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ORIGINAL RESEARCH

Healthcare Providers' Knowledge, Attitude, and Perspective regarding Diabetes Self-Management during Ramadan Fasting: A Cross-Sectional Study

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Abstract

Background: Evidence shows that most general practitioners have low knowledge related to diabetes self-management during Ramadan fasting. However, studies on healthcare providers' competencies related to diabetes self-management during Ramadan fasting are still rare.
Purpose: This study aimed to investigate healthcare providers' knowledge, attitude, and perspective concerning diabetes self-management during Ramadan fasting.
Methods: The study applied a cross-sectional design and was conducted in forty-one (41) community health centers in Pekalongan, Central Java, Indonesia. The study participants were medical doctors, nurses, nutritionists, pharmacists, and public health officers. The total sampling technique was used. There were 205 healthcare providers who met the inclusion criteria. Their knowledge, attitude, and perspective were assessed using a questionnaire developed by Zainudin and Hussain. The Wilcoxon test was used to analyze the data.
Results: The healthcare providers' knowledge of Ramadan fasting was very low (36.79±26.11). More than half of the respondents (53.17%) advised diabetic patients to manage diabetes in general, although specific counseling for diabetic patients related to fasting in Ramadan month was not provided (55.12%). The perspective of Ramadan fasting among healthcare providers was moderate (62.68%±30.40). The results also showed that general and safe practice knowledge significantly affected the healthcare providers' perspective toward Ramadan fasting (Z=-12.49, p=0.000), (Z=-12.02, p=0.000), respectively.
Conclusion: Healthcare providers' knowledge and attitude concerning diabetes self-management during Ramadan fasting were low. Accordingly, this affected their perspective. It is strongly recommended that a formal Ramadan fasting management training program should be given regularly to provide appropriate consultations and services.

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1. Introduction

Diabetes mellitus (DM) is a chronic metabolic syndrome characterized by inappropriate high blood sugar (hyperglycemia) resulting from either low levels of insulin hormones or abnormal resistance to insulin's effects, coupled with inadequate levels of insulin secretion (American Diabetes Association [ADA], 2021). The prevalence of diabetes for all age groups worldwide was 463 million in 2019 and projected to rise by 51% or 700 million by 2045 (International Diabetes Federation [IDF], 2019). According to Misra et al. (2019), almost one-third of DM population is in developing countries. As one of the developing countries, Indonesia ranks seventh in the epidemiology of diabetes mellitus in the Asia-Pacific region (IDF, 2019). The prevalence of diabetes in Indonesia in 2019 was 10.7 million of the population, estimated to be 13.7 million and 16.6 million in 2030 and 2045, respectively (IDF, 2019). In addition, most populations in developing countries are Muslim populations (Rashid et al., 2020).

Indonesia is one of the developing countries with a large Muslim population and has been known to have a high population of DM. Muslims are obliged to observe the five pillars of Islam, i.e., the profession of faith (shahada), prayer (salat), alms (zakat), fasting (sawm), and pilgrimage

to Mecca (hajj). Fasting during the month of Ramadan is the fourth pillar of Islam, and it is obligatory for all Muslims. However, fasting requires restriction from food and drink from dawn to sunset. According to Ghani (2013), 93% of Muslims are fasting during Ramadan worldwide, especially among Muslims in Asia. In addition, 99% of Indonesian Muslims were observed fasting during Ramadan (Bell, 2012). In Islam, certain groups are allowed not to do fasting. They are the older people with severe illness or mental disorders, people traveling, and women who are pregnant, breastfeeding, or menstruating (Hanif et al., 2020).

For some diabetic patients, fasting is a kind of honor and faith to miss. According to Salti et al. (2004), around 42.8% of Type 1 Diabetes Mellitus (T1DM) and 78.7% of Type 2 Diabetes Mellitus (T2DM) were doing fasting every year. Most T2DM patients did fasting for at least 15 days (Babineaux et al., 2015) to 25 days of the month (Kaplan & Afandi, 2015). There are so many reasons they break from fast since fasting for people with diabetes can lead to a high risk of hypoglycemia, hyperglycemia, diabetic ketoacidosis, dehydration, and thrombosis (Deeb et al., 2017; Eid et al., 2017; Gad et al., 2020; Kaplan & Afandi, 2015). Hence, to minimize these complications and fast safely, individual guidance and advice from healthcare providers are required to enhance their knowledge (Eid et al., 2017; Tourkmani et al., 2018).

Sufficient knowledge can be obtained through structured health education (Rashid et al., 2020). Furthermore, structured health education of pre-Ramadan fasting is mandatory. This course includes a meal plan, physical activity, blood glucose monitoring, medication adjustment, and adverse effects such as dehydration, hypoglycemia, and hyperglycemia (Bravis et al., 2010; Jamoussi et al., 2017; Rashid et al., 2020). Another required topic includes information on risks and indications of breaking fast (IDF, 2019; Pinelli & Jaber, 2011). The benefits of Ramadan fasting preparedness for T2DM patients are improvement of HbA1c, loss of body weight, and decrease in lipid profile (AlAlwan & Banyan, 2010; Bravis et al., 2010; Jamoussi et al., 2017). To get these beneficial results, structured health education must be delivered by competent healthcare providers (HCP).

Unfortunately, studies show that not all HCPs are knowledgeable. Lack of knowledge related to diabetes self-management during Ramadan fasting among general practitioners (GPs) and among pharmacists was reported by Gaborit et al. (2011) and Amin and Chewning (2014), respectively. Another evidence shows that GPs' knowledge related to fasting complications and fasting exemption was low (Beshyah et al., 2017). Lack of knowledge related to the basic concepts of diabetes and Ramadan, dietary modification, and drug dosage adjustment during Ramadan was also found among GPs in Pakistan (Ahmedani et al., 2016). Accordingly, basic training of diabetes self-management related to Ramadan fasting for HCPs was strongly recommended to increase their knowledge and skills (Ahmedani et al., 2016; Gaborit et al., 2011; Hanif et al., 2020).

Previous studies mostly focused on examining GPs' and pharmacists' knowledge related to diabetes self-management during Ramadan fasting. However, diabetic patients are not only treated by the two professions. Like in Indonesia, diabetic patients are served under chronic illnesses service program (PROLANIS) by a team consisting of a medical doctor, a nurse, a nutritionist, a pharmacist, and a public health officer. Unfortunately, there has been no previous research conducted in Indonesia to explore knowledge, attitude, and perspective related to diabetes self-management during Ramadan fasting among these team members. Therefore, this study aimed to investigate healthcare providers' knowledge, attitude, and perspective related to diabetes self-management during Ramadan fasting.

2. Methods

2.1 Research design

The study applied a cross-sectional design.

2.2 Setting and sample

The study was conducted from September to December 2019. The respondents were selected purposively from forty-one (41) community health centers in Pekalongan, Central Java, Indonesia. They were medical doctors, nurses, nutritionists, pharmacists, and public health officers. These health professions were parts of PROLANIS, which provided chronic care for T2DM and hypertension. The inclusion criteria of the respondents were a member of person-in-charge (PIC) of PROLANIS, with age ≥ 18 years old. The respondents who were on leave for more than two months were excluded. Accordingly, the sample size was 205, coming from 5 healthcare

providers multiplied by 41 community health centers. The total sampling technique was used to obtain the respondents.

2.3 Measurement and data collection

The questionnaire was adapted from Zainudin and Hussain (2017). It consists of 25 items asking about Ramadan fasting for diabetic patients from the HCPs' perspective. This questionnaire is divided into three dimensions. The first dimension consists of 7 items assessing knowledge of the pathophysiology of fasting and general knowledge of Ramadan. The second dimension consists of 11 items assessing knowledge of safe practices and management of diabetes during Ramadan. The scoring of these two dimensions is 1 for the correct answer and 0 for the wrong answer. The total value of both dimensions reflects the perspective of HCPs in the management of diabetes during Ramadan. The questionnaire was translated by the author into Bahasa Indonesia using a simple translation. The Cronbach's α of these 18 items was 0.62, meaning that the instrument was moderately reliable. The Pearson correlation ranged from 0.183 to 0.559. The r-table of 205 participants with a 5% level of significance was 0.113. Accordingly, all items were valid because the value was >0.113. The third dimension consists of 3 items assessing the attitude on the management of diabetes during Ramadan. This dimension was assessed but not scored. Five items asking the directions on how to do fasting in Ramadan (i.e., abstaining from food, oral fluids, medication, fasting for approximately 14 hours annually, and 29 consecutive days) were modified. The reasons underlying the modification of these items were as follows: (1) these items cover basic knowledge about the rules of Ramadan fasting that was quite easy and well-known among Indonesians, who were mostly Muslims; (2) it was more essential to ask specific questions related to knowledge of diabetes management during Ramadan; and (3) if these items were retained, the result could not depict the basic knowledge of diabetes management during Ramadan.

Prior to data collection, the primary investigator (PI) shared the information about the study project and schedule through the PROLANIS WhatsApp group. As scheduled, the PI and research assistant (RA) went to 41 community health centers to meet the respondents. Informed consent was signed by the respondents who met the inclusion and exclusion criteria and were willing to join the study. Moreover, the respondents were explained about the questionnaire and asked to fill out the questionnaire. RA checked the questionnaire and summarized the results into excel.

2.4 Data analysis

Data were analyzed using the IBM SPSS statistics version 23.0. The characteristics of respondents were analyzed using descriptive statistics. Categorical data were analyzed using percentages and frequencies, while mean and standard deviations were used to analyze continuous data. Since the result of the Kolmogorov-Smirnov test was not significant (p=0.000), the data of basic knowledge, knowledge of safe practice, and perspective were not normally distributed. As a result, the Wilcoxon test was used to examine the correlation between knowledge and healthcare providers' perspective of Ramadan fasting.

2.5 Ethical considerations

The ethical clearance was obtained from the Research Ethics Committee of Universitas Islam Sultan Agung (Reference number 267/A.1/FIK-SA/VII/2019). The permission to modify the items was obtained from the original author through personal communication. The potential respondents who agreed to join the study then signed the informed consent.

3. Results

3.1 Characteristics of respondents

Two hundred and five healthcare providers participated in this study. The characteristics of the respondents were presented in Table 1. The mean age was 36.25 years (standard deviation [SD]=8.43). The mean of work experience was 1.8 years (SD=1.2). More than one-third (156) of the respondents were female and more than half (130) of the respondents had a bachelor degree. The majority of the respondents were Muslim (97.6%). There were no healthcare providers who had prior education on diabetes management in Ramadan, and 37.5 % of the participants learned individually by searching for information from online sources.

Table 1. Characteristics of respondents (n=205)

Variable	f	%	Mean	SD
Age (years)			36.25	8.43
Working experience (year)			1.8	1.2
Gender				
Female	156	76.1		
Male	49	23.9		
Education				
Master	2	1.0		
Bachelor	130	63.4		
Diploma	73	35.6		
Religion				
Muslim	200	97.6		
Protestant	3	1.4		
Catholic	2	1.0		
Training-joined				
Never	128	62.5		
Self-learning	77	37.5		

SD=Standard deviation

3.2 Knowledge, attitude, and perspective of Ramadan fasting

Table 2 shows that the healthcare providers' knowledge of Ramadan fasting was 36.79 (SD=26.11). However, the healthcare providers' knowledge of safe practice and management of diabetes during Ramadan was 79.16 (SD=19.84). The healthcare providers' perspective of Ramadan Fasting was 62.68% (SD=30.40). As Table 3 indicates, 109 respondents stated that before the Ramadan month was coming, they advised the diabetic patients to manage diabetes and/or adjust their medication during fasting. Moreover, 55.12% (113) respondents did not provide specific counseling for diabetic patients related to fasting in Ramadan month. The most dominant reason was the lack of specific knowledge and lack of experience in practice. Only 13.66% (28) of the respondents encountered people with diabetes complications during fasting in Ramadan.

Table 2. Healthcare providers' knowledge and perspective of Ramadan fasting

Variable	Mean (SD)
Knowledge of the pathophysiology of fasting and general knowledge of Ramadan	36.79 (26.11)
Knowledge of safe practices and management of diabetes during Ramadan	79.16 (19.84)
Healthcare providers' perspective of Ramadan fasting	62.68(30.40)

Table 3. Attitudes of respondents on the management of diabetes during Ramadan

Attitude variable	Yes	No
	n (%)	n (%)
Did you advise your patients on how to manage diabetes and/or adjust their diabetes medication when fasting during previous Ramadan?	109 (53.17)	96 (46.83)
Would you provide specific counseling for people with diabetes on fasting in Ramadan?	92 (44.88)	113 (55.12)
Have you encountered people with diabetes complications during fasting in Ramadan?	28 (13.66)	177 (86.34)

3.3 The correlation between knowledge and perspective of Ramadan fasting

The results showed that basic knowledge and knowledge of safe practice significantly affected healthcare providers' perspective of Ramadan fasting (Z=-12.49, p=0.000), (Z=-12.02, p=0.000), respectively (Table 4).

Table 4. The correlation between knowledge and perspective of Ramadan fasting

	Healthcare providers' perspective of Ramadan Fasting	
	Z	*p*
Knowledge of the pathophysiology of fasting and general knowledge of Ramadan	-12.49	0.000*
Knowledge of safe practices and management of diabetes during Ramadan	-12.02	0.000*

*Wilcoxon test

4. Discussion

The study results showed that the HCPs lacked knowledge in the pathophysiology of fasting and general knowledge of Ramadan fasting for diabetic patients, although they had good knowledge on safe practice and management of diabetes during Ramadan. General diabetes management was mostly advised by the HCPs rather than specific counseling related to fasting in Ramadan. The result also showed that the perspective of Ramadan fasting among HCPs was influenced by knowledge.

