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ORIGINAL RESEARCH

FACTORS INFLUENCING COMPETENCY DEVELOPMENT OF NURSES AS PERCEIVED BY STAKEHOLDERS IN VIETNAM

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Abstract

Background: Competency of nurses is vital to safe nursing practice as well as essential component to drive quality of nursing services. Competency development is a continuous process of improving knowledge, attitudes and skills, and is influenced by a numerous of factors.

Purposes: This study aims to explore factors that influence the development of competencies of nurses working in clinical settings in Vietnam.

Methods: A descriptive qualitative research was conducted in Ho Chi Minh City, Vietnam with a purposive sample of twenty-seven participants including nurses, nurse managers, administrators, nurse teachers, medical doctors, and other health care providers. Data collection was by in-depth interviews and focus group discussions. Content analysis was used to analyze the data.

Findings: The research participants described numerous of factors that influence the journey of developing nurses' competencies. The identified factors were relevant to nursing education and training system in Vietnam; working environments of nurses; public image and values of nursing profession; characteristics of nurses themselves; Vietnamese nursing profession; sociocultural-economic and political aspects in Vietnam; and global contexts.

Conclusion: The derived knowledge would greatly benefit clinical nurses, administrators, nursing educators, health care services managers, policy makers as well as other relevant health care stakeholders in proposing of solutions to promote nursing education, nursing workplace environments, and the appropriate regulations in order to enhance the nursing competency and quality of nursing services in Vietnam.

KEYWORDS

qualitative research; Vietnam; nursing services; nurses; competency development

BACKGROUND

The World Health Organization (WHO) confirms that nurses constitute the backbone of the health care system in all countries (WHO, 2020). Nurses' competency is a critical component that governs the quality of services (International Council of Nurses, 2020). As a result, deficiencies in nurses' competencies will negatively affect the quality of nursing services. In the era of the industrial revolution 4.0 and globalization, WHO also calls for all nations to report and implement the plans to improve nurses' competencies (WHO, 2016). It is critical that nurses develop competencies. However, there are many factors that have a great impact on nursing competency development; these factors might facilitate or impede the nurses' abilities to become competent including both external and internal factors.

Several previous studies have identified numerous of factors that affect the development of nurses' competencies. These included working experiences of nurses, levels of nursing education (Chang, Chang, Kuo, Yang, & Chou, 2011), working environment (Numminen, Leino-Kilpi, Isoaho, & Meretoja, 2015), nurses' personal characteristics, and adherence to professionalism (Kuokkanen et al., 2016).

Types of nursing environment have a significant contribution to the development of nursing competency. Results from the study in Finland revealed the relationship between empowerment, practice environment, ethical climate of the working sites and occupational commitment with competency development of nurses. Higher competency and satisfaction with quality of care were associated with more positive perceptions of practice environment and its ethical climate and higher empowerment and occupational commitment (Numminen et al., 2015). Interpersonal and organizational characteristics were associated to competency development of nurses and access to adequate technology and good morale were also seen to be positive factors. These implicated that social and professional isolation influences competence development and working situation and the differences in leadership influence the quality of nursing care (Furåker & Agneta, 2013). Ying, Kunaviktikul, and Tonmukayakal (2007) surveyed competency of nursing staff working in a university

hospital. The findings showed that there was a significantly moderate positive relationship between nursing competency and the organizational climate. So, the author suggested that possibly nurses would have a higher level of competency if they had worked in a tertiary type hospital as an appropriate environment to develop nursing competency. Cashin, Chiarella, Waters, and Potter (2008) used a tool that was integrated into the initial employment process as well as at a nurse's annual review to identify nursing competency at Justice Health; a correctional environment showed that most nurses in a correctional environment were competent in areas such as management of care; but a number of nurses were less competent in most other areas of nursing practice, for example, as medication initiation and administration.

Experience in nursing is the learning process encountered by nurses in the healthcare industry. The relationships between the levels of nursing competence and the length of clinical experience were illustrated by curves with a rapid increase in competence levels at the early stage of the nursing career and a slower increase later (Takase, 2013). It was shown to significantly influence the acquisition of nurses' competencies. In addition, it was observed to help newly graduated nurses to develop competencies (Tsutsumi & Sekido, 2015). Nurses who had experience in making diagnoses were also seen to improve their knowledge and skills in this way, and to develop subsequent professional competencies (Kuokkanen et al., 2016). Besides the working experience among nurses, level of nursing education is critical to the development of nursing competency with higher educational level of nurses has a significant effect on improving nurses' competencies (Takase, Nakayoshi, Yamamoto, Teraoka, & Imai, 2014). Study of Chang et al. (2011) reported that average competencies for nurses with a master's degree were significant higher than that for nurses with a Bachelor's degree or lower.

Numminen et al. (2015) revealed that professionalism could improve competencies for nurses. Preceptorship could provide valuable guidance for new graduate nurses to improve their competencies to provide care for patients effectively and mentorships from seniors could also give effect to the development of competencies among nurses (Fater, Weatherford, Ready, Finn, & Tangney, 2014). In a review article, Rizany, Hariyati, and Handayani (2018) also indicated that along with working experience, personal factors such as knowledge, attitude, confidence and health of nurses were identified as having impact on nurses' competency development. A nurse who has a positive attitude towards nursing and more engages in competency development (Kuokkanen et al., 2016) and confidence was proven to increase the competencies of nurses in the workplace (Clow, Ricciardelli, & Bartfay, 2015). Furthermore, Park and Kim (2009) reported that nurses with a higher level of critical thinking disposition would have a higher level of clinical competency.

There are many studies conducted affirming the existence of multiple-factors influencing the competency development for nurses. However, most of these investigations have been conducted outside Vietnam. So, the findings of the studies from other countries seem difficult to apply in Vietnam because of different socio-cultural contexts. There is clearly a need for more research regarding these concerns in Vietnam. Furthermore, most of the previous studies were in quantitative format. This descriptive qualitative research aims to explore a deep understanding related to factors perceived by stakeholders as influencing competency development for nurses in Vietnamese context. In this study, competency can be recognized as the complex combination of knowledge, skills, values, attitudes, performance and essential personal characteristics to provide needed nursing services most effectively.

METHODS

Study Design
A descriptive qualitative research was applied in order to allow the voices of nurses and other stakeholders in Vietnam to be heard; thereby creating a real opportunity to explore what factors influencing on Vietnamese nurses' competency development.

Informants
This study was conducted in Ho Chi Minh City (HCMC), Vietnam in 2016. The information was elicited from different data collection methodologies in order to get rich information. Twenty-seven participants, derived from purposive sampling, including sixteen nurses who were working in selected clinical facilities in a national general hospital in HCMC and others included medical doctors, medical technicians, healthcare managers, administrators, and educators involved in the study.

Data Collection
After obtaining the approval for the study from the institution, the researcher contacted and provided clear information about the study to the managers of each selected department. The researcher then contacted potential participants explained the purpose of the study, developed a trusting relationship with them and made appointments for interviewing and focus group discussion (FGD). Data collection was by in-depth interview with twenty-two participants and three focus group discussions. Each interview lasted about thirty to ninety minutes, which organized at an appropriate and private place in order to increase the informants' comfortable feeling and the interview's success. The processes of individual interviewing and focus group discussion were repeated until reaching saturated data. Audio tape-recording, detailed take notes and photography were taken during the interviews and FGDs with the permission from the informants.

Rigor and Trustworthiness
In this study, triangulation data were addressed by using multiple methods for gathering data to compare a variety of data sources to meet the accuracy of the findings. To validate the findings, peer debriefing was also undertaken between researchers to reduce bias and to guarantee confirmability.

Data Analysis
Data collection and analysis were conducted simultaneously to gain rich understanding as the research progressed during fieldwork. Data were analyzed through transcribed verbatim and content analysis. Audio tape-recorders from each in-depth interview and FGD were heard and transcribed carefully. Categories and coding were then established. The final emerging themes and categories were established for the influencing factors of the development of nurses' competencies.

Ethical Consideration
Ethical approval was obtained from the Khon Kaen University Ethics Committee in Human Research No. HE582133. Informed consent was

obtained from each participant before interviewing and FGD. Participants were informed and clearly explained about the objectives, methodologies, procedures and potential risks, as well as the study's benefits. There was no harm for their health and life from participating in the study. The participants were asked to select their own pseudonyms for de-identification throughout the written transcripts. They are also assumed confidentiality throughout the process of research. Participants were freedom to withdraw from the study at any time and their participation in the study was purely voluntary.

RESULTS

The research participants described numerous of factors that impact the development of competencies among nurses. The influencing factors were relevant to nursing education and training system in Vietnam, working environments, public image and values of nursing profession, characteristics of nurses themselves, nursing profession in Vietnam, sociocultural-economic and political aspects in Vietnam, and global contexts. It was important to note that these factors were often overlap and reciprocal interaction.

Nursing Education and Training System in Vietnam

Numerous aspects of nursing education and training were indicated that had a significant contribution to nursing competency development. There were five sub-themes identified: quality of nursing education, nurse teacher human resources, teaching methodology, nursing education environments, and nursing education and training curricula and programs. Most of the participants (in both in-depth interviews and FGDs) perceived that quality of nursing education and training in Vietnam generally was still poor and inappropriate. The facilities supported to nurses in learning were poor either formal or informal styles. As identified, at the stage of being nursing students, nurse students were insufficient supported both psychological and physical aspects. They were not taken care carefully compared to medical students during their practicing in hospitals or clinical settings. Nurse teacher resources were low both quantity and quality. These will hinder competency development of nurses.

> *"They (nurse students) have to change their uniforms in the toilet. They don't have study room in the hospital. They just flicker or find a corner, meanwhile the medical students study in their study room within the clinical settings that they practice".* (Nurse Teacher)

The participants also identified that the big *gaps* between nursing education at schools and nursing practice in clinical settings as well as inadequate knowledge and skills that nurses have prepared impact negative to nurses' competencies. They identified that nurses were taught sparsely and unilateral, what nurses have been prepared in nursing schools could not apply in the reality.

> A head nurse complained: *"I don't know how they (the nursing education institutions) have trained for nurses…However, my mentees here (new graduation nurses), they don't have basic knowledge…Therefore, taking much time from us to retrain for them…Yes, time-consuming, however, they still could not understand".*

Most of the participants were also dissatisfied with the teaching methodology and nursing education curriculum as well as programs applied currently. Participants explained that, the traditional nursing

education which applied medical model in Vietnam has been applying in nursing education. Inappropriate nursing education curricula, which heavy in theory, lack of practice and focus on basic technical skills were also indicated as a consequent obstacle of nursing care and nursing competency development.

> *"…Nurses were taught very sparsely and unilateral and just focus on basic technical skills…we were not be prepared deeply such as disease or injury mechanisms… we therefore could not apply in the real situations because we did not understand".* (FGD)

Besides, scarcity of needed updated documents as well as nursing education programs both bachelor and graduate levels strongly hindered nurses' capacity improvement. Lack of advanced and specialized training courses in order to facilitate nurses improving their capabilities in particular field that they response was also the impeded factors. Nurses complained that it is difficult to them to find official updated materials and documents relevant to nursing:

> *"Really lack of nursing documents in Vietnamese, we could not read in English, this impeded nurses to enhance our competency".*

Working Environmental Influences

High pressured working environment was one of the job-related issues perceived by the research participants that both hindered and sustained the development of competencies among nurses. There were five sub-themes identified that caused high pressured working environment. That included crowded patients with severe disease and illness conditions, insufficient facilities or limitation of infrastructures, lack of nurse resource and nurse experts; heavily administrative procedures; and unrelated nurse task expectation.

The participants explained that the most difficulty for nurses is very crowded of patients, always overload. Therefore, nurses had less time to communicate with clients. Nurses really would like to communicate with clients softly, kindly, and carefully; however, they could not because of always burn out. Nurses could not demonstrate their kindness or competencies during providing care for patients although they have already awarded and wished to do such things in an optimal way. Even they could not control their emotion because of lacking of time and high-pressure working environment. They also lack of opportunities to study continue to improve competencies.

> *"Very crowded of patients…Always overload. We were so busy …We could not control our emotion…Have no time, lack of opportunities to study continue to improve competencies".* (Nurse Participant)

On the other hand, the participants expressed that the high-pressured working environment also affected on nurses psychological and physical aspects. Nurses employ in an overloaded working environment could not provide nursing care for patients as expectation. Working in an inadequate facility also increase stress and burn out of nurses that impact negatively to nurses' health both psychological and physical aspects and obstruct nursing competency development as well.

> *"So many patients…They (nurses) do a lot…so they feel boring and don't want to upgrade their knowledge, don't want to study higher."*

Many unrelated tasks that nurses had to response every day and wasted their time also caused their stressful and hindered their competency

development and disadvantages for patients as well. As expressed by numerous of nurse participants, the privation of accommodations and beds for patients was one of the most serious issues that nurses had to suffer every day. Other unexpected tasks identified by the participants were that nurses had to do numerous of unrelated expectations; such as doing secretarial jobs, accountant's jobs, pharmacist's jobs, or they were as health insurance works or house keepers and so on. These unexpected performances spent much time from nurses.

"...2 patients with the last stage of cancer shared 1 bed... they (the patients) were so pain, extremely pain....the most terrible to me is that I need to convince the patient and their family members to accept sharing bed with other. Almost every day we need to deal with this activity, entreating them (patients)...actually, we are so tired dealing with this work. Wasting time to convince patients to share a bed with other was not nurses' tasks". (Nurse Participant)

"If nurses don't waste time to explain and implore the patients and the family members to share accommodation, instead we save this time to take care for them....much better...the patients of course will receive better caring and services. Overload working! The holistic nursing care requirements were not appropriate to apply in this condition." (Head Nurse)

Public Image and Values of Nursing Profession
Most of participants in this study thought that people nowadays still view nursing in a negative way. The community just view nurses are as physicians' assistants with low knowledge and less worth. People do not recognize and respect nurses. In other words, as assumed by the participants, there was a negative nursing image perceived from the public and it had a critical negative impact on the development of nursing competency as well as nursing care quality and patient outcomes.

"...Patients just appreciate the medical doctors; they ignore nurses...". (Doctor Participant)

The knowledge and skills that a nurse has obtained during their nursing education programs in nursing schools are not enough for them to take care their client effectively. To ensure the quality of nursing care, each nurse needs to continue improving their competency according to particular clinical setting requirements. Satisfaction with their job is a vital element encourages nurses engaging in continuing nursing competency. The low public image of nursing is a major concern for nurses and other stakeholders in this study as it was identified as a critical factor obstructed nurses' competency development. This causes nurses' feeling of losing motivation in enhancing their knowledge and skills. These opinions diffuse impacted nurses' competency improvement.

"One of the important factors that has an obstacle on nurses' competency development is the patients' attitudes and behaviors (toward nursing)...they don't respect nursing profession. They sometimes use so crude words to talk with nurses. We just keep silent....Because they think nurses are the physicians' assistants, so they don't respect us. They are not compassionate to our situation. A thankless job!". (Nurse Participant)

Policies and Regulations
There were several issues relevant to national and public policies as well as legislation regulations, as indicated by the research participants, that impact on nursing care and competencies development of nurses. The policies and regulation identified were related to nurses' salary; working environments and facilities; nursing education; and

advertising strategies. The participants concerned that because of low income, therefore nurses needed to find a part-time job to earn their lives, which surely negative impacted on nurses' performances in the working places. Participants expressed that, besides wages were too low, nurses had to pay for tuition fees and response for expensive for their study to upgrade qualification which caused more difficult to them. Besides, the "brain drain" phenomenon (competent nurses working in public facilities quit their job to move to work at private ones) is happening very regular since the income of nurses working in public hospitals was so lower compared with private facilities'.

"...very low income...after working shifts, they (nurses) do extra jobs to earn money to support family. This (do extra jobs) effects their health...not good. However, if they don't do extra, not enough finance...big issues". (Doctor Participant)

Furthermore, policies and regulations relevant to nursing education and training were stressed. The participants perceived that the nursing education mechanisms applied were not appropriate and consequently strongly negative impact to nurses' competencies. There were several conflicts regarding policies and regulations relevant to nursing education and nursing practice. Meanwhile several private institutions were allowed to train nurses, the quality of nursing education and training as well as outcomes could not be controlled. Seriously, numerous of these institutions were not medical or nursing schools. Consequently, thousands of nurses have graduated with very low competencies. These nurses could not work as a competent nurse after graduation because extremely lack of professional basic knowledge and skills. Clinical settings, such as hospitals, had to spent time to retrain for these nurses if accept them to be staff nurses.

