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The Official Publication of Belitung Nursing Journal – Belitung Raya Publisher-
Belitung Raya Foundation

ISSN: 2477-4073 (Online) | ISSN: 2528-181x (Print)
Belitung Nursing Journal is indexed by DOAJ, Google Scholar, ISJD, WorldCat, Journal TOCs, and ROAD
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FACULTY OF HEALTH SCIENCES: AN OPPORTUNITY FOR THE IMPLEMENTATION OF INTERPROFESSIONAL EDUCATION

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Interprofessional Education (IPE) occurs when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes. The goal of IPE for students is to learn how to function in an interprofessional team and carry this knowledge, skill, and value into their future practice, especially providing interprofessional patient care as part of a collaborative team and focusing on improving patient outcomes.

IPE is considered as an answer of the professional fragmentation of educational system today. It is because the fact that is too difficult to find the collaboration between medical students, nursing students, pharmacy students, and other health students although they will work together in the future practice. Thus, it might lead to the unharmonious collaboration between them in the future, which might affect to the health outcomes.

IPE is needed to provide patient-centered care in a collaborative manner. One of the best ways to apply it is by establishing the “Faculty of Health Sciences”, covering multidisciplinary fields. It bridges the gap between health departments, such as medicine, nursing, pharmacy, public health, and midwifery under one roof; and also allows students from those different departments to join and learn together and about each other.

It is important to understand that IPE is not include students from different health professions without reflective interaction, a faculty member from a different profession leading a classroom learning without relating how the professions would interact in an interprofessional manner, and participating in a patient care setting led by...
an individual from another profession without sharing of decision-making or responsibility for patient care.2

Some methods of teaching learning can be applied in IPE, such as interactive lecturing, case-based teaching, community activity learning, simulation-based learning, small group teaching, feedback and evaluation,5 which describes clinical team skills training in both formative and summative simulations that used to develop skills in communication and leadership. The courses that can be taught are such as ethics and health law, effective communication, and case study, which are expected to let the students understand about their own roles and responsibilities with the patient in the center. So, there is no overlapping between the roles of nurses and physicians, pharmacist, dieticians, etc.

Although IPE shows many benefits, the application of IPE through faculty of health science is challenging. There are some barriers can be encountered, such as the separate building structure, administration, and faculty members. A study of Canadian schools identified that the main barriers of IPE were scheduling, rigid curriculum, “turf battles,” and lack of perceived value to IPE.6 In addition, dealing with cultural diversity among students from different fields with different behaviors is another challenge to apply IPE.7

However, in spite of those barriers, the author advocates developing plan for IPE. It is suggested that all members in the educational system should have the same perception and understanding of the importance of IPE, and consider faculty of health sciences as a great opportunity for better educational system.

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Cite this article as: Yusuf S. Faculty of Health Sciences: An Opportunity for the Implementation of Interprofessional Education. Belitung Nursing Journal 2017;3(1): 1-2
PERCEPTIONS OF INDONESIAN PRACTICAL NURSES TOWARDS UPDATING CAPABILITY TO PROVIDE CARE: A QUALITATIVE STUDY

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ABSTRACT

Background: Capability to provide care can be recognized as the combination of nursing knowledge, skills, and attitude of care which is dynamic.

Objective: This study aims to explore the perceptions of practical nurses towards updating capability to provide care.

Methods: A descriptive qualitative study was conducted to explore the deep understanding of practical nurses towards updating capability to provide care. Data were gathered using in-depth interview with 25 practical nurses from different areas of practices, three times focus group discussion (FGD) and participant-observation. Qualitative content analysis model was applied to analyze the data.

Result: There were two themes emerged from data: 1) Internal perceptions of updating capacity to provide care, with three subthemes: Having great expectation, Being confidence as a professional nurse, and Developing Self-Initiation, 2) External contexts driving perception of practicing nurses, with two subthemes: Giving best care and Acquiring requirement.

Conclusions: The findings indicated that updating capacity to provide care supports practical nurses to provide better nursing services to patients and meet the regulation of nursing professionalism.

Key words: Competence, Continuing Professional Development, Qualitative Research, Nurse Practitioners

INTRODUCTION

The high demand of health services and complex health care system encourage nurses as one of health care provider to update their competence. It is appropriate that nursing, as a basic component of the health care delivery system, strengthen its purpose as a practical discipline in accommodating patients to achieve best health care outcomes. Better performance is one of the factors contributing to meet the need of costumers with regard to the quality of health care services, especially in nursing services. As a consequence,
continuing updates to knowledge and practice as quality of personal and professional development is necessary,\(^1\)\(^2\) which is in line with the Indonesian National Qualification Framework (INQF) launched in January 2014 and Indonesian Nursing Acts launched on September 2014.

In Indonesia, practical nurses are demanded to be competent when initially licensed. The national examination of nursing competence is held only for new graduates at one time, and they need to renew the licence every five years without examination.\(^2\) Nurses can show their 25 credits hours of training, which is not always significantly related to their present competence. Sometimes nurses have difficulty to join the formal training program due to workload schedule in their works, both in clinical setting and community practice to other hospital. Some of nurses also need to work while studying in the university as as the regulation of the hospital. It is surely increased the workload of the nurses. In addition, they also have a lack of additional compensation for duties performed. There is also the gap in collaboration and coordination between healthcare team, and initial resistance by regulatory bodies.\(^3\)

In regard to the competence, Indonesian nurses develop a wide variety of competencies at the variety level after initial licensure, as well as advanced practice and complex criteria and standards for Continuing Competency (CC) than they are for those at the entry level. Some nurses also develop high levels of competence in specific areas of nursing practice as a result of work experience and specialization at the expense of staying current in other areas of practice.

Practical nurses also have self-development program less than 2 times per year due to the lack of variety and the need of nursing training programs offered and financial concern. They found difficulty to up-date their existing capability and met the standard of nursing practice owing to the fact that CC programs offered are few and mostly organized in large urban cities, so that practical nurses in rural settings and small towns have to travel distantly to attend the programs, which is a barrier for them. In addition, they also need to pay for the program fee, transportation and the accommodation.

Although literature reports the importance of CC, not many of them report empirical studies on the perception of nurses towards continuing competence or updating capability to provide care (UCPC). Thus, this study aims to explore the perception and to gain a deep insight about updating capability to provide care from different point of view of practical nurses who are working in the hospital by using qualitative methods. This insight will promote practical nurses to have great understanding about updating capability to provide care and enable them to give the best quality of nursing care and respond appropriately to their personal needs.

**LITERATURE REVIEW**

The environment of clinical practicing nurses’ practice is dramatically changing in terms of expectation, resources and evolving technologies. It became critically important for practicing nurses to improve knowledge and competence throughout their career professional. The roles of nursing professional organisation are significantly needed to promote safe, ethical and competence of care.\(^4\) The term competence is a concept which is internationally applied in reference to professional people of all kinds, but especially so in relation to nursing practice. It is considered an essential ingredient when measuring a practitioner's
ability to provide effective nursing care.\textsuperscript{5,6} Competence, however, is generally regarded as an elusive entity when it comes to its actual meaning.\textsuperscript{7}

One of the ways to maintain nursing competence is continuing nursing education (CNE) programs which are an essential part of learning for nurses in improving their level of knowledge. Whilst this may seem to present a basic framework of CNE, it is yet to be seen whether or not continuing education programs actually works in practice and is the best initiative to keep nurses' knowledge and skills up to date in the nursing career and profession.\textsuperscript{8} Practicing nurses have to maintain their performance of nursing practice thought continuing competence program whether formal nor non-formal program. Within 5 years they need to conduct and meet 25 credits hour to maintain their license.

Nurses need to provide safe and quality nursing care to patients, while keeping pace with the changing structure of disease, rapidly evolving medical technology and the advancements in nursing science. To do this, improving and maintaining a high standard of competence throughout their careers is essential for nurses. Continuing professional development (CPD) of nurses is increasingly necessary to keep abreast of rapid changes in patient care due to advancements in knowledge and technology.\textsuperscript{9} There is no doubt about the importance of CPD in nursing. CPD benefits patient care, the organization and the individual. It reportedly contributes to higher job satisfaction, organizational commitment, and lower stress. Lack of CPD appears to influence nurses’ decisions to leave their profession\textsuperscript{10} and to retire early.\textsuperscript{11}

Since the acceptance of society toward nursing as a profession in health care system might significantly required practicing nurses to continue their competency in order of developing nursing services quality. Internal factors have a great contribution to stimulate motivation to search, find and joint continuing competence programs. To keep nurses committed, continuing competence program has to take their needs and aspirations into account.\textsuperscript{11}

Organisational factors including the system and type of leadership are influenced the implementation of continuing competence by practicing nurses. Some people need to be supported from external before they might decided some action. Factors affecting nurses in continuing competence of which is the authority granted by the hospital under hospital plan about reward system in nursing career development, government regulations, and the regulation of the hospital. Organizational support is essential so ward managers in conjunction with educational departments can promote and sustain continuing education, lifelong learning and a culture conducive to learning. There were two of the characteristics of the profession that related with the real situation are authority to control its own work and intrinsic rewards.\textsuperscript{12}

Lack of continuing competence program appears to influence nurses’ decisions to leave their profession and to retire early. Competencies measurement standard can be from self-declaration, evidence of practice hours, and evidence of ongoing professional development\textsuperscript{13} from policy to training, training to competency, and competency to practice. Nurses have their own autonomous in decision making and are responsible and accountable for their practice. They need to have a strong sense of personal identification and commitment to improve their capacity and individuals are unlikely to change profession.
METHODS

Design
This research was descriptive qualitative study, and data were gathered from observation, in-depth interviews and focus group discussions.\(^{14,15}\) This was appropriate to help researcher in understanding more about individual perspectives and experiences within their particular context.\(^{16}\)

Participants
This study was conducted in Lamongan Muhammadiyah Hospital. A purposive sampling was used to select practical nurses who were working in the hospital, willing to participate, graduated from diploma in nursing or bachelor in nursing, having minimal 2 year experiences in an Outpatient Department (OPD), Intensive Care Unit (ICU), Emergency department (ER), Operating room (OR), Hemodialysis center (HD), paediatric ward, maternity ward, and adult ward.

Ethical Considerations
The ethical approval was obtained from the Research Ethics Review Committee, Khon Kaen University No. HE582145 and from the Director of Lamongan Muhammadiyah Hospital. Participants were free to withdraw their information anytime and that their inclusion in the study was purely voluntary. Informed consent was obtained before audio-taping interviews and focus group discussion. Also, participants were asked to select their own pseudonyms for de-identification throughout the written transcripts. It is important for participant to have confidentiality throughout the process of research. There is no harm for their health and life.

Procedure
After received institutional approval for the study, the researcher contacted the prospective informant (nurse manager), explained the purpose of the study and made an appointment for participant-observation, in depth interviews, and focus group discussion. Participant observation had been done along the process of data gathering to all of informants in understanding their direct experiences to manage nursing services and competencies as well as building trust between researcher and participants.\(^{16}\) The nurse manager then contacted practical nurses for in-depth interview and focus group discussion.

Data Collection
This process started from reviewing documentations, in-depth interviewing with 25 practicing nurses, and conducting 3 focus group discussions (FGDs) that consisted of: 1) group of participant who were working in the specific areas such as ICU, HD, ER, OPD, Paediatric room and OR, 2) group of participants who were working in general ward, and 3) group of participants who were working as nurse manager in the ward or unit. Participant-observation had been done until data saturated. These methods were selected to get solid information from each or group information to confirm or compare for similarities and differences and the interactions among participants that gave different ideas, so that multiple truths and realities were gained, as well as to reach a deep, wide insight and understanding about updating capability to provide care. Open-ended question from interview guidelines were developed along the process of data collection. Field notes were written for every interview to capture relevant contextual information, including nonverbal communication. Audio tape-recordings and photography documentations were taken during the interviews to support and increase the accuracy of field notes. The interview
processes were conducted in the private areas of their working room ranged from 45-60 minutes. These processes were repeated 2-3 times until data saturated. After all interview, the data were analysed and the direction for the subsequent interviews were outlined in order to improve more detail information on particular points.