4.1 Knowledge, attitude, and perspective of Ramadan fasting

The result showed that the knowledge of the pathophysiology of fasting and general knowledge of Ramadan among HCPs was suboptimal. This result aligns with the study conducted in Pakistan (Ahmedani et al., 2016) and Egypt (Amin & Chewning, 2014). According to these two studies, no training program offered in these countries contributed to the lack of knowledge among HCPs. The lack of knowledge among Indonesian HCPs is also related to the availability of a formal training program. The majority of HCPs did not receive training programs nor attend workshops related to diabetes management during Ramadan fasting. Only few HCPs stated that they learned independently through the internet or journal articles that they read. Their basic knowledge of Ramadan fasting was based on the respondents' experience as Muslims. This assumption was supported by the result that almost all respondents were Muslim. Generally, Muslims have significant knowledge of Ramadan-specific diabetes management (Amin & Chewning, 2014). Another reason is that Indonesia has a dominant Muslim population. Accordingly, most of the population is familiar with fasting in Ramadan. However, not all Muslims and HCPs are knowledgeable regarding the pathophysiology of fasting and diabetes (Ahmedani et al., 2016; Gaborit et al., 2011; Hanif et al., 2020).

On the contrary, the HCPs' knowledge of safe practices and management of diabetes during Ramadan was above the average. The possible reasons were because the majority of the HCPs were Muslim with a higher educational background, and they mostly had a 2-year experience of becoming a PIC. The lack of HCPs' knowledge is related to their services, such as giving advice regarding Ramadan-specific diabetes management (Almalki et al., 2018) and insufficient education (Hassan et al., 2014; Malek et al., 2019; Masood et al., 2014). Pre-Ramadan education among diabetic patients is the responsibility of all PICs of PROLANIS. Structured and proper education of self-management during Ramadan fasting would improve the patients' skills, which impacts safe fasting to reduce morbidity and mortality (Almansour et al., 2017).

Most of the HCPs stated that they advised their patients to manage diabetes in a simple way during Ramadan. On the contrary, the HCPs would not give counseling related to self-management during Ramadan. This result aligns with a study conducted by Ali et al. (2016). In their study, healthcare providers did not give any health education related to diabetes self-management during Ramadan (Ali et al., 2016). One reason why the HCPs did not give consultation related to diabetes management during Ramadan fasting is that they are not confident due to their lack of knowledge of diabetes and Ramadan (Ahmedani et al., 2016; Gaborit et al., 2011; Hanif et al., 2020). Communication skill is also an essential skill for delivering the message during a consultation (Widyarani et al., 2020). Therefore, It is important to improve HCPs' knowledge and skills concerning diabetes and Ramadan. This is also recommended by Ahmedani et al. (2016) and Zainudin & Hussain (2017).

The study result showed that HCPs' perspective of Ramadhan fasting was tolerable. The individuals' perspective is influenced by their knowledge, experience, and culture (Almansour et al., 2017). Another factor is cultural competence (Beshyah et al., 2018). HCPs should have

knowledge in relation to taking care of diabetic patients during Ramadan (Gaborit et al., 2011; Hanif et al., 2020). Furthermore, religiosity also plays a key role in the perspective of HCPs (Almansour et al., 2017; Ismail et al., 2015).

4.2 The correlation between knowledge and perspective of Ramadan fasting

There was a statistically significant correlation between knowledge and perspective of Ramadan fasting among HCPs. This result proved that HCPs' perspective was influenced by their basic knowledge of diabetes management during Ramadan fasting. As mentioned above, several factors contributed to the HCPs' perspective (Almansour et al., 2017; Beshyah et al., 2018; Ismail et al., 2015). In this study, the HCPs' perspective is related to their basic knowledge of Ramadan fasting as a Muslim. Even though the HCP is not a Muslim, he/she is familiar with Ramadan fasting since, in Indonesia, this is an annual religious event.

Perspective means an individual's point of view of an object (Cambridge Dictionary, 2021). The HCPs' perspective was influenced by their characteristics, including experience, educational background, religion, and training program. Knowledge is a cornerstone and plays an important role in HCPs' perspective. In this study, the majority of respondents were bachelor and master in education. In addition, some respondents were self-learned related to diabetes management during Ramadan fasting. Probably, their education and basic knowledge influence their perspective. The HCPs' experience was almost two years on average, arranged from one to five years. This sufficient experience can affect the HCPs' perspective. More experienced HCPs, more tolerable and wise they made a decision (Adler-Lazarovits & Weintraub, 2019).

Another determinant factor is culture and religiosity. The HCPs' culturally-competence is an essential skill to deliver an appropriate treatment or intervention (Lagisetty et al., 2017; Sirois et al., 2013). In other words, culture is a social behavior and norms, that whether it is realized or not, influence our perspective, likewise, religiosity. In this study, almost all respondents were Muslim. Accordingly, the thought of Islam impacts the HCPs' knowledge of Ramadan fasting (Abolaban & Al-Moujahed, 2017). However, they did not have specific knowledge in diabetes management during Ramadan fasting. Therefore, knowledge of diabetes management during Ramadan fasting among HCPs is demanding. It can open their horizon to provide safe and healthy intervention (Mubeen et al., 2012).

5. Implication and limitation

The findings in this study can be used as a basis for formulating policies and improving the skills of PICs of the PROLANIS. There are several limitations of the study. Firstly, the study did not conduct a subgroup analysis. Accordingly, the knowledge, attitude, and perspective among provisions were not comparable. Second, the study project was announced through the Whatsapp group in advance. This could yield bias as some participants may be learned about the topic before answering the questionnaire. To ensure the results, the PI and RA accompanied the participants when they were filling out the questionnaire. Lastly, the questionnaire was simply translated from the original English version to the Indonesian version without back-translation. However, some items had been culturally modified. The reliability and validity tests were also conducted.

6. Conclusion

In conclusion, knowledge had a positive effect on the perspective of diabetes self-management during Ramadan fasting. In addition, specific counseling related to diabetes management during fasting in Ramadan was still rarely carried out through general advice on diabetes management was mostly provided. Based on this study, several recommendations are proposed: (1) As a professional, HCPs should actively update their knowledge and skills; (2) Education should be continuously provided to PICs of PROLANIS especially related to diabetes self-management education and support; (3) HCPs should always assess patients' knowledge and attitude regarding diabetes self-management during Ramadan fasting to give proper education and counseling to ensure safe fasting practices; and (4) Researchers should explore the diabetic patients' knowledge, attitude, and practice in diabetes management during Ramadan fasting.

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Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this study.

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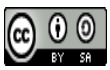

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ORIGINAL RESEARCH

Balance Strategy Exercise versus Lower Limb-ROM Exercise for Reducing the Risk of Falls among Older People

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Abstract

Background: Falls are a significant health problem and the most common cause of injuries in older people. Different types of exercise have been recommended to prevent falls, including balance exercise and range of motion. However, there is a lack of evidence to compare the effect of the two exercises.
Purpose: This study aimed to compare the effect of Balance Strategy Exercise (BSE) and Lower Limb-Range of Motion (ROM) exercise on reducing the risk of falls among older people living in long-term care facilities.
Methods: This was a quasi-experimental study using a pre-post design without a control group. A total of 30 older adults from two nursing homes who met the inclusion and exclusion criteria participated in the study. A cluster randomization technique was used to assign the older people into either BSE or Lower-Limb ROM groups evenly. Treatment was given for 30 minutes per session, three sessions per week for three weeks. The risk of falls was measured using the Timed Up and Go (TUG) test. The paired t-test, Wilcoxon and Mann-Whitney U-test were used to analyze the data.
Results: Results showed significant differences in the TUG scores before and after the intervention within both the BSE (p=0.001) and the Lower Limb-ROM group (p=0.001). However, the Lower Limb-ROM group demonstrated a significantly higher reduction in TUG score than the BSE group after the intervention (p=0.008).
Conclusion: Lower Limb-ROM exercise is better to reduce the risk of falls among older people living in institutional care than BSE. This exercise can be applied as part of a fall prevention program in nursing homes.

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1. Introduction

Falls are one of the major health problems among older people. Falls are defined as "inadvertently coming to rest on the ground, floor, or other lower-level" (World Health Organization [WHO], 2018, p.1). It was estimated that about 28.4% of people aged 60 years or over have experienced falls in the last two years (Gale et al., 2016). However, in reality, the problem could be bigger than it seems, as a more recent study reported that about 53% of individuals had a history of falls (Del Brutto et al., 2019). While a fall event can occur anywhere, the prevalence is higher in the nursing home than in the community. A study in Indonesia indicated that approximately 32.7% of nursing home residents had fallen than 25.4% of community dwellers (Susilowati et al., 2020).

Falls are also the leading cause of injuries in older people. Approximately 7.6% of people aged 50 years or over living in the community in Indonesia had a single fall, and another 5.2% had multiple fall-related injuries in the past two years (Pengpid & Peltzer, 2018). Meanwhile, a recent study in 21 long-term care facilities in China showed that falls incidence was 13.5%. Of those who had fallen, 64% suffered from injuries, with 32% of them involved fractures (Jiang et al., 2020).

Many factors contribute to falls and fall-related injuries among older people. Socio-demographic variables, including older age, female gender, living in rural areas, and private senior home residence, were significant risk factors for falls and fall-related injuries (Susilowati et al., 2020; Williams et al., 2015). Older people with the following health problems: depression, sleeping problems, poor cognition, two or more chronic conditions, urinary problems, functional disability, and severe pain were at a higher risk of falls and fall-related injuries (Gale et al., 2016; Pengpid & Peltzer, 2018; Williams et al., 2015). Previous falls and balance/ walking problems

were also strong predictors for falls (Jia et al., 2019). A hazardous home environment such as a slippery floor, slippery bathroom, uneven ground, stumbling, poor lighting, and stairs, as well as improper footwear and clothing were also associated with falls (Worapanwisit et al., 2018).

Some strategies have been developed to reduce risks among older people related to falls or fall-related injuries, including exercise. A systematic review by Silva et al. (2013) suggested that exercise programs were effective in preventing falls in long-term care facilities. Balance exercise was one of the most commonly performed interventions besides resistance training. Balance exercise reduces the risk of falling by improving balance, coordination, and proprioception (Seo et al., 2012). A number of studies have been conducted to examine the outcomes and effects of balance exercise compared to other types of exercise, such as resistance training (Joshua et al., 2014; Lacroix et al., 2016; Seo et al., 2012), ankle training (Choi & Kim, 2015), and core stability exercise (Apriani et al., 2015) on fall risk reduction and related indicators. Those studies showed mixed results. Apriani et al. (2015) and Choi & Kim (2015) reported that the balance exercise group showed a better improvement in the gait and the dynamic balance than the comparison group. However, Joshua et al. (2014) showed that the balance exercise was less effective in improving stability than resistance training. Both resistance and balance exercise groups showed a significant improvement in fall efficacy compared to the control group in a study by Seo et al. (2012). In another study, a combination of balance and strength training resulted in better balance and lower extremity muscle power than habitual physical activity (Lacroix et al., 2016).

Besides changes in body balance, having a decreased range of motion also plays an important role in fall occurrence. Range of motion (ROM) refers to the distance and direction that a joint can move (Dutton, 2012). A previous study found a significant decrease in the range of motion of hip extension, internal rotation, abduction, and ankle dorsiflexion in the 'fall group' compared with the 'non-fall' group (Chiacchiero et al., 2010). Thus, an exercise program to improve the range of joint motion may complement the existing exercise programs as a fall prevention strategy.

Range of motion (ROM) exercise refers to an activity aimed at improving a specific joint's movement. Several structures influence this motion: configuration of bone surfaces within the joints, tendons, ligaments, joint capsule, and muscles acting on the joint (Dutton, 2012). A considerable number of studies have examined the benefits of ROM exercise for better patient outcomes in various health conditions, such as stroke (Kim et al., 2014; Murtaqib, 2013; Rhestifujiayani et al., 2015), type 2 diabetes mellitus (Widyawati et al., 2017) and congestive heart failure (Nirmalasari et al., 2020). On the other hand, there are few studies examining the effect of this exercise on fall prevention (Fitriansyah et al., 2014; Safa'ah & Srimurayani, 2017). These studies pointed out that the lower limb ROM exercise improved the postural balance and increased muscle strength among older people to prevent falls.

Balance exercise and range of motion exercise are two exercise interventions that have been well researched in this respect. However, there have been no studies comparing the effect of these two exercise programs on reducing the risk of falls among senior residents living in institutional care. Therefore, this study will help the nursing home's management team implement the best form of exercise to reduce the risk of falling among senior residents. Accordingly, this study aimed to compare the effect of Balance Strategy Exercise (BSE) and Lower Limb-Range of Motion (ROM) exercise for reducing the risk of falls among older people living in institutional care facilities.

2. Methods

2.1 Research design

This was a quasi-experimental study using a pre-posttest comparison of two treatment groups design.

2.2 Setting and sample

The study was conducted from January to March 2019 in two nursing homes in Central Java Province, Indonesia. Cluster randomization using the lottery method was used for group assignment to reduce the probability of experimental contamination (Esserman et al., 2016). Cluster randomization uses a group, rather than a participant, as the unit of randomization. Thus, participants in the same cluster receive the same intervention (Esserman et al., 2016). All senior residents who were categorized as "potentially older people" were invited to be research

participants. Preliminary screening was conducted to check their eligibility using the following criteria: aged 60 years old or over, had a Time and Up Go (TUG) test score ≥14 seconds, had either normal cognitive function or mild impairment (0-4 errors on a 10-item Short Portable Mental Status Questionnaire (SPMSQ), and were able to mobilize independently without assistance. A total of 30 senior residents (15 from each nursing home) met these study criteria (Figure 1).

