 4 components of the interprofessional health care collaborative model adopted from the integrated inpatient care model (Susilaningsih, 2011). The development of instrument items in the four components of the model was based on the key elements of teamwork, which according to Sullivan (1999) are information sharing, sense of control, attention to overlapped responsibility and structuring intervention, and four core competencies of interprofessional collaboration (Schmitt, Blue, Aschenbrener, & Viggiano, 2011) which are interprofessional values and ethics, interprofessional roles and responsibilities, interprofessional communication practices, teamwork and team-based practices. The number of items on the components of clinical pathways of patient management and team management of patient were 18, 9 items for collective culture tendencies and 9 items for individual culture tendencies respectively. The number of items on the components of patient care integrated documentation and joint problem-solving through interprofessional discussions were 16, and 8 items were for collective culture trends and 8 items for individual culture trends respectively.

Content Validity Test. The content validity test was performed through expert assessment involving 5 experts from health professionals (minimum 4 experts) i.e. a health care management expert, medical practitioner, nursing practitioner, nursing academic, and a clinical pharmacist. Experts from the field of psychology and nutritionists provided expert insights through discussions with the researcher. The expert judgment was given to establish CVI in relation to the item relevance, and CVR is related to the essentiality of the item. CVI for the first 3 components of the clinical pathway of patient management, team management of patients and integrated documentation of patient care exceeded 0.8, whereas in the joint problem solving component through CVI's interprofessional discussions was 0.77 approaching 0.8, so in overall the entire instrument item contents was relevant (Polit & Beck, 2006). This CVI assessment was required to revise, replace or remove irrelevant items. From the assessments and written comments given by the experts, there revised items were 3 items on the clinical pathway of patient management component, 3 items on the team management of patient component, 2 items on the integrated documentation of patient care, and 4 items on the joint problem-solving through interprofessional discussions component. No items were removed after the CVI assessment. The expert judgment was to establish CVR in relationship to the essentiality of the instrument item. The

assessment experts for CVR were the same experts who assessed CVI. In general, the CVR on all four components was positive (0.27–0.63), meaning that in general, the instrument contents were essential. However, when viewed per item there were some items whose CVR was negative (below 0), and from those items the structure and context of the sentence were revised i.e 3 items in the clinical pathway component, 7 items in the team managementof patient component, 2 items in the integrated documentation component and 4 items in joint problem-solving through interprofessional discussions component.

The process of revising the instrument item both related to the relevance and essence of the instrument contents was conducted by taking into account the expert comments, the revision of the instrument contents was performed on the item whose CVI score was <0.75 and the CVR score was negative. In the clinical pathways of patient management, both from the relevance and essence of the instrument contents, 3 items were revised. On two of them i.e. items no 13 and 14, the content context were revised. One other item was no 11, revisions were made regarding the relevance of the contents, and one item no 14, a revision was performed related to the essence of the item. In item no 11, the contents of the item were considered to tend to indicate collective culture whereas the number was an item for an individual culture indicator.The revision of items was performed by changing the context towards culture.

On the team management of patient component, three items which were number 5, 9 and 18 required revisions on the relevance and essence of the contents of the instrument. One expert commentary for no 9 emphasized the need for discussion to improve understanding. On those three numbers revisions were performed in the sentence context. On four other numbers revisions were performed to the essence of the instrument contents, i.e. on numbers 2, 4, 10 and 17 as the CVR was negative.

On the integrated documentation of patient care component, two items needed to be revised from the relevance and essence of item contents, both items were statement items number 5 and 15. The focus of revision was on the importance of attention to the content of the documentation from disciplinary partners as professional considerations for the continuity of care.

On the joint problem-solving through interprofessional discussions component, there were four items that needed revisions both of the relevance and essence of the item contents. The four items were number 5, 9, 10 and 14. The focus of discussion of number 5 was to place emphasis on the importance of addressing errors in services to prevent recurring events; the focus of revision of number 9 was the emphasis on the need for interprofessional discussions to build understanding among professional partners. The revision of item number 10 was on the importance of explaining the rationale of action in interdisciplinary discussions, while revisions to item number 14 put emphasis on the role and autonomy of each profession. No items were removed after the CVR test.

The construct validity test

All items on the four components of the model were statistically valid and the instrument reliability was indicated by α Cronbach in the range of 0.792 - 0.963 with the total number of respondents 237 persons for two stages of validity test. The limitation of this construct test was that the ratio of respondents' background i.e. physicians, nurses, clinical pharmacists, and nutritionists, was not yet balanced but generally corresponded to the proportion and composition of health-care practitioners in hospitals. Overall, the respondents consisted of 44 physicians (18.6%), 175 nurses (73.8%), 7 clinical pharmacy practitioners (3%), and 11 nutritionists (4.6%). One of the factors was the number of nurses was the largest compared to other health professionals in various health care management.

Conclusion

The process of developing a team cohesiveness measurement instrument in the practice of interprofessional health care collaboration has been completed and compiled a valid set of instruments (with r in the range of 0.283–0.847> 0.195) and

reliable with α Cronbach on four model components, namely the clinical pathway of patient management, team management of patient, integrated documentation of patient care and joint problem-solving through interprofessional discussions was in the range of 0.792–0.963, thus this instrument can be used. As an original creation, this instrument has been recorded at the Ministry of Justice and Human Rights of the Repubic of Indonesia with number 000100340.