"They could not perform as a nurse. We need to spend time to retrain for them". (Head Nurse)

"They (Ministry of Health and Ministry of Education and Training) allowed many institutions to train nurses; however, they could not control the quality (nursing education quality). Funny, these institutions are not medical or nursing institutions. You see, nursing...is really important since it (nursing) relevant to clients' health and well-being. However, economic school, industrial school, oh...many...are allowed to educate nurses.". (Administrator)

Heavily nursing administrative procedures which strongly impacted on nurses' performances and nurses' competencies development were also identified as a negative influencing factor. These, as expressed by the participants, contributed to writing the lies into the patients' medical records among nurses. These also extremely negative affected on quality of nursing care, nurses' burn out, lose motivations and energies to improve competencies.

Individual Characteristics
As identified by the participants, characteristics of nurses themselves had a significant contribution in improving individual competencies such as limitation of professional knowledge and skills, low commitment to nursing, or some undesirable individual features. The individual characteristics among nurse participants were varied. Please to be noted that, there were several features that were not their fault. These were influenced by other factors. For instance, knowledge and skill limitations among nurses were not entirely their fault. Instead, those were mainly rooted by nursing education and training system, social and political aspects in Vietnam.

The participants indicated that nurses were still limited of needed knowledge and skills in order to become a competent nurse. The main causes of inadequate needed knowledge and skills among nurses rooted from the traditional nursing education model which was medical model. Furthermore, levels of nursing education also affected on competencies development of nurses. A nurse who earns bachelor level in nursing is more competent than secondary level one, who has been trained mainly medical and nursing technical skills.

"...Nurses in secondary level ... their performances have just based on their experiences and focused mostly on technical skills...because they have been trained focus on technical skills, really low competency". (FGD)

Besides, attitude and commitment to nursing profession as well as confidence and autonomy among nurses were also critical factors that influence on their competency development. The participants indicated that negative attitudes toward nursing profession and low commitment to nursing profession among nurses were vital obstructions of individual competency development.

"Sometimes I feel sad to be a nurse. Sometimes, I would like to quit the job; however, difficult to quit...because...not easy to find another job. The negative feeling impedes me to develop my competency". (Male Nurse)

As viewed of the participants, nurses were not confident and autonomous; instead, absolutely depended on the doctors' orders. This has a negative impact on nursing care and competency development of nurses.

"They (nurses) depend on physicians absolutely. I would say that nurses are very inactive. They just depend and wait for physicians' orders. I think, nurses' competencies also depend on ...themselves. They need to change by themselves. They need to shift their thinking and self-recognize their profession in the right way". (Medical Technician)

Participants also mentioned that because of lacking of autonomy and initiatives, these hinder nursing care quality and competency development. Nurses with positive attitude towards nursing will more engage to improve their competency.

Social Support
The participants indicated that the relationship between nurses and their family members was one of the most important factors that had a significant contribution to individual competency development. As findings generated from this study, competency development among nurses were impacted by nurse's family circumstances both positive and negative ways.

Most of nurses considered that their opportunity of upgrading their nursing education degree depends on their family's economic status and the supporting from the family members and the colleagues. The understanding, compassionate and supporting of family realties was strongly influenced on their competency development and their career successfulness as well.

"It's so difficult for nurses to improve our capacity without the support and facilitation from our family relatives". (Nurse Participant)

These were indicated that all of the relationships between nurses and other in working place, family, community, or society have reciprocal influences together.

Besides the factors that impeded the development of competencies among nurses, the participants also identified several factors that facilitated their competency development. These included some positive characteristics of Vietnamese women, enthusiasm, core competencies requirement nationally, political and social stability, information and technology development, and Asian and global integration.

As perceived, most of nurses in Vietnam are women meanwhile Vietnamese women traditionally have qualities of diligence, hard work, patience, loving, caring, high tolerance and endurance. These strengths would positive impacted on the development of nurses' competencies.

"One of the important facilitate factors is that traditionally Vietnamese women are very patient, long-suffering and work hard. These virtues will enable them to overcome the difficult situations as currently to improve their competencies". (Male Administrator)

The stable laws, policies and regulations as well as the rapidly changing and development of information and technology and globalization foster the growth of Vietnamese nursing profession as well as each nurse individually.

"The political system is very stable and secure and in the era of industrial revolution and globalization, these motivate and facilitate us move forward. We could not just walk on the spot or make no headway". (FGD)

Some of regulations and principles enacted by the Ministry of Health or the hospital also foster nurses to think critically, self-reflect, re-check performant procedures and improve their competencies in order to meet the requirements.

"...Hot lines, yes; if the patients reflect correctly, we should recheck our practicing procedures. Foster us to self-reflect to find out whether we are right or wrong. We reflect ourselves in order to be better". (FGD)

Another facilitated factor as identified were the presentation of core competencies for Vietnamese nurses and some circulars regulated nationally which encouraged nurses to improve their competencies. The self-management mechanism applied among hospitals also encouraged nurses to improve their completion competencies.

"We have core competencies for nurses and require...I mean bachelor level...so, motivate nurses to study continue to meet the standards and requirements". (Nurse Administrator)

In short, the participants (in both in-depth interviews and FGDs) identified a number of factors that both impeded and facilitated the development of nursing competencies. The influencing factors were relevant to nursing education and training system in Vietnam; working environments; public image and values of nursing profession; characteristics of nurses themselves; sociocultural-economic and political aspects in Vietnam; the era of the industrial revolution 4.0 and globalization. Interestingly, there were several facilitate factors that contribute positively to the development competencies among nurses. These included the good qualities of Vietnamese women; the growth of Vietnamese Nurse Association, stability of political system in Vietnam, changing and improving of information and technology, integration of Asian and global.

DISCUSSION

The participants in the study were asked to express what factors that impact on nurses' competency development. A number of factors were identified that both impeded and facilitated the development of nursing competencies.

The poor quality of nursing education, lacking of nurse teacher human resources, traditional teaching methodology, nursing education environments, and inappropriate nursing education curricula impact negative to nurses' competencies. The big gaps between nursing education and nursing practice were concerned. Nurses were taught sparsely and unilateral. The traditional nursing in Vietnam is very technical and task-oriented; extremely focused on completion of a goal. The health care tasks of nurses in clinical settings are focused entirely on the disease process (Jones, O'Toole, Hoa, Chau, & Muc, 2000). Dung, Shio, Megumi, Tomomi, and Loi (2018) conducted a study on 590 nurses at 43 health facilities in Hanoi City and four provinces in Vietnam to assess newly graduated nurses based on the Vietnamese basic nursing competency standards. The results showed that only 0.3% of the surveyed nurses met the Vietnamese basic nursing competency standards. This result indicated the newly graduate nurses meeting the Vietnamese basic nursing competency standards accounted for a minimal.

As presented, personal characteristics play a significant contribution to the development of competencies among nurses in Vietnam. These included the limitation of professional knowledge and skills among nurses, low commitment to nursing, or some undesirable individual characteristics. These aspects require nurses in Vietnam need to develop their individual competencies in order to meet the requirements. The nurses who were in bachelor level demonstrated more confident during their participating in the healing process or team working, performing direct nursing care to patients or and communication as well. Practice within the domain of holistic nursing, obtaining the credential of a certified requirement brought a certain level of credibility for nurses, which then elevated their confidence and competency levels. The findings from previous studies also showed that level of nursing education is critical to the development of nursing competency with higher educational level of nurses has a significant effect on improving nurses' competencies (Chang et al., 2011; Takase et al., 2014). Being recognized as an expert in the field by colleagues is considered a benefit or reward for obtaining certification. This reveals that certification is a significant component for acknowledgement as competent personnel in health care.

What's more, being supported by colleagues, friends, family or other significant persons was also a significant factor contribute to the development of competency among nurses. The journey of achieving the compassion, acceptance, respect, or supporting is not always an easy path. That was not surprised when the participants in this study indicated that on the process of competency development, nurses had received both difficulties and facilities from surrounding significant persons. Besides some facilities and supports by the colleagues, authority boards of the clinical department or the hospital, as indicated by the participants, there were still so many obstacles regarding the relationship between nurses and other significant personnel in such working places, family, community and society as well that diffuse hindered the path of enhancing competency of nurses working in clinical settings. The unequal relationship and position between nurses and physicians or the disregards and less compassion from patients and people in the community influenced on nurses not only spiritual or physical but also social aspects, which in turn affected nurses' engaging in working and impeded motivations to promote their competency. Patients and community people had harshly judged and required nurses to become competent individuals in order to provide optimal nursing services to clients; however, they did not understand, collaborate or support nurses, as complained by the research participants. These caused nurses to experience difficult, demoralizing, depressed, or frustrating.

Intentionally, the findings indicate that nursing profession has a negative image as perception by the community. The poor nursing image perceived by the community will cause the negative consequences of nursing competency development as well as reduce quality of nursing care. These findings are consistent with the findings from previous study (Varaei, Vaismoradi, Jasper, & Faghihzadeh, 2012) which indicated that nurses had a negative image and low social position.

Low salary and compensation for nurses is one of the vital negative factors that diffuse impact on nursing care and nursing competency development. Russell and Richard (2012) suggested that salary increases should be enough to motivate nurses to improve skills. The study's results of Khomeiran, Yekta, Kiger, and Ahmadi (2006) indicated that there were many negative factors to impact improving competency in delivery of care such as dissatisfaction, low salary, or poor image of the nursing profession within their society. These factors constitute serious problems that can cause nurses to leave the job. In the context of working condition in Vietnam, such as a shortage of nurses, an overload of work, long working hours and low salary, the Vietnamese nurses' lives were not easy. Furthermore, nurses' work was often long, grueling, wages and condition poor as well, resulting in limited competency and high attrition rates (Zarnett, Coyte, Nauenberg, Doran, & Laporte, 2009). It was not uncommon for nurses to work in excess of scheduled time, but incomes were not sufficient to support their lives that would result in dissatisfaction, impacting the level of competency in clinical settings.

The negative nursing image results to less of motivation to improve own competencies among nurses. This causes nurses feeling to lose engagement and disorientation in enhancing their capabilities as well as leads to a negative attitude among nurses. The negative nursing image results nurses feeling boring, frustration in their job. The International Council of Nurses (2006) also firmly believes that violence in the health workplace threatens the delivery of effective patient services and, therefore, patient safety.

Nurses constitute the backbone of the healthcare system in all countries; a lack of job satisfaction and competencies among nurses will therefore have substantial negative effects on nursing care and patient outcomes. The negative perception of public toward nursing image is a critical factor influencing the development of nursing competency. To ensure the quality of care, nursing personnel must be ensured a safe work environment and respectful treatment. Strategies to improve the public image of nursing profession toward positively are needed.

CONCLUSION

The participants identified numerous of factors that both impede and facilitate the development of nursing competencies. The influencing factors were relevant to nursing education and training system in Vietnam; working environments; public image and values of nursing profession; characteristics of nurses themselves; sociocultural-economic and political aspects in Vietnam; and global contexts. Interestingly, there were several facilitate factors, as perceived, that contribute positively to the journey of developing competencies among nurses practicing in clinical settings, as indicated by the participant, including the good qualities of Vietnamese women; the growth of Vietnamese Nurse Association, stability of political system in Vietnam, changing and improving of information and technology, integration of Asian and global.

The knowledge generated strongly implicates that in order to enhance competencies among nurses in Vietnam, besides developing appropriate strategies to control and manage the obstacles of nurses' competency development; strategies to maintain, improve, and exploit every facility condition are strongly recommended.

Author Contribution
D. T. H. performed all components of the study and K.N. supervised development of the work.

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ORIGINAL RESEARCH

SELF-MANAGEMENT BEHAVIOR AND ITS IMPACT TO GLYCATED HEMOGLOBIN AMONG CLIENTS MEDICALLY DIAGNOSED WITH DIABETES MELLITUS: A CORRELATIONAL STUDY

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Abstract

Background: The Center for Disease Control and Prevention in 2016 identified and further classified Diabetes Mellitus as one of the chronic diseases, a leading cause of morbidity, and considered a major health problem in the Asia Pacific. Hence the quality of life as the optimum goal of any person is only achieved through appropriate self-care management. The person is a major key player of the nursing paradigm plays a crucial task in self-care since his/her responsibility is to assure balance between behavioral and environmental dynamics.

Objective: To examine the self-management behaviors of clients medically diagnosed with Diabetes Mellitus and evaluate the correlation between self-management behaviors and glycated hemoglobin (HbA1c).

Methods: The study utilized the validated Diabetes Self-Management Questionnaire (DSMQ) tool to 600 adults from the lower district of Khong Khlong, Kamphaengphet, Thailand. Through descriptive design, the investigation focused on major behavioral categories such as glucose management, physical activity, health care use and dietary control on at-risk stroke clients with DM aging 35 years old and above. Respondents with absolute complications of Diabetes Mellitus like stroke, blindness, undergoing dialysis even amputation are excluded to participate.

Results: The findings revealed that most clients with DM are married female, ages 51-60 years old and is diagnosed of living with the disease for 6-10 years. Further, the respondents are generally aware on self-management activities for DM, however not all of them submitted for glucose monitoring program. On one hand, the respondents have high regard on controlling dietary intake to avoid the increase of blood glucose during scheduled tests while results also show that most of the respondents are having poor engagement on physical activities.

Conclusion: It is concluded that self- management behaviors are strongly associated with HbA1c. Nonpharmacologic and identified independent nursing actions proven to aid clients with diabetes mellitus should be advocated in combating the disease.

KEYWORDS

glycated hemoglobin; self-management; diabetes mellitus; chronic disease; Thailand

BACKGROUND

The World Health Organization (2016) reported Diabetes Mellitus (DM) becomes one of the leading serious diseases and costly health conditions in the world. The number of people with DM is expected to increase to about 439 million in 2030 from 382 million in 2014; 69% of this increase is anticipated to occur in developing countries (Nugroho et al., 2020). The disease is one of the leading causes of mortality and morbidity (Porapakkham et al., 2010), leading to 3% of total deaths in men, and 8.3% among women ranking Thailand among the top 10 Asian countries having increased prevalence rate (Aekplakorn et al., 2011).

The complications of this chronic disease are the major contributing factor to the costs associated with Diabetes Mellitus, since problem often requires more intensive care and close monitoring in the hospital. In addition to the associated cost of treatment, there are also various direct expenditures and indirect financial obligations of the disease including informal care, mortality, and worse permanent disability.

DM complications cause several medical conditions especially cardiovascular disease or stroke (Deerochanawong & Ferrario, 2013). When the disease is diagnosed during its late phase, the individual suffering from stroke can become disabled. This affects the family,

healthcare system and ultimately to society as a whole. Therefore, preventing DM complications is extremely important to reduce the social and economic burdens to society (Tsiouli et al., 2013).

Increased blood glucose level is the primary risk factor for stroke (Eerdekens et al., 2020). One third of stroke patients was diagnosed with diabetes or had been diagnosed lately. In the current findings conducted across the globe, 13% of the causes of death to people with DM are stroke-related with elevated blood glucose after fasting plasma glucose scheme (Eerdekens et al., 2020). Clot formation is easy to develop leading to blood vessel obstruction especially in the neck, brain and causing vessel breaks and ruptures (Williams et al., 2002).

Clinical and experimental research findings show association between diabetes and stroke. Diabetes is a prime risk factor and doubles the risk of recurrence for ischemic stroke (Capes et al., 2001) and DM patients are as thrice to likely develop stroke compared that of the general population (Bederson et al., 2009).
The risk of complications including stroke can be reduced when persons maintain or control their blood glucose at an optimal level (Newman et al., 2008). Diabetes self-management is essential for achieving this control (Hausmann et al., 2010). Self-management refers to individual taking measures designed to develop healthy lifestyle (Choi et al., 2014) to manage symptoms, treatments, and behavioral changes based on the recommendations of health care professionals (HCP).

Self-management emphasizes the responsibility for self-care in response to an increased risk of developing disease, and individual motivation as critical component for its success (Acob & Martiningsih, 2018). Adequate self-management strategies help persons with DM in making their choices to enhance their skills needed to reach the goal of blood glucose control, thus allowing patients to be successful (Choi et al., 2014). Researches were already conducted among Asian countries that aimed to determine potential factors influencing self-management to patients with diabetes, however only examined one aspect (Zhong et al., 2011), hence this study wants to establish the at-risk stroke patient's behavior to health care use, glucose management, dietary control and physical activity.