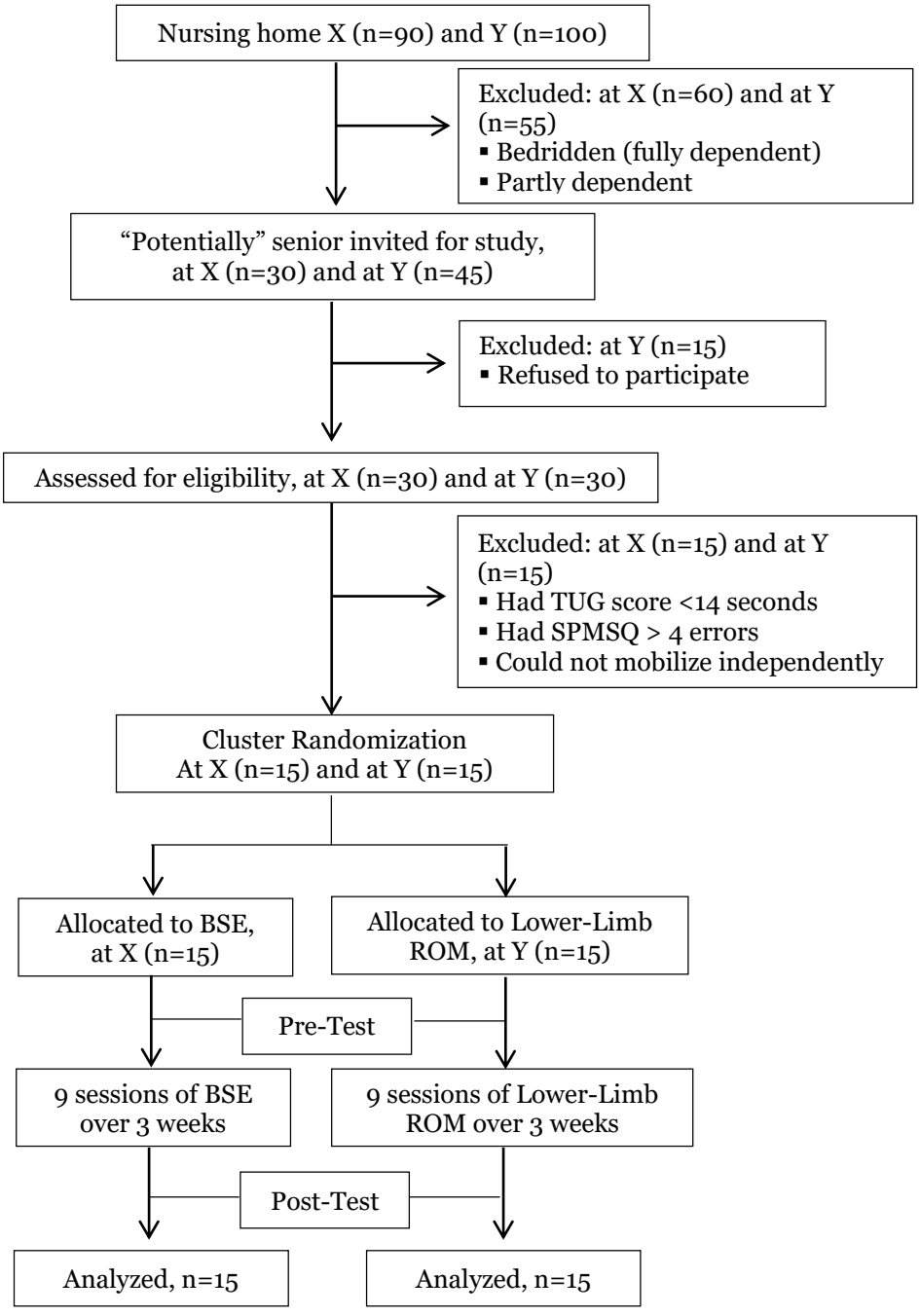

Figure 1. Flowchart of the study

This study was conducted with a small sample size. Similarly, many previous studies used relatively few participants (12-22 participants per group) (Apriani et al., 2015; Choi & Kim, 2015; Fitriansyah et al., 2014; Gschwind et al., 2013; Joshua et al., 2014; Safa'ah & Srimurayani, 2017). It argued that ideally, a study should be conducted with a large sample to avoid potential baseline group inequality, reduce the variability of effect sizes and increase power. However, in most cases, this is quite difficult, especially in intervention studies involving older populations (Netz et al., 2019). The process to recruit more participants in this study was even less possible due to the

coronavirus pandemic, as most long-term care facilities were locked down. However, to ensure that the use of a small sample in this present study did not cause baseline group differences, a simple homogeneity test on participants' characteristics and baseline TUG score was conducted.

2.3 Intervention

Participants conducted a 3-week exercise program, which was three sessions per week, with each session lasting for 30 minutes. Each exercise session consisted of a warm-up exercise for 5 minutes, BSE or Lower Limb ROM training for 20 minutes, and a cool-down exercise for 5 minutes. BSE comprised three main parts: ankle strategy exercise, hip strategy exercise, and stepping strategy exercise. Meanwhile, Lower Limb ROM involved the combination of flexion, extension, hyperextension, abduction, adduction, rotation, circumduction, eversion, inversion, pronation, and supination at the hip, knee, ankle, inter-tarsal, and phalangeal joints. All regular exercise programs were postponed and replaced by either the BSE or Lower Limb-ROM exercise program to avoid intervention bias (Krishna et al., 2010). The exercise program was run in a group format.

2.4 Measurement and data collection

Pre-tests were conducted after all eligible participants gave their consent to partake in this study. These tests used the Timed Up and Go (TUG) test to measure the risk of falls. All participants had their blood pressure checked each time before the exercise sessions began. The participants then obtained nine sessions of either the BSE or Lower Limb ROM over three weeks. Finally, the post-tests were measured using the same TUG test after all participants completed the exercise sessions. No dropped-out participants occurred during the interventions.

The risk of fall was measured using the TUG test. This test is valid to measure mobility and fall risk in the older adult with interrater reliability (intraclass correlation coefficient) = 0.98, sensitivity=87%, and specificity=87% (Shumway-Cook et al., 2000). The TUG test counts the total time (in second) that an individual takes to rise from a chair, walk 3 meters, turn around, walk back to the chair, and sit down. A score of ≥14 seconds has been shown to indicate a high risk of falls. Prior to the test, the subjects were explained about the procedure and what they could wear or used during the test (shoes or an assistive device was permitted). The steps for the test are as follows: (1) subject sits in the chair with arm resting comfortably; (2) when told "Go," subject stands up and the time starts; 3) subject walks 3 meters, turns around, walks back to the chair and sits down; 4) the time stops when the subject is seated.

2.5 Data analysis

Data were initially checked to establish whether it was normally distributed or not. It was found out that TUG scores in the BSE group were normally distributed, whereas, in the Lower Limb-ROM group, they were not. A linear transformation was carried out for non-normal data distributions prior to analysis. The chi-square test, paired t-test, Wilcoxon test, and Mann-Whitney test were used to analyze the data. This study used $p \leq 0.05$ as a threshold of significance.

2.6 Ethical considerations

This study's ethical approval was gained from the Health Research Ethics Committee of Faculty of Health Sciences, Universitas Jenderal Soedirman (No. 027/EC/KEPK/XII/2019). Before signing the written consent, participants were given an explanation about the aim and nature of the study and also the right to refuse and withdraw their participation at any time. Anonymity and confidentiality of the participants were maintained by using initials instead of names and limiting access of the data to research members only throughout the study.

3. Results

3.1 Characteristics of respondents

Table 1 shows the characteristics of respondents. The majority of participants in the Lower-Limb ROM group were female (80%). Meanwhile, in the BSE group, the proportion of female respondents was slightly smaller than that of males, which was 46.67%. However, the homogeneity test did not show a significant difference in the proportion of females and males between the two groups (p=0.058). Both the BSE and Lower Limb-ROM groups had exactly the same proportion of participants according to their age category. The majority of the participants

were categorized as older persons (60-74 years old), which was as many as (73.33%). The homogeneity test showed no significant difference in the age group proportion between the two groups (p=0.729).

Table 1. Characteristics of respondents (n=30)

Characteristics	BSE (n=15) f (%)	Lower Limb-ROM (n=15) f (%)	p
Gender			
Male	8 (53.33)	3 (20)	0.058*
Female	7 (46.67)	12 (80)	
Age			
60-74 years old (older persons)	11 (73.33)	11 (73.33)	0.729*
75-90 years old (oldest-old)	4 (26.67)	4 (26.67)	

*Chi-square test

3.2 TUG test score difference within groups

Table 2 shows a decrease in TUG test scores after the intervention. Statistical analysis showed a significant difference in the TUG score before and after the intervention within the BSE group (p=0.001). Similarly, a significant difference in the TUG score before and after the intervention was also found within the Lower Limb-ROM group (p=0.001). It can be concluded that BSE and the Lower Limb-ROM significantly reduced the risk of falls.

Table 2. Differences in TUG test scores before and after the intervention within groups

Groups	Pre-test Mean (SD)	Post-test Mean (SD)	p
Balance Strategy Exercise	18.13 (3.46)	16.06 (3.08)	0.001*
Lower Limb-ROM Exercise	16.40 (3.35)	12.66 (3.22)	0.001**

*Paired t-test, ** Wilcoxon test, SD=standard deviation

3.3 TUG test score differences between groups

Table 3 shows no significant difference in the TUG test score before the intervention (pre-test) between the two groups (p=0.542), which means both groups were homogenous. However, after the intervention (post-test), the TUG test score in Lower Limb-ROM was significantly lower than the BSE group (p=0.037). Furthermore, the TUG score change (pre-posttest) showed a significant difference between the two groups (p=0.008). It means that the Lower Limb-ROM exercise was better in reducing the risk of falling than the BSE.

Table 3. Differences in TUG test scores between groups

Groups	BSE Mean (SD)	Lower Limb-ROM Mean (SD)	p
Pre-test	18.13 (3.46)	16.40 (3.35)	0.542*
Post-test	16.06 (3.08)	12.66 (3.22)	0.037*
Pre-post changes	2.07 (1.79)	3.73 (2.28)	0.008*

*Mann-Whitney test, SD=standard deviation

4. Discussion

This study investigated whether there was a difference in the BSE and Lower Limb-ROM exercise training in reducing the risk of falling in older people. This study demonstrated that both exercises significantly reduced the risk of falls indicated by lower TUG scores after the intervention. However, Lower Lim-ROM training appears to be better for reducing the risk of falls than BSE.

The finding showed that the BSE intervention, which was conducted for 20 minutes per session, three times a week for over three weeks, reduced the risk of falling in the older people as indicated by a decrease in the TUG test score test. This finding is consistent with a previous study conducted by Konak et al. (2016), which reported a significant decrease in TUG scores among

community-dwelling older adults after a 4-week balance training program. Previous studies conducted in long-term care facilities also suggested that balance training improved residents' functional mobility and balance (Nitz & Josephson, 2011; Yeşilyaprak et al., 2016).

The BSE increases postural control and muscle strength in the lower limbs, which are essential to maintain balance in the older adult (Cho & An, 2014; Low et al., 2017). The BSE consists of three stages: ankle strategy exercise, hip strategy exercise, and stepping strategy exercise. The ankle strategy exercise trains the ankle joint's plantar flexor and dorsiflexor muscles to move the body's center of mass. The hip strategy exercise focuses on the use of hip flexors and trunk muscles to move the body's center of mass. Meanwhile, the stepping strategy exercise is taking a step forward or backward to broaden the base of support, so the body's center of mass is within the base of support. This strategy can be used when the ankle and hip strategies are insufficient to maintain balance (Avers & Wong, 2020).

Furthermore, the BSE activates the body's voluntary movement system and automatic postural responses. The ankle and hip strategy exercises will improve biomechanical constraints by strengthening the following muscles: gastrocnemius, hamstrings, trunk extensor, anterior tibialis, quadriceps, and abdominal muscles. These muscles will support the body and improve the limits of stability so that the center of gravity will be maintained in both anteroposterior and mediolateral directions. Meanwhile, the stepping strategy exercise helps improve the body's automatic postural responses (Low et al., 2017; Sibley et al., 2015).

Similar to BSE, this study also found that the Lower Limb-ROM exercise conducted for 20 minutes per session, for three sessions per week and over three weeks, reduced the risk of falling in the older adults. This finding is in line with previous research conducted by Fitriansyah et al. (2014), which demonstrated that a range of motion exercise could improve balance. A previous study by Battaglia et al. (2016) showed that exercise training programs, including muscle strength and spinal range of motion (ROM), could influence sagittal balance, lumbar lordosis angle, and spinal ROM back muscle strength.

Lower Limb ROM training consists of various movements performed on selected joints (hip, knee, ankle, inter-tarsal, and phalangeal) in different directions (flexion, extension, hyperextension, abduction, adduction, rotation, circumduction, eversion, inversion, pronation, and supination) (Dutton, 2012). A previous study by Jung and Yamasaki (2016) suggested that hip extension, ankle dorsiflexion, ankle plantar flexion ROMs, and knee extension and flexion strengths were associated with the improved physical performance of older women. Thus, a specific intervention program to improve the lower extremity ROM and muscle strength would be beneficial to the prevention of dependence on daily activities and loss of physical function in older adults (Jung & Yamasaki, 2016).

ROM exercise, also called stretching or flexibility exercise can stimulate chemical, muscular, and neuromuscular activation. This exercise can increase muscle mass, strength, and tone and also helps to maintain circulation, joint mobility, and flexibility. A previous study demonstrated that the range-of-motion exercise program significantly improved joint angles, activity function, perception of pain, and depressive symptoms among stroke survivors in residential care (Tseng et al., 2007). Furthermore, the ROM exercise can stimulate the formation of proprioception by activating sensory receptor responses throughout the surface of the muscles, ligaments, joint capsules, and skin. When proprioception is improved, it will help improve balance (Jung & Yamasaki, 2016; Pongantung et al., 2018).

Even though both the BSE and Lower Limb-ROM were found to reduce the risk of falling in the older adults significantly, a comparison between the two groups showed that the latter was better than the former. A possible explanation for this finding was because the older people in this study were more likely to have problems with their joints, which the ROM exercise particularly focuses on. In general, many older people suffer from joint pain, joint stiffness, and loss of muscle strength of the lower limbs. In particular, the prevalence of joint diseases in Indonesia is relatively high; the highest prevalence is in the age group >75 years (18.9%), which is then followed by the 65-74 age group (18.6%), and in the 55-64 age group (15.5%) (Ministry of Health Republic of Indonesia, 2018). Joint pain usually occurs in the hands, wrists, shoulders, hips, upper and lower spine, knees, and legs. Joint pain that is not treated promptly can cause joint stiffness. Later on, muscles around the joint shrink due to infrequent use and lose their function (Mortazavi & Nadian-Ghomsheh, 2018). When this happens over a long period of time, the older people will lose their ability to maintain their body's level of fitness, experience difficulties in walking and

performing daily activities, and also have a higher risk of falling (Jung & Yamasaki, 2016). By practicing the Lower Limb-ROM exercise routinely, it is expected that joint problems can be treated, muscle strength can be increased, and thus the risk of falls can be lowered.