Rigor and trustworthiness
Triangulation data of this study was addressed using multiple methods for gathering data to compare a variety data sources to meet the accuracy of study findings. To validate these findings, peer debriefing was also undertaken between researcher and experienced research supervisor to reduce bias and to guarantee confirmability.

Data Analysis
Data were analyzed immediately after data collection through transcribed verbatim and content analysis. Categories and coding were developed from the raw data inductively as well as analyzed simultaneously in order to test data saturation. Trustworthiness of the coding scheme on a sample of text was done by testing the clarity and consistency of category definition. The data were interrelated and need to be explained in the whole context in term of process after read and re-read. This single level of thematizing were also supported by a multiple levels of thematizing which were figured in mind mapping diagram. This process was used to make easily understanding to find some critical theme. The themes and sub-themes were expressed in phrases that could link and explain categories together, and had its relevance to updating capability to provide care. Conclusions were drawn from the coded data by making inferences and constructions of meanings were then derived from the data. Findings were written in a descriptive format.

RESULTS
This research was conducted in one of big private hospital in east Java, Indonesia. All participants had clinical experiences for more than 2 years, mostly above 10 year (76%) and between 5 to 10 year (24%). They also had experiences to join training program as one method to update capability to provide care by personal initiation (49%), and based on hospital program (51%). The term of updating capability refers to the newest nursing competence that can be attained within 5 years, according to Indonesia nursing acts. Two themes were emerged from the data analysis, namely: Internal perceptions of updating capability to provide care and external context driving perception of practicing nurses. (see Figure 1).

![Figure 1: Themes and sub-themes of perception about updating capability to provide care](image-url)
Theme 1: Internal perception of updating personal capability to provide care.
In term of updating capability to provide care, all participants shared and discussed deeply based on their variety personal perceptions. There were three sub-themes identified: Having great expectation, Being confidence as a professional nurse, and Developing self initiation.

Having great expectation
Every practical nurse has the same opportunity to sustain and improve their Updating Capability to Provide Care (UCPC) through hospital’s programs, including in-house training and ex-house training which are supported by the hospital. This program includes financial endorsement and leaving from work. Most of participants expected that joining UCPC would impact to their career development and increase the salary. One documented comment from FGD2 was, ‘expecting up-level of career was one internal thinking to improve the updating capacity of practical nurses’, which illustrates individuals' motivations that may affect to develop and update, so that they can provide the best quality of nursing services. Participants expressed these in the following statements:

"If I continue my study or improve my knowledge and skills through training, seminar or workshop, it might involve my ability to perform nursing services. Beside, I wish to get a chance in career development, including salary definitely too...isn’t it?." (P5, July 22, 2015)

“We will have more capacity to provide care if we join the upgrading program individually, or it has been planned by our nursing manager. This is important to know the up-to-date knowledge and skills needed...I mean hmmm lifelong learning” (P1, Paediatric ward, 20 September 2015)

“Having “greater” position in this hospital is my dream...and it will become if can join a program of UCPC” (P7, ICU, 22 October 2015)

Beside their personal expectation, most of participants also considered to give the best quality of nursing services to their patients using the up-to-date knowledge and skills, so the patients would feel satisfy. There were also participants of Indepth Interview (II) who stated, ‘knowledgeable and skillfull make satisfied’. On the other side, participants of the FGD made comments such as a feeling to: ‘improve self motivation to be more competence (FGD3)’, and ‘expecting up-level of career (FGD1)’. Participant expressed this in the following statement:

“Wherever we work, if our knowledge and skills are shape up through continuing competence, will definitely get the reward, not just money but also the level of our career” (P3, July 20, 2015)

Participant also said:

“As practicing nurses, most of our time is only for patient so that we do not have time to upgrade our capacity. We implemented nursing care based on our habit...at least patient get what they want. Nothing changes because it will be difficult to do the new activity. We have to critically think again and it is not easy...especially for practicing nurses who nearly retired. It will take time and also long queuing to have the opportunity particularly for external training program” (P8, Maternity ward, 21 October 2015)
The strategies can aim at performing daily patient care, extra tasks and other roles. This hospital provides annual planning for human resources development, both formal and informal, and involves all of practical nurses.

**Being confidence as a professional nurse**

All participants agreed that nursing is not a promising career, in terms of salary and social acceptance. This profession is not the first choice or even the second choice compared with another health care professional, such as physician or pharmacist. It becomes the reason that UCPC program may develop their confidence in giving nursing care. Most of participants in this hospital stated that they felt more confidence when they could join the training or seminar that improved their capability to provide care, whether it is in-house or ex-house training.. For them, the most important thing is to have a certificate, having chance to meet and discuss with others nurses from other hospital. Thus, they will be able to share their experiences which can be used as additional new knowledge and skills in providing nursing care, like participant said:

"The improvement of our knowledge or the up to date competence that we have become a great reason for being more confident in providing nursing care to the patient. I believed that the patient also feel satisfy" (P12, July 20, 2015)

Another participant said that they had a better preparation to carry out roles and functions as practical nurses when their knowledge and skills are up-to-date. It is because people nowadays can easily access and find information related with the lates knowledge in health, including nursing. Participant expressed this in the following statement:

Well ... I certainly felt very steady and confident when patients call and I can provide the best and latest nursing services to them. Because the science is up to date then the patient will be satisfied. People also aware about the newest information related health, including nursing "(P22, 25 July 2015)

**Developing Self-Initiation**

Most of participants agreed that updating their capability is belong to their own responsibility in order to develop the quality of nursing services. They create self-initiative to join an internal dan external development programs including seminar, workshop, training and continuing formal education. Each nurse relied on themselves to build competency based on their practice, and sought other supports to achieve (i.e., personal commitment, professional body support). Participant expressed this in the following statement:

"Some nurses continued their studies by their own initiative because we have to wait a long queue to get their turns."

(P23, ICU 20 September 2015)

**Theme 2: External contexts driving perception of updating capability to provide care.**

This theme is related to the external factors that influences the perception of practical nurses about updating capability to provide care. Two sub-themes were identified: Giving best care and acquiring requirements.

**Giving Best Care**

All participants had the same opinion that the best quality of nursing care can be delivered using an up-to-date knowledge and skills. They believed that the need of patients in the hospital will be met with their update competence, which is
following the development of science and technology. It is however in line with the hospital accreditation programs. Every stakeholder in the hospital has responsibility to give the best services, including in nursing areas. Practical nurses will always strive to be able to provide their best for the patient wherever they work. Their efforts are always followed by the appearance and performance of which requires the latest competence. It is critically important for them in updating the capacity to provide nursing services, like participants said:

“I certainly can provide the best nursing care to patients because of the knowledge and skills I have always updated” (P6, 15 September, 2015)

“Since I worked in this hospital (10 years experiences), I do believe that being capable to provide care is my chance to prove to other health care professional that I can give my best care to my patients“ (P17, adult ward, 18 September 2015)

Acquiring requirement

There is a new policy for Indonesian nurses in regards to upgrading capability to provide care or continuing competence. However, its implementation is still not able to reach all areas in Indonesia, but this process will continue to be implemented so that the latest nursing competence can be maintained to provide nursing care in hospitals. Most of participants assumed that following the activity of training or seminar to complete the course requirements, would have a great outcome to meet the need of the patients. Participant expressed this in the following statement:

“The policy of Indonesian National Nurse Association related to continuing competence requires all nurses to have the 25 credit every 5 years. So hmmm ... we as nurses have to follow and obey the rules have been defined, although still not all hospitals do. Because it will change the system in the hospital...not easy” (P20, 25 October 2015)

An opposite statement was expressed by participant towards the National regulation:

“I do not have choice but to follow the regulation...but when we lack of time, can be offseat...just pay the certificate because only need that.” (P25, 20 September 2015)

It describes that the regulation related with UCPC is not applied in an appropriate activity due to lack of information in detail.

DISCUSSION

According to Indonesian Nursing Act, nursing service is defined as a professional service as an integral part of health services which is based on nursing science and art provided to individual, family, group, or community, either in the state of health or illness. Competence in practice is described through the competent practitioner as “tolerably good but less than expert”. Although a practitioner is considered competent, there is still something more for them to attain beyond which one theorist referred to as proficiency and expertise.17,18 All of practical nurses from different level of education must have all of these general
competencies as basic standard to be implemented in nursing services.\textsuperscript{19,20}

Nurses’ roles can be extended through continuing competence program which is also considered to be a key factor in nursing retention.\textsuperscript{21} Based on the Indonesia health act 2012, nursing has been categorized as one of health care professional providers. There were positive perceptions of continuing professional education by nurses. Keeping individuals updated on trends, skills and techniques required for effective practice.\textsuperscript{22}

The nursing professional development defined as “a life-long process of active participation by nurses in learning activities that assist in developing and maintaining their continuing competence, enhancing their professional practice, and supporting achievement of their career goals.” This is a useful definition because it encompasses different purposes of continuing competence.\textsuperscript{23}

The learning method chosen for such programs is often didactic in nature, as opposed to encouraging nurses to take initiative and direct their own learning. If learners perceive that learning content is not tailored to their needs and not likely to earn them points, then such learners are not likely to utilize the acquired knowledge and skills in practice. Workers may engage superficially or whole-heartedly in learning, depending on their appreciation of the importance of a particular practice.\textsuperscript{24,25} Continuing professional education appeared to lead to intrinsic changes to practitioners rather than direct behavioral change. Nurses’ increased knowledge and confidence affected the balance of power in the doctor–nurse relationship.\textsuperscript{26,27}

**CONCLUSION**

The findings of this study revealed that participants perceived updating capability to provide care as serviceable improvement in nursing practice, which is why practical nurses are required to develop their personal capacity, values and perceptions. There are multiple factors influencing practical nurses' motivation and ability to incorporate continuing competence into their practices. Initiating and facilitating self-initiation culture in collaboration with managerial support in clinical practice are necessary through empowering their characteristics such as needs, values, beliefs and potential barriers.

Updating capability to provide care critically impacts to the quality of nursing services. Ability to carry out the roles and functions of nursing professional will make practical nurses received recognition from the community, including other health care providers. The professionalism of the nurses will be measured by the ability of the practical nurses in integrating knowledge on the clinical skill possessed application. Thus, regular CC programs should be continually conducted to gain the latest knowledge and skills to suit the wishes of the community, and to provide different competencies needed in order give the best nursing services to the patients.

**ACKNOWLEDGMENT**

This work was supported by Indonesia Commission of Higher Education, Ministry of Research and Technology, Muhammadiyah Lamongan Hospital, Indonesia and Universitas Muhammadiyah Yogyakarta, Indonesia.

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**Cite This Article As:** Arofiati F, Nuntaboot K. Perceptions Of Indonesian Practical Nurses Towards Updating Capability To Provide Care: A Qualitative Study. Belitung Nursing Journal 2017;3(1): 3-13.
FACTORS RELATING TO DEPRESSION AMONG OLDER PEOPLE LIVING IN CIMAHII, WEST JAVA PROVINCE, INDONESIA

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ABSTRACT
Background: Depression is commonly found in older people. The prevalence of depression among older people, particularly in Indonesia is increasing worldwide.
Objective: This study was aimed to identify the factors relating to depression among older people living in Cimahi, West Java Province, Indonesia.
Method: A cross sectional design was used with a total of 267 older people aged from 60 to 79 years old. A multi-stage random sampling has been used in five Public Health Centers in Cimahi. The instruments comprised socio-demographic questionnaires, General Health Perceptions questionnaire, Chula Activities of Daily Living Index (CADLI), and Geriatric Depression Scale-15 (GDS-15). Data analysis was conducted using descriptive statistic, chi-square, and point-biserial.
Results: The result revealed that 56.2% respondents was no depression and 43.8% respondents was depression. The results also showed that age, marital status, family history of depression, perceived health status, and activities of daily living was significant relationship with depression among older people (p<.01; p<.05).
Conclusion: This finding can be used as a reference to implement new strategies to decrease depression among older people.