METHODS

Study Design
This study utilized descriptive quantitative survey research design to determine the self-management behavior of at-risk stroke patients using the four major categories such as glucose management (GM), dietary control (DC), physical activity (PA), and health care use (HU) on at risk stroke patients with diabetes.

Sample and Setting
Through purposive non-probability sampling method, respondents were identified. A total of 600 locals participated from the lower district of Kamphaengpet province of Thailand. The respondents could either be male or female, 35 years old and above, medically diagnosed with DM for a year since the date of survey. The respondent should at least be able to read, write and comprehend and is willing to join without coercion, force or even threat. However, those with severe

complication of DM like stroke, blindness, undergoing dialysis and other life-threatening diseases were excluded.

Instruments
The questionnaire has two parts. The first part surveyed the demographic information generated by the researchers. The second part investigated the at-risk stroke patients regarding self-management behavior using the DSMQ validated tool. The DSMQ was developed to assess DM patients' self-care activities associated with blood sugar level control. The data collected and analyzed by Schmitt et al. (2013) presented a strong case that good self-care management in persons with both type 1 and type 2 diabetes was inversely associated with blood sugar (HbA1c) levels (Schmitt et al., 2013). The DSMQ contains 16 items in four categories: glucose management (GM), dietary control (DC), physical activity (PA), and health care use (HU). Their studies showed an excellent internal consistency of 0.84 and good internal consistency for the subscales (GM= .77, DC= .77, PA= .76 and HU= .60).

Data Collection
The researcher met the qualified respondents at the clinic sites after the Ethics Review Board of the Naresuan University released the permission to conduct the study. During the collection period, the researcher explained the contents of the tool and made sure that participants were able to comprehend fully what were expected from them. Informed consent was also distributed for signature to signify full knowledge on the 15-minute survey.

Data Analysis
Data were analyzed using descriptive statistics, Pearson correlation and regression analysis.

Ethical Consideration
This study was ethically approved by the Ethics Review Board of the Naresuan University (IRB Protocol #15-079). With the inclusion criteria adapted, the researchers identified the respondents of the study. A client should be able to express himself/herself and voluntarily join the study investigation without force, coercion or threat. Their identities were treated at utmost confidentiality. Included in the ethical consent form was the contact information of the researchers to reach out whenever incidence unfavorable to the respondent happens. Further, they were guaranteed that anyone can stop anytime at the course of the investigation when they intend to or prefer to discontinue from participating the study.

RESULTS

Majority of participants aging from 51-60 years old group (66.08%), followed by 40-50 years old (30.67%). Most of the samples were married (87.53%) and female (74.81%). Sixty-seven percent of the participants completed only the primary school degree (67.58%). Just over one-third (34.67%) had been diagnosed with diabetes for six to ten years; the rest of the majority had the diagnosis for 11-15 years (29.43%) and 4-5 years (16.71%).

Family income was distributed to three main groupings: 39.40% were low income, < 10,000 baht per month (US equivalent of US $285); 38.90% had incomes of 10,000-20,000 baht per month (US equivalent

of US \$285 – US \$571); 17.71% had incomes of greater than 20,001-30,000 baht (US equivalent of US \$571 – US \$857). As expected, a strong majority reported they did not have any other chronic diseases, 34.91% of the participants did note that they had at least one chronic condition including hypertension, lipidemia, early stage kidney disease, neurosis, and gout.

The diabetes self-management behavior total score as measured by DSMQ was fair (see **Table 1**). When looking at the subscale, it showed that the score of the physical activities was poor but glucose management (GM) and health care use (HCU) were fair. Only the dietary control aspect was high in this study.

Table 1 Descriptive of Self-Management Behavior Total and Subscales

Variable	Mean (SD)	Interpretation
Self-Management activities (Total) (SM)	4.63(0.58)	Fair
Glucose Management (GM)	4.50 (0.63)	Fair
Dietary Control (DC)	4.68 (0.51)	High
Physical Activity (PA)	4.88 (0.45)	Poor
Health Care Use (HCU)	4.65 (0.55)	Fair

The diabetes self-management activities as measured by DSMQ (glucose management, dietary control, physical activity and health care use) were inversely related to HbA1c. **Table 2** displays the correlations between the self-management activities and HbA1c. Total self-management activities had the higher negative correlation, (R=-.624, $p \leq .001$) with HbA1c. Similarly, as predicted, the four subscales were also negatively correlated with HbA1c.

Table 2 Descriptive and Correlational Analysis of Self-Management Behavior Total and Sub Scales with HbA1c

Variables	HbA1c	SM (Total)	GM	DC	PA	HCU
Self-Management activities (Total) (SM)	-.6247	1.0000				
	.0000					
Glucose Management (GM)	-.6834	.8932	1.0000			
	.0000	.0000				
Dietary Control (DC)	-.5880	.9780	.8539	1.0000		
	.0000	.0000	.0000			
Physical Activity (PA)	-.4884	.8794	.6832	.8375	1.0000	
	.0000	.0000	.0000	.0000		
Health Care Use (HCU)	-.5289	.9230	.7184	.8933	.7818	1.0000
	.0000	.0000	.0000	.0000	.0000	

Table 3 reveals that the total that self-management activities score (DSMQ) was negatively associated with HbA1c (β = -2.05-, $p \leq .001$). In addition, each of the subscales within this tool also had a statistically significant negative association with HbA1c. The total self-management activities score and its subscales all have a negative linear relationship with HbA1c.

Table 3 Regression Analysis of the Relationship between Self-Management Behavior and HbA1c

Variables	β	Std.Err.	t	P	N/ R- square
Self-Management activities (Total) (SM)	-2.055	.131	-15.61	<.001*	Number observed= 600 R-squared = .416
Glucose Management (GM)	-2.633	.143	-18.17	<.001*	Number observed= 600 R-squared = .486
Dietary Control (DC)	-1.463	.104	-14.08	<.001*	Number observed= 600 R-squared = .371
Physical Activity (PA)	-1.794	.163	-10.98	<.001*	Number observed= 600 R-squared = .273
Health Care Use (HCU)	-1.438	.117	-12.22	<.001*	Number observed= 600 R-squared = .483

Note: Control variable include; sex, age, duration of known diabetes and education level

DISCUSSION

The purpose of this investigation was to examine potential of self-management behavior among Thai adults on the outcome of HbA1c, an indicator closely associated with disease control for persons with DM. The results of this investigation led to the conclusion that diabetes self-management behavior, as measured by the DSMQ are strongly associated with HbA1c. The strong association between self-management behaviors and HbA1c actually communicates a negative or inverse relationship, which means that higher self-management behaviors led to a lower value of HbA1c while controlling for age, sex, education and duration of diabetes.

The study supports that healthy behavior in at risk stroke persons with DM does indeed result in a more favorable disease outcome. According

to Schmitt et al. (2013) to assess, the effectiveness of self-management behaviors of persons with DM by using the "Diabetes Self-Management Questionnaire" (DSMQ) has a much stronger association with HbA1c. However, Lorig (1993) suggested that effective self-management requires an individual with DM to have the ability to absorb and digest DM-related knowledge, apply that knowledge to his or her own situation, and make adjustments of the self-management accordingly as new challenges emerge. In this sense, after a period of self-management, the individual will become an expert on his or her own disease condition.

Research studies had conducted which examined self-management practices and diabetes outcomes (Leeman, 2006) as well as adherence to prescribed self-management activities (Shrivastava et al., 2013). Looking at the results of self-management behavior overall score, it can be found that self-management behavior score was fair. It means that the at-risk stroke with diabetes had a poor level of clinical outcome. Schmitt et al. (2013) presented that the DSMQ was strongest associated with HbA1c, which further explained that good self-care management to persons both type 1 and type 2 diabetes was inversely associated with HbA1c levels. The research results in this study, can clarify in another way that the samples could not control their blood sugar level because they were poor of diabetes self-management. The fact established on hyperglycemia is that it doubles the risk for recurrence of stroke (Kissela et al., 2005). In addition, stroke outcomes have increased dramatically in diabetic patients, resulting in higher rates of death and disability (Idris et al., 2006).

Limitations
The literacy level of the study participants was not measured. Although the researcher was present to help participants if they did not understand the questions, some could have been unsure of the meaning of questions and not sought help.

CONCLUSION

This study verified that the self-management score of at-risk stroke in diabetes and verified the relationship between diabetes self-management behaviors and HbA1c.The diabetes self-management behaviors were strongly associated more with HbA1c which measured by DSMQ. Actually, the research result found that lower self-management behavior led to a higher blood sugar level. The study suggests that non-pharmacologic management in the care of medically diagnosed DM patients should be augmented. Further, this research capacitates primary health practitioners to execute independent care approaches to strengthen the campaign towards sustainable nursing interventions. The results can be used to draft policy that empowers independent health care practitioners in initiating tailored-fit, a culturally responsive technique in addressing the problem. Community health nursing as a program aimed at disseminating information at the grassroots benefits the result as it is used to convey the importance of the primitive-preventive schemes to health.

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ORIGINAL RESEARCH

EFFECT OF GROUP-BASED HOPE INTERVENTION ON DEPRESSION IN FEMALE INMATES

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Abstract

Background: Life in prison may cause negative feelings and thoughts which triggers depression for female inmates. This results in difficulty in finding purpose in life and loss of interest or motivation. Group-based hope intervention seems to be effective in decreasing depression, but it has not yet been applied in female inmates in a prison.

Objective: To determine the effect of group-based hope intervention on depression level in female inmates.

Methods: This study used a quasi-experimental study with pre-test post-test and control group design. Eighty-eight participants were selected using proportionate stratified random sampling, with 44 assigned into intervention and control groups. Data were collected from September to November 2019. The level of depression was measured using Beck Depression Inventory-II (BDI-II). Mann Whitney U and Wilcoxon tests were used for data analyses.

Results: Both group-based hope intervention in the intervention group and routine intervention in the control group has a significant effect on depression level ($p<.01$). However, further analysis showed that the group-based hope intervention was much more effective than the routine group in decreasing depression level in female inmates ($p<.01$).

Conclusion: Group-based hope intervention is effective in lowering the depression in female inmates. Therefore, this therapy can be used as a valuable intervention in nursing practice, especially in a correctional setting.

KEYWORDS

female inmates; depression; hope intervention

BACKGROUND

Female inmates are belong to the group of a vulnerable population who need to be paid more attention because the problems they experience may affect family, children, and community (Covington, 2003). The highest stress and depression episodes are when individuals undergo trial due to the initial phase of adjustments in prisons and the conditions of uncertainty about long-standing criminal decisions to be served (Goyal et al., 2011). Several reports stated the number of female inmates increased even to exceed the capacity of both the global and regional levels (Directorate General of Corrections, 2018; Statistics Indonesia, 2017; Walmsley, 2015). Female inmates sustained a very complex issue, 4% of psychotic disorders, 12% of major depression, 21% of personality disorders, and 42% of antisocial disorders, and more focused on medical treatment after severe depression (Fazel & Danesh, 2002; Joffres et al., 2013).

Our preliminary study conducted at one of the prisons showed that, of the 159 female inmates, 86 had mild depression, 39 had moderate depression, 10 had depression severe, and 24 were normal. This prison did not have special instruments to measure the level of depression on female inmates. Screening was only done when the female inmates entered the prison, and there was no program to follow up if problems were found. The program focused on the physical health problem while overcoming psychological, emotional, and motivational issues were still lacking.

Depression is the dysfunction of trust that will enable a negative self-scheme characterized by various interpretations or triad of cognitive negative, which perceive self, world, and future negatively, and focus on the negative personal information that more likely leads to somatic disorders such as fatigue, affective disorders such as feeling sad, and disorders of motivation such as loss of interest and hope (Beck, 2013; Kamoyo et al., 2015).

Depression on female inmates is the feeling of fear leaving/left the family, guilt for not being able to raise and educate the child, lose the right to social interests, and loss of identity, characterized by the occurrence of the change of emotions, physique, mind, and behavior (Maunder & Cameron, 2013; Pinese et al., 2010). Depression occurs due to cultural differences in the environment of prisons, the conditions of prisons overcapacity, lack of health facilities, and the emergence of

psychological problems (Gunter, 2004; Kaloeti et al., 2018; Pettus-Davis et al., 2018).

Depression suffered by female inmates has an impact on psychological disorders that can trigger negative behaviors such as self-injury and suicidal behavior especially in the early years of being in prison due to the need to adapt of the new environment (Ahmad & Mazlan, 2014; Kamoyo et al., 2015; Majekodunmi et al., 2017). Depression causes bad mood, inability to enjoy activities, sleep disorder because of scheduled routine, fatigue, irritability, decreased ability to concentrate, and feeling guilty for leaving their children (Cabeldue et al., 2019), as well as drug abuse that has an impact on the increased mortality (Shrestha et al., 2017). In addition, depression can also cause the occurrence of mental disorder problems, sexual assault, and the presence of complex chronic diseases such as hypertension, sexually transmitted disease, asthma, diabetes, and heart disease (Chen et al., 2014).

Female inmates who experience depression show problems in finding hope and goals in the future, also losing interest and motivation (Joffres et al., 2013). They need a therapy which can increase their spirit and motivation to survive, such as hope intervention. Hope intervention involves cognitive processes to develop strategies to achieve goals by motivating themselves through ways of thinking (Edwards et al., 2007; Snyder, 2002). Hope intervention is done by sharing experiences, feelings, thoughts among the clients. The process of narrating experiences, listening to stories from other people can motivate group members to find a sense of comfort and motivate each other to work together to resolve the problems faced (Augustin & Retnowati, 2012; Morgan & Winterowd, 2002). Therefore, hope intervention is needed.

The hope intervention can be done individually or in a group. But, due to the limitations of human resources in prison compared to the number of female inmates that exceeds capacity, group strategy is more appropriate to resolve female inmates' problems than individual strategy. Group-based hope intervention involves psychoeducation, counseling and psychotherapy, treatment and healing so that female inmate can channel emotions, receive support and attention, empathy and sympathy as well as building self-confidence and finding safe conditions with each other which ultimately prevent the risk of suicide (Anderson, 2007; Morgan & Winterowd, 2002; Nedderman et al., 2010; Oyama et al., 2006; Retnowati et al., 2015).

Group-based hope intervention can be done in community settings and involves the role of nurses. The purpose of nursing itself in this intervention is to be a facilitator or therapist (Almost et al., 2013). As a facilitator, nurses give solutions to problems that female inmates have, so that they have realistic expectations and goals by devising various strategies. Therefore, depression will be decreased (Cutcliffe & Herth, 2002). As counselors, nurses are to explore feelings and situations and seek solutions to problem-solving, and influence and rebuild goals and expectations so that after leaving prison, the goals can be achieved, especially for family and financial problems (Herth, 2001; Machdi, 2013). Also, nurses act as the motivator to generate strategy in achieving hope and goal (Herth, 1995). Group-based hope intervention has never been applied in a prison setting because the problems, goals, and characteristics of female inmates are different from the population. Therefore, this study aimed to determine the effect of group-based hope intervention on the level of depression in female inmates.

METHODS

Study Design
This was a quasi-experimental study with pre and post-test with control group design.

Participants
Participants were selected using a proportionate stratified random sampling. The inclusion criteria of sample were age above 18 years, having the verdict live a long criminal past, experiencing mild to moderate depression, and willing to participate in this study. The total sample size was 88 participants. A sample calculation using the application G Power 3 with effect size = .64, α = .05, and power = .84, yielded the sample size of 44 for each group (Shekarabi-Ahari et al., 2012; Shin & Park, 2007).

Instrument
The BDI-II questionnaire was adopted from Jodi (2016), with r_{table} .361 and α .886. The BDI-II questionnaire includes 21 items, in which the scores ranged from 0 to 63, and classified into four group levels of depression: normal (0-13), mild (14-19), moderate (20-28), and severe (29-63). A higher score indicates a higher level of depression.

Intervention
A pre-test was conducted one day before the intervention. We divided the groups into eight groups, consisting of five to six participants in each group with the distribution of mild and moderate level of depression. The researchers acted as a therapist and leader assistant. The leader in this study were female inmates selected on the recommendation of the health officer in the prison, well-behaved, having a long experience in the prison, able to communicate, and having the level of education of at least junior high school. The group formation was performed in one week with four sessions, with the time duration of 60 minutes for each session in accordance with the situation and conditions in prison. Group-based hope intervention was conducted in four meetings (facilitator guidance) and four meetings (independently and accompanied by the leader), with the time duration of 90 minutes each meeting. The control group was given an intervention by the program routine in prison. The post-test was conducted one week after the intervention (See **Table 1**).

