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The implementation of therapeutic communication of nurses to the parents of pediatric patients in pre-operative stage

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Abstract
Background: The pre-operative care aims at preparing the patient and family to face the surgery. In providing nursing care to the pediatric patients, it is better and is recommended that the nurse demonstrate a therapeutic communication.

Objective: This study aims to identify the implementation of the therapeutic communication by nurses to the parents of the pediatric patients who will undergo surgery in the pediatric surgical ward based on the perspective and expectation of the parents.

Methods: The study used a mixed method, with the strategy of sequential explanatory. The quantitative study involved 101 respondents. The implementation of therapeutic communication is measured by using the questionnaire of therapeutic communication implementation. The qualitative study was conducted to six participants as samples, with analysis interactive model technique.

Results: The result of quantitative study found that 53.5% identified poor therapeutic communication being implemented by nurses to the parents of the patients. The result of the qualitative study found that parents expect comprehensive therapeutic communication from nurses, both in terms of language or behavior in any delivery of information or actions to be performed.

Conclusion: The result of this study is expected to be an input for the health care institutions, especially to make it as a reference for consideration in making the standard operating procedures on the implementation of therapeutic communication to improve the nurses’ quality of care.

Keywords: nurses; parents’ perspective; therapeutic communication

INTRODUCTION

Pre-surgery care is meant to prepare the patients and their families to face the operation/surgery. Nowadays, the pediatric care has shown a lot of improvement; the family is not only considered as visitors for the sick child, but more importantly, they are partners of the nurses in determining the child’s needs, and it is carried out through a family-centered care of the patient (Supartini, 2004). Emotional stress generated from hospitalization can affect the emotional adjustment of parents, whether prior to admission or post-discharge from the hospital (Diaz-Caneja, Gledhill, Weaver, Nadel, & Garralda, 2005). In addition, when parents are distressed, it can affect and increase the child’s emotional distress as well (Suryani, 2016).

In the pediatric nursing care, the nurses will always interact and communicate with parents, and advisably, such a communication is a therapeutic one. Communication is the core of...
human social life and is an important dimension of human interpersonal relation. A helper or nurse can overcome the problems encountered through communication (Suryani, 2016). An important means to facilitate feedback onto the parents upon getting their decision regarding their child’s treatment is through a correct and open/transparent communication with the nurses (Ward, 2005). It is strengthened by a qualitative study on the experience of the parents when the child is hospitalized. The study shows that the health workers in the hospitals must improve their communication with parents and provide them with maximal opportunity to participate in the patient care; because it can reduce their stress and it has a greater potentiality to improve the emotional condition of the patient (Diaz-Caneja et al., 2005).

Therapeutic communication is the ability or the skill of nurses to help clients adapting with stress, coping with psychological disturbance, and learning how to relate with others (Northouse & Northouse, 2007). One of the goals of therapeutic communication is to develop the client’s personality to be more positive and adaptive to stressful situations. Thus it is expected that the parents become more adaptive to the stressful situations (Suryani, 2016). Pediatric surgery ward in one of the main referral hospitals in West Java, Indonesia, is a place offering in-patient pediatric nursing care for children from 29 days to 14 years old. The patients treated here are those who are going to, or already, undergo surgery. Based on the observation data, the number of patients treated here is about 55 children in a month. Based on the observation of the researcher in the field, the high amount of workload and level of the bustle of nurses in the surgical ward sometimes making the nurses limiting the communication with parents only to information dissemination about patient’s condition. On the one hand, some parents expressed confusion and worry about how to care for their children before and after the surgery. Some parents also said that nurses communicated with them only to get their consent for any intervention to the patients. However, on the other hand, the nurses said that they have done good communication with the parents.

A study was conducted by Wijayanti to determine the effectiveness of therapeutic communication in reducing the family’s anxiety and increasing the success of nursing care to the family of clients/patients with hearing hallucination in a hospital in Surabaya (Wijayanti, 2010). From this study, it was concluded that there is a relationship between the administration of therapeutic communication and reduction of family anxiety. In addition, therapeutic communication also contributes positively to the success of nursing care. Another study was conducted by Setiawan and Tanjung (2005) regarding the effectiveness of therapeutic communication on the level of pre-surgery anxiety of patients (Tanjung, 2005). The study showed that after administering the therapeutic communication, as many as 92.3% of patients experienced reduced pre-surgery anxiety to light or lower level and only about 7.7% to medium level. This study shows that the therapeutic communication has a significant effect in reducing the anxiety of patients.

Studies on therapeutic communication nowadays are more concentrated on the application of therapeutic communication to psychiatric patients, and it has not been found a study on its implementation to the parents of the surgical pediatric patients. Whereas, the parents of these surgical pediatric patients also experience various psychological problems, whether pre-surgery or post-surgery, that must be considered by the nurses. There was a significant level of psychological distress on mothers whose children would undergo elective surgery (Osuoji, Coker, William, & Ajai, 2012). This research was conducted to identify how the implementation of nurse therapeutic communication based on parents’ perspective. However, the therapeutic communication that is expected by parents is also important to be explored so that this research can be more beneficial for nurses and parents. Therefore, this study uses mixed method design using sequential explanatory model, consisting of quantitative and qualitative analysis sequences. Qualitative data
collection is conducted to enrich the results of quantitative research that has been done before. Therapeutic communications can give benefit, not only to clients but also to the nurses, as the skills do not only give them benefits of mutual trust with clients and further generate effectiveness in obtaining the therapeutic goals, but also it gives them professional satisfaction or fulfilment in service and can enhance their profession (Damaiyanti, 2008). Referring to the above situation, it is important for the nurses to apply therapeutic communication in nursing care, whether to the patients or to their parents. This aim of this study was to identify the implementation of the nurses’ therapeutic communication to the parents, based on the parent’s perspectives and also parents’ expectations regarding the implementation of nurses’ therapeutic communication.

METHODS

Study design
This study employed a mixed method research design using sequential explanatory model, which consisted of a sequence of quantitative and qualitative analysis. The purpose of this model was to identify the variable component through the analysis of quantitative data and then collecting qualitative data to expand the available information based on quantitative data (Creswell, 2010). The main purpose was to combine the quantitative and qualitative data in order to obtain a more comprehensive analysis.

Sample
The population of this study was all parents of children being treated at the pediatric surgical ward in one of the main referral hospitals in West Java, Indonesia. Samples were selected by consecutive sampling. On the selection of consecutive sampling, all subjects that came and met the selection criteria for inclusion were taken in the study until the targeted number met (Ismael & Sastroasmo, 2010). Criteria for inclusion in this study included: 1) Parents of children being treated in the pediatric surgical ward; 2) Parents who were able to communicate well; and 3) parents who were cooperative and willing to become respondent. The number of samples obtained for the quantitative study was 101 respondents. For the qualitative study, most of the respondents were those that belong to quantitative study respondents. The participants were 6, with the same criteria of inclusion. The collection of quantitative data was carried out through focus group discussion, which was conducted after the results of quantitative data analysis obtained.

Instrument
The instrument used in this study was a questionnaire given to the parents of the patients, in the form of statements about therapeutic communication that the nurses demonstrated to them, in the form of Likert scale. The questionnaire was made based on the development of standard operating procedures for the implementation of nurses’ therapeutic communication. The instrument of therapeutic communication implementation consisted of 26 statements, which were subdivided into 21 positive and five negative statements. The result of this instrument is divided into good therapeutic communication and poor therapeutic communication by seeing whether the data is normally distributed or not to determine the data centered size used the mean or median. Validity test being applied was the content validity and construct validity tests. The validity and reliability tests were conducted on 10 parents of pediatric patient in pre-operative stage. The test obtained 26 question items, which were used for the study. The reliability test instrument was conducted using the Cronbach alpha, with a coefficient of reliability value 0.95. Thus, it was concluded that the instrument was reliable.

In a qualitative study, the researcher is the main research instrument (Sugiyono, 2006). Data collection in this study was done through focus group discussion. This method was used to deepen the results of the quantitative study, and to give information or data about parents’ perspective about the implementation of therapeutic communication by nurses. As an
instrument of research, the researcher exercised with an expert on qualitative research to prepare himself as a facilitator of a discussion, so that he could gather information needed for the study from the respondents during the focus group discussion. Discussion guidelines were made based on the results of the quantitative study and the inputs of some experts. Then, the instrument test, called content validity, was done with the expert on the qualitative study. Another instrument used in the qualitative study was observation guidelines. In this study, the researcher observed the parents. It was done to validate the statements of the participants and to confirm the information obtained from them. The guideline was made in the form of field record. It can be in the form of chronological records being made in detail from time to time. When an important event occurred, its chronological record was made, with the number and time of occurrence. The discussion was recorded with voice recorder (MP4), hence it was possible to listen to it repetitively to ease the data analysis process.

**Ethical consideration**
The study was conducted by upholding the ethical principles of self-determination, anonymity and confidentiality, protection from discomfort, beneficence, and justice (Polit & Beck, 2008). Before collecting the data, the researcher followed the procedure of data collection, which consisted of administrative procedure for permission and procedure for conducting the research. This study was approved by ethical committee on health research RSUP Dr. Hasan Sadikin Bandung with IRB approval number LB.04.01/A05/EC/408/IX/2015.

**Data analysis**
The quantitative data analysis was done by using statistics application. Data analysis was done by descriptive statistical analysis, in the form of distributive frequency and percentage. Data analysis for the qualitative study was done after having obtained the quantitative study results. The steps of data analysis being utilized in this study were: Analysis Interactive Model of Miles and Huberman, that subdivide the data analysis process into some parts, namely: data collection, data reduction, data display, conclusion and verification (Miles, Huberman, & Saldana, 2014).

**RESULTS**

**Results of quantitative research**
The research was conducted on 101 parents of the pediatric patients who would undergo surgery in pediatric surgical ward in one of the main referral hospitals in West Java, Indonesia. The sample collection was done by consecutive sampling method. The characteristics of respondents in this study are shown in the following table:

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-40</td>
<td>80</td>
<td>79.2%</td>
</tr>
<tr>
<td>41-60</td>
<td>21</td>
<td>20.8%</td>
</tr>
<tr>
<td>Gender:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>27</td>
<td>26.7%</td>
</tr>
<tr>
<td>Female</td>
<td>74</td>
<td>73.3%</td>
</tr>
<tr>
<td>Education level:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>30</td>
<td>29.7%</td>
</tr>
<tr>
<td>Junior High School</td>
<td>36</td>
<td>35.6%</td>
</tr>
<tr>
<td>Senior High School</td>
<td>31</td>
<td>30.7%</td>
</tr>
<tr>
<td>Vocational Diploma</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>99</td>
<td>98%</td>
</tr>
<tr>
<td>Christian Protestant</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
Table 1 (Cont.)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sundanese</td>
<td>92</td>
<td>91.1%</td>
</tr>
<tr>
<td>Javanese</td>
<td>5</td>
<td>4.9%</td>
</tr>
<tr>
<td>Batak</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Sumatera</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 1 above shows that most of the respondents were in the age range of 20 to 40 years old, i.e., 80 persons (79.2%). As for gender, most respondents were female or mothers of the patients, i.e., 74 persons (73.3%). Based on the educational attainment, the majority of them were junior high school graduates, i.e., 36 respondents (35.6%), and only a small proportion of them had finished college degree with vocational or baccalaureate diploma, i.e., 2 persons respectively (2%). Based on the religion, almost all respondents, i.e., 99 persons (98%), were Muslims and only 2 persons (2%) were Christians. And as regards ethnicity, almost all respondents, i.e., 92 people (91.1%) were Sundanese. A small portion of them was Javanese (4.9%), Batak (2%) and Sumatra (2%).

The following table demonstrates the implementation of therapeutic communication of nurses to the parents of pediatric patients in pre-operative stage uses the median as a measure of centralized data because the data is not normally distributed.

Table 2 The implementation of therapeutic communication of nurse to the parents of children in pre-operative stage in the pediatric surgical ward (N = 101)

<table>
<thead>
<tr>
<th>No.</th>
<th>Implementation of Therapeutic Communication</th>
<th>F</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Good therapeutic communication</td>
<td>47</td>
<td>46.5</td>
</tr>
<tr>
<td>2.</td>
<td>Poor therapeutic communication</td>
<td>54</td>
<td>53.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>101</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2 shows the implementation of therapeutic communication of nurses to the parents of pediatric patients who were about to undergo surgery, based on the median value; it was found that more than half of respondents, i.e., 54 persons (53.5%) stated about poor therapeutic communication of nurses to them. And only 47 respondents (46.5%) stated about the good therapeutic communication.

**Result of qualitative study**

There were 6 participants in this qualitative study. They were the parents of the pediatric patients who were about to undergo surgery at the pediatric surgical ward of hospital in West Java, Indonesia. All of them had common characteristics, i.e., mothers of the patients, with the age range of 20 to 40 years old, with the education level of Junior High School. All respondents belong to Sundanese ethnic group, Muslims, and work as housekeepers. The discussion method was focus group discussion (FGD).

An Analysis Interactive Model was done to the results of a qualitative study. Based on the results of qualitative research, the theme obtained that parents expect comprehensive therapeutic communication from nurses, both in terms of language / speech or behavior in any delivery of information or actions to be performed. The following are the subthemes transpired from the FGD with 6 participants. The FGD results generated some important subthemes in relation with the parents’ expectation regarding the comprehensive therapeutic communication of nurses:

*Introducing themselves always before performing an intervention*

The participants expected the nurses to always introduce themselves every time they met or
encountered the patients and their parents, or before performing an intervention to patients. The participants found it to be important so that they knew the nurses that took care of their child. Some of the expressions were:

“It is important to know the nurse’ name” (P.1, P.2, P.3, P.4, P.5, dan P.6)

Parents sometimes forgot if the nurse had already introduced themselves in the beginning. Thus, it was found to be important for the nurses to always introduce themselves.

“For me, it was already told. She has already told her name… but I always forget” (P.3)

**Greeting and asking for the condition of parents and pediatric patient every encounter**

Greetings from the nurses to parents and their children is a form of nurses’ solidarity and concern. Participants expected the nurses to always greet and ask for their condition in every encounter.

“I expect the nurse to ask how is the child?” (P.3)

“… more or less, like the university students; always say hello, and ask how is the child?” (P.4)

“… nurse have to say something to greet, etc…” (P.5)

**Communicating regularly and giving information**

Parents of pediatric patients in pre-operative stage could worry about many things regarding the surgery procedures, the future prognosis of the child, and how to give pre-and post-operative care. This anxiety could happen due to the lack of information or lack of communication between parents and nurses regarding the operation procedures being undertaken by the patient. At the time, the parents felt the lack of communication with nurses, as manifested in the following:

“They lack to communicate …” (P.1)

“… well, the mothers rarely relaxed. Chatting… but they rarely chat …” (P.5)

“When it’s time to work, they seem busy. In contrary, if they are not busy; they can chat; it all depends on the situation” (P.5)

Participants expected to have more time to communicate and talk with the nurses.

“I want to communicate with nurse” (P.1)

“… as often as possible to give information” (P.3)

A participant also wanted to know the clear information about the time of operation for her child; as it is shown in the following:

“We have been admitted here for a long time, it’s already three weeks. Only after three weeks then the intervention was performed. Even what takes longer time is the operation. In contrary, here the waiting is long. Hopefully, after the surgery, we can go home early.” (P2)

**Good manner in talking and communication**

Participants expected a good manner of communication of nurses with the parents and patients. They felt that the nurses had behaved well and friendly toward the parents and pediatric patients; as shown in the following:

“They speak nicely enough” (P.5)

“Most of the nurse are nice, but some of them talk few words only” (P.1, P.2, P.3, P.4, P.5, dan P.6)

“Yes, they have to be friendly” (P.5)

“Have a good manner of communication” (P.3)

They expected that such a friendly manner could make the children willing to play if he was asked to. It is expressed in the following:

“If they are friendly the children want to play with them” (P.2)

“My child always sticks to her until now” (P.3)

“The children are taught coloring, drawing, cutting, while playing…” (P.3)

**Responsive or quick response**

During the treatment, the parents also often asked for the help of nurses to care for their patients. Based on the expressions of some participants, so far, the ward nurses were still slow in responding to their call for help. In addition, in terms of intervention, they were so slow and/or they did not come on time upon being asked for assistance. It is shown in the following expressions:

“If I asking for help, the nurse will say yes ma’am but it took so long maybe because she is busy” (P.2)

“there are many nurses, but they do not help each other. So, one administers the medicine alone… it takes time… the child is crying…, but others only watched.” (P.6).

Some participants said that there were also some nurses who responded quickly upon
being asked to help by parents and patients, as shown below:

“Sometimes, some of them are fast, but some are slow” (P1, P2, and P.3)

All participants strongly expected if the nurses were responsive upon being asked to help by the parents or children; as shown in the following:

“They have to be quickly responsive” (P.3)

If being asked for assistance, some nurses were happy, but some of them were not; as shown in the following:

“If I ask for help to nurses, some of them seem happy; but some are not” (P.4)

Not annoying when the parents are asking for help

Participants were expecting that the nurses would not feel irritated when the parents asked for help, or if they often asked about the schedule of operation, the development of the child’s health, and the child’s illness. It is shown in the following expressions:

“… at least they are not look irritated for being asked by us” (P.3 and P.5)

Listening to the complaints of parents

Parents of the pediatric patients undergoing operation had anxiety. Sometimes it made them frequently asking the nurses about the schedule of operation or the condition and development of their patients. During this situation, they needed friends to share. Parents expected that nurses could listen to their lamentations so that parents could sense the nurses’ solidarity with their condition. It is shown in the following:

“We need to be listened by nurse and doctor” (P.3 dan P.4)

Speak with a decent intonation and not pointing fingers upon telling something to parents

Participants also expected that nurses would not bluff and point fingers if they wanted to tell something to the patients or parents; rather it should be talked nicely in a decent intonation. It is shown in the following:

“One of the nurses said “Ma’am, don’t bring it, something like that is not good”, while pointing her finger to our stuff” (P.5)

“Ma’am, don’t put it on such a position” (P.3)

“Ma’am, it should not be put on top, in a nice tone as such” (P.5)

“The hands should not be like this…. (while demonstrating pointing with hands)” (P.6)

DISCUSSION

On the age characteristics of respondents, it was found the majority of them were in the age range of 20-40 years. Such an age range is at the initial stages of development to adulthood (Hurlock, 2001). In addition, most respondents in this study were mothers of the children being treated. This background, most probably, gave greater psychological influence when their children were getting sick and being treated. This result also was similar to the result of the study of Osuoji, Coker, William, and Ajai, which stated that there is a significant level of distress being experienced by the mother of pediatric patients, whose son will undergo elective surgery (Osuoji et al., 2012). This is one the reasons why the majority of children treated were accompanied by their mothers. Moreover, it had become a cultural practice that a mother is responsible for taking care of her child.

Based on the educational attainment, the majority of respondents were junior high school graduates; it determined the characteristics of respondents selected for the qualitative study. Most of them were Muslims and from the Sundanese group. This was because the hospital as the locus of the study was located in West Java, where a majority of the population were Muslims and Sundanese.

More than half of the respondents perceived that the implementation of the therapeutic communication to the parents of the pediatric patients was poor. Lack of good therapeutic communication of health personnel was also expressed by Patak and Happ, their study
found that the health personnel tended to neglect the communication, which resulted in the problems of miscommunication or the interchange of information, whether to the patients or to the other health professionals (Patak et al., 2009). Other studies found that some of the reasons for the poor therapeutic communication of nurses are the lack of knowledge and experience, the amount of training followed and the level of education of nurses (Wilkinson, 1991). The complex process of interpersonal communication is influenced by many variables that affect how messages are sent and receive, such as environmental factors (e.g. climate and mood) and also intrapersonal factors such as differences in values. Note that every preceding factors has the potential to facilitate communication or to act as a barrier to effective communication, depending on the situation (Riley, 2015).

After identifying the implementation of therapeutic communication of nurses to the parents of pediatric patients in this study, then it conducted a focus group discussion to discover the parents’ expectations on such communication. Some of their expectations were, first, the nurses should always introduce themselves before performing an intervention. The introduction step was considered as very important because it was an essential foundation for the therapeutic relation of nurse and client (Suryani, 2016). At this stage, parents also expected the nurse to greet and ask for information of parents and children who were being treated. The significance of self-introduction of nurses at this stage is to build a trusting relationship, which shows an acceptance and open communication, to formulate the contract with the client, to explore the thoughts and feelings, and to identify the client’s problems and further formulate the purposes of interacting with them (Suryani, 2016).

Other things being identified from the discussion was the parents’ expectations that the nurses should frequently communicate and provide information. Some of the needs of parents about their treated children are the information on the development of their illness, the prognosis, honest answer about the patient’s condition, and to know the equipment used for treatment (Aldridge, 2005). In relation to the behavior of nurses in implementing the therapeutic communication, some of the expectations of the parents were that the nurses should show nice and friendly attitude, instead of being irritated, bullying, or pointing fingers when telling something to them. The attitude of the person certainly is influenced by various factors; one of them is the culture. Cultural norms were also found to inhibit nurse-patient communication (Tay, Hegney, & Ang, 2011).

Other nurses’ attitudes being expected were the quick response to the complaints of the parents or the patients, and when they asked for help. The slow response of the nurses being felt by the parents was most probably due to their full workload. During the time of the study or research, the ratio of nurses to patients was 1:8. It means, the nurses were demanded to prioritize the nursing care intervention to the patients that needed immediate services.