Key words: factors relating, depression, older people

INTRODUCTION
Depression is affecting 350 million people worldwide1 and commonly found in older people, approximately 121 million of the 350 were older people (34%).2 In South East Asia, 21.4% of older people have depressions.3 While the proportion of the
The world population over the age of 60 years will double from 11% to 22% until 2050 (World Health Organization, 2012), the number of older people in Indonesia is also rapidly increasing. Based on the Central Statistical Agency (Badan Pusat Statistik) of Indonesia, the number of older people aged 60 years and above already significantly increased from 9.5 million in 2008 to 18.55 million in 2012. There was also an increase in the number of older people with depression from 20% to 32% of the total older population in Indonesia between 2008 and 2011. Depression for older people means that the quality of living and the happiness during the final stage of life is interfered with by both, physical and mental health.

The high number of depression in older people are related to biological, psychological, and social factors. The perceived health status has been increasingly recognized as an important factor for multidimensional health. A recent study disclosed that the perceived health status affected depression, especially for patients with chronic illnesses. A negative perceived health was often caused by depression, as poorer health occur simultaneous with greater emotional vulnerability and depression. Some studies found that a negative perceived health status and chronic conditions were significant predictors of depression in older people. Furthermore, findings of previous studies indicate that a health status perceived as “poor health” would have a negative psychological effect and could trigger depression among older people. In addition, a low perception of the health status may influence the level of independent activities of daily living.

Older people who experience limitations in functional performance and have to rely on their caregiver, are more likely to emotional distress. The degree of independence depends on the performance of older people in tasks and routines that they are able to do on their own on the ability of individuals to care for themselves in their activities of daily living (ADLs) such as bathing, showering, dressing, eating, and transferring in and out of bed or chair. When people are unable to perform the ADLs and rely on other people - including family members or caregivers - they usually show negative emotional responses and may lose their self-esteem. The problems in performing the ADLs was logically found higher in older age.

In contrast a study showed that successful performance of ADLs does not have a relationship with depression. Family members - as main providers of social support - can also soften the psychological effect of such limited abilities. This study aimed to identify the relationship between age, marital status, family history, perceived health status, and activities of daily living with depression among older people. The results of this study will be beneficial to health care providers, families, and older people living in Cimahi and can be used as guideline for developing appropriate interventions to prevent depression in older people. Moreover, the results can be used as baseline data for the Department of Health in Cimahi and for health centers to be aware of prevalence and factors that can effect depression in older people.

METHODS

Design

This study used a descriptive cross-sectional design and was conducted among older people in five PHCs in Cimahi, West Java Province, Indonesia during the months of September and October 2015. Independent variables including age, marital status, family history, perceived health status, and activities of daily living.
were collected. The dependent variable is depression among older people. The hypothesis of this study assumes that there are relationships between age, marital status, family history, perceived health status, and the ability to perform activities of daily living among older people.

**Sample**
The sample size of the study was 267 older people selected by multi-stage random sampling. The inclusion criteria were: a) older people aged between 60 until 79, b) willingly volunteer to participate in this study, c) can read and write in Indonesia language. While the exclusion criteria were: a) suffering from cognitive impairment as evaluated by The Short Portable Mental Status Questionnaire, b) diagnosed with severe mental illness such as Schizophrenia or Dementia; or c) being hospitalized during data collection.

**Measurement**
The questionnaires were prepared to be consistent with the objectives of this research and its content validated by three experts in mental health and community field. In this study, depression was divided into two categories based on the Geriatric Depression Scale-15. At the lower level of the depression scale 0-4 means “no depression”, whereas 5-15 in the upper areas represents depression. The reliability measured before data collection process was revealed Chronbach’s alpha coefficients at .848.

Perceived health status based on General Health Perception was divided into the two categories “negative perception of general health” (1-5) and “positive perception of general health” (6-10). As the General Health Perception questionnaire only consisted of one single question it did not required a reliability process.

Chula Activities of Daily Living Index was used to measured activities of daily living in older people. A total score for CADLI was ranged from 0 to 9, with higher scores indicated better functional ability. The reliability measured before data collection process was revealed Chronbach’s alpha coefficients at .873.

**Data Collection**
Data were collected with granted Ethical Review Board for Research Involving Human Research Subjects, Boromarajonani College of Nursing Nopparat Vajira (ERB, BCNNV) with ERB No. 27/2558. Data were collected by the researcher and a well trained research assistants. Face-to-face interviews was used during data collection process and took approximately 30 – 45 minutes to be completed.

The data were coded, validated and analyzed using computer software program. Descriptive statistics were used to measure the contribution of demographic data (numbers, mean, percentage and standard deviation). A Chi-square analysis was performed to test the relationship between marital status, family history of depression, and depression among older people. Point-biserial was used to test the relationship between age, perceived health status, and activities of daily living with depression among older people.

**RESULTS**
This part explains the individual characteristics of the participants including age, marital status, and family history, perceived health status, and their performance in their activities of daily living.
Table 1. Number and percentage of individual characteristics (N=267)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean = 69 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD= 5.439</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single/widowed</td>
<td>90</td>
<td>33.7</td>
</tr>
<tr>
<td>Married</td>
<td>177</td>
<td>66.3</td>
</tr>
<tr>
<td>Family History of depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
<td>5.6</td>
</tr>
<tr>
<td>No</td>
<td>252</td>
<td>94.4</td>
</tr>
</tbody>
</table>

Participants of this study were age ranged from 60 to 79 years (mean age=69). The Most of the participants were married (66.3%) and no depression in family history (94.4%) (see table 1).

Table 2. Number and percentage of depression (N=267)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No depression  (0-4)</td>
<td>150</td>
<td>56.2</td>
</tr>
<tr>
<td>Depression     (5-15)</td>
<td>117</td>
<td>43.8</td>
</tr>
<tr>
<td>Mild (5-8)</td>
<td>67</td>
<td>57.3</td>
</tr>
<tr>
<td>Moderate (9-11)</td>
<td>29</td>
<td>24.8</td>
</tr>
<tr>
<td>Severe (12-15)</td>
<td>21</td>
<td>17.9</td>
</tr>
</tbody>
</table>

Median = 4, Range = 12

Regarding to the severity of depression, there were divided into 3 categories including mild (5-8), moderate (9-11), and severe (12-15). Majority of participants with depression was in mild level of depression (57.3%), while almost half have moderate to severe depression (see table 2).

Table 3. Perceived health status in percentages (N=267)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative perception (1-5)</td>
<td>43</td>
<td>16.1</td>
</tr>
<tr>
<td>Positive perception (6-10)</td>
<td>224</td>
<td>83.9</td>
</tr>
</tbody>
</table>

Median = 8, Range = 1 to 10

Perceived health status score was ranged from 1 to 10. It was divided categorized into two groups, which were negative (1 – 5) and positive perception of general health (6 – 10). The result show majority of the participants perceived positive in their health status (83.9%) (see table 3).
Table 4. Number and percentage of activities of daily living (N=267)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (3 – 6)</td>
<td>77</td>
<td>28.8</td>
</tr>
<tr>
<td>High (7 - 9)</td>
<td>190</td>
<td>71.2</td>
</tr>
</tbody>
</table>

(Median = 7, Range = 6)

The CADLI was used to measure functional abilities. The score of the CADLI ranged from 3 to 9. The CADLI was divided into two levels, including, a low score (3-6) which means a low level of functional ability, while a high score (7-9) means the presence of functional independence. The results indicated that most of participants had a high level of functional ability (71.2%). (see table 4)

Table 5. The relationship between individual characteristics (age, marital status, family history), perceived health status, and activities of daily living with depression among older people. (N=267)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p-value</td>
</tr>
<tr>
<td>Age</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Marital status</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Family history of depression</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Perceived health status</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Activities of daily living</td>
<td>&lt; .05</td>
</tr>
</tbody>
</table>

The results revealed that variables that statistically associated with depression among older people were age (r = .154, p < .05), perceived health status (r = -.348, p < .01), and activities of daily living (r = -.137, p < .05). The results of the relationship indicate that age had positive significant relationship with depression among older people. It means that if older people get older age, chance of depression would be higher. Whereas, perceived health status, and activities of daily living had negative relationship with depression among older people. It is mean that older people who have negative perception of general health were more likely to be depressed than older people who have positive perception of general health. Older people who have low degree of functional ability were more likely to experience depression than older people who have high degree of functional ability.

The variable also had statistically significant relationship with depression among older people were marital status ($\chi^2 = 6.225, p < .05$) and family history ($\chi^2 = 5.623, p < .05$). The result revealed that older people who were single or widowed more likely suffered from depression than those older people who were married. Furthermore, older people who had no depression in family history were more likely suffered from depression as compared to older people who had depression.

DISCUSSION
The finding of this study found almost a half of older people were suffered from depression. Age was found have correlation with depression among older people living in Cimahi. Based on theory of aging, at this age, the transitional period starts changing the lives of the older people, including physical, psychological, and social. Some of the signs of aging concern physical change for example problems with sensory, hearing, and vision; psychological change include affective and cognitive function; and
change of social status influence older people to feel lose their social power, roles, and being abandoned. This condition also happened in Indonesia that of older people get older age, chance of depression would be higher.

This study also shows that marital status, family history and perceived health status had significantly associated to depression among older people. A study found that marriage has a strong direct effect on health. Older people with couple marital status would receive the better caring than those with single or widowed status. Family history can place an older people for developing depression. People who had previous episodes of depression have a greater risk for developing depression in older age. Perceived health status was negative significantly associated with depression among older people. It could be inferred that older people with a good perceived health status are less likely to develop depression. This result is consistent with other studies showing that the perceived health status was significantly associated with depression. It seems that the perceived health status has a great impact on depression in older people. Therefore, to prevent depression in older people, it might be useful to focus more on improving life satisfaction in older people.

The analysis of the activities of daily living in this study indicates that older people who depend on others in their activity tend to develop depression. On the other hand, those with independence in their activities of daily living would rarely experience symptoms of depression. These findings confirm the results of previous studies where dependence in activities of daily living was correlated with depression. However, the contradictory results of this study might have been caused by some reasons, including older people still have good condition to do something; for example walking out door (distance 50+ meters, cooking, using public transport, using money, and heavy housework (house cleaning).

One strength of this study is adaptation of Biopsychosocial Approach as a guideline to find the association of depression among older people. Although all the objectives had been met in this study, there were some limitations. Firstly, the finding could not be generalized for the population of the older people who do not come to PHC. Secondly, as the data were collected in PHC where participants received their treatment, these environmental conditions might not influence the participants’ response to the questionnaire.

To prevent the potential bias mentioned above, further research should ideally be conducted in real community health care services, not only at PHCs. It could also involve psychiatric experts in order to allow for direct information and intervention into the depression among older people.

CONCLUSION
This study focused on depression in older people. It showed that factors, such as age, marital status, family history, general health perception, and activities of daily living can be associated with depression among older people. Age, marital status, family history of depression, perceived health status, and activities of daily living were associated to depression among older people. Older people with single or widowed, had family history; and had negative perception of general health more likely suffered from depression as compared to older people who had married, not had family history, and had positive perception of general health. This finding can be used as a reference to
implement new strategies to decrease depression among older people.