Data Collection
Data were collected from September to November 2019 at a prison in Indonesia. Data related to depression on female inmates were collected by the researchers assisted by a nurse in the prison to select the participants and to ensure the security of participants. Before data collection, the researchers already made a schedule and gave it to the nurse in prison, so the activity of participants in the prison service was not interrupted.

Data Analysis
The normality of the data was tested by using Kolmogorov Smirnov, and it is found that the data was not normally distributed. The data on participants' characteristics between groups were analyzed by using the Levene test. Pre and post-test data on the depression were analyzed using the Wilcoxon test. Post-test data of the intervention group and the control group were analyzed by using the Mann-Whitney U test because the data were in the form of categories.

Ethical Consideration

This research was approved by the Ethics Commission of the Department of Nursing Science Faculty of Medicine Diponegoro University with Number 41/EC/KEPK/D. Kep/VI/2019. The researchers ensured that all participants in this study signed an appropriate informed consent.

Table 1 The Stages of the Implementation of the Group-Based Hope Intervention (Sinaga et al., 2019)

Session	Objective	Activities
Group Formation		
Forming	Forming a sense clustering	▪ Explaining about the sessions and determine the schedule according to the agreement of the group ▪ Getting to know each other ▪ Finding out more in-depth understanding of group members about the concept of groups, group goals, things that need to be considered to be a solid group by performing the task on the worksheet ▪ Performing the task to get to know each other at least 5 people about the name, age, hobbies, things like and dislike
Storming	Equating differences in the perception to create unity in the group	▪ Discussing about the task ▪ Discussing about how to resolve conflict in the group ▪ Performing the task to proceed the stage of mutual get to know about the strengths and weaknesses related to the task in the previous session
Norming	Forming the rules in the group	▪ Evaluating the task and the obstacles encountered ▪ Discussing rules agreed in the group and the consequences if not adhered to
Performing	Work together to achieve group goals	▪ Discussing the meaning of the group through playing exercises to help strengthen the trust in the relationship group, forming a commitment to achieve a common goal in a group ▪ Implementing role-playing through game techniques
Implementation of Hope Intervention		
Goal setting	Determining the purpose of meaningful	▪ Sharing a story about the feelings of the first time being in prison ▪ discussion about the experience of past success in solving a problem ▪ Making a list of goals that have been achieved before entry in prison ▪ Explaining the material about the goal setting ▪ Doing tasks about the objectives have not been achieved because the conditions were in prison, the goal as already achieved, and the objectives to be achieved after getting out of prison
Pathway thinking	Developing a strategy in achieving goal	▪ Discussing about the task ▪ Discussing about the ways and strategies that never do solve the problems ▪ Explaining the material about the pathway thinking ▪ Doing tasks about the objectives to be achieved, how that can be taken to achieve these objectives, barriers encountered, and reasons to achieve that goal
Agency thinking	Identifying the source of the motivation	▪ Giving appreciation to the active members of the group and motivate members of other groups ▪ Explaining the material about the agency thinking ▪ the discussion about sources of motivation that can be used as a strategy to achieve the goal such as the system support existing and potential ▪ Discussing the role of the support group members, family, spiritual force in the achievement of the objectives
Reflection and evaluation	Determining the target achievement of each session, constraints and alternative solutions to achieve the goals together in group	▪ The overall review of the material and achievement of the target of each session ▪ The implementation results of the plan of activities as the activities in life in prison or after leaving prison

RESULTS

The characteristics of participants in this study were based on age, marital status, educational level, and criminal record. The results showed that the characteristics of the participants were homogeneous in both groups (*p*>.05). The average age of the participants was 29-40 years in the intervention group and 18-28 years in the control group. The majority of the participants in both groups were married and has a criminal record for 1-5 years (**Table 2**).

Table 2 Characteristics of Participants in the Intervention and Control Groups

Participants' Characteristics	Intervention group (n=44)		Control group (n=44)		Statistics	*P*-value
	N	%	N	%		
Age (years)						
18-28	15	34.1	23	52.3	2.53	0.11
29-40	24	54.5	15	34.1		
>40	5	11.4	6	13.6		
Marital status						
Married	33	75	36	81.8	2.41	0.12
Single	11	25	8	18.2		
Educational level						
Low (elementary school, junior high school)	17	38.6	30	68.2	1.70	0.19
High (senior high school, diploma, bachelor)	27	61.4	14	31.8		
Criminal record (years)						
< 1	2	4.5	1	2.3	0.01	0.90
1-5	29	65.9	24	54.5		
6-10	4	9.1	10	22.7		
> 10	9	20.5	9	20.5		

Table 3 illustrates the depression level in a group given group-based hope intervention has a median value of 10, with a minimum value of 6 and a maximum value of 18. The control group that was not given group-based hope intervention has a median value of 16.5, with a minimum value of 0 and a maximum value of 27. It indicates that those who received group-based hope intervention had a lower depression level than those in the control group. Based on the Wilcoxon-test, there was a significant difference in the level of depression in both intervention and control groups at pre-test and post-test ($p<.01$). But, although both groups have lower depression levels, the intervention group has better effect than the control group in lowering depression level ($p=<.01$) (**Table 3**).

Table 3 Comparison Depression Level of the Pretest-Posttest Between Intervention and Control Groups

Group	Depression Level Pretest-Posttest				*P*-value
	Min	Max	Median	Delta Median	
Intervention Group	14-6	28-18	19-10	-9	<.001*
Control Group	14-0	28-27	21-16.5	-4.5	<.001*
P-value				<.001**	

*Wilcoxon-Test | ** Mann Whitney U-Test

DISCUSSION

The aim of this study was to determine the effect of group-based hope intervention on depression level in female inmates. Findings revealed that the group-based hope intervention had a significant and better effect in lowering depression level. This is in line with the previous research where group-based hope intervention had been proven effective to reduce the level of depression of survivors of Merapi volcanic eruption (Retnowati et al., 2015), hemodialysis patients (Rahimipour et al., 2015), mothers of cancer survivors (Shekarabi-Ahari et al., 2012), nurses in nursing homes (Wilson et al., 2010), and elderlies in nursing homes (Farzadegan et al., 2016). This study also shows the hope intervention process influenced depressive symptoms varying from each domain, namely cognitive, affective, and somatic, through a process of self-understanding to recognize problems, strengths, and weaknesses so that they can change negative views of that was believed (Fitriana & Hadjam, 2016).

The results of this study also were similar to the previous study that shared the story through the experience and gives each response that can help to find solutions and a sense of comfort so the psychological pressure is reduced (Retnowati et al., 2015; Snyder, 2002). It is also supported by the opinion that unrealistic/unrealized goals would open the mind to disappointment and suffering so that it is necessary to improve identity by changing abilities and life goals. Group-based hope intervention would construct thought/identity from past experiences which are realized through future goals, and not focus on individual weaknesses, especially if depression experienced by female inmates in prisons is long-term or chronic (Cheavens et al., 2006; Wiles et al., 2008).

Group-based hope intervention cause changes in the somatic, affective, and motivation in participants. Changes in the somatic that female inmates could do activities with capacity that they have such as making pictorial writing, painting, poetry, and feel more refreshed after waking up because they really can enjoy the activities, not just as a routine. Hope interventions such as placebo have biological effects and could have a positive impact on pain, suffering, and physical weakness (Khaledisardashti et al., 2018). Changes in the effect that female inmates can shift negative assessments of the problems faced in the positive direction by actively carrying out activities in guidance work, sharing with friends in prison. Through group-based hope intervention, group members are given a chance to share, input, and comments through each other's experiences and support each other so that this process can be a means to strengthen and motivate. This was in line with the result of the study that, through hope intervention, sympathy

and empathy among group members exist to achieve goals through sharing experiences (Retnowati et al., 2015).

With group-based hope intervention, female inmates also find motivation through self-approach to God, the desire to immediately meet children and families, as well as the support of others, including group support. This is consistent with the result of research that spiritual power can motivate, reduce negative emotions, so that female inmate c-an face psychological pressure by participating in various religious activities and spiritual guidance in prison or correctional setting (Nedderman et al., 2010). Female inmates who suffered from depression found it difficult to recognized themselves and felt unable to do useful things including others. Through group-based hope intervention, female inmates were trained to be able to make a list of goals for themselves, taking into account the strengths and abilities possessed by sharing in groups that have the same problem characteristics because, through the mind full of hope and support from the group, it could reduce feelings of failure. The result of this study was appropriate that perceptions will change based on past successes, focus on goals, and make obstacles a challenge, rather than a barrier that could stop achieving goals. Thus, when facing obstacles, there would be more new paths to be created, more goals to be achieved with the focus on the past (Ward & Wampler, 2010).

Group-based hope intervention is carried out on female inmates who suffer from depression to help them be able to set goals after leaving prison and what strategies should be taken to achieve them. The purpose of female inmates after leaving prison is to find a new job, be a good wife and mother, continue school, apologize to parents or husband, and be a better person by staying away from the negative environment. This is in line with research states the main objectives of female inmates after leaving prison are for families and finances, improving relations with children and partners, and finding work (Machdi, 2013). Also, the incidence of depression of female inmates is associated with low social support (Beyen et al., 2017). Through group-based hope intervention, it is found that social support is strengthened among group members being able to establish intimate relationships, especially female inmates who rarely get family visits, so this intervention is very beneficial. In previous studies, social support could provide reinforcement and self-control in someone who is depressed so that negative views could be diverted by positive activities (Brown et al., 2014; Siller et al., 2017).

CONCLUSION

Group-based hope intervention is effective in decreasing depression; therefore, it can be used as one of the nursing interventions to decrease depression in female inmates. It is expected that nurses, especially in prison, can improve their skills in group-based hope interventions by two-way communication with female inmates to explore the thoughts and feelings, paying attention to the characteristics of female inmates in group formation, the existence of learning modules, and videos that can be a means of learning and the development of nursing. Further research is needed to deepen the findings with qualitative research methods for comprehensive understanding.

Declaration of Conflicting Interest
The authors have no conflict of interests.

Authorship Contribution
M.R.E.S: Collected the data, drafted the manuscript, and performed the analysis. M.A and A.N: Verified the analytical methods, supervised the findings, contributed to data analysis. All authors agreed with the final model of the manuscript.

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BELITUNG NURSING JOURNAL

ORIGINAL RESEARCH

EFFECT OF CARDIAC ARREST MANAGEMENT TRAINING ON THE ABILITY OF ORDINARY PEOPLE TO PERFORM HIGH-QUALITY CARDIO PULMONARY RESUSCITATION

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Abstract

Background: The rate of cardiac arrest outside hospitals remains high in Indonesia. Performing Cardio Pulmonary Resuscitation (CPR) is advised as an emergency procedure to save a person's life. However, lack of ordinary people is able to do CPR. Therefore, cardiac arrest management training is considered important to form a bystander in the community.

Objective: This study aimed to determine if there is an effect of cardiac arrest management training on the ability of ordinary people to perform high-quality CPR.

Methods: This study used one-group pretest-posttest design method with a total sample of 35 participants. Observation sheet based on American Heart Association was used to measure the ability to perform CPR. Paired-t test was used for data analysis.

Results: There was a significant effect of the cardiac arrest management training on the ability to perform high-quality CPR ($p<.001$), with an increase of the mean value from 19.62 (SD=5.50) before intervention to 37.91 (SD=1.29) after intervention.

Conclusion: The cardiac arrest management training at the community level is considered effective in increasing the ability to perform high-quality CPR. The findings of this study can be used as input for community nurses to provide pre-hospital management training specifically on cardiac emergency management training continually for ordinary people in order to help improve good prognosis and reduce mortality risk of out-of-hospital cardiac arrest.

KEYWORDS
cardiac arrest; emergency management training; ability; ordinary people; cardio pulmonary resuscitation

BACKGROUND

Cardiac events are emergency situations that occur in many hospitals and outside the hospital or called Out-of-Hospital Cardiac Arrest (OHCA) (Jainurakhma et al., 2017; Muthmainnah, 2019; Suharsono & Ningsih, 2012). Cardiac arrest is a sudden loss of heart function to supply oxygen to the brain which ultimately causes cell death and heart suddenly stops working (Muthmainnah, 2019). This condition often results in anxiety for families and helpers, especially if it occurs outside the hospital with incomplete pre-hospital management facilities and lack of helpers who are able to perform high-quality Cardio Pulmonary Resusitation (CPR) (Jainurakhma et al., 2020). Data from the American Heart Association (AHA) show that there are 2 million deaths caused by cardiac arrest, with incidence rate of 80% OHCA occurs at home and 20% occurs in public places (Muniarti, 2019).

In Southeast Asian region, the death rate due to cardiac arrest is in the third place of the most common causes of death. In the United States, emergency services assess that each year there are more than 420,000

cases, and in Europe, there are 300,000 cases (Yunanto et al., 2017). In Indonesia, Ministry of Health of the Republic of Indonesia (2007) reported that deaths caused by heart disease resulted in 4.6% of 4,552 deaths in three years. The prevalence in the East Java shows that 1.3% or around 375,127 people suffered from heart disease (World Health Organization, 2011). In Malang, the incidence and death rates in cases of sudden cardiac arrest outside the hospital are estimated to be quite high. Research has been carried out for 6 months in 2016, which showed that there were 57 cases of cardiac arrest, with 44 cases occurred at home and passed away in the way to go to hospitals due to inability of the closest persons to help (Pratama, 2017). In Karangsuko village, in early 2019, there was one death of cardiac arrest due to the residents were late in recognizing symptoms and late in providing CPR assistance before being taken to the hospital.

The main cause of the low survival of the victims of OHCA is due to late administration of CPR (Yunanto et al., 2017), and lack of rescue teams who understand pre-hospital management, especially in the management of OHCA (Jainurakhma et al., 2020). Resuscitation is an

attempt to restore the function of the respiratory system, blood circulation and nerves. CPR performed in the first few minutes when a cardiac arrest occurs will provide a two to three-fold chance of survival (American Heart Association, 2015; Jainurakhma et al., 2017). Our preliminary survey results in Karangsuko Pagelaran Village showed that Karangsuko villagers had never received training on CPR. It is therefore, CPR training is needed. According to Mathis and Jackson (2010), training will provide specific knowledge and skills. The ability of pulmonary resuscitation is very important possessed by all people to increase the chances of life in cardiac arrest victims (Jainurakhma et al., 2020; Pratama, 2017; Putri et al., 2019). The purpose of this study was to analyze the effect of training on ordinary people's ability to perform quality CPR in Karangsuko Village, Pagelaran District, Malang Regency, Indonesia.

METHODS

Study Design

This study uses a pre-experimental research design with one-group pretest-posttest design. The design was chosen to get initial information on effective training for ordinary people to manage the victims of cardiac arrest within the scope of pre-hospital management.

Participants

Thirty-five participants were selected in the study using total sampling in Karangsuko village. The inclusion criteria of the participants were village health cadres and physically and mentally healthy. The exclusion criterion was those who had physical disability with their hands and hearing loss.

Instrument

The standard operating procedure for Basic Life Support (BLS) and Advance Cardiac Life Support (ACLS) and observation sheet were used, adopted from American Heart Association (2015). The instruments were validated by two experts and met the requirements to measure the ability of respondents in emergency management in performing high-quality CPR. The observation sheet was based on each step in the standard operating procedure, which consisted of 20 observation items. Three scores were used: score 2 if the participant did the action correctly, score 1 if the participant did the action but in incorrect way, score 0 if the participant did not do the action.

Intervention

In the emergency cardiac emergency training, we divided all participants into nine groups, which one group consisted of four respondents and one observer. The training was conducted in Sumbermaron meeting hall of Karangsuko Village. Before intervention, the ability of each respondent is measured in advance (pretest) conducted for thirty minutes. Then at the first meeting in the first week, it was held for sixty minutes, with the provision of material on the introduction of victims of cardiac arrest and simulations on how to provide first-aid with quality cardio pulmonary resuscitation (CPR) based on American Heart Association (2015), and how to evaluate the success of CPR administration. Furthermore, respondents were divided into nine small groups, which a simulation of first aid on OHCA with quality CPR was conducted. There were three stages of the trainings: the first training was conducted in the first week, and each respondent was given an intervention in the form of a scenario for 30 minutes of

simulation, then given the opportunity to practice rescue for victims of cardiac arrest for 30 minutes. The second training was conducted in the second week. Each respondent was given the opportunity to practice first-aid of OHCA for 30 minutes, which initially given a stimulus in the form of reading scenarios for 30 minutes. The third training was conducted in the third week, which all processes were the same in the second training. Posttest was measured after the third training. The intervention was given by qualified trainers with advanced CPR instructor certification, having BLS and ACLS provider license (American Heart Association license), and having experience in providing basic life support training for assessment of patients.