The parents also expected the nurses to have time to listen to their lamentations. Listening is one of the important techniques of therapeutic communication. Listening is an active process of receiving and learning the person’s reaction to the received message (Stuart & Sundeen, 2007). When listening carefully, the parents would feel being accepted by the nurses, and then the nurses can explore deeper the emotions of parents, as well as identify their problems.

The results of this study on the implementation of therapeutic communication and the parents’ expectations can become the representations for the nurses to develop more and implement better the therapeutic communication during the interaction with the pediatric patients or their parents. This is because the therapeutic communication is a central part of nursing practice to give an effective and quality care. As it is expressed by Younis, Mabrouk & Kamal study it was concluded that pediatric
nurses had significant improvement in their knowledge and skills regarding therapeutic communication with their hospitalized child patients after utilization of a planned therapeutic communication program (Younis, Mabrouk, & Kamal, 2015). Therefore, it is important for the nurses to develop and maintain a competent communication and interpersonal relation skills to facilitate therapeutic interaction, evaluate pediatric patients’ needs, and implement the nursing interventions.

CONCLUSION

The implementation of therapeutic communication of nurse to the parents of pediatric children in pre-operative stage showed that more than half of the respondents (53.5%) stated that it was still poor. Parents expect comprehensive therapeutic communication from nurses, both in terms of language / speech or behavior in any delivery of information or actions to be performed. Some of the expectations of the parents for its implementation from the nurses were, first, the nurses should always introduce themselves before performing any intervention; second, they should greet and ask for the information about the condition of the parents or the patient being treated; third, they should regularly communicate and give information on the development of patients’ treatment.

In relation to the nurses’ attitudes in implementing the therapeutic communication, the study identified some expectations of the parents, including a nice and friendly behavior, not showing irritation, bullying, nor pointing fingers when telling something to the parents. In addition, they were also expected to be responsive to the complaints and lamentations of the parents or the patients. They also expected the nurses to allocate ample time to listen to their lamentations.

The result of this study is expected to be an input for the health care institutions, especially in identifying the matters related to the implementation of therapeutic communication.

In addition, the expectation of the parents obtained from the qualitative study can be the helpful information to evaluate and make the standard operating procedures in relation to the implementation of therapeutic communication to improve the nurses’ quality of care to the patients. Further research can be conducted to study the implementation of therapeutic communication based on the perspectives of nurses. It also can study the different factors that influence the implementation of therapeutic communication.

Declaration of Conflicting Interest
None declared.

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Author Contribution
All authors contributed equally in this study.

References


VALIDITY AND RELIABILITY OF SHORTENED GENERAL COMFORT QUESTIONNAIRE IN INDONESIAN VERSION

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Abstract

Background: Comfort is one of nurses’ concerns in each of nursing care activity. There are several different instruments to measure patient’s comfort. Tools regarding comfort however, have not been developed and tested in Indonesian.

Objectives: This study aimed to assess the validity and reliability of the Shortened General Comfort Questionnaire (SGCQ) in Indonesian version.

Methods: SGCQ was translated and back translated to Indonesian before it was used for this study. Three experts (two lecturers and one clinician) were recruited to measure the content validity of SGCQ in Indonesian version. S-CVI and I-CVI analyses were used to measure the content validity of this instrument, and Pearson correlation was used for the construct validity. Content validity of instruments consists of relevance, accuracy, clarity, credibility, and equivalency. Reliability analysis of this instrument was performed using Cronbach’s alpha in 71 patients undergoing hemodialysis.

Results: Result show that an I-CVI score was 1, which implies that each item of relevance, accuracy, clarity, credibility, and equivalency was acceptable. In addition, the S-CVI score was also 1, which implies that the validity of this instrument was acceptable. Cronbach’s alpha score was also showed 0.769 means that the SGCQ instrument in the Indonesian language is reliable because the score was in the range of 0.7–0.95.

Conclusion: SGCQ in Indonesian version has acceptable validity and reliability and it can be used to measure patient’s comfort level in Indonesian.

Keywords: validity; reliability; comfort; dialysis

INTRODUCTION

Comfort is a fundamental concept that has been studied in nursing fields, such as oncology, maternity, intensive care, and nephrology (Derya & Pasinlioğlu, 2015; Gonçalves, Brandão, & Duran, 2016; March & McCormack, 2009). Achieving comfort is one of the objectives of health care services that can be achieved through patient-centered care (Kolcaba, 2003). In addition, comfort is a holistic concept that needs to be implemented by multidisciplinary health care teams (Kolcaba, 2003; March & McCormack, 2009).

Comfort theory was first stated by Katherine Kolcaba in 1998. Based on this theory, the comfort state needs to be assessed, and if the
patient experiences discomfort, the nurse needs to apply intervention and evaluate the comfort score before and after the intervention. This process is called comfort care (Kolcaba, 2003). Patients undergoing hemodialysis may experience different levels of comfort compared with other patient populations. Several conditions may affect the comfort level of patients who undergo hemodialysis, including clinical manifestations of diseases such as uremic pruritus, which leads to itching, insomnia, pain, nausea, fatigue, or psychosociospiritual disturbance (Al-Jahdali et al., 2010; Asgari et al., 2017; Kimata et al., 2014; Lynch, Abate, Suh, & Wadhawa, 2014; White & McDonnell, 2014).

Generally, the patient comfort score can be measured using the General Comfort Questionnaire (Kolcaba, 2003). However, in 2006, this instrument was modified from 48 to 28 questions including a new title: Shortened General Comfort Questionnaire (SGCQ). This instrument has three measurement times for reliability: 0.86, 0.83, and 0.82 in 60 elderly patients who experience weakness (Kolcaba, Schirm, & Steiner, 2006). However, the validity of this instrument has never been reported. Moreover, this instrument has never been used in the Indonesian language. This study aimed to measure the content validity and consistency reliability of SGCQ in Indonesian version.

METHODS

Study design
This was a descriptive study to measure the validity and reliability of SGCQ, involving 71 patients undergoing hemodialysis.

Setting
Research was carried out at the hemodialysis unit, at one central hospital in Yogyakarta, Indonesia. Data collection for content validity was performed from January 12–18, 2017, and data was analyzed to measure I-CVI and S-CVI scores. Based on Waltz et al., cited in Polit and Beck (2006); Lynn cited in Polit and Beck (2006), I-CVI shows validity of each item and S-CVI shows proportion value from total item which can get score 3 or 4 (item relevance) from expert’s measurement. Instrument to be used in this study was SGCQ. This instrument was translated and back translated by sworn translator. Three experts were involved in the process for content validity measurement. Two were lecturers with qualification one as master degree in nursing and the second was PhD degree in nursing. One nurse expert (clinician) was willing to participate to measure content validity.

A content validity score of >0.78 is considered valid. However, in this case, because there were < 5 experts (3 experts), an I-CVI score of 1 was considered acceptable and valid (Polit & Beck, 2006), and a S-CVI score of >0.8 was considered reliable (Peterson, 2013; Tavakol & Dennick, 2011). After SGCQ was analyzed for the CVI score, it was tested in the 71 patients undergoing hemodialysis to measure its construct validity using Pearson’s correlation. The corrected item-total correlation score should be higher than its Pearson correlation coefficient (r > 0.2303). A range between −1 and 1 demonstrates the correlation between item and total scores. A negative score implies that the correlation between the item and total scores is negative, and a positive score indicates a positive correlation between the item and total scores; a zero score (r = 0) indicates no correlation between the item and total scores (Godwin, Pike, Bethune, Kirby, & Pike, 2013).

Research subject
As per the estimated sample size for simple random sampling, the reliability measurement was performed in 71 patients undergoing hemodialysis in the Dialysis unit of a central hospital in Yogyakarta, Indonesia. Inclusion criteria were patients routinely undergoing hemodialysis therapy (two times a week) for more than 3 months, the ability to communicate, using AV shunt access, and age more than 18 years. Data collection was done from January to February 2017 using semi structured interviews. Cronbach’s alpha was used to measure the internal consistency of the instrument. The instrument was considered
reliable if the value was between 0.7–0.95 (Peterson, 2013; Tavakol & Dennick, 2011).

**Instrument**

The SGCQ instrument was designed by Kolcaba, Schirm, and Steiner in 2006 (Kolcaba et al., 2006). In the present study, the SGCQ instrument was translated into the Indonesian language and then back-translated. This instrument gives the description of a person’s comfort by adding all Likert scores from 28 items. Likert scores range from 1 (strongly disagree) to 6 (strongly agree). In this instrument, there are 19 items comprising negative statements in which the score reverses from 6 to 1 in the process of adding the total score. A higher score indicates greater comfort. The maximum possible score is 168, and the minimum possible score is 28.

<table>
<thead>
<tr>
<th>Table 1 Criteria for measuring content validity for each item on the questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspect</td>
</tr>
<tr>
<td>Relevance</td>
</tr>
<tr>
<td>Accuracy</td>
</tr>
<tr>
<td>Clarity Credibility</td>
</tr>
</tbody>
</table>

**Ethical consideration**

Ethical approval was obtained from the Ethics Committee of the Faculty of Medicine, Universitas Gadjah Mada, 13th December, 2016, number KE/FK/1328/EC/2016. SGCQ was translated and back-translated before this instrument was used.

**Data analysis**

The content validity of this instrument was measured by three experts. The criteria of experts were a master’s degree in nursing, publications in the areas of hemodialysis and medical surgical nursing, and experience in hemodialysis care of patients. Content validity analysis was performed by calculating the content validity index (CVI). The experts were asked to measure content validity components, which are relevance, accuracy, clarity, credibility, and equivalency. Equivalency was the measurement of similarity between this instrument and the original SGCQ. Although there are several items available for the measurement of content validity, Lynn stated that the focus on content validity is only related to relevance (Emmanuel & Clow, 2017). Polit and Beck (2006) also stated that relevance can be measured using an ordinal scale (1–4), as shown in Table 1. In the present study, the other components of content validity, such as accuracy, clarity, credibility, and equivalency, were also measured using this four-ordinal scale.

**RESULTS**

The average age of respondents was 48.74 years, with the youngest respondent aged 20 years old and the oldest aged 74 years old. The number of males (59.15%) was higher than the number of females (40.85%), and 63% of the respondents had been undergoing hemodialysis for ≥1 year. All the respondents had stage 5 chronic kidney disease (Table 2).

<table>
<thead>
<tr>
<th>Table 2 The characteristic of respondent (n=71)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>20-27</td>
</tr>
<tr>
<td>28-35</td>
</tr>
<tr>
<td>36-43</td>
</tr>
<tr>
<td>44-51</td>
</tr>
<tr>
<td>52-59</td>
</tr>
<tr>
<td>60-67</td>
</tr>
<tr>
<td>68-75</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
We found an I-CVI score of 1, which implies that each item of relevance, accuracy, clarity, credibility, and equivalency was acceptable. In addition, the S-CVI score was also 1, which implies that the validity of this instrument was acceptable (Polit & Beck, 2006).

Almost all the items of this instrument showed positive scores in Pearson item total correlation coefficient, except item 25 ($r = -0.057$). However, only nine items (item 1 with $r = 0.244$, $p < 0.05$; item 4 with $r = 0.294$, $p < 0.05$; item 5 with $r = 0.291$, $p < 0.05$; item 6 with $r = 0.244$, $p < 0.05$; item 15 with $r = 0.246$, $p < 0.05$; item 24 with $r = 0.249$, $p < 0.05$; item 26 with $r = 0.282$, $p < 0.05$; item 28 with $r = 0.254$, $p < 0.05$; and item 17 with $r = 0.354$, $p < 0.01$) showed Pearson item total correlation coefficient to be acceptable with Pearson's Correlation (Table 3).

### Table 3 Pearson item total correlation coefficient

<table>
<thead>
<tr>
<th>Item</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i1</td>
<td>.244</td>
<td>.041</td>
</tr>
<tr>
<td>i2</td>
<td>.231</td>
<td>.053</td>
</tr>
<tr>
<td>i3</td>
<td>.087</td>
<td>.472</td>
</tr>
<tr>
<td>i4</td>
<td>.294</td>
<td>.013</td>
</tr>
<tr>
<td>i5</td>
<td>.291</td>
<td>.014</td>
</tr>
<tr>
<td>i6</td>
<td>.244</td>
<td>.040</td>
</tr>
<tr>
<td>i7</td>
<td>.150</td>
<td>.212</td>
</tr>
<tr>
<td>i8</td>
<td>.089</td>
<td>.461</td>
</tr>
<tr>
<td>i9</td>
<td>.188</td>
<td>.116</td>
</tr>
<tr>
<td>i10</td>
<td>.099</td>
<td>.410</td>
</tr>
<tr>
<td>i11</td>
<td>.037</td>
<td>.757</td>
</tr>
<tr>
<td>i12</td>
<td>.064</td>
<td>.597</td>
</tr>
<tr>
<td>i13</td>
<td>.157</td>
<td>.191</td>
</tr>
<tr>
<td>i14</td>
<td>.213</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.033</td>
</tr>
</tbody>
</table>

In the reliability measurement, Cronbach’s alpha was 0.7699 (Table 4), which proved that the SGCQ instrument in the Indonesian language is reliable because the score was in the range of 0.7–0.95 (Peterson, 2013; Tavakol & Dennick, 2011). In the reliability measurement, we found 15 items (item 1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 20, 22, 23, and 25) with corrected item-total correlation scores < 0.3 (Table 5).

### Table 4 Reliability statistic

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>n of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.769</td>
<td>.811</td>
<td>28</td>
</tr>
</tbody>
</table>
Our study results show that the content validity of SGCQ can be considered acceptable. Although it has good validity, researchers acknowledge that the ideal number of experts to measure the content validity should be > 3. However, Lynn, cited from Polit and Beck (2006), stated that the I-CVI score should be 1 for content validity to be accepted, if the number of experts is < 5. In addition, no major modification for SGCQ was suggested by the experts. This shows that our SGCQ can cover relevance, accuracy, clarity, credibility, and equivalency.

Furthermore, only nine items of this instrument were considered valid with the Pearson correlation test. Godwin et al (2013) categorized an \( r \) value of 0–0.25 to represent a weak relationship, 0.26–0.50 to represent a moderate relationship, and 0.51–0.75 a strong relationship. In the present study, the correlation coefficient ranged from 0.037 to 0.354 (except item 25, which had a negative score). This range of corrected item-total correlation scores can be interpreted as weak-to-moderate relationship categories. In the present study, item 25 had a negative score (\( r = -0.057; \) this room smells bad). This indicates that when the rooms smell bad, the comfort score increases. Although it may be contradictory, olfactory senses may adapt to the bad smell and become neutral for a specific period of time. This may explain why an increased total comfort score is observed when the rooms smell bad. Godwin et al (2013) eliminated the negative scores of Pearson’s correlation coefficient during their study about the validity of the simple Lifestyle Indicator Questionnaire. In the present study, we decided not to delete those items because an

**Table 5 Item-Total Statistics**

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There are those I can depend on when I need help</td>
<td>128.63</td>
<td>175.378</td>
<td>.048</td>
</tr>
<tr>
<td>2</td>
<td>I don’t want to exercise</td>
<td>129.28</td>
<td>179.262</td>
<td>-1.05</td>
</tr>
<tr>
<td>3</td>
<td>My condition gets me down</td>
<td>129.25</td>
<td>159.706</td>
<td>.439</td>
</tr>
<tr>
<td>4</td>
<td>I feel confident</td>
<td>129.06</td>
<td>169.082</td>
<td>-.260</td>
</tr>
<tr>
<td>5</td>
<td>I feel my life is worthwhile right now</td>
<td>128.87</td>
<td>171.855</td>
<td>.264</td>
</tr>
<tr>
<td>6</td>
<td>I am inspired by knowing that I am loved</td>
<td>128.51</td>
<td>170.825</td>
<td>.407</td>
</tr>
<tr>
<td>7</td>
<td>The sounds keep me from resting</td>
<td>128.89</td>
<td>167.816</td>
<td>.276</td>
</tr>
<tr>
<td>8</td>
<td>No one understands me</td>
<td>128.94</td>
<td>164.568</td>
<td>.280</td>
</tr>
<tr>
<td>9</td>
<td>My pain is difficult to endure</td>
<td>128.77</td>
<td>170.034</td>
<td>-.255</td>
</tr>
<tr>
<td>10</td>
<td>I am unhappy when I am alone</td>
<td>129.30</td>
<td>162.332</td>
<td>.260</td>
</tr>
<tr>
<td>11</td>
<td>I do not like it here</td>
<td>130.06</td>
<td>168.082</td>
<td>.150</td>
</tr>
<tr>
<td>12</td>
<td>I am constipated right now</td>
<td>128.93</td>
<td>170.581</td>
<td>.168</td>
</tr>
<tr>
<td>13</td>
<td>I do not feel healthy right now</td>
<td>129.97</td>
<td>161.885</td>
<td>.291</td>
</tr>
<tr>
<td>14</td>
<td>My room makes me feel scared</td>
<td>128.70</td>
<td>163.440</td>
<td>.596</td>
</tr>
<tr>
<td>15</td>
<td>I am afraid of what is next</td>
<td>129.38</td>
<td>155.468</td>
<td>.560</td>
</tr>
<tr>
<td>16</td>
<td>I am very tired</td>
<td>129.28</td>
<td>159.262</td>
<td>.446</td>
</tr>
<tr>
<td>17</td>
<td>I am content</td>
<td>129.28</td>
<td>160.577</td>
<td>.537</td>
</tr>
<tr>
<td>18</td>
<td>This chair (bed) makes me hurt</td>
<td>128.69</td>
<td>162.331</td>
<td>.566</td>
</tr>
<tr>
<td>19</td>
<td>The views are soothing</td>
<td>129.56</td>
<td>162.249</td>
<td>.367</td>
</tr>
<tr>
<td>20</td>
<td>My personal belongings are not here</td>
<td>130.04</td>
<td>169.527</td>
<td>.079</td>
</tr>
<tr>
<td>21</td>
<td>I feel out of place here</td>
<td>128.63</td>
<td>161.435</td>
<td>.644</td>
</tr>
<tr>
<td>22</td>
<td>My friends remember me with their cards and phone calls</td>
<td>129.76</td>
<td>164.899</td>
<td>.210</td>
</tr>
<tr>
<td>23</td>
<td>I need to be better informed about my health</td>
<td>132.51</td>
<td>177.625</td>
<td>-.048</td>
</tr>
<tr>
<td>24</td>
<td>I don’t have many choices</td>
<td>129.63</td>
<td>160.150</td>
<td>.372</td>
</tr>
<tr>
<td>25</td>
<td>This room smells bad</td>
<td>129.03</td>
<td>167.313</td>
<td>.264</td>
</tr>
<tr>
<td>26</td>
<td>I feel peaceful</td>
<td>128.77</td>
<td>166.520</td>
<td>.393</td>
</tr>
<tr>
<td>27</td>
<td>I am depressed</td>
<td>128.41</td>
<td>167.445</td>
<td>.557</td>
</tr>
<tr>
<td>28</td>
<td>I have found meaning in my life</td>
<td>128.86</td>
<td>167.094</td>
<td>.421</td>
</tr>
</tbody>
</table>

Translated with kind permission of Katherin Kolcaba, RN., MSN., Ph.D.
The reliability score, and it was found that the items to find out whether it would influence researchers’ opinions, even if no items are deleted, the total score is still reliable (>0.7).

**CONCLUSION**

The SGCQ instrument in the Indonesian language can be considered a valid and reliable tool to measure the comfort level of patients undergoing hemodialysis in an Indonesian setting.

**Declaration of Conflicting Interest**

None declared.

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**Author Contribution**

All authors contributed equally in this study.

**References**


FACTORS RELATED TO RESILIENCE IN TYPE 2 DIABETES MELLITUS PATIENTS IN DENPASAR BASED ON SELF-CONCEPT MODE OF ROY ADAPTATION MODEL

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Abstract
Background: Patients with type 2 Diabetes mellitus are impaired both physically and psychologically. Based on preliminary studies carried out in public health centers in Denpasar, Bali, out of 10 patients interviewed, 70% of the patients with type 2 diabetes mellitus expressed their difficulties in adapting to the current state of the disease. One of the capabilities that must be owned by the patients to be able to adapt to the stressor is resilience. Roy adaptation model could be used in order to explain factors associated with resilience in patients with type 2 diabetes mellitus.

Objective: To analyze the factors associated with resilience in patients with type 2 diabetes mellitus in Denpasar based on self-concept mode of Roy adaptation model.

Methods: It used an observational analytic design with cross-sectional approach. Respondents used in this study were type 2 diabetes mellitus patients in four selected public health centers in Denpasar, Bali. 125 samples obtained by cluster sampling technique were used in this study. Conor-Davidson Resilience Scale-2 (CD-RISC-2), Illness Identity Questionnaire (IIQ) and Functional Assessment of Chronic Illness Therapy-Spiritual Well-being (FACT-Sp) questionnaires were used in order to measure resilience, self-concept, and spirituality respectively. Pearson Product Moment test was used for bivariate analysis to determine the relationship between self-concept and spirituality and resilience in patients with type 2 diabetes mellitus. Multiple Linear Regression was used for multivariate analysis in order to find the most dominant factor related to resilience based on self-concept mode of Roy adaptation model.

Results: The results of this study showed a significant relationship between self-concept and spirituality with resilience in patients with type 2 diabetes mellitus (p = 0.000). These two variables have r values equal to 0.599 and 0.597 respectively. Multiple linear regression showed that self-concept was the dominant factor related to resilience based on self-concept mode of Roy adaptation model with beta value equals to 0.687.

Conclusion: There was a significant relationship between factors associated with resilience in patients with type 2 diabetes mellitus in Denpasar based on self-concept mode of Roy adaptation model.