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The Factors that are Related to Self-Care Agency in Patients with Hypertension

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Abstract

Uncontrolled hypertension leads to complex problems experienced by patient as the complication of the hypertension. The patient's ability to do self-care (self-care agency) is essential and recommended to control hypertension. Age, sex, education, occupation, marital status, decision making, duration of hypertension, lifestyle, and insurance availability are contributed to the self-care agency. Nurses and patients should be able to know and understand these self-care agency related factors. The aim of this study was to identify self-care agency relating factors of hypertension patients in Pekanbaru. This study conducted using a quantitative approach with cross sectional design and involving 100 hypertension patients who recruited using purposive sampling techniques. Self-care agency was measure using exercise of self-care agency (ESCA) questionnare. Data were analyzed using Spearman test and Chi Square test to determine the relation of each factors on self-care agency and multivariate logistic regression test to determine the most related factors on self-care agency. The result showed that there were a significant different of age (p=0.048), education (p=0.002), gender (p= 0.025), health insurance (p=0.027), and life style (p=0.003) with self-care agency. Meanwhile, there were no signifcant different of occupation (p=1.000), decision making (p=0.800), marital status (p=1.000), and duration of hypertension (p=0.567) with self-care agency. Multivariate analysis revealed that the most influence factor for self-care agency is life style. This study suggest the nurses in improving self-care agency of hypertension patients must concern about patient lifestyle and help patient to modify their lifestyle.

Keywords: Hypertension, patients, self-care agency.

Introduction

Hypertension is one of the most deadly chronic diseases in the world by contributing 9.4 million mortality every year (WHO, 2013). WHO data states that some of the developing countries (40%) have hypertensive patients. In Southeast Asia, 36% of adults suffer from hypertension and 1.5 million die each year. The number of people with hypertension is predicted to increase sharply in 2025 where about 29% (1.6 billion adults) worldwide will suffer from hypertension (Kementerian Kesehatan RI, 2013).

Prevalence of hypertension in Indonesia inclined increase every year. According to the data of Riset Kesehatan Dasar (Riskesdas) in 2013 the prevalence of hypertension in Indonesia reaches 25.8% in the age range above 18 years and ranks 6th of 10 non-communicable diseases in Indonesia. The highest incidence was found in Bangka Belitung at 30.9%, South Kalimantan with 30.8%, East Kalimantan with 29.6% and West Java with 29.4%. While in Riau Province as much as 20.9% (Kementerian Kesehatan RI, 2013).

Based on data from Dinas Kesehatan Propinsi Riau tahun 2012 showed that the incidence of essential (primary) hypertension was ranked third for outpatient non-communicable visits with 742 cases. As for hospitalization, essential hypertension ranks second with 343 cases (Dinas Kesehatan Propinsi Riau, 2012). This figure increases in the year 2013 from the results of integrated surveillance of disease (STP) district/city health centers, hypertension ranks third of the 10 highest disease in Riau as much as 4182 cases (Dinas Kesehatan Propinsi Riau, 2013). Data from Dinas Kesehatan Kota Pekanbaru (2015) showed hypertension ranks first in the top ten cases of non-communicable diseases in health centers in Pekanbaru as many as 36,476 visits. The profile data also shows that hypertension is second in the top ten disease types in public healt centre by 2015 with an incidence rate of 31,437.

Hypertension is a disease that occurs caused by high systolic and diastolic blood pressure. Many factors that can cause the occurrence of hypertension, one of them is unhealthy lifestyle. This is evidenced by the high incidence of hypertension in people who have smoking habits, lack of activity, do not consume healthy food, have a weight above normal (obesity), and high stress levels (Riskesdas, 2007).

Hypertension can lead to the emergence of several complications such as damage to the heart, brain, kidneys, and eyes (Allen, 2011). Uncontrolled hypertension can lead to kidney failure caused by elevated levels of angiostin so that the kidneys are damaged. In addition, hypertension also affects the decline in body function, increased risk of memory loss (dementia), and ability to take care of themselves (American Heart Association [AHA], 2007). Uncontrolled hypertension also causes microalbuminemia, stroke and heart attack (Messerli, William, & Ritz, 2007).

Onwuchekwa, Asekomeh, Iyagba, and Onung (2010) conducted a review of mortality rates against 424 hypertensive patients in Nigeria. 39.9% of patients had a stroke as a result of complications of hypertension, heart failure (22%), kidney failure (9.4%), and encephalopathy (1.7%). Death rates due to complications of hypertension caused by stroke (51.5%), heart failure (14.12%), and kidney failure (12.1%). In the same period Onwuchekwa also found out of 191 cases of death in cases of hypertension, 85% of deaths occurred during acute hypertensive crisis that included stroke, encepalopathic hypertension, and acute renal failure. Other complications that lead to death are caused by heart failure (17.3%) and renal failure (16.8%). The high rate of morbidity and mortality caused by complications of hypertension is not apart from uncontrolled hypertension.

Based on data from the statistics of heart disease and stroke in 2012, during the years 2005-2008 found the incidence of hypertension occurs at the age of 20 years and the elderly. A total of 79.6% of patients are aware of hypertension and 70.9% of them undergoing treatment. However, only 48% of patients were able to control their blood pressure below 140/90 mmHg, while 52% were unable to control their blood pressure (Roger et al., 2012). The low control of hypertension was also obtained by Hajjar and

Kocthen (2003) in his study by looking at trends in the prevalence, awareness, treatment and control of hypertension in 1988-2000 in the United States. The results showed that during the year the treatment and control of hypertension was only 31.0%.

Blood pressure control is important for patients with hypertension. The study results showed a decrease in blood pressure will reduce the risk of cardiovascular disease and other vascular complications. A decrease in blood pressure can reduce the risk of stroke by 20–25% and the risk of heart failure by 50% (Burrows & Muller, 2007). Therefore, uncontrolled hypertension will increase the complications and mortality rates of hypertensive patients. Poor behaviors control of hypertension indicate poor management of hypertensive patients who are the leading cause of death in public health services in China (Hu, Li, & Arao, 2013).