ACKNOWLEDGEMENT
We would like to thank all of the participants in this study as well as the public health centers in Cimahi. High appreciation is directed towards Kasetsart University, the Director of Boromarajonani College of Nursing Nopparat Vajira and the staff members who provided the facilities during the period of study of the principal investigator in Thailand. This study was also supported by Directorate General of Higher Education (DGHE) of Indonesia scholarship.

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Cite This Article As: Gustryanti K, Thongpat S, Maneerat S. Factors Relating To Depression Among Older People Living In Cimahi, West java Province, Indonesia. Belitung Nursing Journal 2017;3(1):14-22.
FACTORS INFLUENCING THE OCCURRENCE OF HYPERTROPHIC SCARS AMONG POSTOPERATIVE PATIENTS IN GARUT, INDONESIA

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ABSTRACT
Background: Hypertrophic scar causes physical and psychological problems. Thus understanding the factors related to the occurrence of hypertrophic scar tissue is needed. Little is known about its influencing factors in Indonesia, especially in Garut.
Objective: This study aims to examine the relationships between hypertrophic scar and its influencing factors, and identify the most dominant factor of the occurrence of hypertrophic scars.
Methods: This was an observational case control study using retrospective approach in Polyclinic of Surgery of Regional Public Hospital of dr. Slamet of Garut Regency. There were 40 samples recruited in this study by purposive sampling, which was divided to be case group (20 patients) and control group (20 patients). Data were collected using Stony Brook Scar Evaluation Scale by observation and documentation of the medical records of patients. Data were analyzed using logistic regression analysis.
Results: Findings indicated that there were significant relationships between the surgical wound infection (p = 0.02), family history (p = 0.026), and type of suture (p = 0.043) with the occurrence of hypertrophic scars. The most dominant factor on the occurrence of hypertrophic scars was type of suture, acid polyglactin 910. The variables that had no significant relationships with the occurrence of hypertrophic scar tissue were age (p = 0.34), area of surgical wound (p = 0.177), and smoking habit (p = 0.479).
Conclusion: There were significant relationships between infection of surgical wound, genetic history, the type of suture, and the occurrence of hypertrophic scar tissue. The most dominant factor that influenced the occurrence of hypertrophic scar tissue was the type of suture. Therefore, it is suggested to health professionals to modify the using of acid polyglactin 910 sutures, and nurses particularly need to provide the information regarding the family history and genetic-related hypertrophic scar, and prevent the infection of surgical wound after operation.

Key words: hypertrophic scar, postoperative, related factors
INTRODUCTION
The hypertrophic scar occurs in every hundred million people in the world every year, which is approximately 55 million of them are caused by elective surgery, 25 million by post traumatic surgery, and 4 million by burns.\textsuperscript{1,2,3} Meanwhile in the United Kingdom, hypertrophic scar occurs in 23 million postoperative patients,\textsuperscript{4} and literature indicated that it occurs in postoperative patients between 40% to 70%.\textsuperscript{5} Surgery and injury can cause hypertrophic scar tissue if the damage is more than 33.1% of the skin, which lead to the change of its function and cosmetic defect.\textsuperscript{5}

The hypertrophic scar causes both physical and psychological problems. The physical problems are itchy rash, stiffness, wound contracture, and pain,\textsuperscript{6,7} while the psychosocial problems cause disturbance in social interaction, anger, stigmatization, disturbance in daily activities, the loss of self-confidence, isolation on social environment, anxiety, and depression.\textsuperscript{6}

The priority to decrease these physical and psychological problems in postoperative patients is by preventing the occurrence of hypertrophic scars.\textsuperscript{3, 6, 8} Prevention will improve the quality of life of the patients\textsuperscript{7} and also prevent keloids.\textsuperscript{10,6}
The hypertrophic tissue can be treated but it will cost extra money while there is also bad side effect of the treatment.\textsuperscript{11,12,13}

The hypertrophic scar tissue formation is influenced by factors that can be modified and unmodified. The factors that cannot be modified such as genetic\textsuperscript{14,15} and age\textsuperscript{2,16} while the factors that can be modified such as smoking, infection, location and suture material.\textsuperscript{8,17,18}

In this regard, nurses play roles in reducing the occurrence of hypertrophic scar tissue. They provide health education, prevention of wound infection and advocacy for treatment selection.\textsuperscript{19} Nurses also have a role to increase self-acceptance and self-perception of patients due to the changes of body image that affects to the psychology of patients.\textsuperscript{20}

The prevalence of patients with hypertrophic scar tissue in Regional Public Hospital of dr. Slamet of Garut Regency was increased from 160 patients in 2013 to 200 patients in 2014. In addition, the number of post-operative wound infection was 10% of the total number of operations with 480 patients per month,\textsuperscript{21} while according to the Ministry of Health of the Republic of Indonesia, the postoperative wound infections should be less than 1.5%. On the other hand, the the number of smokers as considered as influencing factor of hypertrophic scars in Garut regency was higher (30% of the total population of 2,309,77).\textsuperscript{22} Therefore, this study aimed to identify the factors related to hypertrophic scars among postoperative patients in Garut, Indonesia

METHODS
Design
This was an observational case control study using retrospective approach to determine the relationships between hypertrophic scar and its influencing factors,\textsuperscript{23} and to identify the most predominant factors on the occurrence of hypertrophic scars.

Sample size
There were 40 samples in this study, which was divided to be case group (20 patients) and control group (20 patients). Samples were recruited using purposive sampling with inclusion and exclusion criteria as the following: (1) Clean wound postoperative patients at Regional Public Hospital of dr. Slamet of Garut Regency, (2) Postoperative patients with > 14 days, (3) Willing to be a respondent in this research. The exclusion criteria included: (1) Contaminated wound, and (2) Not having treatment of hypertrophic scar.
**Instruments**

Stony Brook Scar Evaluation Scale was used to measure the hypertrophic scar tissue. It consists of five criteria: height, width, color, suture mark and general appearance. The score for each criterion was summed, and if the result is 0 then it indicates the occurrence of hypertrophic scar tissue, and if the result is 5 then it indicates no hypertrophic scar tissue. Another instrument was also used to describe the demographic data, genetic, smoking, area of surgery, surgical wound infections, and type of suture.

**Ethical consideration and Data collection**

This research had been approved by the Committee and Ethics Review Board (ERB) Committee for Research Involving Human Research Subjects, University of Padjadjaran, Bandung, Indonesia. Permission of data collection was obtained from the head of the health department of Garut regency and the director of Regional Public Hospital dr. Slamet of Garut Regency. Data were collected between May 1-June 15, 2015.

**Data analysis**

Chi-square analysis was used to identify the relation between factors that can be modified (smoking, infections of surgical wound, area of surgical wound, and type of suture) and unmodified factor (age and genetic) that cause hypertrophic scar tissue on postoperative patients at Regional Public Hospital of dr. Slamet of Garut Regency. Phi statistic analysis was also used to examine the strength of the relations.

**RESULTS**

**Characteristics of the respondents**

Data on the Table 1 showed that the majority of the patients (55%) were in the age of risk of hypertrophic scar tissue, and they all had the hereditary history of hypertrophic scar tissue. Of 75% were at risk of wound area, and 65% were at risk of having infection. In addition, 67.5% of respondents (67.5%) used risky suture types (acid polyglactin 910), and 72.5% of them were non-smokers. This also showed that the sample was divided with 20 respondents had hypertrophic scar tissue, and 20 respondents did not have hypertrophic scar tissue.

The Relationship between Respondent Characteristics and the Occurrence of Hypertrophic Scars

Chi square analysis showed that there was a significant relationship between infection of surgical wound (p = 0.02), genetic history (p = 0.026) and the type of suture (p = 0.043), and the occurrence of hypertrophic scar tissue, while the age variable (p = 0.34), the area of surgical wound (p = 0.177) and smoking (p = 0.479) had no significant association with the occurrence of hypertrophic scar tissue (see Table 2).

Postoperative patients who had genetic history of hypertrophic scar tissue were potentially as much as 10.057 times (95% CI: 1.527 to 66.22) compared to postoperative patients who did not have genetic history of hypertrophic scar tissue after being controlled with genetic history and type of suture. Postoperative patients who experienced infections of surgical wound were 18.576 times (95% CI: 1.767 to 195.252) compared to postoperative patients who did not experience infection after being controlled with genetic history and the type of suture; and Postoperative patients who used type of suture (acid polyglactin 910) were at risk of hypertrophic scar tissue 27.524 times (95% CI: 2.117 to 357.877) compared to patients who did not use acid polyglactin 910 suture after being controlled with genetic history and infections of surgical wound.
Table 1. Frequency Distribution of Respondent Characteristics (n = 40)

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Age 10-30 years</td>
<td>22</td>
<td>55</td>
</tr>
<tr>
<td>- Age&lt; 10 years and&gt;30 years</td>
<td>18</td>
<td>45</td>
</tr>
<tr>
<td>- Having genetic history</td>
<td>22</td>
<td>55</td>
</tr>
<tr>
<td>- Not having genetic history</td>
<td>18</td>
<td>45</td>
</tr>
<tr>
<td>- Risky area of surgical wound</td>
<td>27</td>
<td>75</td>
</tr>
<tr>
<td>• Neck</td>
<td>14</td>
<td>51</td>
</tr>
<tr>
<td>• Extremities</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>• Chest</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>• Stomach</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>• Backs</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>- Not risky area of surgical wound</td>
<td>13</td>
<td>25</td>
</tr>
<tr>
<td>• Palms and soles</td>
<td>11</td>
<td>84.4</td>
</tr>
<tr>
<td>• Eyelid</td>
<td>2</td>
<td>15.6</td>
</tr>
<tr>
<td>- Having infection</td>
<td>26</td>
<td>65</td>
</tr>
<tr>
<td>- Not having infection</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Risky suture type (Polyglactin 910)</td>
<td>27</td>
<td>67.5</td>
</tr>
<tr>
<td>- Not risky suture type</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>• Nylon</td>
<td>6</td>
<td>46</td>
</tr>
<tr>
<td>• Silk</td>
<td>5</td>
<td>38</td>
</tr>
<tr>
<td>• Polyglactin 910</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>- Smoker</td>
<td>11</td>
<td>27.5</td>
</tr>
<tr>
<td>- Non-smoker</td>
<td>29</td>
<td>72.5</td>
</tr>
<tr>
<td>- Having hypertrophic scar tissue</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>- Not having hypertrophic scar tissue</td>
<td>20</td>
<td>50</td>
</tr>
</tbody>
</table>

The dominant factor influencing the occurrence of hypertrophic scars

Logistic regression analysis in Table 3 showed that the hierarchy of strength of correlation or relations of the variables that affect the hypertrophic scar tissue based on the value of the odds ratio (OR).

The result showed the strength of the relationship from the strongest relationship to the weakest relationship, which included: the type of suture with OR = 27.524, infection of surgical wound with OR = 18.576, and genetic history with OR = 10.057.