Keywords: Roy adaptation model; resilience; type 2 diabetes mellitus

INTRODUCTION

According to data from the World Health Organization (WHO), 422 million people or 8.5% of the adult population worldwide suffer from diabetes in 2014 (WHO, 2016). Countries in Asia contribute approximately 60% of the diabetic patient population in the world and it is estimated that around 96 million people in Southeast Asia suffer from...
this disease (Cousins, 2017; Ramachandran, Snehalatha, Shetty, & Nanditha, 2012). Based on data from Indonesian Health Department in 2013, there are 6.9% of the 176 million Indonesian population aged 15 years and over who suffer from diabetes mellitus. In Bali, the number of patients with type 2 diabetes mellitus who visited public health centers in 2016 was 7174. On December in the same year, Denpasar Health Department reported 322 new cases of type 2. In addition to causing physical impacts, diabetes mellitus was also found to increase the risk of psychological disorders in the patients when compared to the general population. Research conducted by Chowdhury, et al. found that patients with diabetes are seven times more likely to experience depression than people who do not suffer from the disease. It is associated with the patients' ability to adapt to the disease. A proper mental health nursing approach mechanism is needed so that patients could face the stressors (Chowdhury et al., 2017).

Nursing theory approach proposed by Callista Roy could be used in the efforts to improve the adaptation to the illness of patients. One of the capabilities that must be owned by the patients to be able to adapt to the stressor is resilience. Resilience refers to the dynamic capacity in managing stress and promoting adaptation to a significant stressor in order to achieve emotional balance (Robinson, Hanna, Raine, & Robertson, 2017). Research conducted by Min, et al. (2013) showed that there is a negative relationship between resilience and emotional distress experienced by cancer patients. In this study the operation definition of resilience was the ability to bounce back from stressors and to continue the same social function as before (Min et al., 2013).

The formation of resilience in patients with chronic disease is related to several factors. The factors related to resilience are associated with Roy adaptation model that could be applied in professional nursing practice. According to this theory, there are four modes of adaptation that may affect the formation of resilience. The four modes include physiological mode, self-concept mode, role function mode, and interdependence mode (Alligood, 2013).

Self-concept mode includes the components of the physical self, such as body image and body sensation as well as the personal self, including self-consistency, self-ideal, and moral-ethical-spiritual self. From that concept, both self-concept and spirituality factors were linked with self-concept mode of Roy adaptation model (Masters, 2012; Roy & Andrews, 2008). These factors were believed could increase the resilience of patients with type 2 diabetes mellitus (Martins & Neto, 2016; Ozawa et al., 2017).

In this study, the operational definition of self-concept is the way patients perceived themselves including personality traits and physical appearance based on the comparison with another person. Spirituality is defined as the condition when someone experience something that was beyond visibility and how a person define their presence in relation with others. Research conducted in all public health centers in Denpasar showed that out of 10 patients interviewed, 70% of patients with type 2 diabetes expressed their difficulties in adapting to the current state of the disease. It is related to the limitations that must be faced by the patients after being diagnosed with this disease.

Based on these problems, the researchers are interested in examining factors associated with resilience in patients with type 2 diabetes mellitus in Denpasar based on self-concept mode of Roy Adaptation Model.

**METHODS**

**Study design**

This study was a quantitative research using observational analytic design with cross-sectional approach. The independent variables studied were self-concept and spirituality. The dependent variable of this study was resilience in patients with type 2 diabetes.
Setting
This research was conducted in four selected public health centers (Puskesmas) in Kota Denpasar. The selected public health centers are Puskesmas I North Denpasar, Puskesmas II East Denpasar, Puskesmas III West Denpasar, and Puskesmas II South Denpasar on January 14th, 2018 - February 18th, 2018.

Sample
Respondents used in this study were type 2 diabetes mellitus patients in four selected public health centers in Denpasar, Bali. The number of samples used was 125 respondents selected by cluster random sampling technique. The inclusion criteria were patients with the capability of writing and reading and patients who have been diagnosed with type 2 diabetes mellitus for at least 6 months. The exclusion criteria for this study was patients who refuse to take part of this study.

Instrument
The instruments used in this study were questionnaires about characteristics of the respondents, Conor-Davidson Resilience Scale-2 (CD-RISC-2) to measure resilience (Vaishnavi, Connor, & Davidson, 2007), Illness Identity Questionnaire (IIQ) to measure self-concept (Oris et al., 2016), and Functional Assessment of Chronic Illness Therapy-Spiritual Well-being (FACIT-Sp) to measure spirituality (Bredle, Salsman, Debb, Arnold, & Cella, 2011). The questionnaire about characteristics of the respondents consists of age, gender, occupation, and education of the respondents. CD-RISC-2, IIQ, and FACIT-Sp instruments consist of two, twenty-seven, and twelve items that employ four-point-Likert-scale response respectively. The instruments were modified and translated into Indonesian in language center for the purpose of this study. These instruments have been tested for validity and reliability and stated that the results were valid and reliable. The validity and reliability test were conducted in Badung Regency using 30 respondents with the results of the test stated that these instruments were valid to use ($r_{s}>0.361$). Cronbach’s alpha values for CD-RISC-2, IIQ, and FACIT-Sp were 0.730, 0.961, and 0.874 respectively, so that these instruments were reliable to use.

Ethical consideration
This study was approved by the Research Ethics Committee Sanglah Hospital / Faculty of Medicine, Udayana University (Number: 68/UN.14.2/KEP/2018). Prior to the research, informed consent and explanation of the research process were given to all respondents. Respondents filled out a questionnaire given assisted by researchers or research assistants. The data collection process took approximately 20 – 30 minutes for each respondent.

Data analysis
Descriptive univariate analysis was used to analyze socio demographic characteristics and each research variables. Pearson Product Moment test was used for bivariate analysis to determine the relationship between self-concept and spirituality and resilience in patients with type 2 diabetes mellitus. In addition, Multiple Linear Regression was used for multivariate analysis in order to find the most dominant factor related to resilience based on self-concept mode of Roy adaptation model.

RESULTS
The result of the respondent characteristic was taken from Puskesmas I North Denpasar, Puskesmas II East Denpasar, Puskesmas III West Denpasar, and Puskesmas II South Denpasar.

Table 1 presents data on the characteristics of respondents, such as age, gender, education, and occupation. These findings show that the respondents with type 2 diabetes mellitus had the average age of 59.4 years and most of them were pensioners. The majority of the respondents were male (51.2%) with their most recent education being at senior high school (33.6%).
Table 1: Frequency distribution of characteristics of the respondents (N=125)

<table>
<thead>
<tr>
<th>Variable</th>
<th>(n)</th>
<th>(%)</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>59.4</td>
<td>9.88</td>
<td>40</td>
<td>85</td>
<td>57.65 - 61.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>64</td>
<td>51.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>61</td>
<td>48.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not graduated from elementary school</td>
<td>5</td>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary School</td>
<td>24</td>
<td>19.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior High School</td>
<td>23</td>
<td>18.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior High School</td>
<td>42</td>
<td>33.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>31</td>
<td>24.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Occupation</td>
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</tr>
<tr>
<td>Unemployed</td>
<td>25</td>
<td>20.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneur</td>
<td>31</td>
<td>24.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TNI/POLRI</td>
<td>9</td>
<td>7.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Servant</td>
<td>12</td>
<td>9.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pensioner</td>
<td>34</td>
<td>27.2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Private Employee</td>
<td>14</td>
<td>11.2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Results of Bivariate Analysis (N=125)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variables</th>
<th>r</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Concept</td>
<td>Resilience</td>
<td>0.599</td>
<td>0.000</td>
</tr>
<tr>
<td>Spirituality</td>
<td>Resilience</td>
<td>0.597</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 3: Results of Multivariate Analysis (N=125)

<table>
<thead>
<tr>
<th>Factors</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>R Square</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Concept</td>
<td>0.077</td>
<td>0.013</td>
<td>0.687</td>
<td>0.663</td>
<td>0.000</td>
</tr>
<tr>
<td>Spirituality</td>
<td>0.028</td>
<td>0.023</td>
<td>0.140</td>
<td>0.663</td>
<td>0.000</td>
</tr>
</tbody>
</table>

The results of the bivariate analysis between self-concept and spirituality with resilience in Type 2 diabetic patients are presented in Table 2. The bivariate analysis result presented in Table 2 showed that self-concept and spirituality both have p values equal to 0.00 so that H0 is rejected. It can be concluded that there is a relationship between self-concept and spirituality with resilience in patients with type 2 diabetes mellitus in Denpasar.

From findings showed in table 3, it could be concluded that among these two factors based on self-concept mode of Roy adaptation, self-concept factor was the most dominant factor related to resilience in type 2 diabetes mellitus patient.

DISCUSSION

In the present study, we investigated the factors associated with resilience in type 2 diabetes mellitus patient in Denpasar based on self-concept mode of Roy adaptation model. According to the results, both self-concept and spirituality as factors linked with self-concept mode of Roy adaptation model were significantly related to resilience in type 2 diabetes patients. These findings proved that self-concept was the most dominant factor related to resilience based on self-concept mode of Roy adaptation model. Previous study reported that one’s self-concept was significantly related to his or her resilience skill (Martins & Neto, 2016). Another study also found that there was a positive relationship between spirituality and resilience (Jones, Simpson, Briggs, & Dorsett, 2016). Study conducted by Redondo-Elvira, et al (2017) showed that there was a positive correlation between spirituality and resilience in chronic patients. Similar to the previous study, a study conducted by Ozawa, et al. showed that one’s spirituality and religiosity...
both were significantly related to his or her resilience skill (Ozawa et al., 2017).

According to sociodemographic aspects, respondents in this study were mostly middle age patients that were no longer actively working. Pensioners tend to have lower self-concepts in comparison with individuals who are still actively working. In addition to the age of patients, gender also plays an important role in the formation of self-concept. Findings showed that respondents in this study were mostly male adults. A study proved that gender was related to the formation of self-concept. In the previous study, it was stated that men tend to have a better self-concept than women (von Soest, Wagner, Hansen, & Gerstorf, 2017). Person’s degree of education was also related to the formation of self-concept (Zahra, Arif, & Yousuf, 2010).

Self-concept is described as one of the adaptation modes in Roy adaptation model. The concept is an internal element of individuals that can affect resilience. Self-concept owned by individuals affects the existence aspect in the concept of resilience. The existence in this context is described as an individual's ability to respect all of his or her uniqueness. If the individual has a good self-concept, she or he has a form of acceptance and confidence (Hartati, Erlamsyah, & Syahnir, 2013). Self-acceptance helps individuals to adapt to the problems faced. Someone who has poor self-acceptance tends to view the issue as a burden and choose to ignore the problem. In contrast, individuals with good self-acceptance tend to think positively and seek resolution of the problems.

Self-acceptance forms optimism and the belief that the individual is able to bounce back after facing problems. Optimism as one component of resilience forms a positive belief and realistic thought in dealing with problems. Optimism owned by patients could help patients overcome the problems by changing the view of the situation as a condition that must be faced and resolved, and set realistic goals (Matthews & Cook, 2009).

Based on Roy adaptation model, spirituality is linked with the self-concept mode. Spirituality is described as an internal force that helps the patient cope with stressors (Mizuno et al., 2018). In general, spirituality described the ability to understand deeply about life and the ability to maintain internal and external peace without being bothered by any stimulus. Spirituality is able to increase resilience in patients by affecting their relationships in life (Smith, Ortiz, Wiggins, Bernard, & Dalen, 2012). Spirituality helps one build self-control even when they are sick and help develop adaptation in facing chronic illness. Relationship with God or a higher power is seen as an important component in spirituality. Spiritual practices could result in feelings of calm, secure, reduce anxiety, and decrease the level of stress (Reis & Menezes, 2017).

In Bali, the spiritual practice done by people is closely related to culture. Spiritual practices such as ritual activities are believed to be able to solve the problems, so that they will have a sense of peace in their lives. Balinese people are predominantly Hindu and according to their culture, the solutions to overcome psychological problems is through religious and spiritual ceremonies with a belief that all events that occur depend on the will of God (Lesmana, Suryani, Tiliopoulos, & Jensen, 2010). This belief in religion and spirituality helps patients seek the meaning of the situation or stressors experienced and consider them as part of God's great plan. The spirituality of patients is also able to reduce their psychological stress and decrease the desire to give up on the state (Reis & Menezes, 2017).

Age collaborated with the cultural concept is able to improve one’s awareness of spiritual needs and to stimulate the interest in spiritual experience. Someone who has retired appeared to have a good quality of life if it is accompanied by a good spirituality (Earl, 2010). Another study stated that individuals with high levels of education considered the use of spirituality to help them face the stressors experienced (Yuzefo, 2015). Male adults use their spirituality to get emotional
comfort, diversion from stressors, and as a transition factor that connects them with a better life (Schroeder & Frana, 2009). These statements are important things for patients with type 2 diabetes, because they have to change their lifestyle in accordance with the management of the disease treatment. Person with a high score of spirituality could rely on his or her internal power to face any problem so that the person is more likely to have a good resilience skill as well (Khosravi & Nikmanesh, 2014).

This study was based on Roy adaptation model as the nursing approach. This was the strength of this study because this approach could help nurses to view patients as bio-psycho-socio-spiritual unit (Alligood, 2013). As a limitation, this study only took place in urban area without comparing with the results found in rural area. This comparison could be done in order to find whether the sociodemographic factors were also associated with resilience in type 2 diabetes patients. This study was also only used observational analytic design with cross-sectional approach, so that there were no follow-up on the respondents and there were no intervention given to the respondents. Mental health nurses should be able to choose the proper nursing intervention to increase resilience score of the patients. Further research should study more about the intervention that could be use in order to increase the resilience score of the patients while comparing those results in urban and rural area.

CONCLUSION

Based on this study, there was a significant relationship between self-concept and spirituality with resilience in patients with type 2 diabetes mellitus in Denpasar. Among these two factors, self-concept was the most dominant factor related to resilience. For further research, the differences between the factors associated with resilience in patients with type 2 diabetes mellitus in urban and rural areas can be analyzed.

Declaration of Conflicting Interest
None declared.

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Author Contribution
All authors contributed equally in this study.

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EFFECTIVENESS OF SUCTION ABOVE CUFF ENDOTRACHEAL TUBE (SACETT) IN PREVENTING VENTILATOR ASSOCIATED PNEUMONIA IN CRITICAL PATIENTS IN INTENSIVE CARE UNIT

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Abstract
Background: The mechanical ventilator is an indispensable breathing tool in the Intensive Care Unit (ICU). But the mechanical ventilator is associated with the risk of Ventilator Associated Pneumonia (VAP). VAP occurs due to poor hygiene of the endotracheal tube (ETT). ETT hygiene should be maintained to inhibit bacterial development in the lungs using suction above cuff endotracheal tube (SACETT) to prevent VAP.
Objective: To analyze the effectivene

s of SACETT in preventing Ventilator Associated Pneumonia (VAP) in critical patients in the ICU.
Methods: This was a quasi-experimental study with posttest only with control group design with 15 samples in intervention group (SACETT and Chlorhexidine 0.2%) and 15 in control group (ETT, Open Suction, and Chlorhexidine 0.2%) with purposive technique sampling. The Simplified Clinical Pulmonary Infection Score (CPIS) was used to measure VAP.
Results: This study illustrates that there was no VAP incidence in the intervention group, and as much as 13.3% VAP in the control group. SACETT was more effective in preventing VAP than standard ETT on day 4 (p = 0.001).
Conclusion: SACETT is more effective in preventing VAP than standard ETT in the fourth day in patients with neurological, cardiovascular, urinary, digestive, and immune system disorders.
Keywords: suction above cuff endotracheal tube; standard endotracheal tube; associated pneumonia ventilator; critical patient

INTRODUCTION

A mechanical ventilator is an indispensable respiratory aid in an Intensive Care Unit (ICU) of hospital. However, mechanical ventilation is also strongly associated with the risk of Ventilator Associated Pneumonia (VAP) (Bouza et al., 2001). VAP is one of the causes of morbidity and mortality in ICU. Pneumonia due to ventilator use is a nosocomial pneumonia that is very common in patients who have mechanically ventilated (with endotracheal tube or tracheostomy) for at least 48 hours (Patricia, Dorrie, & Barbara, 2012). Pneumonia is an infectious disease that occurs with very high frequency, with the incidence of 9-24 % after 48 hours from the beginning of artificial respiratory management (Chastre & Fagon, 2002).

The incidence of VAP in the world is quite high, varying between 9 and 27% and the mortality rate exceeding 50%. The VAP problem ranks 2nd as a nosocomial infection
in hospitals in the United States. The incidence of nosocomial pneumonia ranges from 5 to 10 cases per 1000 patients, the incidence rate increases 6 to 20 times in ventilator-installed patients, the mortality rate ranges from 20 to 50% (Perhimpunan Dokter Paru Indonesia, 2005). Studies on the Global prospective epidemiologic and surveillance study of ventilator-associated pneumonia in ICU in 56 locations in 11 countries in four regions: The United States, Europe, Latin America and Asia Pacific showed a total of 1873 incidents. VAP incidence in Indonesia based on VAP research at Cipto Mangunkusumo Hospital has found 27.4% of cases during January 2003 until December 2012 (Saragih, Amin, Sedono, Pitoyo, & Rumende, 2014). VAP incidence data at Fatmawati General Hospital (RSUP) found that there was an increasing trend, the highest incidence occurred in July 2014 which was 21.2 % and the lowest of September 2014 was 5.53 % (RSUP Fatmawati, 2014). While based on research at Central Hospital Force Land (RSPAD) Gatot Soebroto, VAP incidence during the year 2014 as much as 21.8% of patients (Handari, 2015).

VAP occurs due to poor hygiene and duration of endotracheal tube (ETT). ETT hygiene should be maintained to inhibit bacterial development in the lung, bacterial proliferation is also affected by patient population, length of treatment, and antibiotics (Saragih et al., 2014). Patients with VAP have higher mortality rates, longer stay in ICU and hospitals, and need more expense for treatment. Therefore, VAP prevention is urgently needed and has become a priority in intensive care research aimed at improving patient health status by reducing mortality.

Installation of ETT into port de entree of bacteria directly to the lower respiratory tract and trachea. Due to the opening of the upper respiratory tract, there is a decrease in the ability to filter and warm the air. ETT fixation may also reduce coughing reflexes and disturbances of the respiratory tract cilium as there is mucosal injury during intubation to allow bacteria to colonize the trachea (Augustyn, 2007). Prevention of oropharyngeal or biofilm aspiration in ETT-attracted patients is by using an ETT design different from the standard. Innovation in ETT design lies in the placement of a hole just above the cuff balloon, connected to the lumen that allows intermittent or continuous sucking of subglotted secretions known as suction above cuff endotracheal tube (SACETT) (Deem & Treggiari, 2010).

The use of standard ETT commonly used in various hospitals illustrates the condition that the secretions accumulated in the upper respiratory tract of the patient are removed by using a suction tube inserted into the oral cavity, nasal cavity and / or throat cavity but not reaching into the area above the balloon cuff. This allows the contamination of the suction tube into the respiratory tract, which increases the risk of infection in the lung so that it can cause VAP, which can affect the increasing length of day care and patient care costs in the ICU room. SACETT aims to clean up the secretions above the ETT cuff balloon with the aim of preventing the microbialization and colonization of pathogenic germs in the lung where the accumulated secretions are removed by connecting the vacuum suction machine with suction cuff to SACETT, so there is no need to enter the suction tube into the canal upper respiration with reach to the area just above the balloon cuff. Thus, the use of SACETT is expected to minimize the risk of VAP occurring in the ICU chamber.

A study compared Suction Above Cuff Endotracheal Tube (SACETT) with standard ETT in preventing VAP in patients with neurologic disease ventilator using randomized controlled pilot study method, conducted in 24 months with 54 respondents in which 4 of them dropped out and the results found differences microbiological incidence VAP on day 5 between the two ETT models in which SACETT was lower than standard ETT but not statistically significant with effect size of 0.14 (medium category) and not specific in the use of oral hygiene antiseptic (Jena et al., 2016).

Oral hygiene as one of the independent measures of nursing services is essential to be
carried out routinely in order to maintain the health of the patient's oral cavity and prevent the risk of lung infection from the upper gastrointestinal tract. Chlorhexidine has been widely demonstrated, and used as an effective prophylactic antiseptic in preventing the occurrence of VAP in patients with integrated intravenous ventilators. Previous study of the effects of endotracheal tubes with polyurethane cuff (PUC) and subglottic secretion drainage (SSD) using open suction system (OSS) and Chlorhexidine as oral hygiene in pneumonia found no significant difference between the two groups studied (conventional ETT and ETT PUC-SSD) after day 4, but the incidence of VAP in the PUC-SSD ETT group was lower than in the conventional ETT group with an effect size of 0.186 (medium category) (Lorente, Lecuona, Jiménez, Mora, & Sierra, 2007).

VAP diagnostic examination is done through Clinical Pulmonary Infection Score (CPIS). CPIS is most effectively used to identify patients who require antibiotic therapy, minimize exposure, and patients who require treatment therapy longer. The classical CPIS contains 7 examination variables consisting of body temperature, leucocytes, tracheal secretions, PaO2 / FiO2, piston photographs, and development of pulmonary infiltrate and culture examination (Luyt, Chastre, Fagon, & Group, 2004). Previous study modified CPIS by removing lung infiltrates development component and culture examination to minimize unnecessary use of antibiotics but still providing flexibility in the management of patients with pneumonia (da Silva, de Aguiar, & Fonseca, 2014). Another study suggested that modified CPIS without culture examination is easier to do in patients with pneumonia after 72 hours (day 4), which is modified CPIS has a good correlation with the results of the classical CPIS examination (Balanchivadze, Dy, & Boyce, 2015). This study aims to reveal the possibility of the influence of the type and design of Endotracheal Tube (ETT): Suction Above Cuff Endotracheal Tube (SACETT) and Endotracheal Tube standard (ETT) with Open Suction System (OSS) and Chlorhexidine 0.2% as oral hygiene in preventing VAP in patients installed mechanical ventilator.