5. Implication and limitation

Findings from this study suggest that long-term care residents who are at risk for falls may benefit from exercise intervention designed to decrease the risk. The BSE and Lower Limb-ROM exercise may therefore be implemented in a long-term care setting. Given the greater reduction of TUG score in the Lower Limb-ROM as compared to the BSE group, it is recommended to include the former as part of a fall prevention strategy in long-term care facilities. The limitations of this study were first that the interventions were conducted in a group format. Even though there were research assistants present who continuously assisted participants during the exercise session, the researchers could not fully ensure that all participants performed all the exercise movements correctly and perfectly. This might have caused bias in the results. Second, this study used a relatively small sample due to the limited number of nursing home residents who met the study criteria and the difficulty of recruiting more samples during the pandemic. However, the homogeneity test has been performed to ensure that the baseline comparability of the two groups was equal. The last was this study used two treatment groups design without control for the similar reasons as above (small sample).

6. Conclusion

BSE and Lower Limb-ROM exercise could reduce the risk of falling among the older people living in institutional care facilities. However, the Lower Limb-ROM exercise was better than the BSE in decreasing the risk of fall. Nursing home management is suggested to implement the Lower Limb-ROM exercise as part of a fall prevention strategy in long-term care facilities. Future research is recommended to use a larger sample size and includes a control group to increase power and minimize bias. It is also recommended to add intervention duration and a follow-up period for more accurate treatment effect estimation.

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Conflict of interest

The authors declare that they have no conflict of interests.

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ORIGINAL RESEARCH

The Experiences and Meanings of Nurses' Smiles to Patients in the Emergency Department

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Abstract

Background: Psycho-emotional aspects play an important role in both health services and health workers in the emergency department. Smiles are forms of interactions between nurses and patients that are given in providing health services to patients in terms of nonverbal communication. However, high workloads in the emergency unit may hinder nurses from smiling.
Purpose: This study aimed to explore the experiences and meanings of nurses' smiles to patients in the emergency department.
Methods: This study employed a qualitative design with a descriptive phenomenological approach. Thirteen participants were recruited through purposive sampling using the inclusion criteria, such as emergency nurses with more than three years of work experience and nurses who had attended training on effective communication. Data were collected through in-depth interviews with semi-structured questions and analyzed using the Colaizzi's phenomenological approach.
Results: The study generated four themes, namely, the importance of smiles in emergency services, the miracle of smiles, the hindrances for emergency nurses to smile, and that smiles and humor in an emergency situation are important for children.
Conclusion: The study concluded that nurses' smiles had a significant benefit on emergency department services as a form of interpersonal relationship, although the practice still needs to be improved. Nurses are expected to be able to apply smiles in communicating with patients and their families in the emergency departments.

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1. Introduction

Emergency Department (ED) visits have often become the first and unique moments for the patients within a hospital system to build a positive first impression. However, the ED environment, which is distinctly characterized by uncertainty and unlimited challenges, causes these visits to be a stressful experience for the patients. Poor communication, overcrowding, and uncomfortable environment, as well as inadequate communication in ED still become major issues that influence patients' experience of care, which make them remain a focused agenda for ED (Sonis et al., 2018). The ED personnels are required to internalize and enact their professional ethics through nurses' attitudes and behaviors because the psycho-emotional aspect has a crucial role both for the patients and the personnels in emergency situations (Rugless & Taylor, 2011).

In providing nursing care, nurses' attitudes and behaviors are integral parts that cannot be separated in communicating with patients (Hermann et al., 2019). However, nurses in emergency departments have a high workload, fatigue, and high stress, which hinder them from smiling at the patients and their families. Although conditions in the emergency departments are loaded with intense workloads, the nurses are obliged to smile (Loghmani et al., 2014).

Smiling is a facial expression that is pivotal and essential in expressing one's attractive feelings. This is because people who are physically attractive are valued better and appear to be more sensitive, stronger, more humble, more friendly, more pleasant, and more responsive (Kraft & Pressman, 2012). An attractive or pleasant smile will create good interpersonal relationships. A smile is different from a laugh in features, of which the former produces no sound and less facial muscular distortion than the latter. The characteristics of a smile include a change in facial

expression, brightening of the eyes, and upward curving of the mouth corners. A smile may represent expressions of amusement, pleasure, tender affection, approval, controlled joy, irony, ridicule, or any other various emotions (Kishorekumar et al., 2015).

One of the limitations in communication occurring in the EDs is non-verbal communication. Literature has confirmed that a smile is an essential component of nonverbal communication (Hall, 2009). It has been revealed that nurses smile less during interactions with patients (Hermann et al., 2019). A statement also supports this finding that many complaints are addressed to the services provided by nurses in hospitals. The nurses are often deemed to be less friendly, especially when the family asks too many questions, and the nurses sometimes reply to the questions improperly without a smile (Loghmani et al., 2014). The high workload causes the nurses to have inadequate time for patients and their families, resulting in a negative interaction between nurses and patients' families. Excessive work pressure is one of the obstacles in nursing communication (Shafipour et al., 2014).

A smile for the nurses, patients, their families, and other medical care treatments has been shown to have a positive effect of joy and happiness towards the patients. Smiling provides many benefits for patients, including as one way to relieve stress that eventually will bring happy feeling (endorphin hormones) and think more positively. A smile can be healthy both for people who give a smile and those who receive the smile because, in communication, a smile is in the form of human sensitivity that shows empathy, mutual acceptance, mutual understanding, and an attitude of being present for patients (Béres et al., 2011). Nurse is a highly dedicated work, providing affection and care either mentally, physically, and emotionally. The provision of a smile creates trust between the patient and family, so they are open to the actual problems that they face (Kwame & Petrucka, 2020). However, research on nurses' smiles is still rare. The high workload of nurses in the emergency department causes high fatigue and stress, that may be the possible reasons why the nurses do not smile at patients and their families. It is not only caused by a high workload, fatigue, stress but also other influencing factors (Hermann et al., 2019). Therefore, this research is necessary to conduct. Accordingly, this study aimed to explore the experiences and meanings of nurses' smiles to patients in the emergency department.

2. Methods

2.1 Research design

This study was a descriptive qualitative study with a phenomenological approach. This approach explores, interprets, and analyzes data in a structured and comprehensive manner to obtain the essence of individual experiences in the form of narratives, stories, and sayings (Polit & Beck, 2012).

2.2 Setting and participants

This study was carried out in a hospital in Kudus, Central Java, Indonesia in 2019. The population in this study was emergency nurses within the hospital. Purposive sampling was used to recruit 13 participants who met the inclusion criteria. The criteria included nurses with more than three years of work experience and nurses who had attended training on effective communication. The number of participants was determined by reaching the level of redundancy, in which the data were saturated, and adding more participants would not provide any new information.

2.3 Data collection

The data were collected through in-depth interviews using semi-structured interview guidelines for 40-60 minutes. The interview guidelines were made based on a relevant theory, starting with open-ended questions that were flexible and could be developed during the interview process without leaving the predetermined topic. The interview asked fourteen questions to get deep information about nurse experiences, for example, "How is your experience in giving a smile while treating patients with emergency conditions?". Then, the researchers explored deeper to disclose information on each question. The interviews were recorded using a voice recorder, and the results of observations were written as field notes. The researchers interviewed the participants face-to-face at the agreed time. The time and place of the interview were arranged in a calm environment within the hospitals, which were according to the participants' preferences. Data collection was continued to the point of data saturation, in which no new information was

obtained, and redundancy was achieved. The researchers concluded the results of the interview by clarifying the answers that had been given by participants to the researchers.

2.4 Data analysis

The data analysis used in this research was the Colaizzi's model. This model consisted of several stages. The initial stage of data analysis was done by carefully listening to the recordings repeatedly. The next stage was transcribing process, which was done by conducting verbatim transcriptions to all recordings. The data then were categorized into categories, sub-themes, and themes (Morrow et al., 2015).

2.5 Trustworthiness

The trustworthiness in this study was achieved through the principles of credibility, dependability, confirmability, and transferability. To obtain high data credibility for the results of this study, triangulation and member check were employed. Triangulation techniques included triangulation of data sources and theory triangulation. In theory triangulation, the researchers compared the data obtained from the research with the existing theories from both books and journal articles. Data source triangulation was done by comparing the interview results with the head nurse and patients' families' interview results, direct observations, and field notes. Member-checking was done by giving the interview results to all participants in the form of transcripts to determine the suitability data obtained from participants. The dependability in this study was maintained by involving a supervisor to audit and analyze a series of research processes such as entering the field to recruit the participants, data collection mechanisms, checking the data validity, data analysis, and how to draw the conclusions. Confirmability was done by debriefing the results of the study with the research team. Lastly, the researchers carried out transferability by describing in detail the findings obtained in the study, then making an explanation of the interview results in a narrative form. It was done so that the readers could clearly understand the results of the research and could use and apply the results of the study elsewhere.

2.6 Ethical considerations

Prior to the data collection, participants were informed and provided their consent for voluntary participation. Their identities were kept confidential using the nurse code (P) given to the participants based on the order of interview. The ethical approval in this study was received from the Ethics Committee of the Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia, with a reference number of 449/III/HREC/2019.

3. Results

3.1 Characteristics of respondents

The participants in this study were 13 nurses. Most of them were males (54%), aged 36-45 years old (85%), married (92%), had been working for 1-10 years (62%), and had completed nursing diploma (38%). Table 1 shows the participant demographic characteristics.

The result generated four themes: (1) the importance of smiles in emergency services, (2) the miracle of smiles, (3) the hindrances for emergency nurses to smile, and (4) smiles and humor in emergency cases are important for children.

3.2 The importance of smiles in emergency services

The participants in this study mentioned that smiles had become one of the most important parts of emergency department services. Smiles were given to patients and their families when they first entered the room to create a good relationship. The intended relationship was aimed to establish trust between the nurses and patients.

> *"... The importance of smiling at the patient is making a good relationship between the nurse and the patient. This is proven when asking patients ... the answer is good, not curt ..." (P2)*

> *"... Smiling is very important in the emergency room ... as a form of therapy and can build trust between nurses and patients ..." (P3)*

"... in the emergency room, a nurse's smile is very important. People will feel more appreciated, can accept anything through an open attitude and show a nice-looking face with a smile." (P4)

Table 1. Demographic characteristics of participant (n=13)

Demographic characteristics	f	%
Sex		
Male	7	54
Female	6	46
Age		
25-35	2	15
36-45	11	85
Marriage status		
Marriage	12	92
Single	1	8
Work length		
1-10	8	62
11-20	3	23
21-30	2	15
Educational background		
Diploma	5	38
Bachelor	4	31
Nurse profession	4	31

3.3 The miracle of smiles

The second theme revealed that smiles could yield some miracles to the patients. These miracles were speeding up the healing process, providing comfort, making happiness, fostering a mutual trust relationship, and opening patients' attitudes. The participants stated that a smile could speed up the healing process of the patients. A smile also could provide positive energy for the patients so that it could be a good influence on the patients' healing process.

"... Smiles for me can accelerate healing process though it is indirectly..." (P5)

"... Smiles for patients are very effective when patients are complaining of pain, for instance; if we smile, the pain disappears quickly. But if there are unpleasant nurses, it may slow down the healing process... A sense of calm and comfort can speed up healing with non-pharmaceutical measures..." (P6)

"... Smiling facilitates healing for patients; if medicine only helps recovery; but if you believe and feel comfortable, God willing, it will support faster healing..." (P10)

The participants also said that a smile could give comfort. Even though it was difficult because of the patients' emergency condition, a nurse still had to smile so that the patients were calm and comfortable by showing concern and providing motivation.

"... Smiles bring them closer to nurses, can make the patient comfortable... for example, when we smile, the family becomes happy..." (P11)

"... Smile has become our basis before entering the patients' rooms, before we start any conversation with them... the patients will be more comfortable; they won't cover anything, insyaallah (God willing), they will have trust in us... If I assume, before going to the verbal communication, we should begin with the non-verbal communication first..." (P12)

Participants expressed that a smile could make patients happy. As a nurse who served patients, giving smiles could be considered as a part of the duty to bring happiness, especially a sincere smile.

"... Smiles can show a person's self-image, a depiction of one's heart, what the mood is happening to that person. Smiles show a good depiction of our heart, no burden; more sincere smiles we give to the patients show a depiction of happiness..." (P4)

"... A smile makes our face brighter because the muscles are relaxed, stay young too... The point is that smiles are able to help in healing the patients even though it is in indirect forms, but if it is seen from the patients' responses, their first impression to see nurses smiling to them will be a peaceful and happy feeling." (P5)

The perception from participants showed that expressing smiles could foster mutual trust relationships. A mutual trust relationship could be fostered through smiles prior to any interactions with patients and families during nursing care.

"... Smiles can create a good relationship with patients and their families, trust relationships; if we are nice to them, they will believe that our objective is to provide optimal services..." (P1)

"... Smiles are important to build the patient's trust in treatment. Smiles are an indicator of friendliness..." (P4)

The participants also perceived that smiles could open the patients' attitude. The participants were interacting by giving smiles and listening to what the patients complained about. This would encourage the patients and their families to believe in nurses and to improve cooperation.

"... by smiling to the patients, they will answer the questions, and we, as a nurse, will know what they felt. A smile can explore the patient's problems and openness..." (P6)

"... Smiles will help us to dig the information from the patients. They will tell us the problem honestly, and it eases us to provide nursing care or further therapy..." (P7)

3.4 The hindrances for emergency nurses to smile

The participants stated that some issues hindered the emergency nurses from smiling. Some of these issues were high workloads, fatigue, high stressors, and family problems.