From OR values of these variables, type of suture was the most dominant factor associated with the occurrence of hypertrophic scar tissue at Regional Public Hospital of dr. Slamet of Garut Regency.
Table 2. Relationship between Characteristics and Hypertrophic Scars (n = 40)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypertrophic Scar Tissue</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>f</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Risky</td>
<td>13</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>- Not risky</td>
<td>7</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Genetic History</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td>15</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>- No</td>
<td>5</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Area of Surgical Wound</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Risky</td>
<td>16</td>
<td>11</td>
<td>27</td>
</tr>
<tr>
<td>- Not Risky</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Infection</td>
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<td></td>
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<tr>
<td>- Yes</td>
<td>17</td>
<td>9</td>
<td>26</td>
</tr>
<tr>
<td>- No</td>
<td>3</td>
<td>11</td>
<td>14</td>
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<tr>
<td>Type of Suture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Risky</td>
<td>17</td>
<td>10</td>
<td>27</td>
</tr>
<tr>
<td>- Not Risky</td>
<td>3</td>
<td>10</td>
<td>13</td>
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<tr>
<td>Smoking</td>
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<tr>
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<td>7</td>
<td>11</td>
</tr>
<tr>
<td>- Non-smoker</td>
<td>16</td>
<td>13</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 3. The Results of Multivariate Logistic Regression Analysis (n = 40)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>OR (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic</td>
<td>2.308</td>
<td>0.962</td>
<td>5.762</td>
<td>10.057 (1.527-66.220)</td>
<td>0.016*</td>
</tr>
<tr>
<td>Wound Infection</td>
<td>2.922</td>
<td>1.200</td>
<td>5.926</td>
<td>18.576 (1.767-195.252)</td>
<td>0.015*</td>
</tr>
<tr>
<td>Type of Suture</td>
<td>3.315</td>
<td>1.309</td>
<td>6.416</td>
<td>27.524 (2.117-357.877)</td>
<td>0.011*</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.286</td>
<td>1.454</td>
<td>8.690</td>
<td>0.014</td>
<td>0.003*</td>
</tr>
</tbody>
</table>

Note: *) significant when α = 0.05

**DISCUSSION**

The results of this research indicated that there was a significant relation between genetic history (p = 0.026) and the occurrence of hypertrophic scar tissue. It is because hypertrophic scar tissue is autosomal dominant or a disease that can be passed down through the family. There
are chromosomal genes that may influence the occurrence of hypertrophic scar tissue, namely chromosome 2q23 and 7p11. Therefore, patients who have hereditary history of hypertrophic scar tissue would have more severe hypertrophic scar tissue form and it is growing in more than one area. This occurs due to the increase of transforming growth factor (TGF-β) gene expression, collagen type I and IV that have an effect on the increase of proliferation and the decrease of apoptosis. The roles of nurses to these patients are to do prevention by doing genetic counseling to provide information to individuals or families who have the possibility of having hypertrophic scar tissue, and also the information of the treatments. On the other hand, the therapeutic treatment is to inhibit the production of extra cellular matrix and excessive inflammation by providing anti-inflammatory drugs such as corticosteroids, inhibit DNA transcripts by providing antimetabolic drug mitomycin-c and 5-fluorouracil, and using gene therapy by using RNA Enzyme.

Infection of surgical showed a significant relationship with the occurrence of hypertrophic scar tissue. It is because an infection delays wound healing and results in long inflammatory process so fibroblasts proliferation and synthesis of ECM (Extracellular Matrix) process becomes slower, and more synthesis and collagen deposits 2-3 times formed resulting in hypertrophic scar tissue. The infection occurred in hospitals were marked by wound with ooze pus, red, edema and wounds for >14 days postoperative. It is mentioned that postoperative patients are recovered up to 10 to 14 days after surgery, it should be no increase of the synthesis of collagen. Another factor is the suture had a significant association with the occurrence of hypertrophic scar tissue, especially acid polyglactin 910 suture. Postoperative patients who used multifilament suture in the form of acid polyglactin 910 can cause high skin strain, thus increasing the synthesis of collagen that causes hypertrophic scar tissue, and the type of multifilament suture in the form of polyglactin 910 will enhance the higher inflammatory reaction of the body, increase the affinity or tye up against microorganisms, which stuck to the interstices of braided suture that results in infection and delayed wound healing. In this regard, the management of operation will be better using absorbed or not absorbed monofilament and multifilament sutures that have antibacterial properties. If there is no other type of suture, it can also be done by giving hydrogel or silicon gel in the treatment of wound to accelerate the granulation process, reducing strain injury, and preventing infection in order to reduce the risk of hypertrophic scar tissue. The findings also showed that there was no significant relation between age and the occurrence of hypertrophic scar tissue. Literature indicated that hypertrophic scar tissue could occur at any level of age. Therefore, it may occur at any age with many characteristics in the area that contains collagen. However, this study showed that the proportion of age of patients who had hypertrophic scar tissue were at age 10-30 years. This can happen because trauma often occurs at that age, and there are also enhancements of production of glycosaminoglycan, collagen and matrix structure of the skin that make the skin becomes more elastic. Area of surgical wound in this study had no significant with the occurrence of hypertrophic scar tissue. Literature showed that hypertrophic scar tissue could occur anywhere within the human body that contains collagen. This study also found that the majority of the respondents had
hypertrophic scar tissue in the areas which are frequently contracted and contain collagen fibers, namely in the area of the neck (51%), the extremities (18.5%), the chest (14.8%), the stomach and the back respectively (7.4%), and the most widely performed surgery in the hospital was in the neck area.

Another variable that had no relationship with the occurrence of hypertrophic scar tissue in this study was smoking. Findings showed that the majority of patients who had hypertrophic scar tissue were non-smokers. Literature said that young and non-smoker patients are more susceptible to hypertrophic scar tissue compared with those who smoke.\(^{35}\) It is likely that patients who smoke could reduce the systemic inflammatory response, while cigarettes also contain nicotine which is a vasoconstrictor that reduces the proliferation and migration of macrophages and fibroblasts, the deposition of collagen type I and III, and the formation of growth factor α1 (TGF-α1); while also increases the growth factor β3 (TGF-β3) so that smoking increases the risk of surgical wound complications but reduces the risk of hypertrophic scar tissue.\(^{36,37}\) However, smoking cannot be used as an intervention because it has more negative than positive effects.

Multivariate analysis in this study showed that there are significant relationships between infection of surgical wound, genetic history, the type of suture, and the occurrence of hypertrophic scars. The most dominant factor that influenced the occurrence of hypertrophic scars was the type of suture. Therefore, it is suggested to health professionals to modify the use of acid polyglactin 910 sutures, and nurses particularly need to provide the information regarding the family history and genetic-related hypertrophic scar, and prevent the infection of surgical wound after operation.

CONCLUSION
There were significant relationships between infection of surgical wound, genetic history, the type of suture, and the occurrence of hypertrophic scars. The most dominant factor that influenced the occurrence of hypertrophic scars was the type of suture. Therefore, it is suggested to health professionals to modify the use of acid polyglactin 910 sutures, and nurses particularly need to provide the information regarding the family history and genetic-related hypertrophic scar, and prevent the infection of surgical wound after operation.

REFERENCES


Health, Lippincott Williams & Wilkins;2010.

FACTORS INFLUENCING HEALTH BEHAVIOR AMONG TYPE 2 DIABETES MELLITUS PATIENTS: AN INTEGRATIVE REVIEW

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ABSTRACT
Objective: This integrative review aims to summarize and identify the current literature related to health behavior among Type 2 Diabetes Mellitus (T2DM) Patients and its factors.
Methods: An integrative review was undertaken using literature published between 2000 and 2013, based on CINAHL, Springer link, PubMed, Science Direct and Google Scholar.
Results: Twenty-two articles were selected based on inclusion and exclusion criteria. This review indicated a wide range of factors influencing health behavior among T2DM patients including predisposing factors (socioeconomic, knowledge, stress management, and health belief), reinforcing factor (family support), and enabling factor (health service).
Conclusion: Family support, socioeconomic and knowledge are the significant major factors of health behavior among T2DM patients. However, the others factors such as stress management, health belief and health service are also the important factors for T2DM patient’s health behaviors. Therefore, these factors should be considered for development of appropriate interventions to promote health behavior among T2DM patients at community.

Key words: health behavior, type 2 diabetes mellitus, literature review

INTRODUCTION
Health behaviors are defined as an individual response related to health that can be observed in certain situations on a given target.\(^1\) According to Green and Kreuter, health behaviors can be influenced by two factors, among other individual and environmental factors.\(^2\) They also state that these two factors are interrelated with each other. For patients with chronic diseases, health behaviors can affect their quality of life.\(^3\) In other words, if someone is suffering from a chronic disease and they do not have good health behaviors, then it can degrade their quality of life. For example, for those with T2DM,
one of the chronic diseases, health behaviors are very important in order to maintain the quality of life of sufferers. There are many factors that can influence health behaviors among T2DM patients, including individual factors (belief, knowledge, socioeconomic, lifestyle, intelligence, perception, values, attitudes, emotion, etc.), and environmental factors (culture, social support, policies, laws, programs, availability and accessibility of resources, etc.).

METHODS
Research design
This paper used an integrative review to explore the factors influencing health behavior among T2DM patients. The authors use a guideline created by Whittemore and Knafl to identify literature relating to phenomenon analysis and health problems. It allows the inclusion of both experimental and non-experimental research. Studies indicate that a well-done integrative review can present a state of science and potential to play a significant role in evidence-based practice to nursing science and practice, and to contribute towards theory development. The integrative review has been identified as a robust tool for synthesizing available literature on a given topic. This approach combines data from theoretical and empirical literature, and allows for a full understanding of the topic under investigation.

Data extraction/Sample
To explore the factors that influence health behaviors among T2DM patients, the authors collected data from the published literature through electronic databases. The information derived from the literature includes opinions, theoretical, research-qualitative and quantitative research, in addition to integrative and systematic reviews. For identifying and selecting from a variety of literature that is used as a review, the author broaden the search to include factors related to health behaviors among Patients with diabetes mellitus type 2, which included the aspects of the patient, family and other factors originating from the service system.

Inclusion and exclusion criteria
In the literature review, the authors included some inclusion criteria and exclusion criteria in the search of electronic databases. The inclusion criteria included, among others, (1) published in English, (2) published between 1980 and 2015; and (3) focused on factors and health behaviors among T2DM patients. Exclusion criteria included in the search databases were studies that did not focus on the factors that influenced the behavior health among T2DM patients, which is unclear or the research design was of poor quality and arguments in the literature was not well reasoned or was unclear.

Search strategies
The following electronic databases were searched for relevant research articles: Springer-link, CINAHL, PubMed, Science-Direct, and Google Scholar. The literature search was carried out by using keywords “health behavior”, “health behavior factors” and “T2DM patients”.

The author uses four-steps in the process of selecting literature originating from electronic databases before obtaining the articles as the final sample of this literature review. First step, authors generally did a search and found 351,487 article. Then from these articles did a screening to find articles that were really relevant and could be used as material for the literature review. From the screening results obtained 2,249 articles were considered relevant for use. The third stage, based on titles and abstracts that had been considered relevant were re-screened.
by including inclusion and exclusion criteria as well as avoiding duplication of the same title. One hundred twenty-five articles were obtained from this screening. The final step, of 125 articles, the authors chose 22 articles that were considered attractive for use as a literature review (Figure 1).

**Figure 1.** Flow diagram of the search and extraction process for the literature review.

**Data analysis**

Data analysis in research reviews requires that the data from primary sources are ordered, coded, categorized, and summarized into a unified and integrated conclusion about the research problem. In this case, the authenticity, methodological quality, informational value, and representativeness of available primary sources is considered and discussed in the final report. The data from this review was complex and difficult to analyze because it allowed the combination of diverse data sources for a full understanding of phenomenon of interest. However, in order to reach the aim of this study which was to determine the state of art and knowledge gaps related to health behavior among T2DM patients, the author used framework developed by Green and Kreuter as guidance. The articles were read four times to determine the patterns, directions, similarities, and differences. Using a constant comparison method to group similar data that was compared which furthered the analysis and synthesis process to accomplish the aim of this review.