METHODS

Study design
This was a quasi-experimental study with posttest only with control group design, which the cause and effect variable that occurs in the research object is measured or collected simultaneously, momentarily or once at one time (at the same time), and no follow up (Sastroasmoro & Ismael, 2002). In this study there are two groups, namely SACETT group and OSS-ETT group which both groups are using Chlorhexidine 0.2% as oral hygiene twice daily.

Sample
Thirty respondents were selected using purposive sampling, which 15 were assigned in each group. Determination and division of SACETT and OSS-ETT groups were based on ETT installed groove, which respondents indicated the installation of mechanical ventilator from Emergency Installation (IGD) installed standard ETT in IGD (OSS-ETT group). While the respondent indicated the installation of mechanical ventilator from the inpatient room and or ICU installed ETT with suction above cuff in ICU (SACETT group). The inclusion criteria of the samples were: patients with mechanical ventilator and treated in ICU for at least 72 hours, adult males and females (> 18 years old), patients with GCS <8 (decreased function of coughing and swallowing reflexes), patients with body temperature in the normal range (36.5 - 37.5°C). The exclusion criteria were: patients with prior history of pneumonia, patients with malignant disease, patients with HIV / AIDS, and patients who are taking a corticosteroid.

Instrument
SACETT was attached to patients who met the inclusion criteria for subsequent intervention groups and OSS-ETT was attached to the control group, which both of them have oral hygiene using Chlorhexidine 0.2% twice daily. VAP examination uses simplified CPIS (body
temperature, leucocytes, tracheal secretions, PaO2 / FiO2, and Photo thorax) after 72 hours of installed intubated ventilator.

**Figure 1 Suction Above Cuff Endotracheal Tube (Medical)**

**Data analysis**
Data were analyzed using IBM SPSS 21. Data were evaluated using percentage and frequency as well as parametric tests to compare CPIS values after 72 hours of mechanical ventilator installation in the SACETT and OSS-ETT groups. The data normality test uses Shapiro-Wilk, and Independent t-Test is used to determine the effect of further use of SACETT and OSS-ETT on VAP.

**Ethical consideration**
This research has obtained permission from the Health Research Commission of Health Polytechnic of Kemenkes Semarang with approval number: 019 / KEPK / Poltekkes-SMG / EC / 2017, which stated that this research was ethically qualified. Prior to the research, prospective respondents were given informed consent which contains information about the purpose, benefits, and research procedures.

**RESULTS**
Table 1 shows that the average age of respondents in the SACETT group was 54.27 years with the maximum age of 77 years and minimum of 74 years. While the average age of the group of OSS-ETT was 52.80 years, with the maximum age of 74 years and minimum of 30 years. The statistical test obtained p-value = 0.819 showed the age range data of respondents were homogeneous.

**Table 1 Homogeneity test and frequency distribution of age of respondents (n=30)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>SACETT</td>
<td>54.27</td>
<td>55.00</td>
<td>13.237</td>
<td>27</td>
<td>77</td>
<td>0.819</td>
</tr>
<tr>
<td></td>
<td>OSS-ETT</td>
<td>52.80</td>
<td>54.00</td>
<td>10.591</td>
<td>30</td>
<td>74</td>
<td></td>
</tr>
</tbody>
</table>

*) Mann Whitney U Test (p<0.05)

Table 2 shows that the frequency and percentage of gender of respondents consisted of 18 (60%) of males in which 8 (26.7%) males in the SACETT group and 10 (33.3%) in the OSS-ETT group, while the female respondents were 12 (40%) which 7 (23.3%) in the SACETT group and 5 (16.7%) in the OSS-ETT group. Chi Square shows p = 0.456, which indicated that gender data were homogeneous.

Table 2 Homogeneity test and frequency distribution of gender and medical diagnosis of respondents (n=30)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Group</th>
<th>SACETT</th>
<th>OSS-ETT</th>
<th>Total</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>8</td>
<td>26.7</td>
<td>10</td>
<td>33.3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>7</td>
<td>23.3</td>
<td>5</td>
<td>16.7</td>
<td>12</td>
</tr>
<tr>
<td>Medical</td>
<td>Nervous</td>
<td>4</td>
<td>13.3</td>
<td>4</td>
<td>13.3</td>
<td>8</td>
</tr>
<tr>
<td>diagnosis</td>
<td>Cardiovascular</td>
<td>4</td>
<td>13.3</td>
<td>8</td>
<td>26.7</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Digestive</td>
<td>2</td>
<td>6.70</td>
<td>0</td>
<td>0.00</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Immune</td>
<td>2</td>
<td>6.70</td>
<td>2</td>
<td>6.70</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Urinary</td>
<td>3</td>
<td>10.0</td>
<td>1</td>
<td>3.30</td>
<td>4</td>
</tr>
</tbody>
</table>

*) Chi Square Test (p<0.05) **) Kolmogorov Smirnov (p<0.05)

Frequency distribution and percentage of respondent characteristics based on medical diagnoses show that 12 (40%) respondents with cardiovascular disease as the highest percentage, which 4 (13.3%) respondents were in SACETT group and 8 (26.7%) respondents in the OSS-ETT group. The lowest percentage was in digestive system as many as 2 (6.70%) respondents. Kolmogorov Smirnov test showed p-value = 0.730, which indicated that the medical diagnostic data of respondents were homogeneous.

Table 3 Homogeneity test and frequency distribution of gender and medical diagnosis of confounding variables (n=30)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Group</th>
<th>SACETT</th>
<th>OSS-ETT</th>
<th>Total</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Antibiotic</td>
<td>Carabapenem</td>
<td>4</td>
<td>13.3</td>
<td>2</td>
<td>6.7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Cephalosporin</td>
<td>5</td>
<td>16.7</td>
<td>4</td>
<td>13.3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Quinolone</td>
<td>2</td>
<td>6.7</td>
<td>5</td>
<td>16.7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Nitroimidazole</td>
<td>4</td>
<td>13.3</td>
<td>4</td>
<td>13.3</td>
<td>8</td>
</tr>
<tr>
<td>Head position</td>
<td>30°</td>
<td>7</td>
<td>23.3</td>
<td>8</td>
<td>26.7</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>45°</td>
<td>8</td>
<td>26.7</td>
<td>7</td>
<td>23.3</td>
<td>15</td>
</tr>
<tr>
<td>Diet</td>
<td>600 cc</td>
<td>4</td>
<td>13.3</td>
<td>4</td>
<td>13.3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>800 cc</td>
<td>11</td>
<td>36.7</td>
<td>8</td>
<td>26.7</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>1000 cc</td>
<td>0</td>
<td>0.00</td>
<td>3</td>
<td>10.0</td>
<td>3</td>
</tr>
<tr>
<td>Circuit type</td>
<td>Disposable</td>
<td>8</td>
<td>26.7</td>
<td>8</td>
<td>26.7</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Reusable</td>
<td>7</td>
<td>23.3</td>
<td>7</td>
<td>23.3</td>
<td>14</td>
</tr>
</tbody>
</table>

*) Levene Test (p>0.05)

Table 3 shows that most antibiotic use is cephalosporin group (30.0%), average head position is 30-45° (50.0%), diet with the highest frequency is 800 cc (63.3%), use of circuit type with the highest frequency is disposable circuit (53.3%). Levene test results showed probability values for antibiotic variables (p = 0.425), head position (p = 1.000), diet (p = 0.438), circuit type (p = 1.000), which indicated that all confounding variables can be controlled.

Table 4 shows that there was no VAP incidence in the SACETT group whereas in the OSS-ETT group there were 13.3% of respondents who experienced VAP.

Table 4 Frequency distribution and percentage of VAP incidents in patients with mechanical ventilator in the ICU (n=30)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Group</th>
<th>SACETT</th>
<th>OSS-ETT</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>VAP incident</td>
<td>No VAP</td>
<td>15</td>
<td>50.0</td>
<td>11</td>
<td>36.7</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>VAP</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
<td>13.3</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
<td>50</td>
<td>15</td>
<td>50</td>
<td>30</td>
</tr>
</tbody>
</table>

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Table 5 Effectiveness of the use of SACETT and OSS-ETT on VAP (n=30)

<table>
<thead>
<tr>
<th>Variable</th>
<th>SACETT Mean ± SD</th>
<th>OSS-ETT Mean ± SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPIS</td>
<td>2.93 ± 0.799</td>
<td>5.07 ± 1.668</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*) Independent t-Test (p <0.05)

The Independent t-test as shown in the table 5 obtained p-value = 0.001, which indicated that there was a significant difference between the use of SACETT and OSS-ETT on the incidence of Ventilator Associated Pneumonia in patients with mechanical ventilator with reference to Clinical Pulmonary Infection Score, which the mean of SACETT group (2.93 SD = 0.799) was smaller than the mean of OSS-ETT group (5.07 SD = 1.668). It can be concluded that CPIS value was better on SACETT than SETT.

DISCUSSION

Description of Respondent's Characteristics

The mean age of respondents in this study was 54.27 years in the SACETT group and 52.80 in the SETT group, which the age range of 46-65 years was categorized as elderly (Depkes, 2009). This was consistent with the previous study with the most respondents at the age below 60 years (Saragih et al., 2014). Similar with another study with the use of suction above cuff tracheotomy in reducing the average incidence of VAP in ICU chambers with most respondents in the range of 43-55 years (Ledgerwood et al., 2013). The other comparative study of polyurethane and polyvinyl cuff on VAP showed the most average respondents was 54 years old (Mahmooodpoor et al., 2013). Another research about the age relationship of VAP patients with length of stay in ICU shows that the average age of respondents installed mechanical ventilator was 49 years (Dewi & Harahap, 2014).

Risk factors that can trigger the occurrence of VAP include age over 60 years, disease severity, acute or chronic lung disease, excessive sedation, enteral nutrition, and severe burns (Rab, 2010). A study states that the age and degree of disease redness are two factors which play a role in patient outcomes in the ICU, but these relationships may be affected by acute physiological disorders, physiologic changes with age, and different treatment in each ICU (Boumendil et al., 2004).

The highest number of genders of respondent was males. This was not in accordance with a previous study that most of respondents were females (Ledgerwood et al., 2013; Yagmurdur, Tezcan, Karakurt, & Leblebici, 2016). However, patients critically ill in the ICU are basically not always dominated by one gender whether male or female. During the study, we found more male patients treated in the ICU with an indication of mechanical ventilator installation. The frequency of most respondents' medical diagnoses is a disease of the cardiovascular system followed by a disease of the nervous system. A research by The Canadian Critical Care Trials Group suggests that respondents with the most mechanical ventilators in trauma disease, followed by cardiovascular disease, respiratory disease, and neurological diseases (Group, 2006). Another study stated that most ventilator-installed patients are in cardiovascular system disease (Harde et al., 2013). Another also showed that the most respondents are with cardiovascular system disease (Saragih et al., 2014). Conditions in the cardiovascular system are closely related to the respiratory system so that when there is a disorder of the heart it will affect the respiratory system function. When the heart is unable to pump enough blood to maintain a smooth circulation, the result will be a buildup of blood and extra pressure that causes fluid to accumulate into the lungs. When the lung has lost its function, it requires a breathing apparatus such as a mechanical ventilator (Terry & Weaver, 2014). The use of mechanical ventilator is a risk factor in the occurrence of pneumonia because the airway
is intubated, so that it can be the entrance of germs in the oral cavity if it is not kept clean.

The most antibiotic use in this study was cephalosporin (30.0%). Cephalosporin is antibiotic capable of passing penicillin constraints. The drug is a semisynthetic preparation of the Acremonium Chepalosporium that is effective for fungus for both positive and negative gram (Azwar & Onk, 2004). The use of cephalosporin class antibiotics in this study is for prophylaxis in preventing pulmonary parenchymal infections due to the installation of an intubated ventilator. According to a study, 60% of antibiotics use is cephalosporin. This is because the majority of respondents are with low economy i.e. patients with health insurance. Another factor that supports the high use of cephalosporin class antibiotics is the very easy way of administration, once daily in an IV or bolus (Fauziyah, Radji, & Nurgani, 2011).

Fifty-percent of respondents have 30° and 45° head up position. The head-up position in the ventilator-mounted patient is essential to prevent aspiration of the oropharyngeal tract. A study suggests that a 15-30° back-rest elevation is insufficient to prevent VAP, while patients with elevated 45° semi recumbent positions have significantly lower incidences in VAP events (Alexiou, Ierodiakonou, Dimopoulos, & Falagas, 2009).

Administration of enteral nutrition in this study with the highest volume was 800 cc / 24 hours (63.3%). Patients with intubated mechanical ventilation should be controlled in the volumes of enteral nutrition administered to minimize residual volume to prevent aspiration from aerodigestive channels. This is in accordance with a study that indicated that the tolerance limit of intubated mechanical ventilators in enteral feeding was not greater than 250 cc / 6 h (not more than 1000 cc / 24 h). This is because if the provision of nutrients above the tolerable volume of the patient increases the likelihood of vomiting and aspiration risk in patients which also increases the risk of VAP (Poulard et al., 2010).

The use of disposable circuits in this study (53.3%) is more than the use of reusable circuits (46.7%). During the course of the study, patients with intubated mechanical ventilators used more disposable circuits in order to maintain the sterility of oxygen and air entering the lungs during the use of mechanical ventilators to prevent VAP.

**Effectiveness Between the Use of SACETT and OSS-ETT on VAP**

VAP incidence was found in 4 (13.3%) respondents in the OSS-ETT group and no VAP was found in the SACETT group. In accordance with the study by Ledgerwood et al with the result that the incidence of VAP in the use of suction above cuff is lower than the use of standard tubes. This occurs because the use of ETT model with suction port over balloon cuff can control oral secretion in ventilator-installed patients in order not to enter the lungs. In contrast to the use of standard ETT that use open suction catheters to control secretions in the oral cavity but are unable to reach the upper respiratory to prevent secretion from entering the lungs so that microbe may occur in lung tissue.

Comparative analysis is performed on the CPIS score as a measure of incidence of VAP with grouping of SACETT and OSS-ETT variables in which there was significant difference between the two groups. The results of this study contrasted with a study by Jena et al, in which there was no significant difference in clinical and microbiological incidence of VAP between the use of SACETT and standard ETT with the conclusion that other strategies for VAP prevention were similar (Jena et al., 2016). Differences were suggested by Mao et al that subglottic secretion suction reduces VAP incidence and duration of mechanical ventilator use and delayed the onset of VAP (Mao et al., 2016). Another study for the incidence of VAP using endotracheal tubes with polyurethane cuff and subglottic secretion drainage (ETT-PUC-SSD) and conventional endotracheal tube by Lorente
et al found that decreased incidence of VAP either early onset or late onset in treated patients using ETT-PUC-SSD (Lorente et al., 2007).

Microbial agents that because pneumonia have three forms of primary transmission, namely: (1) secretive aspiration containing pathogenic microorganisms that have colonized the oropharynx, (2) infectious aerosol inhalation, and (3) hematogenous spread of the extrapulmonary portion. The most common way is aspiration and inhalation of infectious agents. The colonization of microorganisms in the oropharynx is common in 48 hours after hospitalization, oropharyngeal secretions lead to pathological consequences whereby normal persons take fewer oropharyngeal secretions during sleep and will become worse when oral hygiene or when oral hygiene are not good. Suction mechanism in subglottic secretion drainage can decrease the incidence of VAP with continuous secret aspiration mechanisms to prevent micro aspiration from the upper airway into the lungs and minimize injury to the tracheal mucosa in order to avoid colonization of microorganisms (Lorente et al., 2007).

VAP is closely related to the upper respiratory hygiene level. The action in maintaining the hygiene of the oral cavity of the patient is installed by a mechanical ventilator intubated by doing two important things, namely suctioning and oral hygiene. Standard ETT intubation with open suction is an old method but is maintained because of the policy of most hospitals in the area despite the risks of contamination during suctioning. Oral hygiene using Chlorhexidine 0.2% has been extensively studied and has a good effect on maintaining oral hygiene. This study combines intubation using SACETT + Chlorhexidine 0.2% in an effort to prevent VAP.

This study has an effect size of 1.668 with a very strong category, meaning that this study is able to provide better effects in preventing VAP with the location of differences in the combination of intubation using SACETT and oral hygiene using Chlorhexidine 0.2% twice a day. According to previous study, Chlorhexidine 0.2% is an effective antiseptic to decrease VAP incidence compared with 0.19% NaCl usage. Thus, it can be concluded that our study is in accordance with the results of the previous study (Tantipong, Morkchareonpong, Jaiyindee, & Thamlikitkul, 2008).

Previously, the Closed Suction System (CSS) method was considered capable of reducing contamination of the upper and upper respiratory tracts in infection prevention efforts, but some studies did not show any difference in the use of CSS over Open Suction Method (OSS) methods in the treatment of installed patients with intubated mechanical ventilators prevention of VAP. Based on a meta-analysis study shows that the comparison of CSS and OSS use in VAP prevention was not significant with CI = 1.50-5.52, which means the use of CSS did not provide benefit in preventing VAP compared with OSS use (Siempos, Vardakas, & Falagas, 2008). Another also stated that there was no difference use of CSS and OSS in the prevention of VAP nosocomial infections in ventilator-installed patients (Badriyah, 2016). Meanwhile, the use of 0.2% Chlorhexidine in OSS and CSS have the same impact in ventilator-installed patients (Debora, Leksana, & Sutiyono, 2012). A new method of preventing VAP is the incorporation of a closed suction system with ETT in a single tool, SACETT, which minimizes the risk of micro aspiration by suction that directly reaches the area above the ETT cuff balloon. The combination of SACETT and oral hygiene intubation using Chlorhexidine 0.2% twice daily can prevent VAP than standard ETT intubation with an open suction system with Chlorhexidine 0.2% twice daily as oral hygiene.

**CONCLUSION**

VAP incidence based on CPIS assessment on the fourth day was as much as 13.3% in the use of OSS-ETT. This study showed that the combination of intubation using SACETT and
oral hygiene using Chlorhexidine 0.2% twice daily was more effective than standard ETT intubation with open suction system in preventing VAP, with p-value = 0.001. The use of SACETT and oral hygiene using Chlorhexidine 0.2% proved to prevent VAP in patients <60 years old and with indications of intubation in cardiovascular system disease, nervous system, immune system and urinary system and digestive system. Therefore, in the prevention of VAP in critical patients, it is recommended to combine SACETT and oral hygiene with Chlorhexidine 0.2%.

Declaration of Conflicting Interest
None declared.

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Author Contribution
All authors contributed equally in this study.

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EFFORT TO REDUCE ANXIETY LEVELS AMONG MOTHERS USING FEBRILE CONVULSIONS EDUCATIONAL PACKAGE

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Abstract
Background: Parents often experience anxiety when seeing their children having febrile convulsion. It may be due to lack of knowledge about febrile seizure and the way of handling it.
Objective: This study aims to analyze the education package of febrile convulsion and its effect on mother’s anxiety.
Methods: This was a quasi-experimental study with pretest posttest with control group design. Eighty-one participants were selected, which randomly assigned to be two groups that 41 participants in control group and 40 participants in intervention group. Anxiety was measured using State Anxiety Inventory in Indonesian version. Data were collected from March to Mei, 2017. Data were analyzed using Wilcoxon-test.
Results: The results showed that the mean of anxiety level in the intervention group before intervention was 77.40 and decreased to 35.78 after intervention, while the mean of anxiety level in the control group was 68.17 before intervention and decreased slightly to 64.17 after intervention. The p-value of the difference between control and intervention group was 0.001 (<0.05).
Conclusion: There was a significant effect of education package about febrile convulsion on mother's anxiety level. It is suggested that febrile convulsion educational package can be used as an alternative therapy to reduce anxiety levels among mothers.

Keywords: febrile convulsion; anxiety; education package

INTRODUCTION

A febrile convulsion is a seizure accompanied by fever (temperature 100.4°F or 38°C, measured by any methods) without central nervous system infection, which occurs among infants and children in 6 through 60 months of age (American Academy of Pediatrics, 2011). A febrile convulsion is one of the neurological disorders that are often encountered in children. Generally, this disease has a good prognosis. Most of the patients can be perfectly cured. However, around 25-30% of them may experience recurrent febrile convulsion. The mortality rate of children with febrile convulsion also ranged from 0.64 to 75% (Fuadi, Bahtera, & Wijayahadi, 2016). Thus, febrile convulsion in children is quite worrying their parents.

Anxiety is a common problem for parents who experience pediatric febrile convulsion. It comes from the wrong perception of febrile convulsion due to the lack of knowledge among mother. Similarly, a study result by Rofiqoh (2014) in Pekalongan also found that the factor associated with a cause of the mother’s anxiety in children febrile convulsion...
is a lack of pediatric febrile convolution knowledge among them (Rofiqoh, 2014).