Data Collection

The research process was carried out for six months from September 2019 to February 2020. The research treatment was carried out for three consecutive weeks with repeated treatments. This study was conducted by the researchers assisted by nine observers. The objectives and procedures of data collection were explained to all observers prior to data collection. The criteria of observers were those who attended basic life support training based on American Heart Association.

Data Analysis

In this study, data were normally distributed based on Shapiro Wilk normality test ($p \geq .05$). Paired t-test was used to see the effect of intervention between pretest and posttest.

Ethical Consideration

This study was approved by Ethics Review Committee of Sekolah Tinggi Ilmu Kesehatan Kepanjen, with no.035/S.Ket/KEPK/ STIKesKPJ/I/2020. Written permissions were also obtained from Badan Kesatuan Bangsa dan Politik (The National Unity and Politics Agency) of Malang Regency and Head of Karangsuko Village, Pagelaran Sub-District, Malang Regency. Informed consent was signed by the participants as a manifestation of their voluntary involvement in the research. The participants were assured of their confidentiality and anonymity.

RESULTS

Characteristics of Respondents

Table 1 shows the general public who attended cardiac arrest management training, 85.7% had never received training on cardiac arrest and pre-hospital management of victims of OHCA, and 80% of the respondents aged over twenty-five years.

Table 1 Characteristics of Respondents by Age, Gender and Prior Information About Cardiac Arrest Training

Characteristics	Categories	F	%
Gender	Male	14	40.0%
	Female	21	60.0%
	Total	35	100.0%
Prior Information About Cardiac Arrest	Never	30	85.7%
	Ever	5	14.3%
	Total	35	100.0%
Age (years)	21-25 years	7	20.0%
	26-30 years	9	25.7%
	31-35 years	12	34.3%
	36-40 years	4	11.4%
	>40 years	3	8.6%
	Total	35	100.0%

The Ability of the Community to Conduct Quality CPR Before and After given Cardiac Arrest Management Training

Table 2 shows that there was an increase in the average of the ability of the participants to conduct high-quality CPR after given the intervention, which can be seen from the mean value of the posttest of 37.91, with a minimum-maximum value of 35-40, and a standard deviation of 1.29. Paired t-test result shows a significant difference of the average value of the ability of the participants to conduct CPR before and after given intervention with mean difference of 18.29, and a standard deviation of 5.39 (*p*<.001) (**Table 3**).

Table 2 The Ability of the Community to Conduct CPR Before and After given Cardiac Arrest Management Training

Group	F	Mean	SD	Min-Max
Pretest	35	19.62	5.50	10-32
Posttest	35	37.91	1.29	35-40

Table 3 Difference in the Ability of the Community to Conduct CPR Before and After given Cardiac Arrest Management Training

	Mean Difference	SD	CI 95% Lower	CI 95% Upper	*p*-value
Pretest-Posttest	18.29	5.39	20.14	16.43	<.001

DISCUSSION

In this study, most respondents aged less than 36 years as much as 80%. This is very influential on the ability to receive information about pre-hospital management of cardiac arrest, which is in accordance with Fadiah et al. (2019) stated that someone who is in the early adult category or younger is very capable of receiving or learn new things and better ability to remember. In addition, according to Putri et al. (2019), the implementation of a person's skills is based on their prior knowledge either in the form of information or training. Our study showed that 85.7% of the participants had never been exposed to information about the management of CPR, but after given training, their skills increased with the average ability of 37.91. This shows that the training on pre-hospital management of cardiac arrest provided to ordinary people effectively and can be used as a reference for improving the quality of CPR delivery skills. Good knowledge from the helper about the introduction of victims and how to manage pre-hospital management of cardiac arrest patients, greatly affect the quality of helpers in the alacrity of relief and performance when performing quality CPR compression (Berger et al., 2019; Putri et al., 2019; Tanna et al., 2019).

The training in this study aimed in increasing the ability and understanding of the participants to recognize early signs and symptoms of cardiac arrest, ability to seek help, high-quality CPR compression and accuracy of the placement of the hands, the speed of compression, and assessment of the success of the first aid. According to Unoki et al. (2019), Suharsono and Ningsih (2012), and American Heart Association (2015), the recognition of early signs of cardiac arrest is very important to be realized by every individual because cardiac arrest is a life threatening event. This is in line with Yasin et al. (2017) and Metrikayanto et al. (2018) stated that the late introduction of victims of cardiac arrest is the cause of the failure of relief efforts for victims. Setiaka (2018) and Suratmi and Juanita reported that during resuscitation of cardiac arrest cases, the quality of helper

compression is one of the successes of high-quality CPR, with the right speed of 100-120x / minute, not too fast or slow to be able to improve a good prognosis.

Additionally, according to Suharsono and Fikriana (2016), the correct placement of hand positions during cardiac pulmonary resuscitation is also very important. The respondent's lack of confidence in providing the mouth blowing mannequins has also contributed to the ability to provide effective ventilation. This is also in line with guidelines issued by the American Heart Association (2015), recommended for ordinary people when meeting someone with cardiac arrest is to immediately carry out hands-only CPR. This technique has been found to be an effective interventions in the management of cardiac arrest and overcome many of the barriers to bystander CPR (Witt, 2019). Hands-only CPR is an act of cardiac pulmonary resuscitation by only providing compressive measures without providing breathing assistance or ventilation (American Heart Association, 2015; Liu et al., 2018). Widyarani (2018) said that the ability of respondents must often be sharpened, if the respondents are less exposed to cases of cardiac arrest, they will quickly forget the procedure of CPR action. According to Muniarti (2019), the simulation and observational method is very effective to improve skills. The simulation process also makes it easy to build confidence in carrying out an action (Sahu & Lata, 2010; Yasin et al., 2017), and to learn the technical procedures of action in detail (Sahu & Lata, 2010).

This study provided the knowledge that the training related to the ability to provide the right blow, proper placement of hand positions, the pressure needed to produce maximum depth, the adequate speed and the provision of effective breathing assistance are effective to increase the ability of ordinary people to perform high-quality CPR. The use of simulation and obervational methods is considered to be a good method during the training. Overall, the ability score of quality CPR to help cardiac arrest victims had been improved after given the interventions based on American Heart Association (2015) guideliness.

The limitations of the study include the inability of the researchers to observe or measure the decline in the ability of the participants after given training, which can be an input for further research. Also, the use of the pre-experimental design without a control group might limit the results of this study. True experiment or quasy experiment is needed for further research.

CONCLUSION

The results showed that there is a cardiac arrest emergency training influence on the society's ability to perform high-quality CPR. The findings are expected to be the basis of evidence of practice to help cardiac arrest victims. This study can be used for community nurses to understand the importance of CPR given to the ordinary people in fast, precise and safe way. It is therefore necessary to pay attention to the continuity of this training in an ongoing basis. The more often the public is given knowledge and training on appropriate management of cardiac arrest victims, the more the cardiac arrest events will be handled. The trainings of the management of cardiac arrest victims in the ordinary people in terms of recognizing cardiac arrest victims, finding and communicating the health conditions of the victims, and

performing high-quality CPR are very important to decrease the death rate of people with cardiac arrest.

Declaration of Conflicting Interest

None declared.

Authorship Contribution

All authors have contributed equally from conception to the finalization of this study. Most of the significant intellectual content of this publishable copy of the article was done by the corresponding author.

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BNJ | **BELITUNG NURSING JOURNAL**

ORIGINAL RESEARCH

KNOWLEDGE, ATTITUDE, AND HEALTHCARE-SEEKING BEHAVIOR AMONG FAMILIES OF CHILDREN WITH TUBERCULOSIS

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Abstract

Background: Poor family healthcare-seeking behavior may cause delays in pediatric tuberculosis management. Knowledge and attitude are among the basic factors that influence in the family healthcare-seeking behavior.

Objective: This study aimed to explore the knowledge, attitude, and healthcare-seeking behavior among families of children with tuberculosis.

Methods: This was a cross-sectional descriptive quantitative study using accidental sampling method. Eighty-three families of children with tuberculosis were recruited. World Health Organization's Knowledge, Attitude and Practice Survey guideline was used to develop the questionnaires used in this study. Data were analyzed using descriptive statistics.

Results: Results showed that 51.8% of the families had good knowledge and 53% had a positive attitude while 74.7% of the families did not do early screening, 67.5% preferred hospital for examinations, and 51.8% directly visited a health care facility when the child showed signs and symptoms of tuberculosis. In these families, 77.1% delayed taking the child for treatment for < 1 month, and the reason for the delay in 100% of these families was because they did not know that their children had signs and symptoms of tuberculosis.

Conclusion: In conclusion, more than half of the families had good knowledge, attitude, and practice in accessing healthcare services although screening practice was still poor. Thus, nurses are suggested to provide appropriate health-related education to achieve the desired behavioral change.

KEYWORDS

attitude; child; knowledge; patient acceptance of health care; tuberculosis

BACKGROUND

Data from the World Health Organization in 2016 stated that 10.4 million people were diagnosed with tuberculosis (TB), with a mortality rate of 1.6 million. This figure makes TB as one of the global top 10 causes of death in the world and it has been one of the infectious diseases that cause most deaths, even more than HIV, since 2012 (WHO, 2019). The Ministry of Health of the Republic of Indonesia (MOH RI) in 2018 estimated that there were 360,770 cases in Indonesia. TB itself ranks third among the diseases that cause the most deaths in Indonesia, with 110,000 deaths in 2016 (MOH RI, 2018).

A study on TB inventory in 2017 by Siswanto (2018) suggested that there are around 310 thousand TB cases that have not yet been discovered, and the Ministry of Health Republic of Indonesia stated that one in three TB cases still goes undetected by the program. Of all provinces in Indonesia, there are still 26 provinces, including West Java, that have not been able to reach the national target for TB case finding (MOH RI, 2018).

Children are the age group that is currently often ignored in efforts to control TB because the result for the Acid Fast Bacillus (AFB) test for this group is usually negative and they are thought to only contribute to a small number of TB cases in the community (Djaja, Suriani, & Lolong, 2009), despite the fact that the population of children makes up 40-50% of the total global population (MOH RI, 2016). Children also have immature immunity, making them susceptible to infectious diseases and TB is no exception. Even when a child has received vaccinations, if he or she does not receive a balanced diet with adequate nutrition and a strong immune system, the risk for being infected with TB is still present (Nelson & Wells, 2004).

This notion is evident when considering the high incidence of TB in children. Of 7 million new TB cases worldwide, 11% of children aged 0-14 years were infected with TB in 2018 (WHO, 2019). The situation is not different in Indonesia, which has a quite high incidence rate for TB in children as reflected in the 2017 Indonesian Health Profile which revealed 36,348 children in Indonesia suffer from TB while the Case Notification Rate (CNR) or case finding in children is only 9% from the national target of 10-15%. These data partly describe the condition

of TB in children and the high number of undetected cases in this group (MOH RI, 2018).

West Java Province, as presented in the 2017 Indonesian Health Profile, has the highest number of TB cases in Indonesia, i.e. 78,698 cases. The West Java Health Profile data showed that the CNR for this province was 120 in 2016, which decreased from the previous year from 138. The number of TB suspects in Bandung City, which is the capital of West Java Province, was 7,363 cases in 2016. However, only 1,908 cases had a positive result in AFB. Of these, 398 were TB cases in children (0-14 years old) which made this city the fourth city/district with the highest number of pediatric TB cases in West Java (MOH RI, 2018). A similar situation was also seen in Bandung City in terms of the CNR. In 2017, the CNR for this age group was 93.64 in 2017, lower than the CNR in 2016 of 102.98 (MOH RI, 2018).

A low CNR in an area may be affected by various factors, including case finding efforts by health care workers, the performance of the recording and reporting system in the area, number of health care facilities involved in providing Directly-Observed Treatment Short-Course (DOTS), and the number of unreported TB cases due to inadequate access to health care facilities (MOH RI, 2018). There are two types of TB case findings: passive case finding (by health care workers) and active case finding (by patients). Of the two, the active case finding is the one that has not been implemented optimally (MOH RI, 2018). Screening is expected to enhance the performance of a TB case management reporting system, however, of 437 children who were eligible for screening, only 7.8% received early screening (Rutherford et al., 2013). This reflects that the healthcare-seeking behavior of patients to get early screening is still poor.

Healthcare-seeking behavior is one of the aspects that determine whether the treatment given to a child is on time or delayed (Ukwaja, Alobu, Nweke, & Onyenwe, 2013). According to Subchan and Iswanto (2009), delay in receiving anti-TB drugs is the most dominant factor that leads to the death of TB patients in Bantul District. In "*The Cough To Cure Pathway*" model from WHO (2008), individual, societal, and health care system barriers are stated as the factors that influence healthcare-seeking behavior. The individual barriers include barriers that come from the individual him/herself, which influence the development of his or her healthcare-seeking behavior. The Knowledge, Attitude, Practices (KAP) survey is a survey recommended by WHO to understand the knowledge and attitude of a person and their influence on healthcare-seeking behavior in relation to a TB control program.

Knowledge is one of the important aspects that influence a person's attitude and behavior. Family members are no exception, especially because they are the closest individuals to a child and their knowledge will influence their attitude and actions when faced with a child with TB signs and symptoms. Compared to adult TB, pediatric TB is often difficult to diagnose as it often does not show specific symptoms. If a family does not have good knowledge of TB signs and symptoms, the diagnosis of TB for a child will be delayed, which will also delay the treatment (Bakhtiar, 2016). Hidayat, Setiawati, and Soeroto (2017) stated that the biggest reason for the delay in TB patients getting treatment is the lack of knowledge on the degree of severity of the symptoms they experience. This is supported by Aritonang, Rintiswati,

and Ahmad (2013) that stated that knowledge is one of the factors that causes delays in the diagnosis of TB patients in Kebumen District.

In addition to knowledge, attitude is also important for TB control efforts. Basically, someone's knowledge will influence his or her attitude in making decisions while the attitude will influence the behavior as a response to a problem (Fitria & Seruni, 2014). Islamiyah (2015) stated that one of the reasons why patients experience a delay in TB diagnosis is because they consider the cough as a common cough that will disappear after some time. This is also stated in a study that showed attitude as the extreme factor that leads to a delay in diagnosis among patients in Montenegro during the period of 2015-2016 (Bojovic et al., 2018).

Secondary data collected from the DOTS clinic of Regional Public Hospital of Bandung City presented that of all pediatric patients in 2018, 290 children were detected as having TB and received treatment. Of these, 41 suffered from extrapulmonary TB, and two died because of TB. In addition, the scoring results also show that all children who suffer from TB are house contacts with adult active TB patients. Based on the interviews with several families of children with TB at the DOTS clinic of Regional Public Hospital of Bandung City, the majority experienced patient-delay for 4-5 weeks. This is because the family thought that the child was only experiencing a common cold. Furthermore, some family members admitted that their child was infected by an adult TB patient who lived in the same house as the child and that the child did not undergo screening immediately when his or her adult family member was diagnosed as an active TB patient. This was despite the Ministry of Health Republic of Indonesia having already announced that children are the main targets in contact investigation because they are the most vulnerable group that may contract TB from adults (MOH RI, 2016). The current data show that, despite the persisting high number of adult and child tuberculosis cases, the low number of case findings (CNR), and the results of the scoring which shows a child has been infected by a household contact, there is a delay in the diagnosis of tuberculosis and the screening of contact tuberculosis in the household is still low (Bandung City Health Office, 2019). This illustrates the problems in the health-care seeking behavior of family that has children with tuberculosis in Bandung City Hospital. There is limited study in this kind of research in Bandung or West Java or parts of Indonesia particularly related to health seeking behavior. This study aimed to describe knowledge, attitude, and healthcare-seeking behavior among families of children with TB visiting the Pediatric Clinic of Regional Public Hospital of Bandung City.

METHODS

Study Design
This research was a cross-sectional quantitative descriptive study.