**RESULTS**

The results of this review consisted of the factors influencing health behavior among T2DM patients, including predisposing factors (socioeconomic, knowledge, stress management, and health belief), reinforcing factors (family support), and enabling factors (health service). Figure 2 shows a diagram that illustrates a diagram of the model adaptation that is used as the
identification of factors influencing health behaviors among T2DM patients.

**Predisposing Factors**

**Socioeconomic**

In the lower socioeconomic groups, poor economic conditions will result in a lower level of education and increase the risk factors (smoking, physical activity, and diet quality) that can lead to increased incidence of T2DM. Someone who has greater income and higher subjective social status will be more confident and have a slight tendency to the existence of barriers to exercise behavior, exercise more regularly in the scheduling behavior of each month and have the intention to do so. Murray’s statement on the level of income will affect a person's intention to perform health behaviors reinforced by studies of Mark Conner et al. stated that the intention-health behavior relationship can be attenuated in the lower socioeconomic status (SES) samples. In low-income communities often found factors that cause diabetes mellitus associated with the cost of healthy foods, stress-related eating inappropriate, and the desire to eat unhealthy food. With low-income level and living in the SES environments would affect one's perception of health, which causes health disparities. The type of work and the ability to pay for treatment often causes a gap in the process of health care services that will affect a person's perception of care and result in health behaviors to get good care to maintain their health.

**Knowledge**

Serrano-Gil and Jacob stated that to achieve the best health condition T2DM patients should have knowledge of their health so that they are involved in the control and management of their condition. Education levels and limitations in the process of learning (cognitive factors) does not affect a persons ability to obtain knowledge of health so that they are still able to change their health behaviors. Alavi et al. stated that the experience of T2DM patients in managing their health should still be balanced with the right knowledge so that they can take informed decisions on their health condition and know when to consult their doctor. T2DM patients are expected to remain informed and more critical in assessing the information about their condition leading to motivate them to change behavior generated by learning.

**Stress management**

Emotional distress is common in diabetes. Emotional stress can affect the mindset of DM patients to health behaviors associated with DM that can affect their quality of life. The statement of Polonsky is reinforced by the statement of Lustman, Penckofer, and Clouse who stated that conditions of stress experienced by T2DM patients can affect insulin sensitivity resulting in a sustained reduction in HbA1c. The T2DM patients often have to know about their illness, but they often fail in managing their treatment because they are not able to manage the stress in themselves so that they have difficulty in establishing health behavior patterns, especially on the issue of diet and exercise therapy. The patients with chronic diseases, such as T2DM, which is able to regulate their emotions with a rational approach, they were able to solve the problem in a routine and stressful circumstances. Instead, they will have difficulty in solving problems, especially in terms of health behavior change, when they are not able to regulate their emotions and thinking rationally.

**Health belief**

Health beliefs related to DM patient compliance and their motivation to perform health behaviors. This is
evidenced in the research conducted by Kathy A. Cerkoney Bloom and Laura K. Hart who state that as many as 25% of the research results indicate that the motivation of health beliefs in T2DM patients can affect the patient's adherence to the treatment regimen and health behavior.\(^2\) Health beliefs in DM patients is predicted to affect the intention to maintain health at first, and it will then be able to affect the patient to perform a behavior in order to maintain her health to stay healthy.\(^2\)

Figure 2. Factors influencing health behaviors among patients with diabetes mellitus type 2

**Reinforcing Factor**

*Family support*

Family support and good communication within the family creates a social environment that is feasible for the DM patients, especially in the treatment of medical professionals.\(^2\) For example, in children with DM who have parents that have negative behavior will affect the metabolic control and the level of adherence to medication regimens.\(^2\) Family support associated with treatment adherence, metabolic control, and quality of life. Pereira, Berg-Cross, Almeida, and Machado also stated that a family with good support will affect DM patients’ compliance on medication management so that they can control their health status and improve their quality of life.\(^2\)

**Enabling Factor**

*Health service*

The views of paramedics in providing health services to DM patients are influenced by the severity of the health problems faced and health management
process that has been followed by the patient. The process of treatment of chronic diseases, such as diabetes mellitus, it is not enough just to provide medical treatment and drug therapy, but the need is for self-management. In the self-management, the need for the availability of the right information about the illness from health workers. Success in understanding the information by the patient depends on the communication processes and procedures in the provision of information by health workers. Communication carried out by health workers in the provision of information about the disease is more effective than the patient's participation in decision-making for the determination of self-management in the control condition of the DM patients. Heisler et al. statement above, strengthens the statement of Lee, et al. stating that the procedure for granting the right information increases the DM patients empowerment in doing self-management and decision-making related to their health condition so that they are willing to modify lifestyle.

DISCUSSION
This integrative review indicates major factors that influence health behavior of a socioeconomic, knowledge, stress management, health belief, family support, and health service. During its development, health behaviors are influenced by socio-economic, knowledge and family support. The lower socioeconomic level would result in lower levels of education so that it can increase risk factors (smoking, physical activity, and diet quality) which can lead to an increased incidence of diabetes mellitus type 2 and will affect one's intention to carry out health behaviors. The low socioeconomic level also often results in gaps in the provision of health services, especially related to the ability to pay for treatment, which can lead to a person's perception of the health services become less good and they are reluctant to use health services in order to control the condition. This will be compounded by the lack of support from family. Family support associated with treatment adherence, metabolic control, and quality of life. Higher family support affect the T2DM patients’ compliance on medication management and controlling their health status that can improve their quality of life. Two factors above should be a major concern for health workers in delivering health services.

This review also includes some studies of knowledge related to health behaviors in the DM patients. Knowledge is also one factor that plays an important role in improving a person's health behaviors. The level of education and the limitations of a person in the learning process will not affect the person's desire to acquire knowledge about their health so that they can change health behaviors in order to obtain the optimal quality of life. The process of improving knowledge instead of just focusing on the T2DM patients (health behaviors and self-management) is also linked to the environment around them, especially for the family and the immediate environment for people with T2DM. With the increase of knowledge that focuses on the environment it is expected that their support system is good so that the T2DM patients can be in a controlled condition.

There are many factors that can affect a person in improving health behaviors associated with the disease, especially chronic diseases such as diabetes mellitus. These factors include stress management, health belief and health service. The levels of distress in the T2DM patients are influenced by several factors, including age, HbA1C level, gender, employment, availability of
services nearby. The level of stress affects a person in making the right decisions relating to the treatment process that is being run, thus the need for good stress management.

T2DM Patients often have difficulty in establishing health behavior patterns because they do not have stress management and are coping less well. As for the health beliefs, it is related to the compliance of patients with diabetes and their motivation to perform health behaviors. This is demonstrated in a study conducted by Cerkoney and Hart which states that health beliefs in patients with diabetes mellitus can affect patients' adherence to treatment regimens and health behaviors. Health care services also influence the health behavior of patients with diabetes mellitus due to the information provided by health workers in the health service which may change the pattern of view of patients, especially in health behavior. The process of delivering the appropriate information or communications will affect T2DM Patients’ understanding of the condition and treatment process that is run so that they can implement effective self-management and can take appropriate decisions related to their condition.

CONCLUSION
The findings in this study indicated that there are several factors related to health behaviors among T2DM patients that include predisposing factors (socioeconomic, knowledge, stress management, and health belief), reinforcing factors (family support) and enabling factors (health service). Thus, developing an intervention for promoting health behaviors among T2DM patients in a community must consider the factors that may affect the achievement of the results of the implementation of health promotion and these factors can also be used as a benchmark for selecting interventions suitable for these patients. For the future researchers are expected to carryout research on interventions that can improve the perception of the multiple contexts of health behavior among patients with type 2 diabetes mellitus who live with family in the community because it is still rare.

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Cite this article as: Putra KWR, Toonsiri C. Factors Influencing Health Behavior among Type 2 Diabetes Mellitus patients. *Belitung Nursing Journal* 2017;3(1):32-40.
RELATIONSHIP OF ADHERENCE, SELF EFFICACY, SOCIAL SUPPORT, QUALITY OF HEALTH CARE, AND PSYCHOLOGICAL RESPONSE OF PARENTS TOWARDS QUALITY OF LIFE OF CHILDREN WITH TUBERCULOSIS IN YOGYAKARTA, INDONESIA

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ABSTRACT

Background: Quality of life includes the aspects of physical, emotional, social function, welfare and perceptions about life. Quality of life of children with tuberculosis is considered lower than the quality of life of healthy children. Little is known about the factors related to the quality of life of children with tuberculosis, especially in Yogyakarta, Indonesia.

Objective: This study aims to examine the relationships of adherence, social support, quality of healthcare, self efficacy, and psychological response of parents towards quality of life of children with tuberculosis in Yogyakarta, Indonesia.

Methods: This study employed a cross-sectional correlation design, which was conducted from April to November 2016, and involved 41 caregiver and children with tuberculosis according to research criteria. A consecutive sampling was applied to determine sample size. Data were analyzed by bivariat and multivariat analysis using SPSS with significant level p=0.05 and confidence interval = 95%.

Results: Findings showed significant relationships between social support, psychosocial response, mainly anxiety and stress (p<0.05) with quality of life. While adherence, self-efficacy, and quality of healthcare did not have significant relationship (p>0.05) with quality of life. The results of multivariat analysis showed significant relationships between social support with r =0.305 (CI95%:0.134-0.188; p=0.026), psychosocial response of caregiver, mainly level of stress with r= 0.425 (CI95%:-1.369-0.126; p=0.007) and anxiety with r= 0.378 (CI95%: -0.107-1.692; p=0.03) and quality of children life (R square=0.278). The strongest variable related to quality of children life was psychosocial response (anxiety) of parents (r=0.425).

Conclusions: Quality of life in children with tuberculosis is related to social support and psychosocial response of parents. The dominant factor is psychosocial responses of anxiety.

Key words: Quality of life, Children, Tuberculosis, Related Factors
INTRODUCTION

Long-term therapy is required for children with tuberculosis. It is because the medication consists of Fixed Dise Combination (FCD) packages, which contains multidrugs and needs more than 6 months to complete the medication. Indirectly, long-term therapy increases depression, mood disorders, and fatigue that impact quality of life. Literature also indicated that patients with tuberculosis aged 20-55 had low quality of life. However, quality of life is related to health indicators that affect physical aspect, psychological, social aspect, and life function.

Tuberculosis (TB) is an infectious disease that attacks a respiratory tract. It is an communicable disease, and the second killer after HIV/AIDS in the world. The highest mortality related to TB’s patient mortality in 2010 was in Asia, which was 60% of global mortality. The Global Tuberculosis Report of WHO (2014) showed prevalence of TB on 2011 in Indonesia attained the 5th rank in the world after India, Nigeria, Pakistan, Bangladesh. Globally, incidence of tuberculosis on 2013 estimated 9 million and amounts more five hundred thousands cases suffered to children.

Survey result estimated that the prevalence of tuberculosis in children in Indonesia about 5%-6% of total cases in a year. It is more than five hundreds thousands of children in 2014 suffered from tuberculosis, and the global mortality attained more than seventy thousand or about 8% of total mortality. Based on the result of preliminary research, the incidence of TB on children in Yogyakarta was high (8% per 100.000 population), and the current data reported 37 cases tuberculosis on children.

In this study, the quality of children’s life includes the assessment of physical, emotional and social function. Physical function refers to the assessment towards physical activity, energy, power and fitness; emotional function refers to the assessment towards depression status, mood and stress; and social function refers to the assessment of the relationship between TB’s patient with other people (neighbor, friends etc).

The quality of life of children with tuberculosis should receive more attention due to the impact of the disease for children and their families, such as the difficulties in the integration with peers, anxiety, and family dysfunction. In addition, the communication with peers and parent-child relationships generally will also be disrupted.