The lack of this knowledge can be overcome with education. Education can improve mother's understanding and the ability for taking care their children in the case when children had a febrile convolution (Hockenberry, Wilson, & Rodgers, 2016). This educational effort is expected to be one of the interventions to overcome anxiety. In contrast, some hospitals in Pekalongan district did not have this program intervention optimally. As preliminary study in Pekalongan that conducted by the researcher found that the recent educational program of febrile convolution was only in short information necessary without any media. Besides, the media play a role in improving the understanding of mothers about learning materials (Umar, 2017). As a result, this condition will not educate mothers effectively. It can be seen by a previous study in Pekalongan that found the knowledge among 95 mothers who faced pediatric febrile convolution was low by 64.2% (Rofiqoh, 2014). Therefore, this low knowledge among mother may not decrease the level of their anxiety.

Parents’ anxiety affects both physical and behavioral aspects. The physical response experienced by parents occurs at the time of the pediatric febrile convolution happen, as shaking, dyspepsia, anorexia, and sleep disorder (Jones & Jacobsen, 2007). Meanwhile, the manifest of behavioral response can be shown by the way of their caring to a child in negatively. Anxiety can lead to a narrowed field of vision (Stuart, 2014). Zeglam, Alhmadi, and Beshish (2010) in Libia also found that most of the parental behavior for giving caring for their child is not appropriate when their child sustain febrile convolution (Zeglam, Alhmadi, & Beshish, 2010). The previous study by Wals, Edwards, and Fraser in Australia states that the negative behavioral aspects of parents when their child fever including giving more frequent antipyretic administration or antipyretic administration with double doses (Walsh, Edwards, & Fraser, 2008). This negative parental behavior can cause negative impacts such as damage to the liver and kidneys of children. In addition, this incidence may increase as febrile convolution is at risk of recurrence. However, the risk of recurrence of febrile convolution increases the incidence of anxiety experienced by the mother. Maternal anxiety responses may recur when their child has a fever, firstly, because the fever is one of the most common complaints when mother bring the children to health services (Purnasiwi, Lusmilasari, & Hartini). Fever only is enough to make the mother in worry. Furthermore, it will increase, especially if their child has a convolution. To sum up, briefly, the condition while parents have an anxiety sometimes makes the parents take irrational decisions, so it is not effective in providing appropriate care for children, whereas the role of parents is very important in the care for the recovery of sick children (Hockenberry et al., 2016). Based on the background of the problem, the researcher is interested to examine the effect of education package of febrile convolution on mother's anxiety in children febrile convolution.

**METHODS**

**Study design**
This was a quasi-experimental study with pretest posttest with control group design. Pretest and intervention were performed on the second day during hospitalization, while posttest was performed on the third day. Meanwhile, the pretest among control group was conducted at the second day of hospitalization and posttest was performed on the third day as well.

**Setting**
The study was conducted in RSUD Kraton Pekalongan and RSUD Kajen. These two hospitals have same characteristics on hospital policy to receive patients with public health insurance (Jamkesmas), and most nurses were graduates of nursing diplomas, and the ratio of nurses with patients is on average 1: 5-6.
Sample
The population was the mother who has children with febrile convulsion. The sampling technique was consecutive sampling that was conducted for 3 months (March – May 2017). The respondents were 81 respondents divided randomly, which 40 respondents for the intervention group and 41 for the control group. The inclusion criteria were mothers whose children had been treated for the second day with a simple febrile convulsion, the mother could read and write as well as willing to be a respondent. Respondents who experienced communication barriers, had children with complex febrile convulsion and faced a child convulsion with epilepsy were exceeded.

Intervention
The State Anxiety Inventory (SAI) was used to measure anxiety. The researcher conducted pretest before the treatment in the second day of hospitalization and posttest after given treatment that was in the third day, among the intervention group. The intervention group was educated about febrile convulsion by using febrile convulsion educational package in the form of flipchart and booklet that contain definitions, risk factors, complications, normal temperature range, how to use a thermometer, convulsion prevention, and convulsion management. These three last messages were demonstrated using props. Provision of intervention was conducted by researcher. On the other hand, in the control group, the researchers also measured the pretest on the second day of child hospitalization and posttest on the third day. The control group received only hospital-based treatment for febrile convulsion in children. After SAI posttest measurements on the third day, control group was given an educational package of febrile convulsion as in the intervention group.

Instrument
A questionnaire of SAI adopted from Spielberger (Spielberger & Gorsuch, 1983), was used to measure the anxiety among sample. It has been translated into the Indonesian language at Faculty of Humanities, University of Indonesia. The validity and reliability of the questionnaire were conducted by researcher with r-value count by 0.4-0.884, and Cronbach alpha value were 0.939. The questionnaire consisted of 20 questions about feelings of tension, fear and worries of adverse events as well as symptoms of an increased activity of the autonomic nervous system. Each question item has a choice of 1 = no answer at all, 2 = little, 3 = enough, 4 = very. The score range between 20-80, where the lowest score of 20 shows a mild anxiety and a high score of 80 indicates anxious weight.

Ethical consideration
The ethics committee of the Faculty of Medicine and Health Sciences, University of Muhammadiyah Yogyakarta approved the protocol of study in February, 2017 (078/EP-FKIK-UMY/II/2017).

Data analysis
Wilcoxon test was used as the data analyze in this study because the data distribution was not normal.

RESULTS
The result of this research was in bivariate and univariate analysis. Table 1 showed the majority of respondents in the control group (75.6%) aged between 25-45 years, most of them (95.1%) passed only from primary education, did not work (68.3%), used the health insurance (BPJS), and the frequency of convulsion among them was one time (70.7%). Respondents in the intervention group were productive age (80%) that ranged from 25 to 45 years old. The majority of education level among them was basic education by 95%. In addition, most of them did not work (80%), used health insurance (BPJS) by 87.5%, and the frequency of convulsion was one time 31 (77.5%).
Table 1 Frequency distribution based on the characteristics of respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Control</th>
<th></th>
<th>Intervention</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N= 41</td>
<td>Percentage (%)</td>
<td>N = 40</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 25 years</td>
<td>10</td>
<td>24.2</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>25-45 years</td>
<td>31</td>
<td>75.6</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>39</td>
<td>95.1</td>
<td>38</td>
<td>95</td>
</tr>
<tr>
<td>Medium</td>
<td>2</td>
<td>4.9</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>13</td>
<td>31.7</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Unemployed</td>
<td>28</td>
<td>68.3</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>Hospital costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Insurance</td>
<td>33</td>
<td>80.5</td>
<td>35</td>
<td>87.5</td>
</tr>
<tr>
<td>Non- Health Insurance</td>
<td>8</td>
<td>19.5</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>Frequency of Convulsion in Children</td>
<td>29</td>
<td>70.7</td>
<td>31</td>
<td>77.5</td>
</tr>
<tr>
<td>&gt; One time</td>
<td>12</td>
<td>29.3</td>
<td>9</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Table 2 The average distribution of respondents based on the anxiety score before and after treatment

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Mean</th>
<th>Standard of Deviation</th>
<th>Min-max</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>68.17</td>
<td>11.11</td>
<td>33-80</td>
<td>64.66-71.68</td>
<td>0.002*</td>
</tr>
<tr>
<td>After</td>
<td>64.17</td>
<td>12.53</td>
<td>24-80</td>
<td>60.14-68.05</td>
<td>0.001*</td>
</tr>
<tr>
<td>Intervencion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>77.40</td>
<td>3.58</td>
<td>61-80</td>
<td>76.25-78.55</td>
<td>0.001*</td>
</tr>
<tr>
<td>After</td>
<td>35.78</td>
<td>12.6</td>
<td>22-71</td>
<td>31.73-39.83</td>
<td></td>
</tr>
<tr>
<td>Average value difference</td>
<td></td>
<td></td>
<td>-9-50</td>
<td>1.09-7.06</td>
<td>0.001*</td>
</tr>
<tr>
<td>Control</td>
<td>4.07</td>
<td>9.45</td>
<td>-9-50</td>
<td>37.5-45.75</td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>41.63</td>
<td>12.90</td>
<td>9-59</td>
<td>37.5-45.75</td>
<td></td>
</tr>
</tbody>
</table>

Based on the range in the Table 2, the average score of anxiety in the control group among 41 respondents on the second day was 68.17, with a minimum score were 33 and a maximum score was 80. The measurements on the third day showed the average score of anxiety was a little bit decrease by 64.17, which ranged from 24 to 80. P-value obtained was 0.002, which is smaller than α (0.05).

In the intervention group, the result showed the average score of anxiety among 40 respondents before treatment that was 77.40 (min: 61, max: 80). In another side, the measurements after intervention showed 35.78 for the average score of anxiety, ranged from 22 to 71. The reduction of the average of anxiety score before and after treatment in the control group was 4.07, whereas in the intervention group was 41.63. In addition, the bivariate analysis showed the effect of education package of febrile convulsion to mother's anxiety in pediatric febrile convulsion by p-value 0.001.

DISCUSSION

Based on the results of the study among control and intervention group showed most of the respondents aged between 25-45 years, approximately around 95% in both groups had basic education. The maturity of age and level of education is the potential for rational thinking and activity for looking sources or information related to the disease of his son to increase knowledge (Notoatmodjo, 2012).

Job status analysis in control and intervention groups showed most of the mother did not work by 68.3% and 80%, respectively. Although, most of the mothers did not work...
which means all of the financial support in their household is from their husband, however, interestingly, in both groups, up to 80% of mothers used health insurance. Thus, it may help the mother for the cost of hospitalizing their child. The existence of health insurance will reduce the burden of mother to financing childcare in the hospital (Kurniawan & Intiasari, 2012).

In another side, the characteristic of a febrile frequency, in both groups, found most of the cases were the first febrile convulsion. Thus, it may be a cause of the low mean differences between the control group and intervention group, which around 9.23%. The frequency of convulsion in children is one of the risk factors for increasing a fear and a trauma for parents related to the condition of the children. It leads to increase parents' anxiety scores (Rofiqoh, 2014).

The result showed that the average mother’s anxiety score on the second day of the childcare in the control group was 68.17 and in the intervention group was 77.40. The score indicates high anxiety. The results of this study were in accordance with the research (Kolahi & Tahmooreszadeh, 2009) at the Mofid Children’s Hospital and Ju, McElmurry, Park, McCreary, M. Kim, and E.J. Kim (Ju et al., 2011) in Korea, with the results, showed the majority of mother experienced severe anxiety when their child has a febrile convulsion.

According to the previous study, the severe anxiety which experienced by mothers in children who had febrile convulsion, caused by the worries of the mother about the impact of febrile convulsion to the child such as brain damage, children injured, the inability of breathing, unconscious, and even died (Walsh et al., 2008). Other factors that cause severe anxiety among mother are the unclear causes of fever and ignorance of parents in assisting children with convulsion (Kolahi & Tahmooreszadeh, 2009).

This study also showed the average score of maternal anxiety in the control group on the third day of hospitalization, was quite high (64.17), then the initial score was 68.17. There was only a slight decrease in the mean maternal anxiety score between the second and third treatments by 4.07. Moreover, study found that there was significant difference of mother's anxiety score on second and third-day child care febrile convulsion (p-value = 0.002).

Interestingly, the level of anxiety in the control group on the second and third days of treatment showed no significant difference. On the third day of treatment, generally, the child has been handled by health personnel thus their condition has improved. Basically, it makes parents more relieved with the condition of his son, so the worry is slightly reduced. However, from the table above can be seen that the average of mother's anxiety score on the second day and third day of care tend to be still high. Even on the third day of treatment, there were 9 respondents (22%) who experienced an anxiety score increase and 10 respondents (24.4%) with an anxiety score similar to the second day. It can be seen that, even though the child is already in the health service, but it still makes the parents worried. Therefore, anxiety experienced by parents can occur even for a long time. By the child having a convulsion, parents will assume a harmful impact will be experienced by their child. This is in accordance with a national population-based study in the United Kingdom by Verity, Greenwood and Golding who argued that parents in children with febrile convulsion may experience months of anxiety and 25% of parents think their children experience behavioral disorders (Ju et al., 2011).

In the intervention group, the average mother’s anxiety score on the third day of childcare was sufficient to decrease after receiving febrile convulsion education. The average score decreased by 41.63. On the third day of treatment, it shows all respondents (100%) have decreased anxiety score. P value obtained 0.001, which means there is a significant difference between mother's anxiety score before and after education about febrile convulsion. Similarly, there was a mean difference for the anxiety score between the control group and the intervention.
The mean difference of mother’s anxiety score before and after treatment in control group and intervention was 37.45. The bivariate analysis resulted in P-value 0.001. It is shown that there is significant influence between education packages of febrile convulsion to mother anxiety in children febrile convulsion treated at the hospital. The previous study stated that mother with pediatric febrile convulsion whose knowledge of febrile convulsion were less, most likely to experience severe anxiety (Rofiqoh, 2014). Maternal anxiety occurs because of the high maternal perception of uncertainty about the condition of children with febrile convulsion, such as uncertainty about the causes of fever and treatment, not knowing how to help children with convulsion, lack of access to information about febrile convulsion and fear of death, brain damage, mental retardation, behavioral disorders and fear of recurrent febrile convulsion in their child (Alligood, 2014; Ju et al., 2011).

Providing educational packages will improve knowledge. It is appropriate with the previous research (Peyman & Jangi, 2015) among 60 female students in high school, which confirmed that the provision of health education increases students' knowledge, attitudes and behavior of students about AIDS. Health education is all activities to provide and enhance the knowledge, attitude, practice, whether individuals, groups or communities in maintaining and improving their own health (World Health Organization, 2012). Likewise, the provision of educational packages of febrile convulsion will improve maternal knowledge.

The method of providing structured health education, using two-way communication and health education media such as flipcharts and booklets, and procedural demonstrations as well, will facilitate the acceptance of learning materials for mothers. The way in receiving health education easily is more likely to improve mother's knowledge. Good knowledge of a febrile convulsion will decrease the perception of a mother about uncertain child's condition, in another word, it will improve good perception in the health condition of their child because basically, the prognosis of febrile convulsion is largely cured perfectly (Fuadi et al., 2016).

According to Mishel's Uncertainty in Illness's theory of nursing, knowledge affects a person's response to an event because knowledge affects a person's uncertainty. If knowledge is good, it will reduce the uncertainty condition of a person and decrease anxiety (Alligood, 2014). Naviati's study of parents' anxiety in children who were hypothalamic also showed that the provision of good information would decrease the anxiety of the parents when the child is hospitalized (Naviati, 2011).

CONCLUSION

There is a significant influence of education package about febrile convulsion to mother’s anxiety in pediatric febrile convulsion treated in the hospital. It is recommended for nurses to increase the parent’s knowledge in children febrile convulsion by giving education about febrile convulsion, so it can decrease the parent’s anxiety.

Declaration of Conflicting Interest

None declared.

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Author Contribution

All authors contributed equally in this study.

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BALINESE TRADITIONAL TREATMENT (BALIAN) IN PATIENTS WITH MENTAL DISORDERS

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Abstract
Background: Balinese believe that mental disorders are caused after being possessed and cursed by one’s ancestors, so Balinese choose traditional Balinese treatment (balian/shaman) in handling patients with mental disorders.
Objective: The purpose of this research was to explore deeply about the use of balian in treating patients with mental disorder.
Methods: A qualitative method with an interpretive phenomenological approach was used. In-depth interview technique with semi-structured interview guidelines was used for data collection. Data were analyzed using Interpretative Phenomenological Analysis (IPA) approach.
Results: Five themes emerged, including 1) ancestors’ curse, 2) possessed by a spirit, 3) believe that balian has healing power, 4) balian becomes the first choice prior to the hospital, and 5) the use of traditional and medical treatment at once.
Conclusion: Balian became the first choice in treating patients with mental disorders. It is because Balinese still believes that mental disorders caused by the ancestors’ curse and possessed by the spirit.

Keywords: mental disorders; traditional Balinese medicine; shaman

INTRODUCTION

Mental disorders in various countries have increased significantly each year. Mental disorder is a syndrome or behavioral pattern that is clinically related to suffering or distress and may cause interference with one or more functions of human life (Keliat, 2012). Every person can experience mental disorders, regardless of age, race, religion, or socio-economic status. The society still believes the wrong myths about mental disorders, caused by possessed demons, spirits, or jinns, while some others believe that mental disorders are caused by the sins of the sufferer himself or the sins of his family (Subu, 2015)

The Balinese treat mental disorders traditionally, which in Balinese conception, mental disorder is believed to be caused by being possessed by evil spirits (or in Balinese language called bebat), anger of the ancestral spirits (kepongor), and a curse. In determining the cause of mental disorders, Balinese usually seeks for help from a shaman or often called a balian. The role of balian in treating patients with mental disorder in Bali is still very large and still trusted by the people in Bali (Kumbara, 2007).
Traditional treatment (balian) becomes the first and main choice for society or Balinese families rather than the hospital treatment. Balinese tend to seek out balian in early treatment. About 76% of them will continue treatment to a psychiatrist, but after being treated by a psychiatrist, 80% will return to the balian/shaman for further treatment (Lesmana, Suryani, & Tiliopoulos, 2015).

Traditional treatment is a combination of skills and knowledge practice based on theories of belief and experience of different cultures. These beliefs and experiences can be used in the health care, prevention, diagnosis, repair, or treatment of physical and mental illness (WHO, 2014). Traditional treatment becomes a phenomenon which commonly found in society (Fanani & Dewi, 2014). Various types of treatment methods are performed, either from those who use plants as a medicine or supernatural things like prayer and mantra modern (Ardiyasa, 2012).

Data from Basic Health Study in 2013 showed that 30.4% households in Indonesia utilize traditional health services in the past years to maintain their health. The proportion of households utilizing traditional health services in the past years was 32.2% of the urban population and 28.7% of the population in rural areas. Based on the data from Bali Provincial Health Office in 2014, it is showed that 25.6% of Balinese living in urban areas and 24.2% in rural areas used traditional health services.

Cultural and historical factors have caused people to choose traditional treatments, as found in Singapore and the Republic of Korea. The conventional health care system in those countries are well established, but 76% of Singaporeans and 86% of Republicans of Korea still use traditional medicine (WHO, 2014). In low and middle-income countries most people with mental disorders prefer to use traditional medicine (Gureje et al., 2015).

Recovery or treatment process in mental disorders patients can be influenced by culture and beliefs from society. In Sudan, the most common sufferers who seek traditional medicine are patients with psychotic disorders. They have never visited psychiatric services before and they express their strong beliefs about the role of shaman in the treatment and management of mental disorder (Sorketti, Zuraida, & Habil, 2012). Therefore, the study about Balinese traditional medicine (balian) in mental disorders patients needs to be done to explore deeper about Balinese opinions on the use of Balinese traditional medicine (balian) in treating patients with mental disorders.

**METHODS**

**Study design**

This study used a qualitative research design with interpretative phenomenology approach. This approach is based on philosophy from Heidegger which emphasizes that the phenomena experienced by individuals is not only described but also interpreted and the researchers are able to understand the phenomenon (Polit & Beck, 2012).

**Sample**

Characteristics are determined in the selection of participants according to the research objectives (Polit & Beck, 2012). Purposive sampling was used to select and classify sample. The inclusion criteria of sample were: having a family member with mental disorder, caring and decision making for family members, having experience using Balinese traditional treatment (balian) for at least three months, and willing to be a participant. The exclusion criterion was a family member who treats patients other than mental disorders patients. The respondents consisted of nine participants. The age range of most participants was 36-45 years old. Most participants were Elementary School (SD) and Senior High School (SLTA) graduates, but there was one participant who was not attending school. Most of them were married, only one of them was not. All of the participants were holding Hindu religion. All of the participants already used traditional treatment for more than one year and seek for more than three balians (shamans).
Data collection
The data were collected using in-depth interview technique with semi-structured interview guidelines. The steps of data collection included (1) we fostered a relationship of trust with participants, (2) we explained the research objectives, benefits, and process to the participants, (3) After the participants agreed, they signed the informed consent and made an appointment for the interview, (4) we prepared instruments for interview such as field notes and voice recorders, (5) we conducted the interview with open questions in accordance with the guidelines, and (6) during the interview, we noted the participants' non-verbal and emotional responses.

Ethical considerations
This research has been approved by Research Ethics Committee of Udayana University, Medical Faculty/Central General Hospital Sanglah Denpasar with approval number: 119/UN.14.2/KEP/2018. We highly value the dignity of the participants by maintaining the confidentiality of their identity, confidentiality of data, respecting privacy and dignity, and respecting the autonomy of the participants. We also paid attention to the welfare of participants by taking into the benefits (beneficence) and minimizes the risk (non-maleficence) of the research process by paying attention to freedom from danger (free from harm), exploitation (free for exploitation), and discomfort (free from discomfort). In this research, we kept the principle of justice for all participants. We received informed consents from all participants after we gave an explanation of the purpose of the research, procedure, the time of the participant's involvement, the participant's rights and form in the research process.

Data analysis
We transcribed word by word from the interviews that were recorded and coded manually. After data encoding, we conducted data analysis using Interpretative Phenomenological Analysis (IPA) (Jeong & Othman, 2016). In the first step, we re-read the transcript results until we found the information that had not been recorded in the initial reading. We used different fonts or underlining to identify information related to the research on each text. In the second step, we identified which theme appeared by referring to the three types of comments that had been made in the first step. In the third step, we looked for connection from the various themes that had been found and created a chart, so that the relationship to the theme was obvious. In the fourth step, we did a repetition from step one to step four for the next participant. In the last step, we searched the patterns and relationships between cases and themes.

Trustworthiness
We conducted peer-checking to preserve high credibility, which could be done with panel discussions with experts to re-analyze obtained data from this study (Afriyanti, 2008).