In Indonesia, the level of awareness, treatment, and control of hypertension is very low. Krishnan, Garg, and Kahandaliyanage (2013) conducted a study of the incidence of hypertension in Southeast Asia. The study shows that the level of awareness of hypertensive patients in Indonesia related to hypertension status is the lowest among other ASEAN countries, only 24.0%. Meanwhile for the number of handling and control is not reported at all. This indicates that the proportion of hypertensive patients whose blood pressure is controlled is very small. The low level of awareness, handling, and controlling blood pressure performed by the patient results in high problems due to complications of hypertension (Ogah et al., 2012). Therefore, it is necessary to make the right effort for patient to improve their control behavior and reduce the number of complications.

One approach that can improve patient's blood pressure control is the involvement of the patient itself in self-care. Sadeghi, Shiri, Roohafza, Rakhshani, Sepanlou, and Sarrafzadegan (2013) recommend a self-care model to be implemented and used in the care of patients and families with hypertension. Sadeghi et al. says that self-care is an effective and successful method of controlling hypertension. By applying self-care the patient will be able to improve his lifestyle to control the disease by using existing resources.

The ability of self-care is important for patient with hypertension. This is due to success of hypertension treatment depends on the patient's ability to control various risk factors for high blood pressure. Self-care focuses on the value and aspect of active empowerment and engagement of the patient in achieving the goal of care and maintaining their health condition. Self-care aims to allow patients to care for and meet their own needs ranging from biological, psychological, developmental, and social needs in managing health and well-being. When patients are unable to meet their needs, self-care will not be effective. This condition certainly affects the quality of life and the patient's family. Therefore, it is important for the nurse to look for what is needed by the patient, why the patient is not able to do self-care well, what affects the patient's ability to care for themself and what to do to meet the patient's care needs (Potter & Perry, 2009).

Orem says self-care is a "human regulatory function" which means that every act of care is based on individual abilities. Any activity that an individual undertakes in improving, maintaining, or restoring their health status is called self-care. Nurses play a role in helping patients achieve optimal health by providing care or health education aimed at establishing patients so that patients are able to adapt to the illness condition. This is in line with hypertension patient's goal of controlling blood pressure and minimizing the incidence of complications with lifestyle modification (Smeltzer, Bare, Hinkle, & Cheever, 2010).

Individual self-care behavior is seen by assessing the ability of self-care patients known as self-care agencies (SCAs). There are 3 components that are included in the ability of self-care, the knowledge, the need in making decisions to behave, and resources both physical, psychological, emotional, and material. These three components of the self-care agency will be used to predict the behavior of self-care of a person or patient (Meleis, 2012). Self-care is influenced by internal and external factors (Srikan, 2012). Factors affecting self-care are known as basic

conditioning factors that include age, gender, education, health status, developmental stage, socio-culture, health care system, environment, family support, lifestyle, and resource availability (Callaghan, 2005; Orem, 2001).

Orem (2001) says that patients should be able to develop knowledge and understanding of the factors that affect self-care needs and the ability of self-care. Likewise with nurses, it is necessary to understand the characteristics of the patient so that it can be better in providing assistance and collaborating. Knowledge of basic conditioning factors affecting the patient's self-care agency can assist nurses in predicting the type and amount of assistance received by the patient. Nurses should also have an insight against their own basic conditioning factors as they will affect the nursing agency and nursing care provided to the patient.

Some studies show and explain relationship between age (Ranpenning & Taylor, 2003; Kamrani et al., 2014; Daryasari, Karkezloo, Mohammadnejad, Vosooghi, & Kagi, 2012; Khresheh & Mohammed, 2016; Sousa, Zauszniewski, Musil, Lea, & (Coyle, 2000; Sousa, Zauszniewski, Musil, Lea, & Davis, 2005), education, occupation (Akyol, Cetinkaya, Bakan, Yarali, & Akkus, 2007; Hu, Li, & Arao, 2013; Oksel, Akbiyk, & Koca, 2009), and marital status (Istek & Karakurt, 2016; Alizadeh, Ashktorab, Nikravan, Mofrad, & Zayeri, 2014; Dunbar, Clark , Quinn, Gary, & Kaslow, 2008) with self-care agency.

Several previous studies have mentioned that in addition to age, sex, education, employment and marital status, there are other factors that related to self-care agency of hypertensive patients, namely decision making (Dunbar, Clark, Quinn, Gary, & Kaslow, 2008), health insurance (Akyol, Cetinkaya, Bakan, Yarali, & Akkus, 2007; Callaghan, 2005), lifestyle (Sadeghi et al, 2013; Mersal & Mersal, 2015), and duration of hypertension (Hu, Li, & Arao, 2013). Based on the results of these studies there is no research about the most dominant factors that related to self-care agency in patient with hypertension. More over in Indonesia, research about factors that related to self-care agency in patient with hypertension is rarely done. Therefore it is important to find out the factors that are related to the self-care agency, especially to find the most dominant factor in relation to the self-care agency of patients with hypertension.

Based on this condition, it is necessary to find the most related factors to self-care agency in patients with hypertension to help and facilitate nurse when determining the priority scale in the provision of nursing orders. On the other hand, it also potential to assist patients in improving self-care agency that is useful in controlling hypertension. This is the main reason and interesting for researcher in doing research on "The Factors that are Related to Self-Care Agency in Patients With Hypertension in Pekanbaru".