Factors affecting the quality of life of children include family, health and social environment, so if these factors remain positive, the quality of life of the children might be increased. It is in line with the previous research indicated that the factors affecting the quality of life of children were a behavioral disorder during infancy, health status, mother’s mental health, social support, family support, and parenting.

Family factors become an important factor to strengthen the quality of children life with tuberculosis, such as the medical adherence of parents, self-efficacy, psychological response of the children, social support, and health care support as external factors.

Adherence is an agreement between medical doctor and patients regarding their medication. In the context of pediatric nursing, adherence was the complex process due to the decision making of the children towards medication and treatment were dependent on the parents. The level of parent’s adherence could impact the recovery of the children. Thus, the role of the parents in providing the proper care is needed.

Second, self-efficacy of parents is
the belief regarding self-ability as a parent in providing positive health care to the children.\textsuperscript{13}

Third is psychological factor including the emotional reaction and attention of the parents. Another factor is social support both internal or external factors such as family, friends, neighbor or health workers. \textsuperscript{13} The quality of life is an important indicator to assess the success of the intervention of health care provided in addition to the morbidity, mortality, fertility and disability.

Nurses and other health providers play an important role in improving the health status and the quality of life of children with tuberculosis. However, little is known about the study about the quality of life on children with tuberculosis in Indonesia, especially in Yogyakarta, Indonesia. Therefore, this study aimed to examine the factors influencing the quality of life on children with tuberculosis.

METHODS
This was a correlational study with cross sectional design. It was conducted from April to November 2016. There were 41 parents having children with tuberculosis were recruited by consecutive sampling. The instruments used in this study were social support of caregiver questionnaire modified from Social Support Questionnaire (SSQ) of Sarason \textit{et al}.\textsuperscript{14} adherence questionnaire developed based on the adherence concept and treatment for TB’s patient according to the good governance of tuberculosis launched by WHO,\textsuperscript{4} Ministry of Health of Indonesia,\textsuperscript{2} IDAI,\textsuperscript{15} and CDC \textit{cit.} Gonzalez \textit{et al}.\textsuperscript{16} The other instruments were Parental Stress Scale (PSS) by Berry & James, and Psychological Well-Being Index (PGWBI) that focusing only the anxiety domain to measure the psychological response of caregiver,\textsuperscript{17} Cooper Parental Self-Efficacy Scale-Child Health Behavior (CPSS-CHB) for self-efficacy, PedsQL Generic Core Scales Versi 4.0 to measure the quality of life of children, and the modified instrument of quality of health care services. The validity and realiability of all intruments were examined to 31 respondents before data collection. The results showed the good validity and reliability with coefficient correlation $r=0.402-0.921$ and alpha on interval $0.702-0.78$.\textsuperscript{18}

Data were analyzed using univariable analysis, bivariable, and multivariable analysis. The univariate analysis calculated mean score, categorized in the high, medium, and low level using the formula, indicated that low with $X < (\text{Mean} – 1.0SD)$, medium with $\text{Mean}-1.0SD) < X > (\text{Mean} + 1.0SD)$, and high with $X \geq (\text{Mean} + 1.0SD)$.\textsuperscript{19} Spearman correlation test was also implied for this study.

Ethical Approval was obtained from the Ethics Committee of Faculty of Medicine, Gadjah Mada University in April 2016. Prior to the data collection, informed consents were obtained from the respondents.

RESULTS
Characteristics of the respondents
There were 41 spouse of parents (caregivers) were recruited in this study, with children (aged 0-18 years old) suffered from tuberculosis in Yogyakarta, Indonesia. Table I showed that the respondents consisted of fathers ($2.4\%$) and mothers ($98.6\%$). Of $73.2\%$ respondents were young adult and most of them ($53.7\%$) had senior high school background.
Table 1. Characteristics of the respondents (n=41)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percentage (%)</th>
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<tr>
<td><strong>Gender</strong></td>
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</tr>
<tr>
<td>Male</td>
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<td>2.40</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>98.60</td>
</tr>
<tr>
<td><strong>Relationships with Children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>1</td>
<td>2.40</td>
</tr>
<tr>
<td>Mother</td>
<td>40</td>
<td>98.60</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young adults (21-40 years)</td>
<td>30</td>
<td>73.20</td>
</tr>
<tr>
<td>Middle Adulthood (40-65 years)</td>
<td>11</td>
<td>26.80</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Education (Elementary to junior high School)</td>
<td>8</td>
<td>19.50</td>
</tr>
<tr>
<td>Secondary Education (High School)</td>
<td>22</td>
<td>53.70</td>
</tr>
<tr>
<td>College education (D1/D2/D3/D4/S1/S2/S3)</td>
<td>11</td>
<td>26.80</td>
</tr>
</tbody>
</table>

The children suffered from tuberculosis in this study included toddlers, children and adolescents. Table 2 showed that toddler group was the most suffering group with tuberculosis (17.07%) than the other groups. The amount of the drugs that the children need to take per day was mostly more than 3 tablets. Data also showed that children have the other families such as father, grandmother, grandfather and aunty (beside mother) to control their medication.

Table 2. Characteristic of Children with Tuberculosis (n=41)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toddlers (&gt;5 years)</td>
<td>14</td>
<td>58.54</td>
</tr>
<tr>
<td>Child (5-11 years)</td>
<td>10</td>
<td>24.39</td>
</tr>
<tr>
<td>Adolescents (12-20 years)</td>
<td>7</td>
<td>17.07</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>25</td>
<td>60.98</td>
</tr>
<tr>
<td>Female</td>
<td>16</td>
<td>39.02</td>
</tr>
<tr>
<td><strong>Length of treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early phase</td>
<td>11</td>
<td>26.83</td>
</tr>
<tr>
<td>Advanced phase</td>
<td>30</td>
<td>73.17</td>
</tr>
<tr>
<td><strong>PMO besides mother</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34</td>
<td>82.93</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>17.07</td>
</tr>
<tr>
<td><strong>Amount of drug per day</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1x1 tablets</td>
<td>10</td>
<td>24.39</td>
</tr>
<tr>
<td>1x2 tablets</td>
<td>12</td>
<td>29.27</td>
</tr>
<tr>
<td>1x3 tablets</td>
<td>13</td>
<td>31.71</td>
</tr>
<tr>
<td>1x4 tablets</td>
<td>6</td>
<td>14.63</td>
</tr>
<tr>
<td><strong>Support givers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>1</td>
<td>2.44</td>
</tr>
<tr>
<td>Main family</td>
<td>10</td>
<td>24.39</td>
</tr>
<tr>
<td>Extended family</td>
<td>30</td>
<td>73.17</td>
</tr>
</tbody>
</table>

Description of the quality of life of children with TB

Quality of life of children suffered from TB is defined as the status of individual related to the optimization of body function on the level of development and the feeling that is related to physical, emotional and social function. The quality
of life of children is viewed by comparing the total scores, the highest score on quality of life was in social function, and the lowest score was in the emotional function. The other three aspects were in the low-medium level. (Table 3 & 4)

Table 3. Quality of Life Score of Children suffered from Tuberculosis (n=41)

<table>
<thead>
<tr>
<th>Quality of Life</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical function</td>
<td>53.10</td>
<td>100.00</td>
<td>85.98±12.68</td>
</tr>
<tr>
<td>Emotions functions</td>
<td>42.00</td>
<td>100.00</td>
<td>73.82±16.01</td>
</tr>
<tr>
<td>Social functions</td>
<td>50.00</td>
<td>100.00</td>
<td>89.87±13.66</td>
</tr>
<tr>
<td>Total of function</td>
<td>50.00</td>
<td>100.00</td>
<td>79.58±12.65</td>
</tr>
</tbody>
</table>

Table 4. Level of Quality of Life of Children with Tuberculosis (n=41)

<table>
<thead>
<tr>
<th>Quality of Life</th>
<th>Low n(%)</th>
<th>Medium n(%)</th>
<th>High n(%)</th>
<th>Total n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical function</td>
<td>6(14.63)</td>
<td>32(78.05)</td>
<td>3(7.32)</td>
<td>41(100)</td>
</tr>
<tr>
<td>Emotions functions</td>
<td>10(24.39)</td>
<td>27(65.85)</td>
<td>4(7.32)</td>
<td>41(100)</td>
</tr>
<tr>
<td>Social functions</td>
<td>9(21.95)</td>
<td>32(78.05)</td>
<td>0(0.00)</td>
<td>41(100)</td>
</tr>
<tr>
<td>Total of function</td>
<td>3(7.32)</td>
<td>30(73.17)</td>
<td>8(19.51)</td>
<td>41(100)</td>
</tr>
</tbody>
</table>

Description of parents’ adherence in providing care and quality of life of children

Table 5. Level of adherence of parents in providing care of children with TB (n=41)

<table>
<thead>
<tr>
<th>Aspect of adherence</th>
<th>Quality of Life Score</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication adherence</td>
<td>- Low</td>
<td>65.38</td>
<td>90.38</td>
<td>77.79±9.4</td>
</tr>
<tr>
<td>- Medium</td>
<td>55.77</td>
<td>100.00</td>
<td>82.76±13.94</td>
<td></td>
</tr>
<tr>
<td>- High</td>
<td>50.00</td>
<td>84.62</td>
<td>73.31±11.09</td>
<td></td>
</tr>
<tr>
<td>Nutritional adherence</td>
<td>- Low</td>
<td>22.00</td>
<td>25.00</td>
<td>23.80±1.30</td>
</tr>
<tr>
<td>- Medium</td>
<td>26.00</td>
<td>30.00</td>
<td>28.06±1.22</td>
<td></td>
</tr>
<tr>
<td>- High</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00±0.00</td>
<td></td>
</tr>
<tr>
<td>Infection Control adherence</td>
<td>- Low</td>
<td>19.00</td>
<td>22.00</td>
<td>21.22±1.09</td>
</tr>
<tr>
<td>- Medium</td>
<td>23.00</td>
<td>29.00</td>
<td>26.04±1.74</td>
<td></td>
</tr>
<tr>
<td>- High</td>
<td>29.00</td>
<td>30.00</td>
<td>29.71±0.30</td>
<td></td>
</tr>
<tr>
<td>Adherence of caring</td>
<td>- Low</td>
<td>68.00</td>
<td>75.00</td>
<td>72.85±2.67</td>
</tr>
<tr>
<td>- Medium</td>
<td>74.00</td>
<td>85.00</td>
<td>80.53±2.95</td>
<td></td>
</tr>
<tr>
<td>- High</td>
<td>86.00</td>
<td>90.00</td>
<td>88.25±1.48</td>
<td></td>
</tr>
</tbody>
</table>

Parent’s adherence in providing care to the children is the level of parents’ behavior on giving medication, providing adequate diet, and applying healthy life style as the prevention act and infection control. Table 5 describes the level of adherence of parents and quality of life of children with tuberculosis. It can be concluded that the higher level of parents adherence, the higher level of the quality of life of the children.
Description of the level of care quality and quality of life of children

The level of quality of care is the parents’ assessment towards the quality of health provider in giving healthcare services to the patients. The assessment includes the aspects of technical components, access to services, interpersonal relations, security and comfort. Table 6 shows that all levels of care quality almost have the similar score on the quality of life of the children.

<table>
<thead>
<tr>
<th>Tabel 6. Level of Health Care Quality (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care quality</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Care quality</td>
</tr>
<tr>
<td>- Low</td>
</tr>
<tr>
<td>- Medium</td>
</tr>
<tr>
<td>- High</td>
</tr>
</tbody>
</table>

Psychological response of parents and quality of life of children

Parents psychological response refers to the parent’s emotional reaction and feelings. In this study, the psychological response is related to stress and anxiety levels. The higher total score obtained, the higher level of stress and anxiety levels of the parent, which indicated that the response of parents is getting worse. Table 7 shows that the quality of children's lives is better with the parents who have low levels of stress. While the quality of life children is higher with the parents who have middle levels of anxiety compared with the level of higher and lower anxiety level of parents.