Participants
Participants in this study were one of the family members (caregivers at home: either father, mother, grandmother or grandfather) who have child in 0-14 years old with a tuberculosis diagnosis who visited the Pediatric Clinic of Bandung City Local Hospital. The sampling method used was total sampling with a sample size of 83 respondents.

Instrument

The questionnaire in this study was developed in Indonesian language based on several points of the WHO's guideline entitled "*A Guide to Developing Knowledge, Attitude and Practice Surveys*" (WHO, 2008). The instrument used in this study was divided into four sections consisting of family and child demographic data, knowledge related to tuberculosis, attitudes towards tuberculosis and health care seeking with a total of 63 question items. Content validity testing was then performed by an expert in pediatric nursing and community nursing who has concerns for TB. A face validity test was also performed on this instrument in several respondents with similar characteristics as the study respondents. The results of the construct validity testing, which was performed on 20 respondents, presented correlations ranging from 0.345 to 0.659 for knowledge variables, 0.450 to 0.626 for attitude variables, and 0.461 to 0.660 for practice variables. Four statements were deemed invalid, thus eliminated from the questionnaire. The Cronbach's alphas gained from the reliability testing were 0.744 for knowledge variables, 0.737 for attitude variables, and 0.713 and 0.705 for healthcare-seeking practice variables. Thus, this instrument could be considered to have a high reliability score.

Data Collection

Data collection was performed by the researcher from April to May 2019 at the Pediatric Clinic of Regional Public Hospital of Bandung City. Data were collected by recruiting the respondents, who were the caregivers of children with TB, among those who were visiting the clinic. The researcher explained the study and asked the respondents for their willingness to participate in the study.

Data Analysis

Before analyzing the data, a normality test was performed first using the Kolmogorov Smirnov test to determine the cut-off point for the categorization of the research results. If the results of the normality test on the knowledge and attitude variables indicate that the data are not normally distributed then the cut-off point used is the median value (Azwar, 2015). If the total score of knowledge and attitude were greater than or equal to the median, these showed good knowledge and positive attitude, and if the total score of knowledge and attitude were less than the median, these showed poor knowledge and negative attitude. Data analysis of service usage behavior variables was not calculated for the total score and was not categorized, but was only coded for each answer and the frequency distribution of each question was calculated and then described and related to previous theories and research.

Ethical Consideration

This study was approved by the Ethics Committee for Research of Universitas Padjadjaran with the issuance of the ethical clearance number 360/UN6/KEP/EC/2019. The researcher gained informed consent from the respondents who were willing to participate in the study.

RESULTS

Characteristic of Respondents

In this study, of the total participants, 75.9% of them were in early adulthood age (18-40 years old) and 24.1% were in middle adulthood age (40-60 years old). Most of the participants were women (80.7%) and acting as the family caregivers.

Family Knowledge of Tuberculosis

From Table 1 below, it was revealed that half of the families of children with tuberculosis had good knowledge (51.8%) while the other half still had a poor knowledge level (48.2%).

Table 1 Frequency Distribution of Family Knowledge (*n*=83)

Knowledge level	*f*	%
Good	43	51.8
Poor	40	48.2
Total	83	100

Table 2 depicts that most families have good knowledge of the cause of disease, risk factors, signs and symptoms, and treatment of the disease. Knowledge of the risk factor of tuberculosis in children had the highest percentage (90.4%) in those with good knowledge while the knowledge on the signs and symptoms of tuberculosis in children had the lowest percentage (59%) among those with good knowledge.

Table 2 Frequency Distribution of Sub-Variables of Family Knowledge (*n*=83)

Sub-variable	Good		Poor	
	f	%	*f*	%
Cause of disease	62	74.7	21	25.3
Risk factor	75	90.4	8	9.6
Disease transmission	59	71.1	24	28.9
Signs and symptoms	49	59	34	41
Treatment	51	61.4	32	38.6

Family Attitudes towards Tuberculosis

Table 3 shows that more than half of the families of children with tuberculosis had a positive attitude towards tuberculosis (53%) while less than half still had a negative attitude towards tuberculosis (47%).

Table 3 Frequency Distribution of Attitude of Families (*n*=83)

Attitude	*f*	%
Positive	44	53
Negative	39	47
Total	83	100

Table 4 shows that most families have a positive attitude towards the danger of disease, reaction to disease, concerns towards disease, early detection, and treatment of disease. The attitude towards early detection of pediatric tuberculosis had the highest positive percentage (81.9%) while the positive attitude towards the danger of tuberculosis in children had the lowest percentage (51.8%).

Table 4 Frequency Distribution of Attitude's Sub-Variables of Families (*n*=83)

Sub-variable	Positive		Negative	
	f	%	*f*	%
Danger of disease	43	51.8	40	48.2
Reaction to disease	49	59	34	41
Concerns towards disease	48	57.8	35	42.2
Early detection	68	81.9	15	18.1
Treatment of disease	49	59	34	41

Healthcare-Seeking Behaviors

From Table 5, it is evident that most respondents did not do early screening (74.7%) with only a very small percentage who did early screening (7.2%). For early screening of children with TB signs and symptoms, most families went to a public hospital (67.5%). Other places that these families also visited for this purpose were a health provider's private practice (18.1%) and Public Health Centers (14.5%).

Table 5 Frequency Distribution of Healthcare-Seeking Behavior of Families (*n*=83)

Healthcare-seeking behavior	*f*	%
Screening practice		
Perform early screening	6	7.2
Do not undergo early screening	62	74.7
Not yet performed early screening (because there are no adults with TB)	15	18.1
Site of screening		
Public hospital	56	67.5
Private hospital	0	0
Public health center	12	14.5
Lung health clinic	0	0
Health provider's private practice	15	18.1
Healthcare-seeking behavior		
Go to health care facilities	43	51.8
Buy medicines in shop/pharmacy	30	36.1
Go to traditional healer/alternative medicine	3	3.6
Do not do anything	7	8.4
Others	0	0
Condition when being brought to health care facility		
When self-medication does not work	31	37.3
When symptoms have been more than 2 weeks	9	10.8
Immediately when aware of the signs and symptoms	43	51.8
Timing of initial health care facility visit		
< 30 days	64	77.1
≥ 30 days	19	22.9
Reason for delay in visiting health care facility (*n*=40)		
No money	17	41.5
Distance and difficult access	6	14.6
Do not trust health care workers	0	0
Cannot leave work/busy	18	43.9
Afraid that they will learn that something bad happens to the child	22	53.7
Do not know that the signs and symptoms are for TB	40	100
Others	12	29.3

Also in Table 5, it is listed that more than a half of the families directly brought the child to the health facility when they realized that the child had TB signs and symptoms (51.8%) while the remaining families chose to buy medicines in a shop/pharmacy (36.1%), did not take any action (8.4%), and went to a traditional healer/alternative treatment place (3.6%). Most families (77.1%) did not experience any delay (<30 days) in taking their child to a health care facility. Only a small number of respondents (22.9%) stated that they experienced a delay because they took the child to the health care facility after more than 30 days. Concerning the delay, each respondent has multiple reasons. However, all respondents selected 'do not know that the signs and symptoms were TB signs' and 'symptoms as the main reason of the delay'.

DISCUSSION

Family Knowledge of Tuberculosis

This study reveals that more than half of the families had good knowledge, with the other half had poor knowledge. This finding is in line with the findings of a study done in Pakistan where the respondents were the families of child TB patients at the Pediatric Clinic of Karachi General Hospital who were under treatment. Their result showed that 75% of the respondents had good knowledge of TB disease while the other 25% had poor knowledge (Sheikh et al., 2012). The family's level of knowledge could be attributed to various factors, including educational level, information, sociocultural and economic status, environment, experience, and age of the family member (Budiman & Riyanto, 2013).

The first aspect of knowledge is knowledge related to the cause of TB. This study discovered that most families had good knowledge regarding the cause of TB in children. With a good knowledge on this aspect, families would adopt actions to prevent getting the disease. Febriansyah (2017) suggested that there is a connection between knowledge and prevention actions performed by the family against TB.

The next aspect of knowledge is related to the risk factors for the disease in children. In our study, most families already had good knowledge related to these risk factors that would have an impact on their awareness regarding whether their child was at risk. According to

a study conducted by Gebregergs and Alemu (2015) in Ethiopia, people with good knowledge of risk factors related to tuberculosis had better behavior because they are 2.17 times more likely to do early detection compared to those with poor knowledge.

Another aspect of knowledge is related to the transmission of TB in children, which most families in this study had good knowledge. Families who have good knowledge of this aspect will tend to do prevention action to prevent their child getting infected. This notion is supported by a study done in Lagoa Urban Village, Jakarta, in which the author presented a relationship between good knowledge and the community's efforts to prevent tuberculosis (Astuti, 2013).

The next aspect is the knowledge related to the signs and symptoms of TB in children, which some families already recognized these signs and symptoms. Good knowledge on this aspect will enable the family to immediately recognize the signs and symptoms of the disease in their children and act immediately. This is in line with the findings in a study conducted by Sukmahadi (2010) in Lembang, Bandung, West Java, Indonesia that stated people who did not understand TB signs and symptoms had a 3 times higher risk to get no treatment for TB compared to those with good knowledge of TB signs and symptoms.

Good knowledge related to treatment will also have an impact on healthcare-seeking behavior because when people know that if they are not treated immediately there will be negative impacts on their body, so they will go directly to the health care facility to get treatment (Putra & Toonsiri, 2019). A study in Bima City showed that there was a significant influence between knowledge and a person's behavior in accessing treatment. A person with poor knowledge had a 5.79 risk for not going to a healthcare facility compared to someone who had good knowledge (Ruslan, 2013).

It is, however, shown in this study that nearly half of the families still had poor knowledge. This means that these families could not play their role as a family of a child with TB optimally. The main task of the family in terms of family health is to recognize the health problems of each family member, so that the slightest change experienced by family members will indirectly raise a concern and the family will be responsible for the actions taken. Hence, families must have good knowledge related to the health of the family members that any illness experienced by them will be quickly recognized (Friedman, 2010).

Despite the health promotion efforts on TB that have been undertaken massively at the community level since 2005, the government needs to pay attention to the level of poor family knowledge on TB. The current TB health promotion program needs to be evaluated to make sure that the right method is applied for each target. It is expected that effective health promotion can increase knowledge and will have an impact on the increased diagnosis and treatment of TB at the health care facilities (MOH RI, 2014).

Family Attitudes towards Tuberculosis
The results of this study indicated that more than half of families already had a positive attitude towards TB disease in children while the other half still had a negative attitude. This is similar to findings of Domingo and Lim in the Philippines on families of children with TB who seek treatment at Tarlac Provincial Hospital. In their study, most families already had a positive attitude towards TB disease (61%) with

about 39% still had a negative attitude. Families who had these negative attitudes mostly claimed to feel ashamed of the disease. They also had low self-esteem and were afraid of being ostracized by the community so they chose to hide their child's illness from others (Bacay-Domingo & Ong-Lim, 2009). In contrast, a different result was seen in a study conducted in India in 2017 on 40 families visiting the Department of Pediatrics of Rajendra Institute of Medical Science in the last 24 hours. The study showed that 65% of families had a negative attitude which the families claimed to feel ashamed of the illness that their child was experiencing so they hid it. They also felt that this disease also affected their relationship with others (Verma, Verma, Narayan, & Verma, 2017). Differences in attitudes among the participants of these studies might be attributed to various factors including the level of knowledge, personal experience, influence from important people, cultural influence, mass media, education, and emotional states (Azwar, 2015).

When the sub-variable on the danger of this disease was analyzed, almost half of families still showed a negative attitude. This needs serious attention because this attitude could have a negative impact on treatment. According to Islamiyah (2015), the reason that patients delay TB diagnosis is because they feel that the cough they are experiencing is just a common cough that will go away without treatment. In the sub-variable of reaction towards pediatric TB disease, more than half of the families already had a positive attitude. A negative reaction towards disease will affect healthcare-seeking behavior, as described by Verma et al. (2017) in India in 2015. In their study, most families felt ashamed of the illness experienced by their children and this impacted their behavior as reflected by the fact that 35% of families claimed not to visit health care workers (Verma et al., 2017). Just as reactions, concerns or worries also affect one's behavior, a study conducted in the Philippines showed that 92% of families claimed that they were not worried about the disease and did not hide the fact that the child had the disease. In this group, 85% of families went directly to seek care from the health care workers when they saw the symptoms in their children (Bacay-Domingo & Ong-Lim, 2009).

In this study, most families already had a positive attitude towards early detection of disease which influenced these families to undertake early screening when they knew that someone in their vicinity had TB. A study performed by Pengpid et al. (2016) stated that the families who had a family member with TB mostly had a positive attitude and also claimed to have screened for TB in health care facilities. In the present study, the attitude towards treatment was positive in more than half of the families, which would have a positive effect on healthcare-seeking behavior. A study in Nigeria in 2018 revealed that the majority of families who did not seek treatment immediately from the health care facilities stated that they did not do that because they feared that they would learn that a bad thing happened to their child, meaning that their attitude was negative (Ebeigbe, 2018).

Although most families already had positive attitudes towards TB, there were still some families with negative attitudes. These families with negative attitudes had not performed one of the family's tasks, which was to make the right decision when a family member was ill. Families are responsible for understanding how severe the family health problem they are facing, how the problem is felt by the family member, and to ensure that the family can get through it. Fear of health problems and negative attitudes towards health problems will affect the

family's decision making regarding the sick family members. This negative attitude can lead to inappropriate decision making when family members experience health problems (Friedman, 2010).

Healthcare-Seeking Behaviors
Screening behavior
The results of this study indicated that most families did not screen their children immediately for TB when there were adult family members at home who were diagnosed as having TB. This contradicts the family demographic data which 81.9% of families had a family member in the same household suffering from TB. This illustrates the poor family practice in early screening despite the fact that almost all families in this study were at risk of contracting TB disease. According to the results of a study by Jaganath et al. (2013), one of the risk factors that make children infected with TB is sleeping on the same bed as an active adult TB patient. This means children living in the same house as the active TB patients have a high risk and need to be screened early.

The importance of early screening is emphasized as a preventive measure to prevent family members, especially children, from becoming infected with TB. If it is found that a child has been infected from an adult patient, treatment can be given earlier and delays in diagnosis can be prevented, which will also prevent the diseases to worsen and complications to occur (Jaganath et al., 2013). In addition, family screening is also one of the obligations of the family to maintain health and achieve a prosperous family. It is also the family's duty to take advantage of existing health services. When there is a family member who suffers from TB, the family should make use of the existing health services to do screening as a preventative measure for other family members (Friedman, 2010).

Screening site
In this study, the majority of the families brought their children to a public hospital for examination with the remaining families went to a private practice or public health center. The results of this study were in line with the results of a national survey conducted by the Ministry of Health Republic of Indonesia in 2010 that most people chose hospitals (63.89%) rather than public health centers (36.2%) when they needed to be tested for TB (MOH RI, 2011). On the contrary, Hidayat et al. (2017) stated that most respondents (62.5%) preferred the public health center to do TB testing. The reason why most of the respondents chose the public hospital, Bandung City Local Hospital, is because the hospital have TB diagnostic facilities, including those for sputum, x-ray, and blood tests. Most public health centers do not have adequate facilities to diagnose TB so referrals to the hospital are still needed.

Healthcare-seeking behavior
In this study, more than half of the families directly brought their children to the health care facility when they saw the signs and symptoms of TB, which indicated that half of the respondents had a positive behavior. This result is not much different from the results of a previous study conducted in Thailand, where 75% of families directly brought their children to the health care facility when they saw TB signs and symptoms (Jirapaiboonsuk & Chapman, 2010). In contrast, a study in West Sumatera showed that only a few families directly took their family to the health care facility when they saw TB signs and symptoms as most of them preferred to go to the traditional healers or use traditional remedies (Media, 2011).

This difference in healthcare-seeking behavior can be caused by various factors. According to the WHO's model of "The Cough to Cure Pathway", there are various factors affecting a TB patient in seeking treatment in healthcare facilities. The first factor is the individual factor, which consists of an individual's knowledge, attitude, demographics, social structure, family, community, and perception. The second factor is the social norms in the society. The last factor relates to the health care facilities, including distance to the facility, cost of health services, errors in diagnosis, existing human resource quality, and availability of drugs in the health care facility. In our study, although most families directly brought their children to the health care facility for treatment, the other half of the families took different actions to deal with the disease such as buying medicines from shop/pharmacy, doing nothing, and going to traditional/alternative medicine. This result is similar with the findings of a study done by Ukwaja et al. (2013) in Nigeria, West Africa. This might be due to various reasons such as financial issues, distance, and access to health care facilities, lack of trust in health workers, belief in traditional medicine, lack of time, have poor knowledge related to diseases, and other reasons.