Method

This research uses a quantitative approach with cross-sectional design which is a research design with observation or measurement at the same time (once) on the cause or risk variables and the consequences or cases that occur (Burn & Grove, 2005). Population in this research is all patient of primary hypertension that exist in work area of Harapan Raya Public Health Centre in Pekanbaru. The sampling technique used in this research is purposive sampling. The samples were chosen by considering the inclusion and exclusion criteria set by the researcher. Dahlan (2010) and Sastroasmoro (2011) said that to determine the number of samples in a multivariate study, both the linear regression and logistic regression were performed using the rule of thumb with the benchmark of the independent variables studied. The recommended calculation is 10 times the number of independent variables studied plus the anticipated drop-out by 10%. Thus the large sample in this study amounted to 100 patients with hypertension in the city of Pekanbaru in the work area of Harapan Raya Public Health Center in Pekanbaru. Data were analyzed by using chi square and multivariate logistic regression test.

Result

Table 1 Distribution of Respondents by Age, Sex, Education, Occupation, Marital Status, Decision Maker, Duration of Hypertension, Health Insurance, and Lifestyle (n = 100)

Variable	Frequency	Percentage (%)
Age		
Early Adult (18–40)	15	15
Mid Adult (41–60)	63	63
Late Adult (>60)	22	22
Gender		
Woman	69	69
Man	31	31
Education		
SD	39	39
SMP	10	10
SMA	30	30
PT	21	21
Occupation		
Work	45	45
Does Not Work	55	55
Marital Status		
Married	98	98
Not Married	2	2
Decision-Making		
Respondents	16	16
Discussion/Family/Others	84	84
Duration of Hypertension		
0,5 years– 1 year	29	29
>1 year – 3 years	41	41
>3 years	30	30
Health Insurance		
Do Not Have Health Insurance	43	43
Have Health Insurance	57	57
Life Style		
Good	48	48
Not Good	52	52

Table 2 The Frequency Distribution of Respondents by Self-Care Agency (n = 100)

Variable	Frequency	Percentage (%)
SelfCare Agency		
Good	44	44
Not Good	56	56

Table 3 Relationship Age, Education, Long Suffering Hypertension with Self-Care Agency (n = 100)

Variable	r	p
Age	-0.198	0.048
Education	0.310	0.002
Duration of Hypertension	0.058	0.567

Tabel 4 Relationship of Sex, Occupation, Marital Status, Decision-Making, Lifestyle, and Ownership of Health Insurance with Self-Care Agency (n = 100)

Variable	Self-care Agency		n (%)	OR (95% CI)	p
	Good n (%)	Not Good n (%)			
Gender					
Woman	8 (25.8)	23 (74.2)	31 (100)	0.319	0.025
Man	36 (52.2)	33 (47.8)	69 (100)	(0.125-0.810)	
Occupation					
Work	20 (44.4)	25 (55.6)	45 (100)	1.033	1.000
Does Not Work	24 (43.6)	31 (56.4)	55 (100)	(0.467-2.285)	
Marital Status					
Married	43 (43.9)	55 (56.1)	98 (100)	0.782	1.000
Not Married	1 (50)	1 (50)	2 (100)	(0.048-12.862)	
Decision-making					
Respondents	8 (50)	8 (50)	16 (100)	0.750	0.800
Discussion/ Family	36 (42.9)	48 (57.1)	84 (100)	(0.257-2.189)	
Life Style					
Good	29 (60.4)	19 (35.6)	48 (100)	3.765	0.003
Not Good	15 (28.8)	37 (71.2)	52 (100)	(1.636-8.664)	
Health Insurance					
Do not have health insurance	31 (54.4)	26 (45.6)	57 (100)	2.751	0.027
Have health insurance	13 (30.2)	30 (69.8)	43 (100)	(1.195-6.334)	

Table 5 Results of Bivariate Selection Factors Associated with Self-care Agency in Patients with Hypertension

Variable	P Value
Age	0.004
Gender	0.016
Education	0.000
Occupation	0.935
Marital Status	0.836
Decision-Making	0.599
Duration of Hypertension	0.038

Health Insurance	0.017
Life Style	0.000

Table 6 Final Model of Multivariate Analysis of Logistic Regression (n = 100)

Variable	B	P	OR	CI 95%	
				Min	Max
Age	-0.058	0.018	0.943	0.899	0.990
Life Style	0.058	0.000	1.059	1.029	1.090

Based on Table 1 it is found that most respondents have primary education level (39 people or 39%) and duration of hypertension for> 1 year – 3 years (41 people or 41%). Most respondents aged 41–60 years (63 people or 63%), women (69 people or 69%), not working (55 people or 55%), have health insurance (57%), and have a not good lifestyle (52 people or 52%). The majority of respondents were married (98 people or 98%) and took decisions through discussion (84 people or 84%).

Based on table 2 it is known that most respondents have a poor self-care agency as many as 56 people (56%).

Based on table 3 it is known that the variables of age and education have a significant relationship to the self-care agency in patients with hypertension. Age is negatively related, while education is positively related to self-care agency patients with hypertension.

Based on table 4 it is known that the p value on the gender variables (0.014), lifestyle (0.003), and health insurance ownership (0.027) is smaller than the alpha value (0.05) which means there is a significant relationship between gender, lifestyle, and health insurance with self-care agency in patients with hypertension. The result of the analysis shows that female respondents have a good self-care agency as much as 52.2% compared to male respondents who only 25.8% with the value of OR 0.319 which means female respondents tend to have a good self-care agency 0.319 times compared to male respondents.