"... The work situation and poor conditions of the patients..., some friends who are sometimes slow to work can also hinder us in giving smiles..." (P1)

"... There are patients who can make us smile, but there are also those who are annoying... given the high workloads and the demand for physical works, it is exhausting" (P6)

"...Tiredness and many thoughts ... family issues, more on irregular emotions..." (P2)

"...Exhaustion causes smiling, greeting, and addressing (smile, greetings, say hello) to be less optimally given to patients." (P4)

"...The hindrance is when there are patients who often come (to the hospital), patients with BPJS (insurance) who have been explained repeatedly but they are still stubborn, that smiles may disappear... (to people who are difficult to explain)." (P3)

"... Pressures from the outside (patients, environments) which make us less maximally smile." (P8)

"Personal problems, if there are problems with wife and busy activities at work..." (P5)

"... Internal affairs may also give effects such as problems at home, but my principle is the problems at home should be left at home; at work, we must be professional, the problems should not be brought to the hospital..." (P7)

3.5 Smiles and humor in an emergency situation are important for children

This theme illustrated the importance of smiles and humor for children in emergency situations. The participants showed a caring attitude towards pediatric patients who came to the EDs by comforting them, making lots of jokes and smiles. These were done so that the children were not afraid. Participants occasionally teased the children with funny jokes.

> *"... I get close to the children by smiling; then we make a joke, we assure them. For example, when measuring the temperature, we ask "Does it feel sick or not?", even until the patients willingly move into the room. I ask them to make a "toss (high five)" first." (P4)*

> *"For pediatric patients, we try to go straight to the children, we make jokes and entertain them...keep looking at the patients...we try to keep calm because a nurse must be calm and gentle in explaining to the family about the further treatment, so the family's trust on us will be maintained ..." (P7)*

> *"... We always smile when we meet the kid. We try to be cheerful with them ..." (P9)*

> *"... I joke to the kid ... and say, "Come on, what do you like ...?" "Your illness is treated so you can go home quickly ...". We try to cheer up the kid ... We find difficulties when we meet kids who keep silent and cry..." (P12)*

> *"... Children tend to trust their parents ... we can still have their trust. Sometimes we tease them, sometimes we challenge them to lay down on the bed." (P13)*

4. Discussion

The study resulted in four major themes. They were the importance of smiles in emergency services, the miracle of smiles, the hindrances for emergency nurses to smile, and that smiles and humor in emergency cases were important for children.

4.1 The importance of smiles in emergency services

The result of the research showed that it was important to give a smile to patients in emergency departments due to unpredictable and overcrowding situations in emergency services. Participants revealed that they had to provide the best services, although the EDs were very crowded. One of which was through non-verbal communication like smiles. This is important since EDs are the main gate for urgent and emergent patients whose impressions will affect their satisfaction. This is in line with the opinion that smiling is very important in the EDs, considering that EDs are units with many challenges, various diseases, and unpredictable emergency situations. The crowded environment of EDs and various emotional responses of family members, like grief, anger, anxiety, and fear, make a smile very meaningful (Arshad, 2017; Australian College for Emergency Medicine, 2014; Finlayson, 2010). It means that emergency services are demanded to be promptly precise and responsive to high patient stressors. It has become the standard quality of service for hospitals that provide special services to emergency patients continuously for 24 hours every day. Health services especially nursing services, should be improved as emergency patients require fast, precise, and accurate services, so patients can be treated without experiencing disabilities (Ministry of Health Republic of Indonesia, 2009).

Mechanisms are needed to handle various emergency cases. The most effective coping mechanism in the emergency room is smiling. Naturally, there is an inappropriate time to smile in an emergency department with complex conditions. However, it should be considered that a smile stimulates the release of endorphins and dopamine, which helps to feel more relaxed to reduce patient stressors and nurse stressors (Arshad, 2017). Smiling during nurse-patient interactions in the emergency services may become a key success to enhance the communication process. A smile can reduce anxiety, stress, and obstacles resulting from the crowded environment. It also has a positive effect on health (Dias et al., 2015). A smile is contagious. It is the facial expression that breaks most barriers and brings people together, and can have a positive effect on people who feel sad, anxious, and depressed (Pontifice-Sousa, 2012).

A smile is a facial expression that is very important and essential in expressing one's feelings. An attractive or pleasant smile will create a good interpersonal relationship (Kishorekumar et al.,

2015). Smile stimulates the release of endorphins and dopamine, which helps patients feel more relaxed and happy. Endorphins hormone is chemical compounds that make people feel happy and comfortable, and the gesture is more energized (Gannon-Leary & McCarthy, 2010). Someone who smiles, his/her feelings will be stimulated, and a message will be conveyed to the brain, stimulating the left anterior temporal region in particular. Then, it smolders to the surface of the face, which involves two muscles, i.e., the zygomatic major muscles which reside in the cheeks, tugs the lips upward, and the orbicularis oculi, the muscles encircle the eye socket, squeezes the outside corners into the shape of a crow's foot (Eric, 2010).

4.2 The miracle of smiles

The results of this study confirm that a smile is a part of communication that can bring happiness and comfort. A smile is given at initial interaction with the patients as a form of nurses' introduction. This is in line with Louro and Pontifice-Sousa (2014)'s opinion that a smile can be an element of comfort that makes it easier to establish a relationship of trust, a human attribute, and therefore humanity. According to the theory, smiling is a part of communication that expresses expressions of happiness or friendliness; in other words, a smile is also a simulation of friendliness expressions (Jensen, 2014). A smile can make someone happy; in this case, the patients feel pleased and happy with the services provided. Smiling brings great positivity. A smile will please the heart, relieve stressful souls, blossom loves, and as a message of gratitude to Allah for His abundant blessings. Moreover, smiling will improve the relationship among people from all classes and ranks to be happy to live together (Mahmoud, 2015).

A smile is an important strategy, a promoter of care, and humanized nursing comfort. Nurses must be aware of the messages sent by patients, which may be verbal or nonverbal. Among other features, nonverbal communication includes physical features, posture, movement, voice, and smile (Béres et al., 2011). Smiles are important in nursing practices because they can be "analgesic" in many situations of suffering, especially when it comes to patients in the hospital environment (Louro & Pontifice-Sousa, 2014). It is important to have a therapeutic alliance between health professionals and patients. The center of nursing care is on the philosophy of humanity, on the individual, on the patients' individuality, on the holistic dimension, taking into account also the physical, psychological, and social aspects affecting the health processes (Morais et al., 2009). The participants' statements discussed in the findings are in line with the theory stating that, for thousands of years, smiles have been recognized as a form of strong communication that offers benefits to the givers and recipients with some weaknesses. A sign of affection, empathy, and friendliness, smiling can be beneficial for the health professionals as well as the patients in helping to build trust relationships (Colaco et al., 2016; Louro & Pontifice-Sousa, 2014; Rezende et al., 2015)

4.3 The hindrances for emergency nurses to smile

The results of this study revealed that the reasons hindering nurses from smiling in the emergency departments were high workloads, fatigue, limited human resources, the high stressor of nurses, and personal problems. This is in line with the research reporting that the nurses in the emergency department have a high workload, fatigue, and stress (Loghmani et al., 2014; Sonis et al., 2018). Nurses who work in emergency departments are faced with conflicts every day. Conflicts are an inevitable part of life when someone is working in a fast-paced and demanding environment (Buettner, 2009). Such conflicts may lead nurses to fatigue, and stressors increase. This statement is supported by Duffield et al. (2011), pointing out that a person who faces increasing pressure will lead to stress, fatigue, and absenteeism, including in health-related settings such as nurses.

Unpleasant conditions experienced by nurses may cause stress for nurses, which will eventually lead to work burnout. The nurses' discomfort may have an impact on the services provided considering nurses as the spearhead of medical services, whereas nonverbal communication such as smiles and also facial expressions are very important in creating effective communication between nurses, patients, and the families (Rugless & Taylor, 2011; Xu et al., 2012). Stress experienced by nurses is a major issue for the nursing profession worldwide and is described as a moral pressure in the emergency unit (Finlayson, 2010). A study by Shafipour et al. (2014) in Iran reported that overwork pressure is one of the barriers to communication, in

addition to the decreasing motivation of nurses and distrust of nurses' competencies related to cultural differences and less responsive nurses.

The participants had also explained that they experienced conflicts of roles related to psychological and physical issues resulting in their appearance when conveying information to the patients' families. This was caused by fatigue and personal problems that affected their appearance, such as, rarely smiling when passing information to the patients' families. This statement is in line with Loghmani et al. (2014)'s research which concludes that personal problems may interfere with interactions between nurses and the patients' families, in addition to lack of staff and high workload issues that cause the nurses not to have adequate time for the patients' families. Consequently, negative interactions between nurses and families occur. Efforts are made to encourage nurses to smile to bring a positive mood that causes positive reactions (Barger & Grandey, 2008).

4.4 The smiles and humor in emergency cases are important for children

The results of this study found that giving smiles to pediatric patients in the emergency department through humor was important to reduce children's fear and anxiety during emergency situations. According to Brock (2010), humor in communication is crucial as expressions of feedbacks to patients. When patients laugh, meaning that a mutual trust relationship with the patients was created. Interaction between nurses and patients related to smiles and the use of humor is considered as an important instrument in the communication process that can eliminate anxiety, stress, and obstacles resulted from the hospitals (Haydon & Riet, 2014). Humor has a positive effect on the patients' health (Pontifice-Sousa, 2012). A study by Eldridge and Kennedy (2010) explained that warm smiles and slow approaches to patients are important to eliminate the perception of scared in a child towards the medical services. Even to some extent, people consider medical services as a threat.

A fun and friendly atmosphere during medical treatment such as smiling, keeping eye contact with patients, stay sitting while explaining, and providing time to take questions will establish trust and eliminate anxiety. Talking to the patients and their families directly and giving explanations in simple and clear ways are classified as non-pharmacological medication, especially for children in emergency cases, because most children have issues with hospitalization processes (Eldridge & Kennedy, 2010). Furthermore, the use of humor is said to be a form of positive expression in inviting communication, as people who communicate with a smile and the use of humor will entertain the counterparts and may forget their problems (Ruch, 2008).

5. Implication and limitation

This study is one of the limited studies that depicted smile as an important non-verbal communication form for emergency nurses in the emergency departments. However, this study had some limitations. First, the choice of interview time, which was within working time, may affect how the participants answered the questions as they also had their responsibilities as the duty nurses. However, to minimize the interruption and concentration loss, the interviews were held in a private room at the agreed time between researchers and participants. Second, the principal researcher, who is novice, may impact how deep the interview was conducted and how to analyze the data forming the themes. However, member checking had been carried out to all participants, and peer debriefings with more expert researchers during data analysis were also done to maintain the data quality.

6. Conclusion

The findings showed that smiles are important in emergency services. Smiles may create a miracle. Also, smile and humor in emergency cases are very important for children. A smile is very important in emergency department services as a form of interpersonal relationships. However, there are several reasons why emergency nurses do not smile. Therefore, nurses are expected to be able to smile in communicating with patients and their families regardless of any internal and external problems. The results of this study are expected to be the basic consideration for hospitals to improve their medical services, especially in the emergency departments. For future research, this study can be used as a benchmark for conducting further research that focuses on the importance of a smile in the emergency department in addition to fast, careful, precise, and responsive actions.

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Conflict of interest

The authors declare no conflicts of interest in this work.

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ORIGINAL RESEARCH

Factors Associated with Genital Hygiene Behaviors in Cervical Cancer Patients in Surakarta, Indonesia

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Abstract

Background: Maintaining genital cleanliness is essential for women since intimate organ problems can cause female tract infections. Poor genital hygiene can affect sexually transmitted infections, and therefore, it is prominent to investigate factors related to genital hygiene behaviors in women to reduce this type of infection.
Purpose: This study aimed to find out the factors associated with genital hygiene behaviors in cervical cancer patients.
Methods: A case-control study was conducted on cervical cancer patients in Surakarta, Indonesia, from December 2017 to February 2018. A structured questionnaire was used to collect data from 178 subjects using a fixed disease sampling technique that consisted of 56 cases of poor genital hygiene behaviors and 122 controls of good genital hygiene behaviors with a comparison of 1:2. The dependent variable was genital hygiene behaviors, while the independent variables were stress, exposure to social media regarding genital hygiene, environmental sanitation, husband's education, and support. Logistic regression was employed for data analysis.
Results: Genital hygiene behaviors increased with exposure to social media related to genital hygiene (OR=9.20; 95% CI=3.87 to 21.87, p<0.001), good environmental sanitation (OR=5.16; 95% CI=2.19 to 12.14, p<0.001), high husband's education (OR=6.49; 95% CI=2.23 to 18.91, p=0.001) and support (OR=2.88; 95% CI=1.24 to 6.67, p=0.013). Women who experienced psychological problems such as stress showed decreased genital hygiene behaviors (OR=0.25; 95% CI=0.94 to 0.71, p=0.009).
Conclusions: Genital hygiene behaviors in women increased with exposure to social media related to genital hygiene, adequate environmental sanitation, high husbands' education, and support. In contrast, stress decreased women's behaviors in practicing genital hygiene. These findings emphasize the need for women to improve genital hygiene behaviors as well as for nurses to explain how to increase women's genital hygiene behaviors.

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1. Introduction

Genital hygiene care behaviors are necessary for women's health and well-being to feel comfortable socially and avoid sexually transmitted diseases. Genital hygiene behaviors are self-care practices performed by any individuals following their knowledge, beliefs, and habits. These practices vary between individuals and can be observed in terms of frequencies and methods. Implementing genital hygiene practices concerning the quality and frequency is the most important thing to protect women's health (Bulut, 2020; Pete et al., 2019).

Genital hygiene is an essential method of preventing genital infections and their more severe consequences. It is known that personal hygiene habits are critical to the control of many infectious diseases (Chen et al., 2017). Genital hygiene is a significant component of women's health and is vital for protecting reproductive health. However, some genital hygiene behaviors and practices carried out by women can affect women's susceptibility to sexually transmitted infections and morbidity of other reproductive diseases (Hamed, 2015). Moreover, women's

intimate hygiene is an essential priority for health care professionals and women to promote overall personal health and hygiene (Calik et al., 2020).