This negative behavior indicates that the family had not done their task well in terms of maintaining the family's health. One of the tasks in maintaining the family's health is making the right decisions for the health of the family. This task consists of a major family effort to seek the right help according to the circumstances that the family member who has the ability to decide will decide on the family's action immediately and take the appropriate action to reduce and even overcome the health problem (Friedman, 2010).

Condition when accessing healthcare facility
In this study, most families brought their child directly to the healthcare facility when they become aware of the signs and symptoms of TB suffered by the child. This is in line with a study conducted by Aseeri et al. (2017) in Saudi Arabia, where 43.6% of families stated that they went directly to the health care facilities when their family member saw the signs and symptoms of TB. Other families (27.2%) went to the facility after the symptoms persisted for more than 2 weeks or after self-medication was proven to be ineffective (29.2%). The present study, however, also shows that some respondents went to the health care facility after they learned that self-treatment was ineffective and when symptoms were more than 2 weeks. This might be due to a wide variety of factors that could come from the individual, the health care facility, or the social environment as reflected in the "Cough to Cure pathway" from WHO.

Timing of accessing health care facility
In this study, the interval between the start of TB signs and symptoms in children and accessing healthcare facilities was less than 30 days in most families, which shows no delay in accessing health care. This is similar to the finding of a study in Vietnam that shows the majority (67%) of TB patients in the community accessed the health care facility in <24 days after signs and symptoms were seen (Bao, LaMontagne, Nhung, & Nga, 2012). Only a small portion of the respondents in this study delayed seeking treatment from healthcare facilities for 30 days or more. This could lead to various negative impacts, including extrapulmonary TB in children, as evident from 14.5% of children who had this type of TB and the two who died of TB in the preliminary study. This illustrates the adverse effect of prolonged delay, which

includes the worsening of the disease and death. Therefore, it is necessary to increase public awareness to do early screening for children when there are adult family members diagnosed with active TB and to bring children immediately to a healthcare facility when they show symptoms of TB (Islamiyah, 2015).

Reasons for not taking children directly to healthcare facility
In this study, there were still around half of the families who did not directly take their children to a healthcare facility when they first showed the signs and symptoms of TB. However, they eventually brought the children to the facility. There were many reasons for not directly taking the children to a healthcare facility, but the most widely expressed was that the family did not know that the signs and symptoms suffered by their child were signs and symptoms of TB. Many families assumed that it was just a normal cough so they tried to treat the child by themselves. This is consistent with the theory that the signs and symptoms of TB in children differ from adults. In children, many symptoms are not recognized as TB symptoms by the family because they are not typical and similar to those of other diseases (Bakhtiar, 2016). Thus, families stated that their reason for self-medication (buying medicine from shop/pharmacy) was because they did not recognize the symptoms as TB symptoms. This is supported by a study by Hidayat et al. (2017) where 90.6% of respondents did not know that the signs and symptoms experienced are TB signs and symptoms.

Another reason why the families did not take their child directly to the healthcare facility was because they were afraid of learning that something bad was being experienced by their child. This is in line with the theory that when a person feels that he or she is sick and he or she is anxious about how to deal with the illness, one of the responses is to withdraw from the environment and ignore the condition, thus there is fear to do testing (Islamiyah, 2015). In our study, unable to leave work or being busy was also one of the reasons why the family did not take the child directly to the healthcare facility. This reflects an unsupportive attitude towards TB, that the families were less alert to the signs and symptoms of TB in their children. In addition, financial issues and distance also became a barrier to access health services. This requires efforts of policymakers and health workers to promote more about health insurance and facilitate patients to have health insurance. The ownership of insurance will eliminate the cost as one of the factors that prevent people from getting treatment. Additionally, it is also necessary to increase the number of TB diagnostic facilities in primary health care facilities such as in the public health centers to make TB diagnosis more accessible to the community.

Implications of this study
Based on the biggest reason for the delay in seeking treatment in this study, which is a family's knowledge of TB, it is therefore suggested that the government and health care workers need to further promote and provide education to the community regarding the appropriate actions to take when dealing with TB, especially to those who have not been exposed to TB. This will prevent the disease to spread and prevent a long delay in accessing tests and treatment in health care facilities.

Nurses should also be a part of the treatment by providing health education regarding the signs and symptoms of the disease, ways of transmission, early detection and treatment of the disease to the family members as the closest persons with their children. The families may need to take precautions so as not for TB to occur in their children, particularly if the actions taken by the family are appropriate and do not pose a danger to the health of the child. Another action that a nurse can perform is to maximize the nursing care when a patient gets sick that may change the community paradigm related to nurses and other health workers, specifically to build the trust and relationships between health workers and family members to deal with health problems.

Limitation of Study
The construct validity testing of the instruments with only 20 respondents might be considered the limitation in this study. Additionally, this study was conducted on families whose children were already undergoing treatment both in the intensive phase and advance phase, and that the answers to the questionnaire items were only based on the memory recall of the situation and conditions when the child first experienced the signs and symptoms resulting in participants being prone to giving inaccurate answers due to distorted memory. Furthermore, the knowledge and attitude of the family might also be influenced by the experience during treatment and this might affect the results of the study. Further studies should consider these limitations.

CONCLUSION

More than half of the families in this study already had good knowledge, attitude, and practice in terms of healthcare-seeking behavior. However, in terms of screening, the practice was still poor. Therefore, healthcare workers especially nurses should provide education and health promotion regarding TB and emphasize the importance of early detection. In addition, healthcare workers can also optimize their roles to treat and provide care to the patients by improving the patient's trust towards the health care workers, which will impact the healthcare-seeking behavior in the future.

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STUDY PROTOCOL

A RANDOMIZED CONTROLLED TRIAL ON THE ISLAMIC-BASED PROGRAM USING FAMILY APPROACHES IN PREVENTING ADOLESCENTS' SMOKING BEHAVIOR IN INDONESIA: A STUDY PROTOCOL

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Abstract

Background: Smoking is a significant problem especially among Indonesian adolescents. A number of smoking prevention programs have been developed and implemented, but most of them do not work significantly for the Indonesian adolescents who are mostly Muslim.

Objective: The aim of this article is to outline a study protocol for measuring the effects of Islamic-based program using family approaches on the prevention of adolescents' smoking behavior.

Methods: The study will use a cluster randomized controlled trial conducted in three junior high schools, in Aceh Province, Indonesia. A total of 150 students will be involved in this study, where each school will be represented by 50 students. Each school group will be given the respective treatments. The first group will receive health-based intervention program, the second group will receive Islamic-based intervention program, and the last group will act as a control group receiving no intervention. The outcomes include the knowledge about smoking, attitudes toward smoking, smoking intention and smoking behavior of the adolescents. All outcomes will be measured using validated questionnaires.

Discussion: If the Islamic-based intervention using family approach is effective, then this approach could be implemented not only in Indonesia but also in other countries with the same social characteristics.

Trial registration: Australian New Zealand Clinical Trial Registry, ACTRN 12620000465954

KEYWORDS
smoking; prevention; adolescence; Islamic; Indonesia

BACKGROUND

Smoking is one of the causes of various health problems. Cigarette smoke contains more than 5000 chemicals (Gatto et al., 2017). Previous studies have shown that smokers are at risk for heart disease, stroke and various types of cancer (Duncan, Pearson, & Maddison, 2018). Although various studies have proven that smoking is harmful to health, the number of smokers is in continuous increase in Indonesia, where this country is one of the top three countries with the highest number of smokers in the world. A study on nine countries in North and Southeast Asia shows that Indonesia is one of three countries with high smoking rate among men (the other countries are the Maldives and Bangladesh) (Sreeramareddy, Pradhan, Mir, & Sin, 2014). In 2007, the prevalence of active smokers was at 34.2%, then increased by 34.7% in 2010, and followed by another increase by 36.3% in 2013 (Department of Health of Indonesia, 2013).

The problem of smoking is also experienced by adolescents who are the nation's next generation. A national survey in 2006 Indonesia that included 3,737 students aged 13 to 15, shows that 37.7% of them were smokers, 13.5% were current smokers, 11.8% were cigarette smokers, and 3.8% others reported to smoke tobacco. It was also reported that 95.1% of Indonesian teenagers, who said they had never smoked, had a desire to start smoking in the next 12 months (Centers for Disease Control and Prevention, 2009). Furthermore, in 2014, the Global Youth Tobacco Survey (GYTS) in Indonesia showed that 20.3% of 13- to 15-year-old students were using tobacco products, 19.4% were smoking tobacco, 18.3% were smoking cigarettes, and 2.1% were using smokeless tobacco (WHO Regional Office for South-East Asia, 2014). Smoking is not only a major national problem in Indonesia, but also in Aceh Province. The prevalence of daily smoking over the age of 15 in Aceh Province is 31.9%. While the active smoker (daily and occasionally) in Aceh Province is 37.1%. The prevalence is higher than the national average which is only 34.7%. The prevalence of indoor

smoking of the 15-year-old population in Aceh Province has reached 78.3% (Department of Health of Indonesia, 2010).

The data above show that the problem of smoking requires optimal prevention. This is very important because even though the adolescents have an initial smoking attempt, 50% of them continue to smoke in the future (Thomas, Baker, & Thomas, 2016). Adolescents who only attempt to smoke at the age of 10-14 are predicted to actively smoke in the next two years (Sargent, Gabrielli, Budney, Soneji, & Wills, 2017). A previous study showed that the smoking experience during adolescence is a predictor of their smoking status in the future (Sargent et al., 2017).

The high smoking rate of among adolescents is caused by various factors including psychological factors, especially with various challenges these adolescents have to face. Adolescents entering secondary school, aged 12-13, must adapt to school culture and increasing academic demands, causing some of them to experience a decline in self-esteem and increase in anxiety, which are risk factors for smoking initiation (O'Loughlin et al., 2017). A previous research also reported psychological distress related to smoking behavior (Lawrence, Mitrou, & Zubrick, 2011). Thus, in order to make it effective, the intervention program for the smoking behavior prevention must consider psychological stress factors (Kilibarda, Mravcik, Oechsler, & Martens, 2017).

There is a link between psychological problems and smoking behavior owing to the fact that some teenagers tend to consider smoking can help them in adapting to the occurring physical, cognitive and emotional changes. Smoking is also falsely appraised as an escape from the experienced negative feelings (Garey et al., 2017). As supported by a previous research, adolescents with smoking behavior have lower self-esteem and self-image, where smoking is associated with depression problems (Chaiton, Cohen, O'Loughlin, & Rehm, 2009). In addition to psychological problems, the high smoking behavior among adolescents is due to the influence of friends and the easy access of obtaining cigarettes (Urrutia-Pereira, Oliano, Aranda, Mallol, & Solé, 2017). Friends influence may change the disinterest of the adolescent in smoking. As reported by a previous study, the peer pressure triggers smoking behavior (Shaheen, Oyebode, & Masud, 2018). Therefore, it is important to give more prevention on the psychological distress and the influence of peers, to induce more self-confidence and the ability to avoid smoking (Duncan et al., 2018). In order to achieve it, family and religious approaches can be used in the prevention program. Family is the first educational tool during a childhood period. It further affects the child's ability to face various challenges including the invitation to smoke (McGee et al., 2015).

The importance of family role in smoking prevention is stem from continuous interaction. A conflict in the family increases the risk of early smoking initiation in adolescents, while the warmth and intimacy offer a protection against smoking initiation (Rajesh, Diamond, Spitz, & Wilkinson, 2015). Parental constructive communication encourages children's healthy behavior. In addition, the absence of at home smoking exposure and the knowledge on smoking harmful effect had been reported as a protective factor against smoking behavior in adolescents (Urrutia-Pereira et al., 2017). Other studies also show that smoking has a significantly related with family factors (Backhaus et al., 2017; Eugen, Cornelia, & Aurelia, 2015; Joung, Han, Park, & Ryu, 2016; Saari, Kentala, & Mattila, 2014). Parental involvement in the smoking prevention is important to reduce the risk of smoking through

parenting practices (Bird, Staines-Orozco, & Moraros, 2016; Hiemstra, de Leeuw, Engels, & Otten, 2017; McGee et al., 2015). Furthermore, involving families in smoking prevention efforts had been reported to be strategic, helping adolescents not to start smoking (Bird et al., 2016). Family coaching, focusing on setting rules and expectations, is an important and universal element of smoking prevention programs for adolescents in various communities (Stanton, Highland, Tercyak, Luta, & Niaura, 2013). Other than family, the aforementioned religious approach can also be used in smoking prevention. A study by Naing et al. (2004) suggested that Islamic teaching had effectively prevented smoking and drug addiction. Another previous research shows that smoking is also associated with religious factors (Hussain, Walker, & Moon, 2019). In addition, research in China found the relationship of the involvement in religious activities with smoking behavior (Wang, Koenig, & Al Shohaib, 2015).

Based on the explanations above, the important role of family and religion in the smoking prevention has been clearly portrayed. This research is expected to have contribution in reducing the prevalence of smokers, which will ultimately improve the quality of life. This research will be conducted in Aceh, where the majority of the people are Muslims, approximately 98%. The Islamic-based intervention is expected to be effective with the people in Aceh. This is also supported with the fact that Aceh Province has implemented Islamic Sharia regulations since 2000 (Regional Regulation of the Special Province of Aceh Number 5 of 2000 concerning the Implementation of Islamic Sharia). Furthermore, the fatwa of the Islamic Scholar Committee in Aceh also supports the prevention of smoking (Majelis Permusyawaratan Ulama Aceh, 2014).

Based on the literature review, the previous research on smoking prevention among the adolescent, for the most part, had only been carried out in Western countries (Crone, Spruijt, Dijkstra, Willemsen, & Paulussen, 2011). Therefore, this research, taking place in Aceh, will provide a new and useful information on smoking prevention, especially in the development of smoking intervention programs for Muslim adolescents. Even though the number of smokers has been very alarming, the smoking prevention development in Indonesia, especially in Aceh, is poorly studied. Currently, there is no study explore about the incorporation of family-focused and Islamic-based approaches to prevent smoking behavior. Therefore, this study is expected to have significant contribution to prevent smoking behavior among adolescents, especially in Muslim countries which share the same characteristics. The objective of this paper was to outline a study protocol for developing smoking prevention program. The adolescents' knowledge, attitudes, smoking intentions and smoking behavior are taken as the success parameters.

METHODS

Study Design
This study will be conducted using a Cluster Randomized Controlled Trial (RCT), testing the effectiveness of smoking prevention intervention programs for adolescents.

Setting
This study will be conducted in three schools in Aceh Besar Regency, representing a moderate life condition, between city and village life. These schools are in suburban area, having good public transportation and located less than 20 km from the Aceh Province Capital. Total

population in the district is 409.109 inhabitants, with the average household size of 4, poverty of 15.41%, and labor force participation rate of 59.17% (Central Aceh Statistics, 2019).

Participants

Participants of this study will include 150 students from three junior high schools in Aceh Besar Regency, Aceh Province, Indonesia. The participant will be determined by simple randomization using a randomization table created by computer software and divided into three groups with 50 participants for each group. The number of samples was determined using a medium effect size with a power of .08, confidence level at 95% and an alpha of .05 with a value of d = .60. The inclusion criteria include male, aged 11-14, having a family member (at least a mother) and living with the family, able to communicate in Indonesian Language, not experiencing communication problems and willing to be respondents.

Interventions

This study includes three intervention programs for three groups of participants. Each group will receive different kind of intervention. The intervention for the three groups is explained below.

1. Group A (Health-based intervention program using family approach). Intervention for this group consists of six sessions for six weeks with 90 minutes for each session. The first session includes introduction about smoking phenomena, the next session is about prevalence of smoking and smoking rules, the third session is about health effects of smoking, the next session is about stress managements, the fifth session is about smoking refusal skills and the last session is closing. The sessions will be delivered to adolescents by face to face activities in classroom, the intervention will be administered by health educators and psychiatric health nurses. The methods include lecture, demonstration, discussion, storytelling and role playing. The media for intervention includes booklet and manual guide sheet which are designed specifically for this study. At the end of each session, the researchers will hand the material with the same topic to students and ask them to give it to their parents as a guideline for planning of action at home.