RESULTS
From nine participants, we found five themes correlated with the use of traditional treatment for mental disorders patients including:

Theme 1: Ancestor’s curse
Balinese believes that one of the causes of mental disorders is ancestor’s curse. According to one of the participants, ancestor’s curse happened because the person chosen in the world was unreal and those who got special duty from the ancestors did not carry out his/her duties so that he/she got the curse of the ancestors that caused him/her to experience mental disorders.

“Yes, he seemed to experience kepingit (the person who was chosen in a niskala way/unrealized world), but the temptation is too big and he did not follow the task that he got. The symptoms were that he became berserk; the problem was, he had a problem but never told other persons” (P1)

Theme 2: Possessed by a spirit
The mental disorders caused by the possession of evil spirits is a major common factor believed by the Balinese until today. According to a participant, there is a change of

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behavior on his family member because of an evil spirit entered the body.

“Indeed, talking alone means his brain already damaged; it means he got possessed by the evil spirit. So, I took him there (balian/shaman)” (P6)

Theme 3: Believe that balian has healing power
The role of balian/shaman in treating patients with mental disorders in Bali is still very large and still trusted by Balinese. According to some participants, balian/shaman is believed to have the ability and can provide healing.

“To heal them: The condition didn’t improve in Batu bulan, I have a family from Celuk, and so I try it. Who knows? maybe he’ll get better.” (P8)

“It is common among Balinese, if there is a mental disorder, they’ll see doctor, but then they see Balinese shamans if no results” (P7).

Theme 4: Balian becomes the first choice prior to the hospital
Balian becomes the first and main choice for Balinese rather than the treatment in hospital. According to some participants, the first action to take was to bring the patient to balian/shaman. The case of mental disorder experienced by family members is caused by possession.

“First, I took him to balian/shaman because he seemed possessed, there is also no improvement” (P3).

“Well, I admit, the first treatment that I got was a non-medical treatment (balian/shaman) in Batu bulan” (P8).

Theme 5: The use of traditional and medical treatment at once
The use of traditional treatment (balian) and the treatment in hospital (doctors) by Balinese at the same time is a very common phenomenon in Bali. Some participants use traditional and medical treatment at once because with the medical treatment the patient tends to be calm, while the traditional treatment (balian) has become a belief in the family.

“We used both, so not only we went to the hospital we also went to the balian” (P5).

“Well, together, I believe medical drugs, because it is more proven. The drug was given as a sedative and we went to balian because it is believed here” (P7).

DISCUSSION
Findings of this study indicated that the Balinese still treat mental disorders traditionally, which they believe that mental disorders are caused by possession and ancestors’ curse, which was in line with a previous study (Kumbara, 2007). Ancestors’ curse happened because the person did not do her/his duties in glorifying or honoring their ancestors. Besides, it happened because there are people who do not like or jealous to someone, so they send a demon that cause damages or changes in behavior, such as talking to himself and going berserk. However, the belief of mental disorders caused by possessive spirits, demons, or evil jinn also believed by some of cultures in Indonesia (Subu, 2015). The western countries may not support the idea of supernatural as a cause of mental disorders, but for non-western cultures, such as Nigeria with the majority of caregivers (72.0%), stated that the cause of mental disorders is supernatural such as possessed by spirits and curses (Igberase & Okogbenin, 2017).

The treatment process of mental disorders patients can be affected by culture and society’s belief. In Africa, belief in the spirits becomes the main determinant in the selection of treatment (Asare & Danquah, 2017). Balinese’s belief on the cause of mental disorders between naturalistic and personality becomes a major significant factor on the use of traditional treatment (balian) (Kumbara, 2010). The result of our study showed that Balinese believes that balian/shaman can provide healing (Kumbara, 2007).

Traditional treatment is widely used in most of the countries (WHO, 2014). It is similar with the traditional treatment for people with
mental disorders in Sudan. Most patients who come to traditional treatment in Sudan commonly have psychotic disorders and they have never visited psychiatric services before. This is largely due to their strong beliefs about the role of shamans in the treatment and management of mental illness (Sorketti et al., 2012).

Traditional and alternative treatment in Indonesia has an important role in health to meet the needs of mental health treatment. The traditional treatment becomes the first choice of mental disorders patients and family. It is similar with the situation in India, the belief is a strong tool in health care. The belief of supernatural power such as possessed by spirits, magic, and breaking religious rules are the cause of mental disorders. Those beliefs makes them to use traditional treatment and becomes the first choice by family member who has mental disorders (Biswal, Subudhi, & Acharya, 2017).

The phenomenon of the use of traditional and medical treatment at the same time is also commonly done by the Balinese, according to this study. It is in line with people in Gujarat, people still highly appreciate the contribution of medical treatment. Preferences for doctors or shamans depend on the outcome of the care the patients receive. Those who receive traditional treatment but have no improvement will tend to hate traditional treatment. There are also people who love medical care, still retain their spiritual outlook, but it is only temporary and will disappear along with the loss of confidence in traditional strengths to cure mental illness (Schoonover et al., 2014).

The society’s view of traditional treatment is different with western practitioners. The western practitioners tend to have a negative view of traditional medicine because they consider this traditional method of treatment is harmful to mental disorders of patients. In a previous study, the western practitioners also conducted an evaluation of 30 patients who were using a traditional treatment. The result was that eight patients claimed that the traditional medicine gave very large negative results for the patients (James & Peltzer, 2012). Most of mental disorders patients prefer traditional treatment when first experiencing a mental disorder that will delay the patient's treatment to a psychiatrist, thus negatively impacting the prognosis of bipolar affective disorder (BAD) (Assad et al., 2015).

CONCLUSION

The result of this study indicated that Balinese still treat mental disorders traditionally. It is due to they believed that the mental disorders were caused by possessions and the curse of the ancestors. The role of balian/shaman in treating patients with mental disorder and traditional treatment (balian/shaman) still becomes the first choice of Balinese before choosing the hospital for the treatment. However, they also use both traditional and medical treatment at the same time. Finding of this study served as a basis in providing mental care with cultural approach. Further study is needed to analyze the dominant factors associated with the selection or use of traditional treatments in treating patients with mental disorder, and to explore the perceptions of health workers and government agencies associated with traditional treatment in treating patients with mental disorders.

Declaration of Conflicting Interest

None declared.

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Author Contribution

All authors contributed equally in this study.

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THE EFFECTS OF SPIRITUAL COUNSELING ON THE ANXIETY LEVEL OF PATIENT’S FAMILY AT THE INTENSIVE CARE UNIT (ICU) OF dr. DRADJAT PRAWIRANEGERA HOSPITAL IN SERANG, BANTEN PROVINCE, INDONESIA

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Abstract
Background: Critical nursing is a specific service in giving a holistic nursing service to fulfill human response to a life-threatening problem. A critical nurse can give a social support to patient’s family through assessment, counseling, and supporting group. Counseling is combination between high technology physical caring and emotional caring, which is needed by patients and the family. Spiritual counseling is a complementary medication preferred by the family of patient who is in acute and critical care.
Objective: The study aimed to identify the effects of spiritual counseling on the anxiety level of patient’s family at the ICU of dr. Dradjat Prawiraneagara Hospital in Serang, Banten Province, Indonesia.
Methods: The study was a pre-experimental research with one group pre-test and post-test design. The samples were 25 respondents selected using consecutive sampling technique during one month (May to June 2016). The data of anxiety level were collected using HAR-S (Hamilton Rating Scale for Anxiety) questionnaire. The data were analyzed using parametrical t-test paired sample for the variable of anxiety before and after giving spiritual counseling. Meanwhile, the variable of respondents’ characteristics to anxiety was analyzed by using independent sample test.
Results: The study found that the mean of respondents’ anxiety level before spiritual counseling was 33.44 and the standard deviation was 5.213. Meanwhile, after conducting spiritual counseling, the mean was 18.60 and the standard deviation was 2.582. Bivariate analysis result showed a significant difference between anxiety level of patient’s family in ICU (Intensive Care Unit) before and after conducting spiritual counseling in which p value was 0.000, with the mean value of 14.840 and SD of 5.437.
Conclusion: Nurses should be more capable in implementing the intervention of spiritual counseling to patient’s family. Spiritual counseling can give a positive alteration to the family emotional situation. It impacts on the decrease of patient’s family anxiety level. By the decrease of family anxiety level, the possibility of doing mistake in decision-making is expected to be avoided.

Keywords: family; counseling; spirituality; anxiety; ICU

INTRODUCTION

Critical Care Nurses Association of the Philippines defines critical nursing service as a specialization in nursing service, which fulfills human response to some life-threatening problems, which are changed dynamically and suited to response to actual and potential life-threatening illnesses (CCNAPI, 2012). It parallels what is stated by American
Association of Critical Care Nurses (AACN) who defines critical nursing as a specialization in nursing, which specifically handles human response to life-threatening problems (AACN, 2013).

ICU is one of most challenging rooms, which can make the patients stressed and have emotional problems relating to anxiety and depression (Rusinova, Kukal, Simek, & Cerny, 2014). Patients in critical condition have not only physiological problem but also psychosocial one. Therefore, the patients and their family need interventions for their development and spiritual process. Nurses who take care of patients at ICU in which the environment is high technology sometimes more focus on technology of maintaining stability of physiological function (P. G. Morton, Fontaine, Hudak, & Gallo, 2013).

Many studies show that critical nurses must be able to give a high quality and skillfully care and to use a proper technology while applying psychosocial and other holistic approach which is suited to time and patient’s condition. Chang in his study to 35 patients in Taiwan by interview obtained that adult patients need a multidimensional care including physical, informational, and psychosocial dimension (Chang, Chen, & Su, 2012). This is similar to what has been found in previous study (Lukmanulhakim & Firdaus, 2018) that reaches fulfillment patients and their families, the needed spiritual education facilities so that patients and families can be patient and steadfast in the face of disaster being faced.

The needs are to be relieved from pain and discomfort, to start oral intake as soon as possible, to have continuous sleep, to get information including the development of their illness, prognosis and health progress activity. Psychosocial needs involve nurse caring, flexible visit hour, and good communication from all staffs in ICU. A holistic nursing service needs family approach in family centered context, an approach in which care is intended not only to patients but also their family since every patient is a part of family unit (Duran, Oman, Abel, Koziel, & Szymanski, 2007). Family means two people or more united by bonds of togetherness and emotion and who identify them as part of family. Family will experience a trauma when the member is in critical condition since they are psychologically not ready to face the critical illness (Friedman, 2008).

Complexity of problems that happen to patients in critical condition affects not only on patients, but also on psychological change of their family. It indirectly influences the family members who enter ICU. Patient and family psychosocial need is important in critical and emergency nursing service (Mitchell & Courtney, 2004). Kinrade conducted a study relating to psychosocial need in Australia, taking place in ICU, and using quantitative approach and critical care family needs inventory as the instrument of data collection (Kinrade, Jackson, & Tomnay, 2009). He stated that patient’s family needs honest information and hope for healing – nurses must know the needs. The study result describes that psychosocial needs are not only for patient but also for their family. It also describes that the main aspects of psychosocial need are comfort and the decrease of stress, which is caused by anxiety due to being in ICU.

Anxiety suffered by family of patient who is taken care in ICU happens because of the threat of helplessness, lose control, the feeling of lose function and dignity, failure to form a defense, isolated feeling, and fear of dying (G. Morton, 2012). The study conducted by Powers shows that anxiety of patients and their family is decreased; and they are satisfied by improvement of patient and family engagement in care plan (Powers, Goldstein, Plank, Thomas, & Conkright, 2000). Some examples of family engagement in care plan are as the following: involving family in decision making, giving adequate information about patient’s condition either through family education or through counseling, asking patient’s family about their wishes when the patient is close to death, presenting family when the patient dying, and so on. On the other words, anxiety defined as the anxiety
level of family’s patients who are in ICU.

In initial phase of critical care, patient’s family need to decrease anxiety level, guarantee of quality care and information, and support which emerges as the result of stressor-fulfilled condition or experience. A clinical nurse can give social support to family members through assessment, counseling, and supporting group. Social support, although not empirically tested, can impact on the ability of family members to support patient and the patient’s positive healing from critical illness (Halm, 1992). It parallels Stockdale’s opinion that counseling is required to combine high-tech physical care and emotional care needed by patients and their family. Counseling which focuses on patient or family is a theoretical model that can be used to achieve balance between the two issues, and counseling throughout to family of patient with spiritual approach well defined as spiritual counseling (Stockdale, 1989).

Patients and their family often feel desperate and helpless when facing critical care environment. Here, the role of religious leader in a health service team to give a holistic service. Providing religious ritual access, praying, and reciting holy books are a very meaningful strategy to decrease stress level of patient. According to Solt-Ashley, supplication and spiritual approach are parts of complementary medication preferred by patients in acute or critical care. They believe there is correlation among body, mind, and soul (Holt-Ashley, 2000). Spiritual support is expected to be able to decrease anxiety level of patient’s family. Spiritual and religious engagement contributes to reduce depression symptoms and anxiety (Koenig, 2001). It is strengthened by Young who say that ones who become closer to God will get comfort and solve stress. Proximity to God will give more powers, confidence and comfort (Young & De Abreu, 2010). They are useful for health including reducing depression and solitude, increasing maturity in relationship, and improving social competence and psychosocial assessment in facing stress (Hill & Pargament, 2008).

METHODS

Study design

The study employed a pre-experimental pretest posttest design (Polit and Beck, 2006) due to the study the limitation of selected group to be a control group. So, this study design intended to examine the effects of the intervention of spiritual counseling on anxiety level by measuring the pretest and posttest. The study aimed to identify the effects of spiritual counseling on patient’s family at ICU (Intensive Care Unit).

Setting

The data collection was conducted from May to June 2016 at the ICU (Intensive Care Unit) of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province. The researchers were assisted by several counselor nurses who expert in spiritual counseling. Before conducting spiritual counseling intervention, the researchers explained the research purposes, the benefits, the time, respondent’s rights, and the informed consent to patient’s family. After achieving an agreement, they did the initial measurement of anxiety level by administering HARS-S anxiety questionnaire to patient’s family in the same day. The researchers did accompaniment when the families fulfilled the questionnaire and directly measured the anxiety level. After fulfilling all questionnaire components and doing validation, the counselor nurses applied the intervention of giving spiritual counseling to patient’s family at a special room of the ICU. One day after giving counseling, the researchers did the second anxiety level measurement to the same respondents by giving the same treatment.

Sample

The sample were the closest family members who better knowing the patient’s condition clearly from before being hospitalized to being admitted at the ICU of dr. Dradjat Prawiranegara Hospital. The sampling technique was non-probability sampling. The respondents were selected by using consecutive sampling. During one-month period between May to June 2016, the
researchers obtained 25 samples who have different disease characteristics. The inclusions criteria of the sample are selected are as follows: 1) Members of the patient's core family who were treated at the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province. 2) The core of patient’s family who are able to communicate well and aged ≥ 18 years old. Furthermore, the exclusion criteria of the sample are the core of Patient’s family members is mentally disorders and the patient’s family members who resigned unexpectedly.

**Instrument**

Instrument used in this study was HAR-S (Hamilton Anxiety Rating Scale). HAR-S was a questionnaire that consists of 13 questions intending to patient’s family to determine the anxiety level. The scale was a list of behavior characteristic levels which classify and assess individuals or symptoms. There were four score choices in HAR-S instrument, namely: < 6 means no anxiety, 7 to 14 means light anxiety, 15 to 27 means moderate anxiety, and > 27 means severe anxiety (Apriady, Yanis, & Yulistini, 2016). The validity and reliability of modified HAR-S anxiety level were examined in Banten Regional Hospital by involving 15 respondents. The score of Cronbach’s alpha was 0.912.

**Ethical consideration**

The study had been approved in the research ethical consideration from ethical committee for research of dr. Dradjat Prawiranegara Hospital. The ethical consideration was to avoid any negative effects relating to ethical issues and to fulfill research ethical principles. The approval research permit letter form dr. Dradjat Prawiranegara Serang Hospital was published on May 6th, 2016, with letter number 009/TU.1305/V/2016.

**Data analysis**

Before conducting hypothesis testing, data normality assumption test was firstly done by using Shapiro-wilk test and skewness score, which is divided by error standard score. The sample size is 25 respondents. The normality test by using Shapiro-wilk test for family anxiety data obtains 0.073 p value after comparing the value to 0.05 alpha value. Meanwhile, the normality test by using skewness score and standard error obtain 0.435 for pre-test and 0.430 for post-test. To conclude, both tests identify that the data was distributed normally. Then, the researchers analyzed the data by using paired sample t-test.

**RESULTS**

The research discussion includes the descriptive analysis and comparative analysis of spiritual counseling effects on the anxiety level of patient’s family at the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province. Based on table 1 above, the data shows that before doing spiritual counseling, family anxiety level was mostly in severe level (92.0%). However, after doing spiritual counseling, family anxiety level is mostly in moderate level (96.0%).

Next, according to table 2, the mean of family anxiety level after giving spiritual counseling to respondents less than 30 years old was 18.47 and the standard deviation was 2.427. Meanwhile, the mean of family anxiety after giving spiritual counseling to respondents who were more than 30 years old was 18.30, the standard deviation was 3.044, and the statistical test result showed p value 0.723 (p > 0.05). In conclusion, age did not affect respondents’ anxiety. The mean of anxiety level of female family members was 18.80 and the standard deviation was 2.957. Meanwhile, for the male respondents, the mean of their anxiety was 18.30, the standard deviation was 2.003, and p value was 0.645 (p >0.05) which means gender did not affect the anxiety level.

The p-value of family educational background was 0.116 (p> 0.05). Meanwhile, p value of family occupation was 0.504 (p > 0.05) and the family prior experience of taking care the members in ICU was 0.857 (p > 0.05). In conclusion, there were no influence of age, sex, educational background, occupation, and family experience on anxiety level.
Table 1 Anxiety level of patient’s family at the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province (N=25)

<table>
<thead>
<tr>
<th>Respondent’s Anxiety Level</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f (%)</td>
<td>f (%)</td>
</tr>
<tr>
<td>Anxiety Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Anxious</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Lighter Anxious</td>
<td>0.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Moderately Anxious</td>
<td>8.0%</td>
<td>96.0%</td>
</tr>
<tr>
<td>Severely Anxious</td>
<td>92.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Table 2 Characteristics of respondents (N=25)

<table>
<thead>
<tr>
<th>Respondent’s Characteristics</th>
<th>Respondent’s Anxiety Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>N</td>
</tr>
<tr>
<td>&lt; 30 Years</td>
<td>17</td>
</tr>
<tr>
<td>&gt; 30 Years</td>
<td>8</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Low (Elementary School and Junior High School)</td>
<td>15</td>
</tr>
<tr>
<td>High (Senior High School and University)</td>
<td>10</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>14</td>
</tr>
<tr>
<td>Unemployed</td>
<td>11</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>13</td>
</tr>
<tr>
<td>Ever</td>
<td>12</td>
</tr>
</tbody>
</table>

Statistical Analysis with Independent Sample T-Test

Table 3 Mean of anxiety level of patient’s family at the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province before and after spiritual counseling (N=25)

<table>
<thead>
<tr>
<th>Family Anxiety</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>33.44</td>
<td>5.213</td>
<td>1.043</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>After</td>
<td>18.60</td>
<td>2.582</td>
<td>0.516</td>
<td>14</td>
<td>24</td>
</tr>
</tbody>
</table>

Statistical Analysis with Paired Sample T-Test

According to table 3 above, the data showed that the mean of respondents’ anxiety level before conducting spiritual counseling was 33.44 and the standard deviation was 5.213. Meanwhile, the mean of anxiety level after doing spiritual counseling was 18.60 and the standard deviation was 2.582. While based on table 4, there was a significant difference of anxiety level of patient’s family in ICU before and after doing spiritual counseling with the nurses in the emergency room of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province. It showed by 0.000 of p value and 13.648 t value. The mean of family anxiety level before and after doing spiritual counseling was 14.840 and the standard deviation was 5.437.

Table 4 Mean difference of anxiety level of patient’s family at the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province before and after spiritual counseling (N=25)

<table>
<thead>
<tr>
<th>Anxiety Level</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>p-value</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>14.840</td>
<td>5.437</td>
<td>1.087</td>
<td>.000</td>
<td>13.648</td>
</tr>
<tr>
<td>After</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Statistical Analysis with Paired Sample T-Test
DISCUSSION

Depiction of Anxiety Level of Patient’s Family at the ICU

The research result shows that the anxiety level of patient’s family at the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province is mostly in severe anxiety level with 68.0% percentage. The result is supported by Rusinova et. al who explained that critical care unit is the most challenging place in the world and able to cause a stressful condition such as anxiety and depression for family whose member is admitted in a critical care ward (Rusinova et al., 2014). Moreover, Brysiewicz stated that a family whose member has a traumatic injury and is admitted in a critical care unit think that the place is unfamiliar and scary since no one in the family want this to happen. By hospitalization, the family must face a possibility that one of the family members will be disabled or perhaps died (Brysiewicz & Bhengu, 2010).

Patient’s family can give response to the patient’s critical condition including disadvantageous psychological outcome development such as anxiety, acute stress disorder, post-trauma stress, depression, and complicated grieving (Davidson, Jones, & Bienvenu, 2012). Urden, et.al (2010) argued that possible responses of patients and the family to stressors during suffering from critical illness and being admitted in a critical care unit including death threat, post-injury threat such as disability, pain or discomfort, lack of sleep, and boredom are disappeared just by an instant visit, stimulus, and scary thought (Urden et al., 2010).