The analysis results on lifestyle variables found that respondents with a good lifestyle have a good self-care agency (26 people or 60.4%). The OR value of lifestyle was 3.765, meaning that respondents with a good lifestyle had a tendency to have a good self-care agency as much as 3,765 times compared to respondents whose lifestyle is not good. The result of analysis on the variable of health insurance shows that the patient who has health insurance has a good self-care agency as many as 31 people (54.4%). The value of OR in the health insurance variable is 2.751, which means there is a tendency of respondents who have health insurance to have a good self-care agency of 2.751 times compared to respondents who do not have health insurance.

Based on table 5 it is known that the p values for the age variables (0.004), gender (0.016), education (0.000), long suffering from hypertension (0.038), health insurance holdings (0.017), and lifestyle (0.000) from 0.25 which means all these variables go into the multivariate modeling stage. Meanwhile for job variables (0.935), marital status (0.863), and decision making (0.598) do not meet the requirements for inclusion in multivariate modeling.

Based on the final analysis results of multivariate modeling found that variables related to self-care agency in patients with hypertension were age and lifestyle. Judging from the analysis results obtained the largest Odds Ratio (OR) values exist in lifestyle variables. This suggests that lifestyle is the most dominant factor that related with self-care agency in patients with hypertension after controlled with age variable.

The equation derived from the multivariate modeling using the formula, y = constant + a1x1 + a2x2 + ... + ax xx where a is the coefficient value of each variable and x is the

value of the independent variable then the equation is obtained as follows:
y = 0.698 + -0.058 (age) + 0.058 (lifestyle)
Based on the equation, it can be seen that respondents with a good lifestyle have a tendency to have a good self-care agency 0.058 times after controlled with age variables. This is significant in improving self-care agency of respondent nurses should pay attention to respondent's lifestyle and able to direct respondent to modify lifestyle according to recommendation in patients with hypertension.

Discussion

Discussion of univariate, bivariate, and multivariate analysis includes age, gender, education, occupation, marital status, decision making, duration of hypertension, lifestyle, and health insurance. The result of bivariate analysis shows that there is a correlation between the variables of age, gender, education, lifestyle, and health insurance against self-care agency, while occupation variables, marital status, decision making, and duration of hypertension are not related to self-care agency.

The results of this study indicate that the age variable associated with self-care agency with p value 0.048 (<0.05). There is a negative relationship between the age variable and the self-care agency of respondents. This is in accordance with Orem (1995, in Ranpenning and Taylor, 2003) who say that self-care agency increases during childhood until adulthood, but will decrease in elderly. The same study was obtained by Akhter (2010) on self-management in hypertensive patients in Bangladesh. The study showed that self-management in the middle and young adult respondents better than the final adult respondents.

Sundsli, Soderhamn, Espnes, and Soderhamn (2012) in their study also found a negative association between age and self-care agency (r = -0.126, p <0.001). The study shows that increasing age will increase risk factors for decreased self-care ability. The study found that when entering old age, the respondents at risk of changes in nutritional status, respondents are at risk of nutritional deficiencies and also become lack of physically. Nutrition is an important thing in self-care where older respondents tend not to meet certain nutritional needs appropriately. Similar studies were also obtained by Soderhamn and Bachrach-Lindstrom (2008) in which 69% of respondents reported being at risk of nutritional distress at high risk of adverse health outcomes and decreased of self-care ability.

Weinger, Beverly, and Smaldone (2014) explained that when a person getting older, he will experience changes in health status, physical and mental abilities, and also the fulfillment of nutritional needs that will interfere with his self-care behavior. Other studies also showed a negative association between age and self-care behavior in hypertensive patients (Yang, Jeong, Kim, & Lee, 2013). Therefore, patients or elderly persons should be given support in order to maintain their ability and self-care behavior and health status.

The next variable is gender. The results of this study indicate that there is a significant relationship between gender and self-care agency with p value 0.014 (<0.05). Female respondents (52.2%) had a better self-care agency than male respondents (25.8%). These results are similar to Hu, Li, and Arao (2013) who also found that female respondents had better self-care than male respondents. Coyle (2000) says that gender is one of the basic factors that can affect the ability and needs of self-care as well as relating to dependent care and the need for dependent care. The tendency of female respondents to have better behavior and ability in performing self-care than male respondents are influenced by social and cultural factors. This indirectly prevents women from unhealthy behaviors and habits commonly done by men, such as smoking and consuming alcohol (Yang et al., 2008).

Respondents in this research are very demanding women in order to maintain and care for their families well. A woman especially who has married is expected to meet the needs of family members. Women act as financial managers and usually also take control of decisions made by the family, including in terms of managing family health. In addition, the majority of female

respondents have sufficient time to self-care and tend to be more active and concerned about their health than male respondents.

Other studies that support is Sousa, Zauszniewski, Musil, Lea, and Davis (2005) who found gender have a meaningful contribution to self-care behavior in diabetic patients. The study showed that female respondents had better self-care behavior than male respondents. The findings of this research also explains that women have a more caring attitude and pay more attention to the health status and disease suffered so as to try to do self-care optimally.

Educational variables also showed significant relationship with self-care agency of respondents with p value 0.002 (<0.05). The results of this study are similar to Coyle (2000) who said that the strength and ability of self-care is a behavior that is learned from childhood to adulthood and formal education role as a factor that affects the level of self-care person. The results of this study are in line with the research of Akyol, Cetinkaya, Bakan, Yarali, and Akkus, (2007) on self-care agency and the factors that influence it on 120 hypertensive patients. The study shows that education is related to the patient's self-care agency. The leading cause is high education correlates with better work and income and affects one's self-care ability. Other studies have also shown a correlation between educational level and self-care ability, if the level of education is increase so the ability to self-care will also increase (Baghaiy, 2005).