The cleanliness of the genital is one of the most critical elements in maintaining women's health. Apart from the many factors that cause vaginal infections, genital hygiene is recognized as a vital behavior to prevent disease in the intimate female area (Anand et al., 2015; Attieh et al., 2016). Genital infections can damage the quality of life and result in social isolation, negatively affecting women's sexual and family life. The causes of genital infection in women are very diverse. The proximity of the urethra, vagina, and anus is the most critical factor predisposed to genital infections; this is accompanied by individual factors that increase the risk of genital infections, such as a woman's behaviors of maintaining personal and genital hygiene (Adibelli et al., 2014).

Each year, about 100 million women worldwide are exposed to genital infections that can cause vaginitis, cervicitis, urethritis, and trichomoniasis associated with adverse pregnancy outcomes (World Health Organization, 2016; World Health Organization, 2015). Bacterial infections that often occur in women are caused by bacterial vaginosis and candidiasis (Centers for Disease Control and Prevention, 2020; Maje, 2019; Sevil et al., 2013). Genital hygiene is a significant factor in reproductive health protection. Infection can occur due to reduced acidity, poor menstrual hygiene, use of reusable clothes, personal unhygienic practices, keeping the genital area moist, using contaminated towels, and wearing tight non-absorbent underwear (Bulut, 2020; Karadeniz, 2019; Pete et al., 2019; Torondel et al., 2018).

Based on the Indonesian demographic and health survey in 2017, it was found that the prevalence of sexually transmitted infections (STIs) and STI symptoms among married women and men, who were sexually active, was 14% in women and 2% in men (National Population and Family Planning Board [BKKBN], 2018). STIs are more common in women because the female reproductive tract is more susceptible to infection, and also the practice of genital hygiene during menstruation needs to be considered. Reproductive health problems in women most often arise in developing countries, including Indonesia (Murti & Lutfiyati, 2017).

Previous studies have examined the relationship between genital hygiene and the incidence of female genital infections. It is shown that poor genital hygiene behaviors are one of the risk factors affecting female genital diseases, such as cervical cancer and other sexually transmitted infections (Hamed, 2015; Maje, 2019; Sevil et al., 2013; Torondel et al., 2018, Umami et al., 2018). The researchers are currently conducting research to find out the factors that affect female genital hygiene behaviors. In a country like Indonesia, genital health and reproductive health are not widely discussed in the community. Many women feel embarrassed to have discussions with health workers (Rahma et al., 2020). People feel uncomfortable talking about this in public due to taboos and social beliefs (Shah et al., 2019).

Research also shows that the role of a husband is very important for a wife; the husband can provide support for improving health and maintaining the harmony of a family (Lufiati et al., 2015; Musyriqoh, 2016). The support that a husband provides for his spouse will improve the partner's mental health, reduce stress and help financially and emotionally (Larasati, 2012). Individuals who have a high-stress perception tend to reduce their behaviors to improve health; they tend to practice behaviors that deviate from healthy behaviors (Amabebe & Anumba, 2018; Park & Iacocca, 2014). Furthermore, social media exposure also plays an important role for an individual in seeking for information to improve hygiene behaviors (Leonita & Jalinus 2018). Nowadays, where technological advances are increasingly sophisticated, information can easily be accessed through social media and the internet (Jang et al., 2017; Yasya et al., 2019).

This study is a part of previous research, in which the previous study aimed to find out risk factors for cervical cancer. The previous study showed that the risks of cervical cancer increased with the number of sexual partners, higher body mass index (BMI), and stress, but decreased with higher education, higher income, age at first sexual intercourse, and poor genital hygiene behaviors (Umami et al., 2018). The current study needs to be carried out to investigate factors associated with genital hygiene behaviors among patients who have cervical cancer in order to anticipate the occurrence of sexually transmitted infections. Accordingly, this study aimed to determine factors affecting genital hygiene behaviors among women with cervical cancer. The independent variables in this study were stress, exposure to social media regarding genital hygiene, environmental sanitation, husband's education, and support.

2. Methods

2.1 Research design

This research was an epidemiological study that employed an analytic observation using a case-control study design.

2.2 Setting and samples

The research was conducted in a public hospital in Surakarta, Indonesia, from December 2017 to February 2018. The population was women undergoing cervical cancer treatment. The samples were those patients undergoing treatment in the obstetrics and gynecology department of the specified hospital. This study was a continuation of a previous study conducted by the researchers (Umami et al., 2018) to assess risk factors for cervical cancer. The previous study findings showed a risk factor affecting cervical cancer was poor genital hygiene. Consequently, further investigation was needed to determine what factors affecting genital hygiene behaviors in women to prevent cervical cancer.

This study used a fixed disease sampling technique for recruiting the subjects. The inclusion criteria included cervical cancer patients who had been diagnosed by a physician based on history, physical examination, screening results, or histopathological tissue biopsy. Pregnant women were excluded from the study. The total samples were 178, with a ratio of 1:2. There were 56 subjects practicing poor genital hygiene that were used as cases, and 122 subjects practicing good genital hygiene that were placed as controls.

2.3 Measurement and data collection

The dependent variable in this study was genital hygiene, the act of maintaining the female genitals' cleanliness, both during menstruation, before and after sexual intercourse, and daily tasks such as cleaning the genitals after urinating and using a condom on a partner. Genital hygiene was assessed using a questionnaire developed by the researchers based on the literature reviews and previous studies (Karahan, 2017; Sari et al., 2016) and was tested for its validity and reliability. This questionnaire contained 25 questions with Likert scales of never (1), rarely (2), sometimes (3), often (4), and very often (5). The total score ranged from 25-125 and was categorized into good (the score was higher than the mean data) and poor (the score was less than the mean data). The validity tests included content validity and face validity. The reliability test was carried out by measuring the variables using the SPSS 23 statistical program to calculate the item-total correlation (≥0.20) and Cronbach's alpha (≥0.70).

The independent variables in this study included stress, exposure to social media related to genital hygiene, environmental sanitation, husband's education, and support. Stress was assessed by using several indicators such as, how the patient felt, and whether the patient had experienced feelings of anxiety, irritability, and overreacts to situations in his/her life for at least three months. Stress was evaluated based on the questions in the Perceived Stress Scale (PSS) (Cohen, 1994; Song et al., 2017). This questionnaire is a standardized questionnaire. It was translated into the Indonesian language and tested for face and content validity by a psychologist and linguist. This questionnaire contained 10 questions with Likert scales of never (0), rarely (1), sometimes (2), often (3), and very often (4). The total score ranged from 0-40, and was categorized as follows: normal (0-7), low (8-11), moderate (12-15), high (16-20), and very high (≥21). Furthermore, for the multivariate data analysis, it was converted into a dichotomy, namely no stress with a score of 0-7 and stress with a score of ≥8. The husband's education was the last formal level of education obtained by the research subject's husband. Meanwhile, the husband's support was a motivation and encouragement given by the husband to his partner in supporting genital hygiene behaviors. Environmental sanitation was assessed based on how the house environment was, whether it had clean water sources, and the use of latrines. Social media exposure described whether a woman had accessed information about genital hygiene through social media.

Data were collected in the obstetrics and gynecology department of the specified hospital. Patients diagnosed with cervical cancer by a physician based on physical examination as well as supporting examinations with biopsy, pap smears, and Visual Inspection with Acetic Acid (VIA) tests were taken as research subjects. Patients who agreed to be the research subjects were informed of the research objectives and consented to their participation. The patients were given a questionnaire sheet to be completed. Genital hygiene behaviors were assessed using the questionnaire in which a mean score of ≥69 indicated good genital hygiene. From the results of

the samples, data analysis was then carried out to determine factors affecting female genital hygiene behaviors. The independent variables included stress, social media exposure related to genital hygiene, environmental sanitation, husband's education, and support.

2.4 Data analysis

Data analysis was performed using a multiple logistic regression analysis with a significance level of ≤0.05 to determine the magnitude of the determinant influence on the occurrence of genital hygiene behaviors.

2.5 Ethical considerations

The research ethics in this study included informed consent, anonymity, confidentiality, and ethical clearance. This study obtained ethical approval from the Health Research Ethics Committee of Dr. Moewardi Hospital, Surakarta, (Reference number: 1/I/HREC/2017). All participants were informed of the study and signed informed consent for their voluntary participation.

3. Results

3.1 Characteristics of respondents

There were 56 subjects in the case group and 122 subjects in the control group. Among the subjects, 65.2% received high support from their husbands. Most respondents had accessed information about genital hygiene through social media (52.2%) and had adequate environmental sanitation (54.5%). Respondents who experienced very high-stress perceptions were 9%. Detailed information on the frequency distribution of the subject characteristics is presented in Table 1.

Tabel 1. Characteristics of respondents

Variable	Frequency (f)	Percentage (%)
Exposure to social media regarding genital hygiene		
No	85	47.8
Yes	93	52.2
Environmental Sanitation		
Poor	81	45.5
Adequate	97	54.5
Husband's Education		
Low	130	73.0
High	48	27.0
Husband's Support		
No	62	34.8
Yes	116	65.2
Stress (Perceived Stress Scale)		
Normal (0-7)	51	28.7
Low (8-11)	47	26.4
Moderate (12-15)	38	21.3
High (16-20)	26	14.6
Very High (≥ 21)	16	9
Genital Hygiene		
Poor	56	31.5
Good	122	68.5

3.2 Relationships between genital hygiene behavior and risk factor variables

In this study, we explored the relationship between five independent variables and genital hygiene behaviors in women. Table 2 shows that, according to the bivariate analysis, four variables had a statistically significant relationship at the level of $p<0.05$, and one variable showed no significant relationship, namely husband's support.

Table 3 shows that the five variables analyzed using multiple logistic regression had a statistically significant relationship ($p<0.05$). Women who have received information about genital hygiene on social media had a role of 9.20 times to implement good hygiene behaviors

compared to women who had never accessed information (OR=9.20; 95% CI=3.87 to 21.87, p<0.001). Women who lived in an environment with adequate sanitation had a 5.16 times role in implementing good hygiene behaviors. Similarly, husband's education (OR=6.49; 95% CI=2.23 to 18.91, p=0.001) and high husband's support (OR=2.88; 95% CI=1.24 to 6.67, p=0.013) would make women practice good genital hygiene behaviors. Meanwhile, women who perceived stress would reduce their behaviors in practicing good genital hygiene (OR=0.25; 95% CI=0.94 to 0.71, p=0.009).

Table 2. Factors associated with good genital hygiene behavior among subjects

Variable	Genital Hygiene Behavior				Crude OR*	CI* (95%)		*p*-value
	Poor		Good†			Lower limit	Upper limit	
	f	%	f	%				
Exposure to social media regarding genital hygiene								
No	43	(50.6)	42	(49.4)	1			
Yes	13	(14.0)	80	(86.0)	6.30	3.05	12.99	<0.001
Environmental Sanitation								
Poor	35	(43.2)	46	(56.8)	1			
Adequate	21	(21.6)	76	(78.4)	2.75	1.43	5.29	0.002
Husband's Education								
Low	48	(36.9)	82	(63.1)	1			
High	8	(16.7)	40	(83.3)	2.92	1.26	6.77	0.010
Husband's Support								
No	25	(40.3)	37	(59.7)	1.85	0.96	3.56	0.063
Yes	31	(26.7)	85	(73.3)	1			
Stress								
No	8	(15.7)	43	(84.3)	1			
Yes	48	(37.8)	79	(62.2)	0.306	0.133	0.706	0.004

Bivariate analysis using Chi-square test; *OR, odds ratio; CI, confidence interval; †good genital hygiene behavior as a reference mark

Table 3. Adjusted associations between good genital hygiene behavior and related factors

Independent variables	β	*p*-value	Adjusted OR (95% CI)
Exposure to social media regarding genital hygiene	2.22	<0.001	9.20 (3.87-21.87)
Environmental sanitation	1.64	<0.001	5.16 (2.19-12.14)
Husband's education	1.87	0.001	6.49 (2.23-18.91)
Husband's support	1.06	0.013	2.88 (1.24-6.67)
Stress	-1.35	0.009	0.25 (0.09-0.71)
-2 Log likelihood	156.68		
Nagelkerke R^2	0.430		

Based on the multivariate analysis in Table 3, it could be concluded that the relationship between exposure to social media regarding genital hygiene, environmental sanitation, stress, and husband's education and support was statistically significant. The analysis also found that the score of R^2 Nagelkerke was 0.430, which means that the five independent variables could explain the variance of genital hygiene behaviors by 43 %, and the remaining 57 % was explained by other factors.

4. Discussion

4.1 The relationship between social media exposure and genital hygiene

The results of this study showed that women who have received information about genital hygiene through social media have a 9.20 times role in implementing good hygiene behaviors compared to women who have never accessed information from social media. Social media is a new form of information and communication technology that is overgrowing and is known to influence everyday human life, including health information. This research suggests that women exposed to social media related to genital hygiene have nine times improved good habits in genital cleaning than women who had never been exposed to social media. Information obtained online

increases women's knowledge about how to clean the female area; they can consult online with health workers available from various applications or platforms. This study is in line with research conducted by Shah et al. (2019), which assessed adolescent girls in Nepal and found that knowledge of good genital hygiene habits increased two times higher in the subjects who were exposed to social media than those who were not exposed to social media.

Access to the internet occurs more in women of childbearing age than men of childbearing age (National Population and Family Planning Board [BKKBN], 2018). Previous studies showed that interactive social media creates an ideal environment for women to get information and support by sharing experiences and concerns (Jang et al., 2017; Yasya et al., 2019). The need for accurate, precise, and up-to-date information is increasingly needed in line with the rapid development of information technology, especially in the health sector. Social media via the internet has a great potential for health promotion and other health interventions, and it is easier to hit targets at every level. Empirical evidence shows that social media helps carry out health promotion efforts to increase understanding and support people to behave healthily (Leonita & Jalinus 2018).

4.2 The relationship between environmental sanitation and genital hygiene

This study indicated that adequate environmental sanitation increased women's genital hygiene behavior five times higher than women who lived in harmful environments. A supportive environment, such as a source of clean water and a toilet in the house, will help women facilitate access to clean their female area. Water and also toilets are essential components in environmental cleanliness and personal hygiene (Özyazıcıoğlu et al., 2011).