Anxiety is a displeased emotional condition signed by unspecific object worry feelings and a displeased and unwanted physical symptom change (Davies & Craig, 2009). One’s anxiety in facing family member’s illness condition has different level and is influenced by some factors such as age, family relationship, and sex (Lukmanulhakim, Suryani, & Anna, 2016; Syukrowardi, Wichaikull, & von Bormann, 2017).

The research results show in detail that half respondents are less than 30 years old (56.0%) whose anxiety levels are severe (73.2%) and moderate (26.8%). The findings support Krasucki et. al. (2008) who argued that anxiety tends to occur to young mature ages between 21 and 45 years old since in the age range, people are responsible for their deeds. Moreover, they have many problems relating to household, social relationship, and occupation, which are potential to cause an emotional tension. This study finds that among 25 respondents, 17 respondents are female (68.0%) who mostly suffered from severe anxiety (76.5%) and 23.5% of them suffered from moderate anxiety. Being parallel to a theory which states that female tends to be more neurotic or to use her feeling compared to male, female seems to suffer more from anxiety than male. Priest (1990) also explained that female more often suffers from anxiety rather than male since female more often expresses her condition, feelings, and anxiety or tension, compared to male who tends to cover his feelings.

Spiritual Counseling Effects on Anxiety Level of Patient’s Family at the ICU

Providing spiritual counseling is an effort of giving objective information, done systematically by nurse counselor who has good communication skills, guidance techniques, and technical knowledge which purpose is to help patient’s family identify current condition, current problems, and problem solving.

The research results show a significant difference of anxiety level of patient’s family in ICU (Intensive Care Unit) before and after conducting spiritual counseling by nurses of the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province. It is shown by 0.000 p value, 14.840 mean score, and 5.437 standard deviation. The research findings support what has been identified by Powers in his study in which patient’s and family’s anxiety are decreased and the satisfaction is increased by improving patient and family engagement in care plan (Powers et al., 2000).
Some examples of family engagement in a care plan is as the following: involving family in decision making, providing adequate information about patient condition through health education or counseling, asking family about their wish when patient is close to death, presenting family when patient is dying.

Counseling is a direct care method used to help patient solve problem in identifying and resolving stress and to facilitate interpersonal relationship. The counseling involves emotional, intellectual, spiritual, and psychological support. Although patients and the family need counseling, it does not mean that they are psychologically incapable, but they have difficulty to adapt normally. The counseling given by a counselor nurse supports patients and the family to check some alternatives and to determine useful and proper choice (Potter & Perry, 2005). The effectiveness of counseling has been explained by Urden, et.al who argued that health education and counseling are proven to be able to shorten time of care, lessen rehospitalization possibility, and improve self-care management skills (Urden et al., 2010). The shareable issues in the counseling process are showing principles, procedures, and techniques of proper health care and informing patient’s health status. The process includes learning and teaching element, namely interaction between teacher and learner, which has specific learning objectives (Perry & Potter, 2005).

The counseling and health education for patients and the family expect some positive outcomes including: the presence of understanding clarification and patient’s perception of the illness and decision of care preference, the improvement of symptom management skills, supporting decision making, decreasing emotional stress relating to unfamiliar environment and prognosis uncertainty, increasing the ability of adaptation in a full stressor situation, the increase of satisfaction of care service, relationship improvement between patient and the family and health workers, and supporting positive self-concept (Urden et al., 2010). Proximity to God will give more power, confidence, and comfort. It is advantageous for health including reducing depression and solitude and improving maturity in a relationship, social competence, and a better psychological assessment to handle stress (Hill & Pargament, 2008). The research results answer to the expectations expressed by previous studies (Koenig, 2001; Lukmanulhakim & Firdaus, 2018; Lukmanulhakim et al., 2016), which states that the increased spiritual support and counseling are expected to reduce patient’s family anxiety. The spiritual engagement and religiosity contribute to decrease depression symptoms and anxiety.

Despite the result of this study that found spiritual counseling associated with anxiety level of family’s patient in ICU, but some limitations also had identified. The limitations in this study were only involving one group and small sample size.

CONCLUSION

In a critical care, patients will suffer from various stressors which are possible to disturb patient’s and the family’s psychosocial fulfillment. There are many ways to solve the problem; one of them is by giving counseling to the family. This way is able to decrease family’s anxiety so they are able to participate in the patient’s recovery by giving support and to avoid any mistakes in the decision-making.

Declaration of Conflicting Interest
None declared.

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Author Contribution
All authors contributed equally in this study.

References


PREDICTION MODEL OF OBESITY AMONG TEACHERS IN SENIOR HIGH SCHOOL IN KENDARI

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Abstract

Background: Obesity that occurs in adolescents (age >18 years) shows a significant increase, from 12% in 2007 to 13% in 2010 and 19% in 2019 in males, and from 13% to 28% in 2013 in females.

Objective: To analyze the prediction model of obesity among teachers in senior high school in Kendari, Indonesia.

Methods: This was a prediction cross-sectional study. There were 250 high school teachers were recruited from 12 senior high schools using a purposive sampling. The instruments used were questionnaires (food frequency, consumption recall, and activities recall questionnaire), Seca weight scale, anthropometry microtoice, meter, computer program, and stationery. Data were analyzed using Chi-Square.

Results: Findings showed that there was a significant correlation between age group (p = 0.05), knowledge (p= 0.02), stress (p= 0.05) and diet (p= 0.013). The prediction factor of obesity among high school teachers was that teachers with an upper age (age> 45 years) were likely to be obese 2.64 times than teachers at a young age (age <45 years). If teachers experienced stress, they would suffer from obesity 2.17 times compared with teachers with no stress.

Conclusion: Factors associated with obesity in high school teachers in Kendari Indonesia were age, knowledge, stress and dietary factors. Factors that were not related with obesity were attitudes about nutrition, activity and smoking habits. The highest predictors of obesity were age and stress.

Keywords: prediction model; obesity; Kendari; Indonesia

INTRODUCTION

Overweight and obesity increased rapidly in different parts of the world toward epidemic proportions. This is due to the increased diet high in fat and sugar, along with a decrease in physical activity. In developed countries, obesity has become an epidemic by contributing 35% to morbidity and contributing 15-20% to death. Recent reports indicated that the prevalence of obesity worldwide in both developing and developing countries has risen in alarming numbers. Balanced Nutrition Behavior is essential to prepare a healthy lifestyle in the face of the double burden of nutritional problems, namely deficiencies and excess nutrients that occur at the same time (Widyantara et al., 2014).

A previous research concludes that, in developed countries, women in low socioeconomic groups have an obesity prevalence six times higher than women in top socioeconomic groups (Sobal & Stunkard, 1989). In Sweden, low socioeconomic is a strong determinant of the incidence of overweight and obesity in middle-aged women. In Syria, the incidence of obesity...
increased in women with multiparity and low physical activity. A study in Korea shows that low education and income levels are the leading cause of obesity in both sexes. However, in developing countries such as Africa and Asia, the incidence of obesity is more common in urban areas than in rural areas, meaning that obesity is more common in high socioeconomic groups (Widianti & Candra, 2012). In 2007, in Indonesia, it is found that the prevalence of central obesity is higher with increasing socioeconomic status (Jafar & Gobel, 2011). The rise of fast food and unhealthy lifestyle are not only in big cities but also up in small towns in Indonesia. This affects changes in eating behaviors and healthy life behaviors, some of them become obese until eventually suffering from obesity. Data in 2004 show that the population aged 15 years and over 85% had less physical activity, and only 6% of the population had physical activity (Statistics Indonesia, 2003).

The national prevalence of general obesity in adult population (above 15 years) in 2006 is 10.3%. A total of 12 provinces had prevalence of general obesity in adult population above the national prevalence, including Bangka Belitung, Kepulauan Riau, DKI Jakarta, Jawa Barat, Jawa Timur, Kalimantan Timur, Sulawesi Utara, Sulawesi Tengah, Gorontalo, Maluku Utara, Papua Barat, and Papua (Department of Health, 2006). In 2013, provinces with prevalence of general obesity were Sulawesi Utara, Gorontalo, Kalimantan Timur, Bangka Belitung, DKI Jakarta, Maluku Utara, Sulawesi Tengah, Sumatra Utara, Papua Barat, Aceh, Jawa Barat and Jawa Timur (Department of Health, 2013).

The percentage of overweight nationally in 2007 was 12.2%, and increased in 2010 to 14.0%. In Southeast Sulawesi, 11.9% of overweight in 2013. Obesity among adolescents (age> 18 years) increased, which was from 12% in 2007 to 13% in 2010 in males, and from 13% in 2007 to 28% in 2013 in females (Department of Health, 2013).

Similarly, obesity (male abdominal circumference >90 cm and female >80 cm) in Southeast Sulawesi also increased from 18% in 2007 to 27% in 2013. Based on body mass index (BMI) at age >18 years, obesity also increased from 10.3% in 2007 to 12.2% in 2010 and 15.4% in 2013. However, the prevalence of general obesity in men is lower than women (13.9% and 23 respectively, 8%) globally.

According to demographic characteristics, the prevalence of general obesity is higher in those in urban area, having higher level of household expenditure per capita per month, and having more weight and obese. High school teachers in Kendari Indonesia are living in the urban environment and having less activity, which therefore they might be at risk of obesity. This study aimed to analyze the prediction model of obesity among teachers in senior high school in Kendari, Indonesia.

METHODS

Study design
This was a cross-sectional study conducted in the Senior High School in Kendari City, Indonesia.

Sample
There were 250 high school teachers were recruited from 12 senior high schools using purposive sampling based on the inclusion criteria, including: the teacher who was still active working, suffered from overweight and obesity, and were ready to be respondent. The exclusion criterion was respondent who was pregnant.

Instrument
The instruments used in this study were questionnaires (food frequency, consumption recall, and activities recall questionnaire) developed by the authors with sound validity and reliability. The other instruments were Seca weight scale, anthropometry microtoice, meter, computer program, and stationery.

Data analysis
Data were analyzed using univariate and bivariate analysis. Bivariate analysis used Chi-
Square test.

Ethical Consideration

This research has been approved by the Medical Research Ethics Commission of Hasanudin University Faculty of Medicine the Number: UH16070578.

RESULTS

Distribution of respondents' characteristic aged <45 years as many as 122 people (48.8%) and > 45 years as many as 128 people (51.2%). The majority of respondents were women as many as 155 people (62.0 %), and most of them were working in private sectors as many as 127 people (50.8%) (see Table 1).

Table 1 Characteristics of respondents

<table>
<thead>
<tr>
<th>Characteristics of respondent</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 45</td>
<td>122</td>
<td>48.8</td>
</tr>
<tr>
<td>&gt; 45</td>
<td>128</td>
<td>51.2</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>95</td>
<td>38.0</td>
</tr>
<tr>
<td>Women</td>
<td>155</td>
<td>62.0</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>97</td>
<td>38.8</td>
</tr>
<tr>
<td>Military</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Private sectors</td>
<td>127</td>
<td>50.8</td>
</tr>
<tr>
<td>Housewife</td>
<td>20</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Table 2 shows that 163 people (65.2%) were not stress, 155 people (62.0%) were in a good diet, 195 people (78.0%) with obesity status, and 198 people (79.2%) with light activity category. Based on the category of knowledge and attitude, 179 people (71.6%) had a good knowledge, and 143 people (57.2%) had good attitude.

Table 2 Distribution of respondent by stress factor, diet and obesity status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>87</td>
<td>34.8</td>
</tr>
<tr>
<td>Not</td>
<td>163</td>
<td>65.2</td>
</tr>
<tr>
<td>Dietary habit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>155</td>
<td>62.0</td>
</tr>
<tr>
<td>Not good</td>
<td>95</td>
<td>38.0</td>
</tr>
<tr>
<td>Obesity status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obesity</td>
<td>195</td>
<td>78.0</td>
</tr>
<tr>
<td>Overweight</td>
<td>55</td>
<td>22.0</td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy</td>
<td>52</td>
<td>20.8</td>
</tr>
<tr>
<td>Light</td>
<td>198</td>
<td>79.2</td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>179</td>
<td>71.6</td>
</tr>
<tr>
<td>Not good</td>
<td>71</td>
<td>28.4</td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>143</td>
<td>57.2</td>
</tr>
<tr>
<td>Not good</td>
<td>107</td>
<td>42.8</td>
</tr>
</tbody>
</table>

Table 3 shows that there were significant relationships between age group, stress, diet and knowledge with obesity status (p <0.05), while attitude and activity had no correlation with obesity status (p > 0.05).
Table 3 Relationships of age group, stress status, diet, knowledge and activities with obesity status in high school teachers in Kendari, Indonesia

<table>
<thead>
<tr>
<th>Variable</th>
<th>Status obesity</th>
<th>Total</th>
<th>( \text{Pv} )</th>
<th>( \chi^2 \text{hit} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Obesity</td>
<td>Overweight</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Age group (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 45</td>
<td>86</td>
<td>70.49</td>
<td>36</td>
<td>29.51</td>
</tr>
<tr>
<td>≥ 45</td>
<td>109</td>
<td>85.16</td>
<td>19</td>
<td>14.84</td>
</tr>
<tr>
<td>Status of stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>59</td>
<td>67.82</td>
<td>28</td>
<td>32.18</td>
</tr>
<tr>
<td>No stress</td>
<td>136</td>
<td>83.44</td>
<td>27</td>
<td>16.56</td>
</tr>
<tr>
<td>Dietary habit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>113</td>
<td>72.90</td>
<td>42</td>
<td>27.10</td>
</tr>
<tr>
<td>Not good</td>
<td>82</td>
<td>86.32</td>
<td>13</td>
<td>13.68</td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>133</td>
<td>74.30</td>
<td>46</td>
<td>25.70</td>
</tr>
<tr>
<td>Not good</td>
<td>62</td>
<td>87.32</td>
<td>9</td>
<td>12.68</td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>108</td>
<td>75.52</td>
<td>35</td>
<td>24.48</td>
</tr>
<tr>
<td>Not good</td>
<td>87</td>
<td>81.31</td>
<td>20</td>
<td>18.69</td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy</td>
<td>41</td>
<td>78.85</td>
<td>11</td>
<td>21.15</td>
</tr>
<tr>
<td>Light</td>
<td>154</td>
<td>77.78</td>
<td>44</td>
<td>22.22</td>
</tr>
</tbody>
</table>

Bivariate test results show a significant relationship between age, diet, stress, and knowledge. Analysis of this model provides an overview of the variables that are very influential on the incidence of obesity. Furthermore, model analysis/path analysis is shown in Figure 1.

![Figure 1 Analysis of model / path analysis of prediction of obesity by age, diet, stress, and knowledge](image)

Figure 1 illustrates that the higher age would affect the increase in the value of BMI or obesity that was equal to 2.64 times compared with under-age. Similarly, stress conditions indicated that the more stress the high school teacher would increase the value of BMI or obesity, with a ratio of 2.17 times compared with no pressure. In addition, the less proper diet would increase the value of BMI or obesity. But good food would decrease the amount of BMI or obesity, and the lower level of knowledge would lead to an increase in BMI or obesity.

DISCUSSION

Age with obesity status in high school teachers
Age is one factor that causes obesity in high school teachers in Kendari. Age includes elements that cannot be fixed in obesity.
conditions. With the age that there will be attention in the field of health improvement, both at a higher age and at a young age (Aini, 2014). This study found that there was a significant relationship between age groups with obesity status among high school teachers, which teachers with an upper age (age> 45 years) were likely to be obese than the prevalence of obesity at a young age (age <45 years). Increased age group in men and women would have higher metabolic syndrome and obesity in adolescents. The addition of age was one of the factors triggering obesity in high school teachers in Kendari, which should be a main concern in Kendari, Indonesia (Jafar & Gobel, 2011).

This study was in line with other studies on the relationship between characteristic factors, hypertension and obesity with the incidence of diabetes mellitus in regional general hospital Dr. H.Soewondo Kendal. The results of this study explained that there was a statistical relationship between age with the incidence of obesity, the higher the age of high school teachers, the more the occurrence of obesity (Bhatta et al., 2014; Rahayu et al., 2012).

**Knowledge with obesity status in high school teachers**

Education is the result of knowing. It happens after people do the sensing of an object against a particular purpose. Sensing occurs through post-human senses, namely the sense of sight, sound, smell, taste, and touch. Most knowledge is obtained through the eyes and ears. Understanding of cognitive is a very important predominant in shaping one’s actions (Notoatmodjo, 2007; Supariasa & Nyoman, 2012).

The results showed that from 250 samples, there were 179 having good knowledge. This is because in general, the respondents knew about the definition of obesity, the risk of obesity and efforts made to combat the occurrence of obesity, it is in accordance with the results of interviews with informants who suggested that obesity was the advantage weight, and of course if exceeded weight from standard weight. This was in line with the opinion of the researchers that obesity is a condition where someone is overweight compared with normal weight, and then respondents also knew and made efforts to lose weight. The first informant stated that she had been on a diet and exercises to lose weight, then the fourth respondent also stated that the effort made to lose weight was to consume herbal food (Sada et al., 2012).

The respondents’ revelation was in line with the researcher's opinion that the effort taken to lose weight was a lot of exercises, reducing consumption that contains high fat, eating-time setting especially not eating at night time, avoiding stress causing high consumption, consuming weight loss herb but must be balanced with enough activity. Further research results also indicated that there were 71 people had poor knowledge, because they did not understand about the definition of obesity and risk and efforts to prevent obesity (Lutfiah, 2013).

The findings revealed that there was a significant relationship of knowledge with obesity status in high school teachers in Kendari, Indonesia. Education can be a guideline to maintain body condition and the healthy weight. Preventive and promotive efforts in dealing with obesity are made by providing knowledge about the ideal weight. The ability to select information from the mass media is also an important thing that must be cultivated to the public to obtain correct information from the mass media (Ma & Xiao, 2010; Tammelin et al., 2004).

**Dietary habit with obesity status in high school teachers**

Diet is a variety of information that provides an overview of the kinds and amount of food eaten every day by one person and has a unique characteristic for a community group. Food consumption is the total amount of food available for use (Newell & Cousins, 2015).

The result showed that there was association of eating pattern with obesity status in high school teachers in Kendari city, of 250 respondents, 155 of them had a proper diet and...
95 had a poor diet. From 155 people who had adequate intake, 72.90% were obese and 27.10% were overweight. And from 95 people who had poor diet, there were 86.32% were fat and the remaining 13.68% overweight.

Five informants stated that the causes of obesity in line with the opinion of the researchers that many factors that cause obesity such as stress that leads to many meals, and yet stress will also cause less appetite, lack of exercise and diet and food consumption contain excessive carbohydrates. The other factor is the use of hormonal contraceptive acceptor (Stewart et al., 2008).

It is also supported by another opinion that the occurrence of obesity is generally related to the balance of energy in the body. The energy balance is determined by the energy intake derived from the energy-producing nutrients of carbohydrates, fats, and proteins and energy requirements established by the basal energy requirements, the activity of energy, and the thermic effect of food (TEF) i.e., the energy required to process the nutrients into energy (Dieny & Dieny, 2007).

Overweight people are more responsive than average body weight to external hunger requirements, such as taste and smell of food, or it is time to eat. Fat people tend to eat when they feel like eating, not eating when they are hungry. This excessive pattern makes them difficult to get out and overweight if the individual has no self-control and a strong motivation to lose weight (Dewi & Mahmudiono, 2013; Dieny & Dieny, 2007).

Another factor causing obesity is poor eating behavior. Poor eating behavior is caused by several reasons, such as environmental and social. This is evidenced by the increasing prevalence of obesity in developed countries. Another cause of poor eating behavior is psychological factor, which eating behavior seems to be used as a means of stress distribution. Unhealthy eating behavior in childhood resulting in excess nutrients also contributes to obesity, this is based because the rate of formation of new fat cells increases primarily in the first years of life, and the higher the fat storage rate, the higher also the number of fat cells. Therefore, obesity in childhood tends to lead to obesity in adult later (Çolak et al., 2016).

Stress with obesity status in high school teachers
The body responses to emotional, mental health is the release of hormones and neurotransmitters, the most dominant of which is the expenditure of adrenaline and noradrenaline. Also, emotional, psychological health also secretes the adrenocorticotropic hormone, cortisol, aldosterone, vasopressin, and thyroid-stimulating hormone. When these substances increase in the body, the heart rate will grow faster and stronger, blood vessels carrying vasoconstriction, increased blood cholesterol, increased blood sugar, blood cells tend to clot (Fox et al., 2016).

The results showed that there was a significant relationship between stress and obesity status in high school teacher in Kendari. Of 250 respondents, 163 people experienced stress and 87 people were not stress. From 163 people who were suffering stress, there were 67.82% were obese and 32.18% were overweight. And from 87 people who were not stress, 83.44% were fat and 16.56% were overweight. This study was in line with other studies indicated that emotional factors can also cause obesity. Fat people often say they tend to eat more when they are tense or anxious, and experiments prove the truth. Fat people eat more in a very tense situation while people with normal weight eating in less stressful situations (Ma & Xiao, 2010).

In a study on a group of overweight people and a group of people with underweight weight, serving chips (snacks) after they watched four different films invite different emotions, tense, cheerful, stimulating sexual arousal and a boring lecture. In obese people found that they spend more on chips after watching a tight film that after watching a boring movie. While people with less weight appetite chips remain the same after watching

a tense movie or a boring movie (Manurung, 2009).

The results of this study also were in line with a popular view is that obesity begins and emotional problems are not resolved. Fat people thirst for love, like children, food is considered as a symbol of mother's affection, or overpopulation is as the substitution for substitute other satisfaction that is not achieved in life. Although such explanations are appropriate in some cases, some people who are overweight are not more psychologically disturbed than people with the healthy weight (Park et al., 2013).