Education is very influential on how individuals make decisions and receive information. Education also affects the intellectual in every person. Higher education will affect the broader view of the individual about everything, the amount of knowledge possessed, and easy to accept new ideas or ways in life. Otherwise, low education can affect the limitations of intellectual that make his behavior is still affected by the environment (Purwanto, 2004). A person who has higher education has better capability in receiving information than a person who have low education (Adi, 2004).

Occupation was the variables that are further investigated in this study. The analysis result showed that there was no significant correlation between the working patients and those who did not work on self-care agency with p value of 1,000 (> 0,05). These findings are similar to Hassani, Farahani, Zohour, and Panahi (2010) that self-care and occupation do not show statistically significant relationships. Similar results were also obtained by Akyol, Cetinkaya, Bakan, Yarali, and Akkus, (2007) who also found that the occupation did not affect the ability of self-care. Several other studies have also shown no significant relationship between occupation and the self-care agency of patients (Istek & Karakurt, 2016; Aksel, 2010; Gul, Ustundag, & Zengin, 2010). Different results obtained by Oksel, Akbiyk, and Koca (2009), there is a significant relationship between the work with the ability of a person in doing self-care. Work is directly related to one's self-care ability. Patients with better jobs are believed will earn a higher salary and impacted to his ability to use health services.

Patients who are still actively working and have good financial will help him in using health services adequately and also affect his participation in social life. Most of the respondents (55%) in this study did not work and were generally housewives and retirees. However, this group of respondents still has income and health insurance from their families so that although they do not work they are still able to utilize the health service facilities optimally. This is why occupational status does not contribute to the patient self-care agency.

The next variable that investigated in this study is marital status. The analysis result shows that there is no relationship of married and unmarried respondents with self-care agency with p value of 1.000 (> 0.05). Unmarried respondents (50%) and married (56.1%) both had more poor self-care agencies than good self-care agencies. Unsar, Erol, and Mollaoglu (2007) also found no significant relationship between marital status and self-care agency of respondents. Other supporting studies were conducted by Khoshtarash, Momeni, Ghanbari, Salehzadeh, and Rahmatpour (2013) on factors related to self-care behavior in patients with systolic heart failure. The results also showed no effect between marital status on self-care behavior in patients with systolic heart failure.

The different result obtained by Daryasari,

Karkezloo, Mohammadnejad, Vosooghi, and Kagi (2012) in their study of patients with heart failure. The result shows that married respondents have better self-care ability than unmarried respondents. Married respondents will have a spouse who can play a role in reducing job stress, providing emotional support and lifestyle changes that lead to improved patient self-care. Similar results were obtained by Istek and Karakurt (2016) in their research on self-care agencies in type 2 diabetic patients. They found there was a significant relationship between marital status and self-care agency. Unmarried respondents had higher self-care agency scores than married or divorced and single parent respondents. Mohamadi et al (2015) also stated that there is a significant relationship between marital status toward self-care behavior with p 0.008. Respondents who have a spouse have a positive impact of creating affective support and helping patients to change lifestyles and improve self-care behavior in a better direction.

Married respondents have good support in the form of affection, material, information and evaluation from their partner. The patient will have basic and primary sources of strong social support from intimacy with their partner. Relying on and trusting their partner will help the patient in making decisions whereby the partner plays a role in monitoring patients self-care behavior and reminds the patient to always concern about their self-care behavior (Alizadeh, Ashktorab, Nikravan, Mofrad, & Zayeri, 2014). Dunbar, Clark, Quinn, Gary, and Kaslow (2008) added that marital status is a necessary part of social support for patients with cardiovascular disease. Mortality and morbidity rates are found to increase in individuals who live alone and unmarried. Patients with unmarried heart failure are reported to be more depressed and have a lower quality of life and many are treated repeatedly to the hospital. Married and having a life partner provides a mechanism and an impact that is believed to provide social support so as to improve patient self-care. With the support of social and family, patients can avoid psychosocial distress that can be bad for health behavior.

The difference this study with other studies may be caused by respondents socio-cultural factors. Respondents who are married or unmarried commonly ask for opinions to other family members, such as parents, brother, sister, and or other close relatives in deciding about their health problems. Discussion has become commonplace done by respondents before taking a decision or action to be done about their health problems. Respondents tend to listen to suggestions and suggestions from family members, especially those with similar experiences related to self-care actions to be performed. Unmarried respondents continue to receive attention, affection, and support and support from their parents and immediate family, whether in decision-making related to health issues or about healthy daily living behaviors. This is why the marital status is not related to the self-care agency.

The subsequent analysis on decision-making variables indicate that decision-making either self-resolved by the respondent or through discussion is not related to self-care agency with p value of 0.800 (> 0.05). Decision-making is closely related to family support and the presence or absence of a patient's life partner. Dunbar, Clark, Quinn, Gary, and Kaslow (2008) say that family support has a positive effect on take care and maintaining healthy behavior. However, if the patient is too dependent on the family and the decision is entirely in the family then it also does not have a positive impact on the patient. In decision-making about intervention or response to patient's health condition must be done with good communication between patient and family. Patients should not take unilateral decisions, but also discuss with family members. Patients who consider their family as supporters, reinforcers, confidants and preferred alternatives have better health behaviors.

The family involvement to make decision for evaluation and interpretation the symptoms can can help patient response. Lack of cooperation or family care where the patient self-determines and takes full responsibility for himself without being accompanied by the family can make the patient anxious and distressed. As a result the patient will not be able to maintain healthy behavior and perform self-care optimally (Dunbar, Clark, Quinn, Gary, & Kaslow).