Environmental sanitation describes the control of environmental factors that form links in disease transmission. This category includes solid waste management, water, wastewater treatment, industrial waste treatment, noise, and pollution control. The description of diarrheal transmission represents an excellent way to understand disease pathways through the environment and how environmental health and hygiene can help prevent disease transmission (Murthy et al., 2013). The environmental conditions and practices that facilitate such infectious agents' carrying into our bodies are termed environmental risk factors (Alemu et al., 2012; Hailemariam et al., 2012).

4.3 The relationship between the husband's education and support on genital hygiene

The high husband's education would improve women's behavior to practice good genital hygiene 6.49 times compared to women having husbands with low education. This result is in line with a study by Çankaya and Yilmaz (2015), which showed that the economic status and education of a partner affect the chronic condition of women to have good genital hygiene. This is because a good husband's knowledge and insight will support his wife in maintaining cleanliness (Çankaya & Yilmaz, 2015). Husband's education affects the wife's genital hygiene behavior.

The support of a husband also affects the wife's behavior; the role of the family in health is recognizing health problems, providing care, and taking advantage of existing health services (Mubarak, 2012). The family has several support functions, one of which is informational support, which functions as a collector and disseminator of information, explaining the provision of suggestions, suggestions, and information that can be used to reveal a problem (Yusuf & Budiono, 2016).

In this study, women who received support from their husbands had a role in practicing good genital hygiene habits 2.88 times than women who did not receive support from their husbands. This finding is congruent with studies by Lufiati et al. (2015) and Musyriqoh (2016), showing that the family is included in the reinforcing or driving factor, which will motivate individuals, families, groups, and communities to carry out health behaviors. In terms of reproductive health information about the care of external reproductive organs in women, partners' role is needed to provide information to women about reproductive health to maintain genital health and prevent the transmission of sexually transmitted infections.

Husband's education and support are things that are really needed by couples to focus on genital health and can encourage improving genital hygiene. The partners can provide information and knowledge to improve the cleanliness of the reproductive organs by maintaining harmony in intercourse.

4.4 The relationship between stress and decreased genital hygiene behavior in women

The present study showed that high-stress levels reduced women's behaviors to implement good genital hygiene. A previous study found that women were significantly more bothered by psychosocial stress than men (Beutel et al., 2018). In the present time, life is modern, which affects society's lifestyle, especially for a woman. A lifestyle that is not as desired where expectations do not match reality will result in psychological changes or stress. Stress harms health, especially if it continues and is not managed correctly. Stress is not only dangerous for mental health but also affects physically. From acne and premature signs of aging to hormonal imbalances and heart-health problems — the hormone cortisol is produced as a result of the body's fight-or-flight response to a stressful situation, is capable of doing immense damage to health (Amabebe & Anumba, 2018; Park & Iacocca, 2014).

Stress affects a person's behavior change in carrying out health practices, causing a person's behavior to lead to unhealthy behavior. Stress is a disturbance in body homeostasis or a state of disharmony in response to a threat or challenge that is real or perceived; people who experience stress symptoms will focus more on what they feel than acceptable health practices. It is because they will do copings on their style and based on what they feel (Tsigos et al., 2000). Symptoms that are often caused by stress can affect the body and change a person's behavior to make bad habits (Schneiderman et al., 2005). In this study, women would not practice proper genital hygiene if their stress levels were high. This finding is supported by the American Psychology Association (2015), which argues that stress can affect cognitive processes because it is associated with increased levels of cortisol. This hormone can affect brain function, which will change human health behavior.

5. Implication and limitation

This study provides some practical implications. Genital hygiene behavior in women who have cervical cancer needs to be improved by increasing women's knowledge through access of information about genital hygiene via various media. Policymakers can display advertisements about health either on social media or print media. Health workers play an essential role in providing explanations related to the ways to improve cleanliness of female organs in patients who have cervical cancer. When patients make visits to the hospital, nurses or doctors can provide education about good genital hygiene practices that should be done by women and how to maintain personal hygiene and environmental sanitation.

This study has limitations. First, it did not investigate what types of social media affecting behavioral changes in genital hygiene since nowadays there are many social media like Facebook, Instagram, website, or YouTube. Second, the study utilized questionnaires for data collection, in which some respondents did not complete the questionnaire provided. Future research is advisable to assess related variables that have not been studied, using behavioral theories or risk factors such as reproductive health problems in women. It is because genital hygiene behavior is closely related to reproductive tract infections and sexually transmitted infections. Further research can also focus on what social media are used. Qualitative research to know respondents' perceptions directly to facilitate their real answers is also necessary.

6. Conclusion

This study showed that genital health behaviors in women were influenced by the support and education level of their partners. Women will likely perform the behavior of maintaining female organs when there is support and also exposure to good information from their husbands or from social media. Apart from support and knowledge, a clean and organized environment will make it easy for women to access clean water to maintain the cleanliness of female organs. High-stress levels will make women not focus on their health, especially in carrying out genital hygiene behaviors. It is hoped that the results of this study can increase the awareness of women and their partners to support each other and maintain the cleanliness of the reproductive organs. It is also expected that this study can increase the role of nurses and hospitals in providing education on genital hygiene in women.

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Conflict of interest

The authors have no conflicts of interest associated with the material presented in this paper.

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ORIGINAL RESEARCH

Effectiveness of Pelvic Floor Muscle Training and Yoga on the Quality of Life in Perimenopausal Women with Urinary Incontinence

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Abstract

Background: Urinary incontinence is a symptom of genitourinary disease in perimenopausal women that can seriously affect both physical and mental health and quality of life (QOL). Pelvic floor muscle training (PFMT) and yoga are the exercises that have been applied to treat urinary incontinence. Research that compares the effect of PFMT and yoga on improving the quality of life of women with urinary incontinence is necessary.
Purpose: This study aimed to compare the effectiveness of PFMT and yoga to improve the QOL in perimenopausal women with urinary incontinence.
Methods: A quasi-experimental study with a nonequivalent control group design involving 48 perimenopausal women with all types of urinary incontinence was conducted. The participants were selected by consecutive sampling and equally divided into two groups. Each group was given the PFMT intervention and yoga exercise three times a week for eight weeks. The QOL was assessed using the incontinence impact questionnaire short form (IIQ-7). The data were analyzed by the Mann-Whitney U test, Wilcoxon signed rank test, and paired sample t-test.
Results: The mean (standard deviation) score of total IIQ-7 in the PFMT group were lower (3.58 [2.57]) than that in the yoga group (5.17 [2.14]; p=0.061). There were differences in IIQ-7 score in the domains of physical activity (p<0.001), social relationships (p<0.001), and traveling (p<0.001) in the PFMT group. In contrast, in the yoga group, differences were found only in the emotional health domain (p=0.039). The IIQ-7 score was better in the PFMT group than in the yoga group.
Conclusion: PFMT was as effective as yoga exercise to improve the QOL. PFMT and yoga should be taught to perimenopausal women with urinary incontinence.

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1. Introduction

Perimenopause is known as the transition period. It is the time before and after menopause begins when a woman's body adjusts to new circumstances. Perimenopausal women experience changes in themselves, especially the endocrine system and other related systems, to varying degrees (Liu et al., 2018). A symptom of genitourinary disease in perimenopausal women is urinary incontinence (Ramalho et al., 2016). The prevalence of urinary incontinence varies between 16.2–81.9% (Kwon et al., 2010) and increases with age (Aoki et al., 2017). Urinary incontinence is defined as a complaint about unconscious urine release (Abrams et al., 2002). Urinary incontinence is not a disease but a symptom due to damage to the bladder, sphincter mechanism, or pelvic floor muscles (Aoki et al., 2017; Kwon et al., 2010).

Urinary incontinence can seriously affect both physical and mental health and the quality of life (QOL) of perimenopausal women (Liu et al., 2018; Waetjen et al., 2009). The severity of urinary incontinence was reported as a risk factor for poor QOL and had other negative effects on various dimensions of QOL, mental health, social, and other daily activities (Aoki et al., 2017). Urinary incontinence has an effect on women's life from mild to severe (Mishra et al., 2010). The World Health Organization (1997) defines the QOL as "an individual's perception of his position in the context of life and the value system in which they live and in their goals, hopes, standards, and concerns." It is a broad concept that combines a person's physical health, psychological state, level of independence, quality of life, social relationships, personal beliefs, and relationship to the environment. QOL is the primary goal of health care, which is an important factor in individual

health and is used to plan and administer health care programs (World Health Organization, 1997).

Various efforts have been made to improve the QOL of perimenopausal women with urinary incontinence, including pelvic floor muscle training (PFMT) and yoga (Kim et al., 2015). PFMT aims to improve pelvic floor muscle function through selective repetition of contraction and relaxation of voluntary, specific pelvic floor muscles (Aoki et al., 2017). The combination of pelvic muscle exercises and yoga intervention programs positively correlated to improvement in urinary incontinence symptoms and improved the QOL related to urinary incontinence (Kim et al., 2015). Research by Shahali et al. (2010) in Iran reported that PFMT carried out for 12 weeks was successful in improving the QOL of middle-aged women with stress urinary incontinence. A systematic review indicates that PFMT is an effective therapy for overcoming urinary incontinence and improving the women's QOL (Radzimińska et al., 2018). Dumoulin et al. (2014) reported that all interventions with PFMT showed changes in urinary incontinence and improved the QOL. Pelvic floor muscle exercises can heal or improve urinary incontinence and improve the QOL (Cacciari et al., 2019). Most of studies on PFMT have observed the effect of PFMT on improving the QOL of women with urinary incontinence complaints. Different things were found in research by Haakstad et al. (2020), which found that adherence to PFMT for 12 months did not show a correlation with urinary incontinence, including the QOL.

Yoga exercise increases the tone and integrity of the pelvic floor muscles through strength in various components of the muscles and pelvic floor ligaments (Rathore et al., 2014). Various yoga postures can increase the patients' muscle awareness and help them learn to correct themselves. Pelvic floor yogic exercise is designed to maintain the balance of the main muscles that affect the structure of the pelvis and lower back (Ripoll & Mahowald, 2002). Regarding specific yoga postures, the frog pose, fish pose, locust pose, plank pose, sitting forward bend, and seated twist may be beneficial for urinary incontinence (Pang et al., 2017). Research by Huang et al. (2014) found that yoga exercises carried out on middle-aged and older women with urinary incontinence were able to improve the QOL. Nayak et al. (2014) reported that yoga exercise reduced the frequency of urination and involuntary urination in perimenopausal women. A case study in India about the feasibility of integrating yoga therapy in the management of urinary incontinence in older women has been reported by Vinchurkar and Arankalle (2015). In this case study, yoga exercises successfully overcame urinary incontinence in older women, thereby improving their QOL (Vinchurkar & Arankalle, 2015). The previous research by Jayabarthi and Judie (2014) also found that yoga interventions in menopausal women were effective in improving the quality of life in physical, psychological, social, and environmental domains (Jayabharathi & Judie, 2014). A systematic review by Nguyen et al. (2020) showed different results from previous studies. Nguyen et al. (2020) affirmed that there was no convincing relationship between yoga and the QOL in women with menopausal symptoms. However, there were positive effects of yoga on physical complaints, psychological, sexual, and vasomotor with many different effects.

Yoga activities take longer than PFMT. In previous studies, yoga interventions were carried out at varying times between 20-40 minutes per day at home and 70-90 minutes under instructor supervision for 8-18 weeks (Jayabharathi & Judie, 2014; Kim et al., 2015; Reed et al., 2014). Meanwhile, PFMT is carried out for 30-40 minutes for 8-12 weeks (Fitz et al., 2017; Haakstad et al., 2020; Kim et al., 2015; Liu et al., 2018). PFMT could be done at any time without providing a specific time; it could be done in a short time. So far, both interventions give good results against urinary incontinence primarily to improve the QOL in perimenopausal women, although other researchers have found different results (Haakstad et al., 2020; Nguyen et al., 2020). To date, little research has been conducted on the effectiveness of PFMT and yoga on the QOL. Therefore, further research is needed to compare PFMT and yoga to improve the QOL among perimenopausal women. This study aimed to compare the effectiveness of PFMT and yoga to improve the QOL in perimenopausal women with urinary incontinence.

2. Methods

2.1 Research design

A quasi-experimental study with a nonequivalent control group design was conducted to compare the effectiveness of PFMT and yoga to improve the QOL in perimenopausal women with urinary incontinence.

2.2 Setting and samples

The study was conducted in a village in Pematangsiantar, North Sumatera, Indonesia, between June and August 2017. The perimenopausal women aged 40–55 diagnosed with all types of urinary incontinence and competent in reading and writing Indonesian were recruited. The sample size was determined based on the formula for calculating the sample size using two proportions, namely 48 participants (each group consisted of 24 subjects). Sampling was performed using the consecutive sampling technique. The sample size was determined using the calculation formula of the two independent populations (Lemeshow et al., 1990). The standard deviation of both groups was 1.49 based on a study by Nayak et al. (2014). In addition, the desired clinical difference (determined by the researcher), Zα, and Zβ were 1.2, 1.96, and 0.842, respectively. Each group consisted of 24 women. Thus, the total sample size was 48 subjects that were divided into two groups of PFMT (n=24) and yoga (n=24).

2.3 Intervention

Participants were divided into two groups (PFMT and yoga group). The division of groups was carried out by the researcher in sequence to each group (PFMT and Yoga) according to the inclusion criteria. Before the intervention, the participants were requested to complete the IIQ-7 questionnaires by themselves or accompanied by the researcher. Next, each group received their intervention, either PFMT or yoga exercise (*Ashwini mudra* and *Sahajoli mudra*) (Ripoll & Mahowald, 2002) three times a week, for eight weeks (on Monday, Wednesday, and Friday in the gymnastics studios guided by an instructor). Both PFMT and yoga exercises were performed for 60 minutes. Participants were asked to repeat the same exercise at home on the days in between the intervention days. Participants were given leaflets about yoga and PFMT so that they could use them as a practice guide at home. The researcher evaluated and reminded the intervention every day by telephone. All participants complied with this procedure. During the study, no participants dropped out. After eight weeks of intervention, all participants were asked to answer the IIQ-7 questionnaires again. The participants completed the questionnaires by themselves or accompanied by the researcher.