2. Group B (Islamic based intervention program using family approach). Intervention for this group consists of six sessions, 90 minutes sessions per week for six weeks. The first session includes introduction about smoking phenomena among Muslim, the next session is about Islamic perspective about healthy living, the third session is about Islamic perspective of smoking, the next session is about stress managements based on Islamic teaching, the fifth session includes smoking refusal skills using Islamic approach, and the last session is closing. The intervention will be delivered face-to-face by health educators, psychiatric health nurses and Islamic Scholars. The methods include lecture, demonstration, discussion, storytelling, and role playing. The media for intervention includes booklet and manual guide sheet which are designed specifically for this study. At the end of each session, the researcher will hand the material with the same topic to student to give it to their parents as a guideline for planning of action at home. The intervention adherence will be assessed by researchers using observation form which is designed specifically for this study.

3. Group C (Control group). In the group C, the participants will not receive any kinds of intervention. This group will be the control group in this study.

Training for Program Providers

The program providers include health educators, Islamic scholars and the mental health nurses. Prior to the program implementation, the program providers will have one-day training in order to obtain the optimal results. The training is also to ensure that all program providers will have the same perception on how to carry out the intervention program. The training also aims to get the support from policymakers, including from the schools and the community. The training includes several activities, such as introduction, effective teaching methods and a review of available resources. The researchers are actively involved in the training activities to share the knowledge and experience with the program providers.

Data Collection and Outcome Measurement

The research assistants will collect data in the classroom in each school. The data will be collected using self-report questionnaire which will be measured at each of three data collection time-points including one week before intervention, two weeks after completing the intervention, and four weeks after completing the intervention.

Knowledge about health effect of smoking will be assessed by self-report questionnaire, which include 30 multiple-choice questions. Each question is presented in a multiple-choice format with four possible options for each answer, one point will be scored for each correct answer. The total score for this scale will range from 0 to 30 with higher scores representing greater knowledge.

Attitudes toward smoking will be assessed by using self-report questionnaire designed specifically for this study. It includes 25 statements which are presented in a five-point Likert scale format, with responses ranging from 0 (strongly disagree) to 4 (strongly agree) for positively worded items, and 0 (strongly agree) to 4 (strongly disagree) for negatively worded items. Scores are summed to obtain a total score for smoking attitude, which range from 0 to 100. A higher score indicates that the individual is more likely to smoke.

The questionnaire about knowledge and attitude is designed specifically for this study. The validity will be assessed by three experts including Islamic scholar, psychiatric health nurse, and community nurse. The content validity index (CVI) score of .9 will be used as the excellent standard for the questionnaire. Interrater reliability will be conducted by a test-retest to measure the correlation between the same person's score as well as the application of internal consistency to evaluate the interrelatedness among items or sets of items in the scale. The criteria score is $\geq$ .7.

Smoking intention and smoking behavior will be assessed using questionnaire adapted from a previous study. The Cronbach's alpha of smoking intention and smoking behavior questionnaire were .84 and .88 (Tahlil, Woodman, Coveney, & Ward, 2013). Smoking intention includes three questions, each question with five response categories, ranging from 0 for "certain not to smoke" to 4 for "certain to smoke". The three questions include, whether they would smoke tobacco next year, during senior high school, and when older or when over 50 years of age. Higher score indicates that the individual is more intent to smoke.

Smoking behavior will be measured using three questions, including the number of cigarettes smoked in the last seven days, in the last 30 days, and in the participants' lifetime. To assess cigarette smoking frequency in the last seven days, response categories are "never tried a

cigarette, not even one puff" (score 0), "one puff or two puffs" (score 1), "just one cigarette" (score 2), "two cigarettes" (score 3), and "three to five cigarette" (score 4).

The frequency of cigarettes smoked in the last 30 days consists of response categories including: I did not smoke cigarettes during the past 30 days (score 0), less than one cigarette per day (score 1), one cigarette per day (score 2), two to five cigarette per day (score 3), six to ten cigarettes per day (score 4), 11 to 20 cigarettes per day (score 5), and more than 20 cigarettes per day (score 6). Finally, for assessing frequency of lifetime cigarette smoking, the responses include I did not smoke any cigarette (score 0), less than one cigarette (score 1), one cigarette (score 2), two to five cigarettes (score 3), six to ten cigarettes (score 4), 11 to 20 cigarettes (score 5), 21 to 60 cigarettes (score 6), 61 to 100 cigarettes (score 7), and more than 100 cigarettes (score 8). Higher score indicates higher frequency of smoking.

Data Analysis

Data will be analyzed using SPPS version 21 for window. Descriptive statistics will be performed to explain frequency, percentage, mean and standard deviation. Differences between groups at baseline of the outcome variables will be assessed using Analysis of variance (ANOVA) for smoking knowledge and attitude, and using chi-squared tests for smoking intention and behavior.

Ethical Approval

This study was approved by the Research Ethics Committee of the Faculty of Nursing, Universitas Syiah Kuala with number 113003101118. Participants have the right to refuse to be involved in the study. They will be given detailed information about the research and confidentiality will be guaranteed. Written consent to participate in this study will be obtained from participants' parents.

DISCUSSION

The high smoking prevalence among Indonesian adolescents especially in Aceh is a significant problem, requiring an effective prevention program to be developed for solving this phenomenon. Therefore, we have developed an Islamic-based intervention program using a family approach to prevent the smoking behavior among adolescents.

The primary objective of this study is to examine the effectiveness of the Islamic-based smoking prevention program using a family approach on adolescents' knowledge, attitudes, intentions and behavior on smoking activities. The intervention will be delivered by trained teachers, health worker's / health educators, Islamic leaders and mental health nurses. It is expected that this intervention will be culturally fit and effective for preventing smoking behaviors among adolescents. The results of this study could be a reference for other places in the world, which experienced similar problem and have the same social characteristics.

This study gives a very meaningful contribution because there is limited study on smoking interventions in Indonesia, especially in Aceh. Based on the review of various reported studies, we have learned that the development of smoking prevention efforts among adolescents is mostly conducted in western countries, where the family-focused and Islamic-based approaches are not widely reported. Hence, this study is expected to fill the gap of knowledge in the prevention of smoking behavior among adolescents, especially for Muslim adolescents.

CONCLUSION

Based on the explanation above and the results of the Focus Group Discussion (FGD) with the students in Aceh, we designed an Islamic-based program using family approaches for preventing the adolescents from smoking behavior. This study is expected to be a reference for health professionals to prevent smoking among adolescents.

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BELITUNG NURSING JOURNAL

MITIGATING THE PSYCHOLOGICAL AND MENTAL HEALTH IMPACT ON FRONTLINE WORKERS DURING COVID-19

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Dear Editors,

The outbreak of the COVID-19 pandemic has put a strain on the healthcare system in terms of its physical and human resource infrastructure. While there is an increasing number of COVID-19 patients that are being admitted than can be handled by healthcare systems, healthcare workers are also bearing the brunt of the pandemic that has increased their workload and exposed them to the risk of contracting the virus. This has translated into mental health issues for the healthcare workers in terms of burnout, anxiety, agitation, and depression as the healthcare workers try to navigate the unprecedented challenges at their workplace. This study examines the mitigating measures that have been put into place to ensure that the mental strain that healthcare workers are undergoing in the face of the pandemic are effectively mitigated.

The outbreak of a new strain of coronavirus referred to as COVID-19 was first declared in early January 2020 by the World Health Organization (WHO). Its rapid spread across the world by March 2020 impelled the WHO to consider the outbreak as a pandemic (Blake, Bermingham, Johnson, & Tabner, 2020). The new coronavirus that causes COVID-19 is referred to as Severe Acute Respiratory Syndrome Coronavirus 2, which was first discovered in Wuhan in China in December 2019 (Man et al., 2020). This article examines some of the measures that could be employed to mitigate the mental and psychological strain that the virus outbreak has brought on the healthcare givers.

The protection of the wellbeing of healthcare workers who are at the frontline in terms of caring for persons infected with COVID-19 has been considered as critical for sustaining the long-term capacity of the health workforce (Wu, Styra, & Gold, 2020). The contagious nature of COVID-19 alongside its prolonged incubation period of between 2 to 14 days makes it stressful for healthcare workers who come into contact with the patients daily as they fear to infect their family, colleagues, and

friends (Deying et al., 2020). The provision of psychological support to the healthcare givers is a significant mental health challenge as the spread of the virus progresses (Wu et al., 2020). There is therefore the need for immediate measures to be enacted to safeguard the psychological and mental welfare of healthcare practitioners to enable them to be more effective particularly when their services are highly demanded.

Various studies have examined the mental and psychological strain that medical practitioners have had to contend with as they provide services to COVID-19 patients. For instance, Man et al. (2020) note that apart from the fear of being exposed, healthcare givers are anxious about the prevailing shortages of Personal Protective Equipment (PPE). The study proposes online learning as an approach for mitigating mental health challenges for healthcare workers, whereby they are provided with psychological support. This is an effective method for intervening, in this case, considering the need for social distancing which is a critical step for flattening the curve.

Blake et al. (2020) found that due to the strain that the COVID-19 has put on the healthcare system in terms of the influx in patients, healthcare workers are forced to work for a long and irregular hour leading to burnouts that are made severe by the anxiety that they are experiencing about their health. The study recommended self-care for healthcare workers where they take work breaks and rests to manage fatigue and to also cope with confinement and isolation.

Otu, Charles, and Yaya (2020) established that the healthcare front workers were putting the welfare of COVID-19 patients over their own and that this has invariably put a strain on their mental health. Sulaiman et al. (2020) note that the devastating nature of COVID-19 is inevitably resulting in vicarious trauma on the workers in the healthcare settings. These workers present higher levels of severe mental health symptoms, with most succumbing to them due to the fear of getting infected

occasioned by the unprecedented global failure of providing them with PPE. The study proposed the development of social support systems for the healthcare workers which could be facilitated at the workplace by peers or at domestic levels with the help of friends and family members. The system could also include signposting and supporting whereby psychological first aid is provided to the affected or identified healthcare workers.

The reviewed literature has indicated that mental health is a significant challenge to healthcare workers who are on the frontline in the fight against the COVID-19 pandemic. The pressure of their current work that is occasioned by the fear of infection due to lack of PPEs and the increased workload that has led to burnouts has made these workers susceptible to mental health challenges. Some of the mitigating approaches that are being adopted to help healthcare workers tackle mental health challenges include online social support programs, self-care sessions where the healthcare workers take breaks to rejuvenate from the pressures of their work and social support systems through which psychological first aid is provided to the workers at their workplace.

Declaration of Conflicting Interest
None Declared.

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BNJ BELITUNG NURSING JOURNAL

LETTER TO EDITORS

COVID-19: A BALINESE VIEWPOINT

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Society in the world has been horrified by the presence of a new type of coronavirus outbreak or better known as COVID-19 (World Health Organization, 2020), which is also considered as a global public health emergency. There are more than 512,000 people with 23,495 deaths were confirmed in 202 countries by March 2020 (World Health Organization, 2020). The rapid process of transmitting the virus increasingly makes the community anxious. Moreover, some people may not know the procedures for handling the virus which makes them more panic.

In Indonesia, the government has issued a state of disaster emergency from 29 February to 29 May 2020 related to this virus pandemic with a total time of 91 days (Koesmawardhan, 2020). The coronavirus pandemic in Indonesia began on 2 March 2020 until 1 June 2020, with 25,940 positive cases of COVID-19 were confirmed, 1,642 of them dead and 7,637 recovered. Cases are stated to be spread in all of 34 provinces in Indonesia, where the island of Bali is one of the regions that also has been infected by the virus (Public Health Emergency Operation Centre, 2020).

In this letter, we would like to address COVID-19 from *Vedic* literary history and Hindu perspective. The existence of the virus actually could be traced to its type or category. According to Ayurveda literature (Ambara, 2006), the main reference for the health dimension or *Usadha* community in Bali, the existence of epidemic diseases are basically grouped into three types including: 1) *Adhyatmika* is a disease outbreak whose causes originate from itself, such as hereditary disease, congenital disease, and imbalance in the *Tri-Dosha* element. *Tri-Dosha* is a fundamental energy that controls physical and emotional body functions; 2) *Adhidaiwika* is a disease outbreak that causes from the influence of the external environment, such as the influence of germs (bacteria, viruses), noetic or supernatural disorders, and scale effects (environmental or accidents); and 3) *Adhibautika* is a disease outbreak caused by the influence of planets, sharp objects, animal bites, accidents

to cause injury. Based on these types, it can be seen that COVID-19 is in the *Adhidaiwika* type, a disease outbreak that causes from external environmental influences, such as the influence of germs or viruses.

According to a Hindu perspective in Bali, the appearance of COVID-19 is similar to *Grubug*'s disease that has occurred since ancient times. *Grubug* is defined as the events that cause people die. Widana (2020) stated that if we flashback again in the historical space, we found data that in the year 1521 Saka or around 1599 AD, Bali was once plagued by *Grubug* in the form of a horrific outbreak of Leprosy which was also a forerunner to the emergence of the term "Big Pain", or chronic and severe pain, for this heart breaking phenomenon. In 1850, the "invasion" of *Grubug* in the form of smallpox attacked the Badung area which killed approximately 4,000 people. The eastern end of Bali was not immune to the disease outbreak at that time. The number of lives lost was certainly also influenced by the lack of insight or education level of the community regarding clean and healthy life behavior and the limited variety of drugs that could be used as a treatment or as a preventive measure.

However, what is unique is that the Balinese people become stronger and more determined learning from the required trail experiences. The next *Grubug* phenomena will be no longer be such a frightening but become a space for self-evaluation to further strengthen in anticipatory or preventive steps. People begin to change their life patterns to be more organized, as well as to change the health dimension through various healthy activities or routines such as regular exercise, routine yoga activities (meditation, *suryanamaskara* – one type of yoga, and fasting) (Juanamasta & Priastana, 2017), various *Ida Sang Hyang Widhi* - spiritual healing therapy, such as the implementation of *Yajna* (traditional rituals) supported by Balinese cultural values. In addition, people in Bali also believe in herbal therapy which consists of cultural-based treatment that uses products from plants to improve health (Widana, 2020). This is certainly a concrete evidence that Balinese

have a fundamental ability to combat COVID-19, both from a cultural and religious standpoint. In fact, Bali is an area with the recovery of COVID-19 patients reached 65% in early May 2020 (Yurianto, 2020).

In conclusion, through your reputable Journal, we invite the society in Bali and other areas in Indonesia as well as people around the world to learn from our own histories and beliefs in a better way. This letter is expected to increase awareness in responding the COVID-19 pandemic and thereby could enhance quality of life beyond Bali Indonesia.

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All of the authors equally made the substantial contribution, involved in drafting and revising manuscript, and given final approval.

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<u>**ERRATUM**</u>

ERRATUM TO: FACTORS RELATED TO DEPRESSION AMONG OLDER PEOPLE LIVING IN CIMAHI, WEST JAVA PROVINCE, INDONESIA

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Erratum
After publication of the article (Gustryanti et al., 2017), it has been brought to our attention that the wrong title was used on initial publication. The correct title of this article is "Factors related to depression among older people living in Cimahi, West Java Province, Indonesia". The original version of the article has been updated to reflect this.

In addition, the reference format in this article has also been updated. The publisher apologizes for the minor errors.

Reference

Gustryanti, K., Thongpat, S., & Maneerat, S. (2017). Factors related to depression among older people living in Cimahi, West Java Province, Indonesia. *Belitung Nursing Journal, 3*(1), 14-22. https://doi.org/10.33546/bnj.50

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ERRATUM TO: CAREGIVERS' EXPERIENCE IN MEETING SELF-CARE NEEDS OF ADOLESCENTS WITH AUTISM SPECTRUM DISORDER: A QUALITATIVE STUDY

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Erratum

After publication of the article (Lestari et al., 2017), it has been brought to our attention that the wrong title was used on initial publication. The correct title of this article is "Caregivers' experience in meeting self-care needs of adolescents with autism spectrum disorder: A qualitative study". The original version of the article has been updated to reflect this.

In addition, the reference format in this article has also been updated.

The publisher apologizes for the errors.

Reference
Lestari, L., Herini, E. S., & Gamayanti, I. L. (2017). Caregivers' experience in meeting self-care needs of adolescents with autism spectrum disorder: A qualitative study. *Belitung Nursing Journal, 3*(4), 316-328. https://doi.org/10.33546/bnj.123