Baylis, Steiner, Fernald, Crane, and Main (2003) said that increased levels of depression are very related to decreased patient self-care abilities.

Other variables studied were duration of hypertension. Based on analysis result known that there is no significant correlation between duration of hypertension with self-care agency, p value 0.567 (> 0.05). These results are similar to Saleema, Panpakdee, Arpanantikul, and Chai-Aroon (2016) studies suggesting that duration of hypertension does not affect the patient self-care agency as well as self-care behavior toward controlling hypertension. The same results were also obtained by Kusniawari (2011) in his research on factors that contribute to self-care of diabetic patients. The study showed there was no significant association between long-standing Diabetes Mellitus (DM) with self-care diabetes.

Several studies also shown similar results that duration of DM did not affect the self-care of diabetes. Patients who have recently suffered from DM and newly diagnosed actually have better self-care than patients who have long exposed to DM. the leading cause is patients who are newly diagnosed with DM have not been saturated in self-care activities and have high motivasion and responsibilities in controlling disease (Skinner & Hampson, 2001; Sousa, Zauszniewski, Musil, Lea, & Davis, 2005).

The results of this study are supported by the inconsistency of several studies about the relationship between duration of hypertension with self-care in controlling hypertension. Research conducted by Hu, Li, and Arao (2013) on factors related to self-care behavior in hypertensive patients in Beijing. Their findings suggest there is a positive relationship between duration of hypertension and self-care. Patients with long-standing hypertension tend to have better self-care than newly diagnosed hypertensive patients. Patients who have a longer duration of hypertension have learned how to adapt with hypertension so they will have a better self-care rather than the new patients with hypertension. This study also support by Vivience et al (2007) and Bai, Chiou, and Chang (2009) which suggest that self-care of diabetic patients is influenced by the length of patients suffering from DM. The longer the patient has DM the self-care ability of the patient will be better than the patient who suffer from DM with a shorter duration.

Bai, Chiou, and Chang (2009) explain that patients with long-lasting DM (more than 10 years) usually study diabetes self-care behavior based on the their experience. The patient becomes more prepared and better understanding of what should be done and what should not be done in maintaining their health status. Usually patients who suffer DM longer also understand the importance of self-care diabetes that tends to be active in finding various sources of information about diabetes care.

Therefore, there are several things that can occur in hypertensive patients. For new patients with hypertension still have high motivation and responsibility so that the patient is trying to implement self-care optimally. For patients who have recently suffered hypertension, it becomes a special experience and challenge to be able to do self-care well and prevent complications. For patients who have long suffered from hypertension, the patient is able to adapt and have a good understanding of the disease and committed to applying self-care as a habit and part of his life. Beside that, most of the respondents were unable to control their blood pressure have low both of comorbid and complications, so the respondent thought that they was healthy and done enough self-care to maintain their health. This is why duration of hypertension is not related to self-care agency.

The next variable studied is lifestyle. The results showed that lifestyle was related to self-care agency of respondents with p value 0.003 (<0.05). There is a positive relationship between lifestyle and self-care agency. The better the lifestyle the better the self-care agency of the respondent. Recommended lifestyles for patients with hypertension include eating a healthy diet, maintaining weight, performing regular physical activity, stress management, limiting salt intake and smoking or drinking alcohol (Huang, Duggan, & Harman, 2008).

The study result from Istek and Karakurt (2016) on the influence of daily activities

on self-care agency in patients with type 2 diabetes shows that there is a positive correlation between physical activity in daily life with self-care agency. The more physical activity increases the behavior and self-care agency of the patient. Other similar studies from Daryasari, Karkezloo, Mohammadnejad, Vosooghi, and Kagi (2012) suggest that poor self-care behaviors are associated with low physical activity in patients with heart failure. This is supported by Mohamadi et al. (2015) on self-care behavior in patients with systolic heart failure. The results showed poor exercise and weight control resulted in poor patient self-care behavior.

Another supportive study was carried out by Sundsli, Soderhamn, Espnes, and Soderhamn (2012) who in their study found that respondents who actively engaged in physical activity each day had better self-care ability than respondents who were physically active only once a week p <0.001). There is a difference in the ability of self-care in respondents who perform physical activity every day compared with those who only do activities less than once a week or not physically active (p <0.001).

Istek and Karakurt (2016) in their research also mentions that there is a relationship between maintaining a good diabetes diet against self-care agency. Adherent patients and maintaining a healthy diet have higher self-care agency scores than patients who are not adherent to their diet. Unsar, Erol, and Mollaoglu (2007) also stated that in general dialysis patients maintaining a healthy and balanced dietary intake had a better self-care agency than patients who did not maintain a healthy and balanced diet.

Self-care management in patients with hypertenson is in line with lifestyle modification suggestions that focus on controlling risk factors which can increase blood pressure and worsen the patient's hypertension condition. Therefore, if patient able to modify their lifestyle into better lifestyle so it will also reflect the good self-care of the patient as well. As outlined in the self-care model for patients with hypertension developed by Sadeghi et al. (2013), patients with hypertensive should be able to modify their lifestyle assisted by health personnel in the nearer area of health care service. This concerned to improve and modify the lifestyle of patients with hypertension to achieve health and quality of life optimally. Therefore, the relationship between lifestyle with self-care agency is in the daily healthy lifestyle behavior that will have affect on the respondents ability in controlling blood pressure. Good lifestyle is part of good self-care and directly influence risk factors control of hypertension and contributes to the patient's ability to perform self-care.