Although many opinions say that obese people are usually unhappy, in fact, the inward pressure more results as a result of obesity. This is because in a society is often a skinny body equated with beauty, so fat people tend to play with the appearance and difficulty of controlling themselves, especially in matters relating to eating behavior (Ma & Xiao, 2010; Manurung, 2009).

### Activity with obesity status in high school teachers

Performing physical activity or motion on a regular basis is the initial concept of efforts to prevent cardiovascular disease and reasonable efforts for patients with cardiovascular disorders (Tammelin et al., 2004). Results from many studies have shown that physical activity decreases the incidence of hypertension, obesity, stroke, osteoporosis, urinary and coronary heart disease (Khairuddin, 2014). In association with coronary heart disease, it has been reported that inactive persons are 1.9 times more likely to have coronary heart disease than those who are active in exercise (Tammelin et al., 2004).

In this study, there was no relationship between physical activities with obesity p-value (0.869), X² count (0.027). Indeed, this is supported by some opinions. The influence of physical activity on adolescent weight is still controversial. There is evidence that obese teenagers are less active than usual, but the aspects of the physical activity that are very influential on obesity cannot be clearly defined. A study suggested that there is a connection between sedentary lifestyles (such as mention television) with obesity. Where the total amount of physical activity or duration and the severity of physical activity performed is a critical factor in the occurrence of obesity (Okop et al., 2016).

A study in adolescent females and males in the United States age 11-15 years showed that, the lack of severe physical activity is the only risk factor for obesity in children and adolescents (Yusuf et al., 2005). In American children aged 8-16 years, the prevalence of obesity in children who watch TV <1 hour per day, and the highest in children who watch > 4 hours per day (Wang et al., 2002). Girls generally perform less physical activity than boys, and watching TV has a positive correlation with obesity in girls, controlling for age, race, family income, weekly physical activity, and energy intake (Piepoli et al., 2016). In Pima Indians aged 5 and 10 years old children show that obesity in 5-year-olds is associated with decreased participation in exercise, increased TV time, but is not associated with reduced participation Physical Activity Level (PAL), while obesity at the age of 10 years relates these three factors. Based on these results, it can be concluded that the decline in PAL seems to follow, rather than precede the development of obesity (Piepoli et al., 2016; Tammelin et al., 2004). Physical activity done outdoors will be associated with eye exposure to the risk of obesity and heart function. Outdoor activities exposed to the sun will affect the metabolic processes that will affect obesity. Besides, more eye exposure will be associated negatively, especially in skin cancer (Córdova, 2016).

### CONCLUSION

Factors associated with the incidence of obesity in high school teachers in Kendari Indonesia were age, knowledge, stress, and diet. The prediction factor of obesity among high school teachers was that the teachers with an upper age (age> 45 years) were likely to be
obese 2.64 times than the teachers at a young age (age <45 years). If the teachers experienced stress, then they would suffer from obesity 2.17 times compared with the teachers who had no stress.

Declaration of Conflicting Interest
None declared.

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Author Contribution
All authors contributed equally in this study.

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EFFECT OF SELF DEVELOPMENT PROGRAM AND TRAINING USING VIDEO MODELING METHOD ON DRESSING SKILLS IN CHILDREN WITH INTELLECTUAL DISABILITY

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Abstract
Background: Children with intellectual disability has adaptation function problem, namely self-care skill dressing. Inability to dressing could affect social relationship and dependency with others. The effort to improve self-care skill could be done through self-development program and training using video modeling.

Objective: This study was to investigate the effect of self-development program and training using video modeling on dressing skills in intellectual disability children.

Methods: This was a quasi-experimental study with pretest posttest control group design. Sixty-two children aged between 6-12 years with intellectual disability were recruited using purposive sampling. Participants were divided into two groups (experimental group=31, control group=31). The experimental group was given training using video modeling in 4 sessions, with each for 50 minutes; and self-development program in 4 sessions, in 50 minutes per each, while control group was given self-development program for 8 sessions, with each for 50 minutes. Observation checklist of dressing skill before and after intervention was adopted from Nursing Outcome Classification in Indonesian version. Data were analyzed using Mann-Whitney to compare posttest score between experimental and control group.

Results: The result showed there was a significant difference after intervention between experimental and control group (p=0.041). Eight dressing skills items increased including getting clothes from closet, getting clothing from drawer, puts clothing on upper body, buttons clothing, puts clothing on lower body, uses zipper, uses fastener, and removes clothes from upper body.

Conclusion: Self-development program and training using video modeling could increase dressing skills in intellectual disability children aged 6-12 years.

Keywords: Self-development program and training using video modeling could increase dressing skills in intellectual disability children aged 6-12 years.

INTRODUCTION

Children with intellectual disability have trouble of intellectual and adaptation function. One of the adaptation functions is ability to dressing (American Psychiatric Association, 2013). Dressing skills are one of the limitations of children with intellectual disability and become a complex problem especially in the activities of buttoning clothes, zipping, proper clothing selection, clothing purchase and grooming of clothing (Udonwa et al., 2015). The effort and technique of teaching and proper training enable them to improve their self-care skill (Kaur & Kumar). Self-care training in children with intellectual disability could train child’s sensory, speaking ability, fine motor ability, eye and hand coordination development, and ability to imitate (Akhmetzyanova, 2014). A training by
giving stimulus shaping and prompting could improve the dressing skill on children with intellectual disability (Kaur & Kumar).

In 2016/2017 school year, there are 1851 students in Yogyakarta Indonesia who have intellectual disability. Bantul District becomes the district with highest number of students with intellectual disability (33.3%). Public special school 1 of Bantul is a special school with the largest number of students with intellectual disability among Bantul District area. According to preliminary study result in the public special school 1 of Bantul, ten children with intellectual disability get a special program of self-development program that contains about taking care of themselves, helping themselves, communication and environmental adaptation. Dressing skill is one of the learning materials in self-development program. This program in the public special school 1 of Bantul was given to students with intellectual disabilities through demonstration methods by teachers, and then students practiced the skills at the end of session. Methods of demonstration and practice on students refer to the provisions set by the Ministry of National Education. However, although the students have got self-development program, based on the observation of dressing skill in students with intellectual disability, of 10 children, 60% was unable to button their clothes, 50% was unable to tie shoelace, and 40% was unable to use zipper.

Learning process of children with intellectual disability is more effective using audiovisual media compared to using image media (Noori & Farvardin, 2016). A review showed that an intervention using video could increase self-care skill in autism children (Wertalik & Kubina, 2017). New skill learning intervention to autistic children using video modeling could improve their independency. Some previous studies use video modeling to teach skills of daily activity in children with intellectual disability and autism showed that video modeling is effective to improve these skills (Gardner & Wolfe, 2013).

Children with intellectual disability need self-development program and training using video media modeling to improve the dressing skills. The study aims to investigate the effect of self-development program and training using video modeling method on dressing skills in children with intellectual disability in the public special school 1 of Bantul.

METHODS

Study design
This was a quasi-experimental study with pretest posttest with control group design. The independent variable was self-development program and self-care training using video modeling method, and dependent variable was dressing skill on intellectual disability children.

Setting
This study was conducted in the public special school 1 of Bantul, Yogyakarta Province, Indonesia. Data collection was conducted on January 8, 2017 to March 23, 2017.

Sample
Sixty-two children with intellectual disability were recruited using purposive sampling and divided into two groups (experimental=31 participants, control=31 participants). The inclusion criteria were children aged between 6-12 years, and parents allowed their children to be participants. The exclusion criteria were children with physical disability and children who did not follow the entire training session.

Intervention
The procedure of this study was explained to the teachers and informed consent was obtained. The screening of participant's social age used Vineland Social Maturity Scales (VSMS). Research assistant performed a pretest assessment of dressing skill by observation of the control group and experimental group prior to intervention. Observation checklist of dressing skill before and after intervention was adopted from Nursing Outcome Classification in Indonesian
version. Every participant was given the opportunity to practice dressing one by one in turn according to the item of dressing skill assessment, and at the same time the research assistant observed and assessed the participant's skill according to the assessment rubric that the researcher has prepared. One research assistant observed one participant. Pretest and posttest were conducted for 5 days with the number of participants of 10-14 every day. Each participant took 10 - 15 minutes to practice how to dress.

The experimental group was given intervention in the form of self-care training using video modeling method and self-development program for four sessions with the duration each session for 50 minutes. Researchers prepared the equipment needed for dressing practice included cloth buttons, pants, skirts, shoes, socks, belts, hangers, drawer, cabinet or closet. The control group was given a self-development program 8 sessions with the duration each session for 50 minutes. Teachers prepared the equipment of dressing included cloth buttons, pants, and skirts.

The procedures of training using video modeling session were: 1) All participants in experimental group (31 children) gathered in one room that has provided the screen to view video, 2) The trainer showed the video of dressing skill for 8 minutes, 3) Participants were divided into small group, 4) The trainer explained and demonstrated regarding the procedure of dressing skill step by step for 15 minutes, 5) The trainer gave participants the opportunity to practice regarding the procedure of dressing skill for 20 minutes, and 6) The trainer evaluated the dress skills of each participant through observation for 7 minutes. While the procedures of self-development program were: 1) The teacher introduced equipment of dressing through images or concrete objects for 5 minutes, 2) The teacher explained regarding the procedure of dressing skill for 10 minutes, 3) The teacher demonstrated regarding the procedure of dressing skill for 15 minutes, 4) Students tried to practice procedure of dressing skill 15 minutes, and 5) The teacher evaluated dressing skill of participants 5 minutes.

**Instrument**

Vineland Social Maturity Scales (VSMS) and Nursing Outcomes Classification (NOC), especially self-care: dressing in Indonesian version were used in this study. Vineland Social Maturity Scales (VSMS) was used to screening the participant's social age. VSMS consists of 117 questions grouped into 8 categories included self-help general (SHG), self-help eating (SHE), self-help dressing (SHD), self-direction (SD), occupation, communication, locomotion, and socialization. Nursing Outcomes Classification (NOC) of self-care: dressing in Indonesian version was used to observe the dressing skill of children with intellectual disability using a Likert scale (1 = very unskillful – 5 = very skillful). Items of dressing skill included: choosing clothes, taking clothes from closet, taking clothes from a drawer, wearing upper clothes, buttoning clothes, wearing lower clothes, using a zipper, using fastening, wearing socks, putting on shoes, tying shoes, removing clothes from upper body, and removing clothes from lower body. Total score was 13 – 65, which indicated that the higher score, the better skill level of dressing skill.

Content validity test involved 2 experts in the field of pediatric nursing and 1 nursing expert and translator of Nursing Outcome Classification in Indonesian language. Based on the results of the content validity, one of 14 items were excluded with reason that it has duplication meaning with other items, then both CVR (Content Validity Ratio) of essential item and content validity coefficient were measured. The result of CVR scores were 0.89 (for 3 items) and 1.00 (for 10 items), and the results of content validity coefficient scores were 0.33 (for 3 items) and 1.00 (10 items). It is indicated that CVR and content validity coefficient showed all items have good category. Interclass correlation coefficient (ICC) was done to compare of observers’ variation, which its result was 0.99 (satisfied category).
Ethical consideration
This study has been approved by the Medical and Health Research Ethics Committee (MHREC), Faculty of Medicine UGM. Permission for the research was issued by the Local Regional Development Planning Agency of Bantul District and local government of Yogyakarta, Indonesia.

Data analysis
Data were analyzed using Mann-Whitney and Wilcoxon test.

RESULTS

Participant’s characteristic
The numbers of male and female in both groups are shown in Table 1. The majority of participants were male (64.5%), while Table 2 was showed the social age of control group and experimental group was not difference significantly (p>.05). This result revealed that social age both of groups was similar.

Table 1 The frequency distribution of participants’ gender

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total participants (n = 62)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gender</td>
</tr>
<tr>
<td>Male</td>
<td>40</td>
</tr>
<tr>
<td>Female</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 2 Participants’ social age in control group and experimental group

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Control group (n = 31)</th>
<th>Experimental group (n = 31)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social age</td>
<td>Median</td>
<td>Min-max</td>
<td>Median</td>
</tr>
<tr>
<td></td>
<td>9.38</td>
<td>(6.03 – 12.38)</td>
<td>8.85</td>
</tr>
</tbody>
</table>

Description of dressing skills in children with intellectual disability
The percentages of the dressing skill items score and mean value of each item before and after intervention are shown in Table 3. The item of tied shoes has highest percentage of very unskillful score prior to the intervention (45.2%), while the items that have the highest percentage of very skillful score before intervention are wearing socks, putting on shoes, and removing clothes from lower body (80.6%). After intervention, item with the highest percentage of very unskillful score is tied shoes (45.2%) and the highest percentage of very skillful are putting clothing on upper body and putting on shoes (90.3%). There were 12 items of dressing skill mean score increased after intervention in the experimental group.

Table 3 Description of dressing skills in children with intellectual disability in experimental group

<table>
<thead>
<tr>
<th>Dressing skill item</th>
<th>Pretest score</th>
<th>Posttest score</th>
<th>Mean (±SD)</th>
<th>Mean (±SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (%)</td>
<td>2 (%)</td>
<td>3 (%)</td>
<td>4 (%)</td>
</tr>
<tr>
<td>Selecting clothes</td>
<td>1 (3.2)</td>
<td>0 (9.7)</td>
<td>3 (45.2)</td>
<td>14 (41.9)</td>
</tr>
<tr>
<td>Getting clothes from closet</td>
<td>3 (9.7)</td>
<td>20 (64.5)</td>
<td>5 (16.1)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Getting clothes from drawer</td>
<td>0 (0)</td>
<td>21 (67.7)</td>
<td>6 (19.4)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Putting clothes on upper body</td>
<td>2 (6.5)</td>
<td>0 (0)</td>
<td>1 (3.2)</td>
<td>10 (32.3)</td>
</tr>
<tr>
<td>Buttoning clothes</td>
<td>11 (35.5)</td>
<td>1 (3.2)</td>
<td>0 (0)</td>
<td>19 (61.3)</td>
</tr>
<tr>
<td>Putting clothes</td>
<td>3 (9.7)</td>
<td>2 (6.5)</td>
<td>1 (3.2)</td>
<td>2 (6.5)</td>
</tr>
</tbody>
</table>
Effect of self-development program and training using video modeling on dressing skill in children with intellectual disability

Table 4 shows that there was a significant difference in posttest dressing skill score of children with intellectual disability in experimental group and control group \( p < .05 \). It is suggesting that dressing skill score in experimental group was higher than the control group.

<table>
<thead>
<tr>
<th>Dressing skill score</th>
<th>Control group (n = 31)</th>
<th>Experimental group (n = 31)</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posttest</td>
<td>Median (Min – max)</td>
<td>Median (Min – max)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>54 (13-64)</td>
<td>60 (17-65)</td>
<td>.04*</td>
</tr>
</tbody>
</table>

\*Statistically significant \( p < .05 \)

Table 5 Comparison of pretest dressing skill score and posttest dressing skill score of experimental group using Wilcoxon test

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Posttest</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>Median (min-max)</td>
<td>Median (min-max)</td>
<td>&lt; .01*</td>
</tr>
<tr>
<td></td>
<td>54 (19-65)</td>
<td>60 (17-65)</td>
<td></td>
</tr>
</tbody>
</table>

\*Statistically significant \( p < .05 \)

Comparison of dressing skill items score before and after intervention in experimental group

Wilcoxon test was carried out to compare pretest and posttest dressing skill items score of experimental group. Table 6 showed that 8 items of dressing skill had significant difference \( p < .05 \) after intervention. There were included: takes clothes from the closet, puts clothes on upper body, buttons clothes, wears clothing on lower body, uses zippers, uses fastener, and removes clothes from upper body. There were 5 items of dressing skills were not significantly different, including: selects clothes, puts on socks, puts on shoes, ties shoes, and removes clothes from lower body.
**DISCUSSION**

The study results showed that there was a significant increase on dressing skill in children with intellectual disability after self-development program and training with video modeling method. The first reason of this result study is because there was an additional training using video modeling on self-development program and done for multiple sessions (4 sessions). The second is some items of dressing skills have gradually increasing in line with additional session on training. And the third reason is there was complete equipment in experimental group. The equipment that are used in experimental group was all of dressing equipment in each dressing skill item. Researcher used Cohen’s formula to calculate the effect size of clinical effect. The result of the effect size between the two groups was 0.54 indicating that clinical effect in the medium category based on Cohen's categorization.

This study result was accordance with previous study which showed the improvement of dressing skill on children with intellectual disability after given intervention with shaping and prompting stimulus (Kaur & Kumar) and peer play therapy interventions (Tri, Kholisa, & Kep, 2015). A training intervention with prompting procedure was effective to improve the dressing skills of children with autism (ISCAN, 2016). Improving the dressing skill in children with intellectual disability is assumed because of training methods using audiovisual of video modeling. Children with intellectual disability become more skilled in dressing and show the easy behavior of receiving the material taught after getting a practice learning skill using multimedia media. Audio-visual aids can improve long-term memory, better understanding, increase more motivation to learn and create creative thinking (Youngmee, 2014). Learning using audiovisual is more effective than the picture media in learning foreign language in children with intellectual disability (Noori & Farvardin, 2016). A review showed an intervention using technological methods that is video modeling was effective to practice the skills of daily activities (Gardner & Wolfe, 2013). Children with intellectual disability who get intervention with audio-visual media have a higher score after intervention and significantly different than the experimental group who get intervention with picture (Noori & Farvardin, 2016). Video modeling can improve social game skills in ADHD children (Wilkes-Gillan et al., 2017). Intervention using video modeling for children with developmental disorders and autism is effective for improving self-sufficiency in the fulfillment of daily needs, social skills, and games (Mason, Davis, 2016).

<table>
<thead>
<tr>
<th>Dressing skill</th>
<th>Median (minimum–maximum)</th>
<th>Median (minimum–maximum)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selecting clothes</td>
<td>4 (1-5)</td>
<td>4 (1-5)</td>
<td>.18</td>
</tr>
<tr>
<td>Getting clothes from closet</td>
<td>2 (1-5)</td>
<td>4 (1-5)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Getting clothes from drawer</td>
<td>2 (1-5)</td>
<td>4 (1-5)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Putting clothes on upper body</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Buttoning clothes</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Putting clothes on lower body</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Using zippers</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Using fasteners</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Putting on socks</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>.91</td>
</tr>
<tr>
<td>Putting on shoes</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>.14</td>
</tr>
<tr>
<td>Tying shoes</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>.92</td>
</tr>
<tr>
<td>Removing clothes from upper body</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>.02</td>
</tr>
<tr>
<td>Removing clothes from lower body</td>
<td>5 (1-5)</td>
<td>5 (1-5)</td>
<td>.10</td>
</tr>
</tbody>
</table>

*Statistically significant (p < .05)

---

**Table 6** comparison of dressing skills items score before and after intervention in experimental group.
Boles, & Goodwyn, 2013). The use of video technology can improve the level of independence and children with intellectual disability (Mechling & Collins, 2012). The learning process in students with intellectual disability using video media provides cognitive and affective experiences for children and helps them in the learning process (Noori & Farvardin, 2016).

Intervention that was given to participants also uses demonstration methods using concrete object. This is in accordance with the principle of learning in children with intellectual disability that emphasizes on visual aids. Children with intellectual disability are not able to think abstract so difficult to imagine something. Such limitations can be overcome by using concrete objects or clearly visible and real property. The uses of concrete objects make children interested in learning and facilitate understanding of the material being taught (Smart, 2010). A child with intellectual disability is unable to distinguish 2 or more stimulation due to difficulties in getting to know specific instructions or commands. Demonstration methods can be used in providing training or education in children with intellectual disability (Hoekenberry & Wilson, 2014).

Based on the results of the research, there were significant differences on 8 items of dressing skills and the average of 12 items were increased after the children with intellectual disability received self-care training. The item of tying shoelace in experimental group showed there was no significant difference after intervention. Another research revealed that video intervention influences the shoe-tying skills, but there are other factors such as difficulty levels, props used during the intervention, and the child’s motivation to complete the skill (Rayner, 2011). In this study, tying shoelace skill was not increased due to motivational factors of participants. Participant’s motivation is less because they find difficulty when trying to practice shoelaces. Children with intellectual disability in addition to getting training need to get motivation continuously in order to perform daily activities just like another normal child (Udonwa et al., 2015). The use of shoelaces with two different colors would be easier for children with autism in performing the steps of shoe-tying skills (Rayner, 2011). These conditions are different with interventions that used same color shoelaces when participants tied the shoelace.

Limitation of this study included: 1) the psychological condition of participants who can change at any time makes the assessment of dress skills on some participants cannot be done at a time, 2) there was an absence of reporting on the involvement of parents or carers at home in providing assistance to children with intellectual disability in dressing, and 3) posttest and pretest assessments cannot be carried out simultaneously at one time in both groups due to time constraints.

CONCLUSION
Self-development program and training using video modeling could increase dressing skill on intellectual disability children aged 6-12 years. There were 8 dressing skills that were improved after intervention, including: taking clothes from cupboard, taking clothes from drawer, wearing upper clothes, buttoning shirt, wearing lower clothes, using zipper, wearing fastener, and removing upper clothes. Pediatric nursing could plan self-care training program by developing audiovisual usage in giving intervention, especially dressing skill. Public Special School could use audiovisual media (video modeling) in giving self-development program curriculum.

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Declaration of Conflicting Interest
The authors declare no conflict of interest with respect to the research, authorship, and/or publication of this article.

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