<table>
<thead>
<tr>
<th>Table 7. The Psychological response of parents with tuberculosis children (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological responses</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Stress response</td>
</tr>
<tr>
<td>- Low</td>
</tr>
<tr>
<td>- Medium</td>
</tr>
<tr>
<td>- High</td>
</tr>
<tr>
<td>Anxiety response</td>
</tr>
<tr>
<td>- Low</td>
</tr>
<tr>
<td>- Medium</td>
</tr>
<tr>
<td>- High</td>
</tr>
</tbody>
</table>

Self-efficacy level of parents and quality of life of children

Self-efficacy is the belief of the parents to their own competence as the parent, or perception of their ability to bring the children with tuberculosis care in the positive direction. Table 8 shows that the quality of life of children is higher with the parents who have a medium self-efficacy.

<table>
<thead>
<tr>
<th>Table 8. Self-efficacy of Parents with Children with Tuberculosis (n=41)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Self-efficacy</td>
</tr>
<tr>
<td>- Low</td>
</tr>
<tr>
<td>- Medium</td>
</tr>
<tr>
<td>- High</td>
</tr>
</tbody>
</table>
The level of social support and quality of life of children
Social support in this study includes the level of social support satisfaction perceived by parents in providing care to the children with tuberculosis. The results showed that the medium and high level of social support have the same quality of life score.

Table 8. Social Support and quality of life of children with tuberculosis (n=41)

<table>
<thead>
<tr>
<th>Satisfaction of Social Support</th>
<th>Quality of Life Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
</tr>
<tr>
<td>- Low</td>
<td>55.77</td>
</tr>
<tr>
<td>- Medium</td>
<td>50.00</td>
</tr>
<tr>
<td>- High</td>
<td>65.38</td>
</tr>
</tbody>
</table>

Relationships of quality of life children with tuberculosis and its related factors
The result of bivariate analysis showed that social support, psychosocial response of caregiver (stress and anxiety) had significant correlations with the quality of life of children with tuberculosis (p<0.05) although the power of correlations was weak (r=0.291-0.378).

Table 9. Bivariat Analysis of Factors Related To Quality of Life Children with Tuberculosis (n=41)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean±SD</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adherence of parents</td>
<td>80.73±5.39</td>
<td>0.23</td>
<td>0.838</td>
</tr>
<tr>
<td>Social support</td>
<td>128.43±26.33</td>
<td>0.291</td>
<td>0.012*</td>
</tr>
<tr>
<td>The quality of health care</td>
<td>74.08±5.17</td>
<td>0.183</td>
<td>0.253</td>
</tr>
<tr>
<td>Psychological response: anxiety</td>
<td>16.26±0.71</td>
<td>-0.378</td>
<td>0.015*</td>
</tr>
<tr>
<td>Psychological response: stress</td>
<td>20.46±0.94</td>
<td>-0.363</td>
<td>0.002*</td>
</tr>
<tr>
<td>Parents self-efficacy</td>
<td>121.65±10.83</td>
<td>0.069</td>
<td>0.541</td>
</tr>
</tbody>
</table>

* Statistically significant (p<0.05)

The most dominant factor that influence the quality of life children with TB
The result of multivariate analysis on table 10 showed that factors related significantly with the quality of life children with TB were social support (r= 0.305; CI95%:0.134-0.188; p=0.026), psychosocial response of caregiver included level of stress (r= -0.425 (CI95%:-1.369-0.126; p=0.007) and anxiety (r= -0.378 (CI95%: -0.107-1.692; p=0.03). The most dominant variable that had the relationship with the quality of life of children with tuberculosis was psychosocial response (anxiety) of caregiver (r=-0.425).

Table 10. Multivariat Analysis of Factors Related to the Quality of Life Children with Tuberculosis

<table>
<thead>
<tr>
<th>Variable</th>
<th>r</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social support</td>
<td>0.305</td>
<td>0.134-0.188</td>
<td>0.026*</td>
</tr>
<tr>
<td>Psychological response: anxiety</td>
<td>-0.425</td>
<td>-1.369-0.126</td>
<td>0.007*</td>
</tr>
<tr>
<td>Psychological response: stress</td>
<td>-0.378</td>
<td>-1.107-1.692</td>
<td>0.03*</td>
</tr>
</tbody>
</table>

*Statistically significant (p<0.05)

While table 11 showed that 27.8% (R Square = 0.278) of quality of life of children with tuberculosis was influenced by the variables of social support, psychosocial responses of parents, the level of stress and anxiety contribute to the quality of children tuberculosis, while 62.2% of it were caused by other factors (Table 11).
Table 11. Child Social Support Tuberculosis (n=41)

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. error of the estimate</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social support, psychological response of anxiety and stress on quality of life</td>
<td>0.527</td>
<td>0.278</td>
<td>0.220</td>
<td>11.17</td>
<td>0.007</td>
</tr>
</tbody>
</table>

* Statistically significant (p<0.05)

DISCUSSION

This study showed that more than half of children suffered from TB who were involved in this study were toddlers (ages 0-5 years old), and most of them took advance medication with 3 tablets per day, and controlled by their mothers and other family members.

The incidence of TB among toddlers is still high. Ministry of Health of Indonesia mentioned that one of the factors increasing the number of TB is the low immune system. The number of male children with TB is higher than the female children.

Children with tuberculosis requires long-term treatment, and it might affect the quality of children’s life. Quality of life according to Preedy & Watson research (2010) was not limited to the physical, social and emotional function, but also welfare or feelings about life.

In this study, the quality of life in emotional function was lower than the quality of life in physical and social function. Emotional functions included the feelings of fear and anxiety, sadness, irritability, and insomnia. Findings showed that more than half of respondents sometimes felt angry easily, and nearly half of the respondents also encountered sleep disturbances and felt fear. This psychological condition occurred when the child was in poor condition. Those who experienced TB would have respiratory problem that might affect the emotional function, such as feeling angry easily and having emotional uncontrolled.

Adherence is defined as the rate at which patients follows the instructions given to them in determining of treatment and decision making related to the treatment time from the commencement to the termination of therapy. In this study, data showed that the higher the level of adherence of parents, the higher level the quality of life of children. But, the bivariable analysis indicated that there was no relationship between parents adherence and the quality of life of children with tuberculosis. This finding is not in line with the pattern of nursing care by parents that is related to the quality of life. This result might be affected by some other factors associated with quality of life of children, such as health care, home environment, family social relationships, social support, self-efficacy, and psychological response.

On the other hand, findings in this study showed that there was no significant relationship between parents’ views about the quality of care and quality of life of children. It means that health service does not affect the quality of life of children, but the quality of health care provider is closely related to adherence of parents in providing care of the children.

The effort of parents to improve the quality of life of children is associated with their psychological responses. In this study, psychological response of parents includes stress and anxiety levels. Findings showed that the higher score the level of stress and anxiety, the lower the level of the quality of life of the children. Statistical analysis showed that parental psychosocial response had significant relationship with the quality of life of
children. This relationship occurs because parents are the primary care givers for the children. Case Western Reserve University stated that the parent-child specific disease reported they experience stress at the sight of child in pain. In general, parents' stress is not related to the length and severity of illness, but more related to when the child is in sick and pain period, which might be able to make the parents desperate.

Literature stated that the parents often feel anxious with the development of their children, treatment, regulation, a state in the hospital, and costs of care. These responses can be caused by chronic disease in children, less favorable of treatment, and economic level of the family. Information for parents should be given continuously based on the stage of development of the child's condition to reduce the anxiety of parents. In this study, the quality of life of children was higher with the group of parents with medium anxiety level. It is in line with previous study mentioned that anxiety in an individual may provide the motivation to achieve something, and it is important sources in an effort to maintain the balance of life. In this case, the parents have a strong desire to improve the quality of life of children as directed by health workers.

In this study, the quality of life of children is also higher with the parents who had medium level of self-efficacy, compared to the parents who had low and high level of self-efficacy. Parental self-efficacy is parental belief to their own competence take care of the children, or parental's perception of their ability to bring the children in the positive direction. The results of this study showed that there was no significant correlation between parental self-efficacy and quality of life of children. It might be self-efficacy is directly related to the compliance of parents than to the quality of life. Parents with good self-efficacy show good adherence to treatment, which is important for parent as a caregiver who supervises and provides care for children with tuberculosis to recover. Otherwise, parents who have low self-efficacy will have an impact on psychology, health, behavior, and affect the treatment process.

Another factor is the social support received by the parents in taking care of the children with tuberculosis. More than half of respondents received medium social support. Literature indicated that the informational support has a significant effect on patients’ serious illnesses. It is also stated that the greatest social support received by patients with TB is from family members and health care workers. Statistically, there was a significant relationship between social support and quality of life of children tuberculosis in this study. Social support from medical personnel to provide optimal health services can improve the quality of life of the children. In this study also indicated that factors such as social support, and psychological response, mainly stress and anxiety had 27.8% contribution in affecting the quality of life of children with TB.

CONCLUSION
Social support and psychological response of parents, both stress and anxiety are related to the quality of life of children with TB. The dominant factor that is related to the quality of life children with TB is psychological response of parents, especially the level of anxiety. Future research is needed to examine the internal and external factors towards quality of life of children with TB.

ACKNOWLEDGEMENT
The authors acknowledge the healthcare providers for being involved in data collection, and thank to all parents with
tuberculosis children for the participation in this study.

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LETTER TO EDITOR

ISSN: 2477-4073

NURSING AND MEN: A GENDER BIAS

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Dear Editor,

Although the number of men in nursing continues to rise, but they have been a minority group within the nursing profession until today. It seems negative gender stereotypes still exist in nursing, exacerbated by the media. Careers in nursing, administration or beauty are often viewed as jobs for females, while mechanics, sports or construction industry are seen as jobs for males.1 Recent literature about men in nursing also claimed that nursing remained the realm of women2 and that the path for men to nursing continued to be difficult; with the nursing culture dominated by women.3

Ironically, this gender bias stereotyping also occurs in nursing educational programs because nursing faculties are often composed mainly of women.4 Nursing has been identified with feminine ways of caring. In Florence Nightingale’s time, men were considered to lack the capacity to provide mothering and caring because “their horny hands were detrimental to caring,” so they were excluded from nursing.5 Not infrequently, the image of nursing is seen with a female with a white cap and dress, not a male in a white two-piece. In addition, male nurses are generally assumed to be gay.3 These reasons identified for why more men are not attracted to the nursing profession.

This gender stereotype however will result in a reduction of men in nursing, while the demand for nurses to cope the global nursing shortage is on the rise. More new nurses are actually needed to graduate into a job marketplace and many hospitals desire a mix of genders among their staff.

Male nurses offer the physical strength needed for tasks like moving patients and heavy equipment. But these, of course, men also have as great a capacity for caring like woman do. Being
nurse requires both resilience and empathy, and having those skills is not a matter of gender.

In addition, having male nurses actually ensures that male patients are well represented, and all their needs will be fully understood. In other words, men provide unique perspectives and skills that are important to the profession. It is also becoming continuously recognized that men, like women, have care-giving strengths and skills that can make nursing an excellent choice for them.

So, it is a great time for men to begin a career in nursing. The United States Bureau of Labor predicts that a job growth rate will be much faster than average, the employment for nurses will grow 16 percent by the year 2024. There is no doubt that there is a growing demand for and acceptance of male nurses in the nursing profession.

The nursing profession, in this regard, needs to place a greater emphasis on growing understanding that men have an important role in health care as the strategy to recruit more of them to play in the field. As that understanding continues to grow, so will the demand for male nurses.

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