The analysis result on the next variable shows the relationthip between health insurance with self-care agency of respondent (p value 0.027 <0.05). This study findings explained that the majority of respondents who have health insurance have a good self-care agency (54.4%), whereas respondents who do not have health insurance have not good self-care agency (69.8%). Akyol, Cetinkaya, Bakan, Yarali, & Akkus (2007) also obtained the same result that there is a relationship between the ownership of insurance against self-care agency. Respondents who have health insurance are better able to take advantage of existing health facilities and use them to control and improve their health status and health care.

The same result is also expressed by Becker, Gates, and Newson (2004) in their research which aims to see the effect of access to health care on self-care applications in African Americans who have chronic illness. The results show that individuals who have health insurance are more able to develop and approach a self-care program. Ownership of health insurance guarantees the individual to gain access to sustainable health services and has the potential to optimize his self-care strategy and management of chronic illness. The ownership of health insurance is related to the ability of patients in access and utilizing the sources of health services. Patients who have health insurance are commonly also supported by sufficient socioeconomics that make them have surplus income and saving it for personal health needs. Patients who have lack of ability in using health facilities caused by cost limitedness and it becomes one of the inhibiting factors in the implementation of self-management in chronic diseases (Schneider, 2010).

The development of self-care strategy is

influenced by the patient's ability to access health services. Access to health services can differentiate the way of patients cope with chronic illness. Patients who have health insurance have better opportunity to discuss with health personnel about their illness condition and obtain important information and also reinforcement of activities which aimed to prevent and handle the disease. The interactions between patients and health workers would potentially produce a comprehensive and effective self-care approach especially in chronic diseases (Becker, Gates, & Newson, 2004).

Becker, Gates, and Newson (2004) added that patients who do not have health insurance have limited access to existing health services. Beside that, it is also significantly affects the patient's ability to develop self-care completely and influence acceptance of self-care both culturally and biomedically. This leading case is supported by Callaghan (2005) who said that the ownership of health insurance increases patients self-care ability. Based on these findings, it clearly showed that the relationship between health insurance and self-care agency is in improving access to health services, increasing the opportunity to get information related to the disease and its management, and also increasing utilization of health facilities so that respondents can implement self-care independently and optimally. The leading case conclude that the health insurance has contribution to self-care agency.

Based on the results of multivariate analysis found that from nine factors studied, lifestyle became the most factor associated with self-care agency. Mersal and Mersal (2015) in their study about the effect of implementation lifestyle based on evidence on self-care behavior and self efficacy in patients with hypertension in Egypt. The results show there is a very positive correlation between the application of lifestyles that based on evidence to self-care activities. Patients who aplly lifestyle accordance with the guidelines as recommended are able to perform self-care well such as limiting salt intake, losing weight to ideal weight, doing regular physical exercise, stopping smoking, not consuming alcohol, stress management, increased consumption of fruits and vegetables, reduced saturated fat consumption, and adherence to treatment.

These lifestyle modification help the patient in lowering and controlling their blood pressure thus reducing the complications of hypertension. As a first line on the management of hypertension, lifestyle modification has been shown to be effective in lowering blood pressure and suppressing the incidence of hypertension. Mersal and Mersal (2015) also stated that lifestyle guidance from NICE (The National Institute for Health and Care Exellence) enhanced the patient's self-care activity compared to patients who did not do lifestyle modifications as recommended.

The close relationship between lifestyle and self-care is also explained by Shrivastava, Shrivastava, and Ramasamy (2013) in patients with diabetes mellitus. Diabetic patients are also encouraged to conduct self-care activities as well as hypertensive patients based on recommendations. Self-care activities in daily living such as regulating diet, doing proper physical activity, adhering to medication therapy and monitoring blood sugar associated with a positive lifestyle and good self-care behavior as well. Alteration in self-care activity can also evaluated on changes in the patient's daily behavior.

A good lifestyle is essential in prevention of high blood pressure and can not be separated from the management of patients with hypertension. In JNC (Joint National Committee) 8 said that the role of lifestyle modification is always emphasized in the hypertensive management. Lifestyle modification by increasing physical activity and increasing control of obesity, dyslipidemia and diabetes mellitus are proved can provide benefits for cardiovascular health (Gavriilaki, Nikolaidou & Gkaliagkousi, 2013). If the patient able to implement good lifestyle, so he will be able to treat himself.

Healthy lifestyles such as maintaining ideal body weight, eating low-salt foods and cholesterol, doing physical activity regularly or exercise, able to manage stress well, control blood pressure regularly, and adherence to treatment are part of hypertension management which should be able to be done patients especially in patients with grade I hypertension (blood pressure 140–159 mmHg / 90–99 mmHg) (James et al., 2013).

This leadin case is accordance with this syudt findings where the majority of respondents have grade I hypertension. Multivariate analysis results showed that respondents have a good self-care agency 1.059 times (95% CI: 1.029–1.090) in respondents who have good lifestyle. Therefore, respondents are required to be able to apply lifestyle modifications as recommended to avoid complications of hypertension so that the goal to control blood pressure can be achieved.

Conclusion

Based on the research findings factors that are related to the self-care agency of patients with hypertension in Pekanbaru, so the conclusion from this study are the characteristics of patients with hypertension in Pekanbaru in Puskesmas Harapan Raya work area mostly in the age range 41–60 years, women, elementary school, unemployment, marriage, discussions in make decisions about health condition, duration of hypertension 1 to 3 years, have health insurance, and have a bad lifestyle. Most of the respondents in this study had a poor self-care agency. Factors related to self-care agency of hypertensive patients in Pekanbaru are age, gender, education, health insurance, and lifestyle. Meanwhile unrelated factors such as ocupation, marital status, decision making, and duration of hypertension. Lifestyle is the most associated factor with self-care agency in patients with hypertension after controlled with age variables.

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