2.4 Measurement and data collection

In this study, the urinary incontinence was assessed using the urinary distress inventory short form (UDI-6) questionnaire with six questions, and the QOL measurement was performed using the incontinence impact questionnaire short form (IIQ-7) with seven questions. The UDI-6 and IIQ-7 questionnaires had been translated into the Indonesian language and used in previous research with internal consistency (Cronbach's alpha) of 0.84 and convergent validity of 0.18 (p=0.048) (Tendean, 2007). In addition, the IIQ-7 assessment covers four domains, namely, physical activity, social relations, traveling, and emotional health. The validity of the UDI-6 and IIQ-7 has been tested in various countries (Momenimovahed et al., 2018; Nusee et al., 2016). The assessment of the UDI-6 and IIQ-7 used the scale that started with 0 (not at all), 1 (slightly), 2 (moderately), and 3 (greatly). A high score indicates that urinary incontinence has a negative impact on QOL (Radzimińska et al., 2018).

Based on the preliminary study, it was found that there were one hundred and forty-five perimenopausal women in the specified village. They were then selected based on the eligibility of seventy respondents. Of these seventy respondents, twenty-two were excluded as they did not meet the inclusion criteria (eighteen respondents) and refused to participate (four respondents). Furthermore, there were forty-eighth respondents who participated in the study to completion. The recruitment of participants was carried out in collaboration with the responsible midwife and the health volunteers of the village. Next, the midwife gave a list of names of the residents (women) identified at the perimenopausal age. The researcher invited potential participants to come to the head office of the village by the help of health volunteers. When potential participants

arrived, the researcher explained the purpose of the research to be conducted. Subsequently, potential participants were asked to fill in the UDI-6 questionnaire by themselves or accompanied by the researcher for the initial screening of urinary incontinence. The potential participants identified to have urinary incontinence were offered to participate in the study.

2.5 Data analysis

The data analysis was performed using the SPSS version 21 (IBM Corp., USA) with a 95% confidence interval (α=0.05; β=80%). A *p*-value was used to determine statistical significance, with $p \leq 0.05$ indicating significance. Data normality was determined by the Shapiro–Wilk test. The means and standard deviations (SDs) of numerical data with a normal distribution were calculated, whereas the frequencies of categorical data were calculated. The difference between and intern the two groups was analyzed by Mann–Whitney U test, Wilcoxon signed rank test, paired sample t-test, and linear regression for subgroup analysis.

2.6 Ethical considerations

This study was approved by the Health Research Ethics Committee of Poltekkes Kemenkes Medan (Reference number 013/KEPK/Poltekkes Kemenkes Medan/2017) and the health office of Pematangsiantar city. Before conducting the study, the researcher explained the purpose of the study, the procedures for data collection, and the benefits of participation to the potential subjects. Before administering the pretest to the potential participants, the researcher informed them that their participation was voluntary. Also, participants were offered an opportunity to ask any questions, and they were assured that they could withdraw from the study at any time. All participants signed a written informed consent form to participate in the study.

3. Results

3.1 Characteristics of participants

The characteristics of the participants are shown in Table 1. There were differences in the age groups of the participants. Participants in the yoga group were older than the PFMT group [51.83(2.37) vs. 48.58 (3.89)]. There were no differences in the BMI, parity, education level, maternity history, and family planning history between the groups. There were differences in the IIQ-7 scores in the baseline data, but we did not find the effect of age, BMI, and parity variables on the baseline IIQ-7 scores based on subgroup analysis (see Table 2 and Table 3).

Table 1. Characteristics of the participants in the two groups

Variable	PFMT (n=24)		Yoga (n=24)		*p*
	Mean (SD)	n (%)	Mean (SD)	n (%)	
Age (years)	48.58 (3.89)		51.83 (2.37)		0.004
BMI (kg/m²)	24.68 (3.15)		25.05 (3.81)		0.715
Parity	3.46 (0.98)		3.21 (1.25)		0.401
Education level					
Low (elementary & junior high school)		15 (63)		10 (42)	0.248
High (senior high school & academy/university)		9 (37)		14 (58)	
Maternity history					
Abortus		1 (4)		1 (4)	0.837
Normal		22 (92)		21 (88)	
Cesarean section		1 (4)		2 (8)	
History of family planning					
Never		7 (29)		10 (42)	0.156
Nonhormonal		1 (4)		4 (16)	
Hormonal		16 (67)		10 (42)	
IIQ-7 baseline score	11.79 (1.77)		6.04 (2.39)		< 0.001

Notes. PFMT=pelvic floor muscle training; SD=standard deviation; BMI=body mass index; IIQ-7=incontinence impact questionnaire short form.

Table 2. Effect of age, BMI, and parity on the baseline IIQ-7 short form score in the PFMT group

Model	Variable	Coefficients	Correlate coefficients	*p*-value
1	Age	0.095	0.209	0.386
	BMI	0.016	0.028	0.898
	Parity	-0.313	-0.173	0.472
	Constant	7.870		0.182
2	Age	0.095	0.209	0.374
	Parity	-0.310	-0.171	0.465
	Constant	8.252		0.097
3	Age	0.066	0.145	0.499
	Constant	8.591		0.080
4	Constant	11.792		0.000

BMI=body mass index

Table 3. Effect of age, BMI, and parity on the baseline IIQ-7 score in the yoga group

Model	Variable	Coefficients	Correlate coefficients	*p*-value
1	Age	0.261	0.259	0.254
	BMI	0.030	0.048	0.827
	Parity	0.129	0.068	0.762
	Constant	-8.651		0.483
2	Age	0.256	0.254	0.249
	Parity	0.139	0.073	0.738
	Constant	-7.672		0.460
3	Age	0.272	0.270	0.202
	Constant	-8.052		0.460
4	Constant	6.042		0.000

BMI=body mass index; IIQ-7=incontinence impact questionnaire short form.

3.2 Effect of PFMT and yoga exercise on the QOL

The results of the effect of PFMT and yoga on the total QOL are presented in Table 4. The IIQ-7 mean (SD) score in the PFMT group after the intervention was lower [3.58(2.57)] than the yoga exercise group [5.17(2.14)]. However, there was no statistical difference between the groups (p=0.061). There were differences in the IIQ-7 score within groups. The effect size in the PFMT group was higher than that in the yoga group (8.21 vs. 0.87).

The effects of PFMT and yoga on the IIQ-7 domain can be seen in Table 5. In the PFMT group, there were differences in the domains of physical activity, social relationships, and traveling after the intervention. In contrast, in the yoga group, only the emotional health domain was different after the intervention.

Table 4. Effects of PFMT and yoga exercise on the total QOL in the two groups

IIQ-7 score	PFMT (n=24) Mean (SD)	Yoga (n=24) Mean (SD)	*p-value*#
Pre	11.79 (1.77)	6.04 (2.39)	
Post	3.58 (2.57)	5.17 (2.14)	0.061
p value	*<0.001**	0.002**	
Effect size	8.21	0.87	

IIQ-7=incontinence impact questionnaire short form; PFMT=Pelvic floor muscle training; SD=standard deviation; *Wilcoxon Signed Rank Test; ** Paired sample t-test, #Mann-Whitney U test

4. Discussion

This study aimed to compare pelvic floor muscle training (PFMT) with yoga to improve the quality of life (QOL) in perimenopausal women with urinary incontinence. Urinary incontinence disrupts the QOL of women. Senra and Pereira (2015) have reported that women with urinary incontinence had a lower QOL. Various studies have reported that high IIQ-7 scores indicate poor QOL (Lin et al., 2018; Mallah et al., 2014)

Table 5. Effect of PFMT and yoga exercise on the domain of quality of life in the two groups

Domain of IIQ-7	PFMT (n=24) Mean (SD)		*p-value*	Yoga (n=24) Mean (SD)		*p-value*
	Pre	Post		Pre	Post	
Physical activity	4.75 (0.79)	1.33 (1.00)	< 0.001*	1.75 (1.26)	1.75 (1.26)	1.000
Social relation	5.83 (0.92)	0.75 (0.79)	< 0.001*	1.04 (0.75)	0.88 (0.68)	0.102
Traveling	4.67 (0.81)	1.29 (0.99)	< 0.001*	2.42 (1.31)	2.04 (1.23	0.107
Emotional health	*0.54 (0.88)*	0.21 (0.58)	0.107	0.83 (0.96)	0.5 (0.59)	0.039*

IIQ-7=incontinence impact questionnaire short form; PFMT=Pelvic floor muscle training; SD=standard deviation; *significant

In this study, there was no difference in the QOL between the PFMT and yoga groups (p=0.061) after the intervention. However, in the analysis of each group, there was a difference in the QOL after the intervention, with the largest mean difference in the PFMT group. The result of this study found that the analysis within the PFMT group showed a significant decrease in the IIQ-7 scores. This can be seen based on the differences in three of the four IIQ-7 domains after the intervention of physical activity, social relationships, and traveling. Overall, the same results have been reported by Topuz and Seviğ who found that PFMT had a positive impact on urinary incontinence (Topuz & Seviğ, 2016). Shahali et al. (2010) also showed improvement in the quality of life outcomes in women with stress urinary incontinence after PFMT for 12 weeks. A study by Radzimińska et al. (2018) reported that PFMT alone or other physical exercises were an effective technique to reduce urinary symptoms in older women with urinary incontinence. PFMT significantly improved the QOL of women with urinary incontinence. Hence, PFMT was recommended as a first-line conservative treatment.

In our study, the yoga intervention also affected a decrease in the IIQ-7 scores. However, this difference can only be found in the emotional health domain. Overall, the results of this study were in line with Nayak et al. (2014) in India. Nayak et al. (2014) reported that yoga had the most influence on improving the QOL in all domains. Yoga in perimenopausal women can reduce the frequency of urination and uncontrolled urine output. Previous research by Huang et al. (2014) also found that 90 minutes of yoga intervention for six weeks, plus exercise for at least one hour at home, reduced the frequency of total urinary incontinence by 66% from baseline. Vinchurkar and Arankalle (2015) reported the effect of yoga on stress urinary incontinence; it was revealed that yoga exercises performed twice a day for 21 days successfully improved the QOL of women with urinary incontinence. Yoga therapy includes the practice of physical postures (*asanas*), voluntary regulated breathing techniques (*pranayamas*), *Ashwini mudra*, *Sahajoli mudra,* and meditation (*dhyana*). *Ashwini mudra* and *Sahajoli mudra* exercises include the contraction and relaxation of the gluteal muscles, perineum, sphincter, and the entire pelvic floor. Strengthened muscles in *Ashwini mudra* are puboanalis and puborectalis, while *Sahajoli mudra* strengthens pubovaginalis muscles. This posture is known to increase the pelvic region muscle tone and enrich blood circulation in the urogenital area (Rathore et al., 2014).

Yoga can be used as an alternative treatment strategy for women who do not have access to specialists or choose not to use pharmacological or surgical therapy. Yoga is an alternative to urinary incontinence that can be done by both middle-aged (45–59 years) and older (60–74 years) women without complications of urological history and is safe and effective (Huang et al., 2014). Pelvic floor yogic exercises (PFYEs) increase pelvic floor muscle strength and help improve their tone. PFYEs help in three ways: (1) yoga postures isolate and strengthen pelvic floor muscles and stretch and extend them; (2) breathing can release tension and direct healthy and oxygenated blood to the pelvis; and (3) the yoga posture helps in strengthening the core postural muscles, which are directly related to the pelvic floor muscles. A healthy relationship between the core muscle and pelvic muscle is very important for overall pelvic health (Rathore et al., 2014). Based on our study, no adverse events were found due to yoga interventions. Besides, there was an increase in the QOL, especially in the emotional health domain. This shows the effectiveness, safety, and efficacy of yoga.

In our study, there was a difference in the baseline scores of IIQ-7 in the two groups before the intervention. Participants in the yoga group were older than those in the PFMT group. This difference may be due to differences in the age of the two groups of participants. The incidence of

urinary incontinence is usually related to age because of the aging process (Aoki et al., 2017). However, the results of the regression analysis showed no effect of age on IIQ-7 in this study.

5. Implication and limitation

The findings of this study suggest the application of PFMT and yoga exercises for improving the QOL in perimenopausal women with urinary incontinence. This study has limitations. First, there was no differentiated types of urinary incontinence, so that the interventions that were performed could not describe the condition of urinary incontinence. Second, the IIQ-7 baseline data had differences. It was presumably because the researchers did not explore more about the length of urinary incontinence that the participants experienced, so the researcher did not provide a limitation in the inclusion criteria when conducted the initial screening. There should be no difference in the IIQ-7 baseline data so that respondents are actually in the same group of QOL. Third, measurement of pelvic floor muscle strength was not performed objectively to assess changes after the intervention. A long-term follow-up was not conducted in this study, so the benefits of PFMT and yoga cannot be ascertained. Despite the limitations, this study demonstrated preparation to support the feasibility, potency, and security of yoga interventions in the group of perimenopausal women with urinary incontinence. Besides, routine PFMT exercise is a first step to improve urinary incontinence in perimenopausal women.

6. Conclusions

This study showed that there was no difference between PFMT and yoga for improving the QOL in perimenopausal women with urinary incontinence, generally. However, based on the domain of the QOL, we found the difference in the domain of physical activity, traveling, and social relations in the PFMT group. Whereas in the yoga group, the difference was only found in the emotional health domain. In conclusion, PFMT was as effective as yoga for improving the QOL in perimenopausal women with urinary incontinence.

The researchers suggest that the subsequent studies explore the combination of PFMT and yoga intervention in overcoming urinary incontinence, and urinary incontinence restriction is included in the inclusion criteria. Additional high-quality research is warranted to confirm and explore the beneficial effects of yoga in perimenopausal women by paying attention to the things mentioned above.

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Conflict of interest

None

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ORIGINAL RESEARCH

Validity and Reliability of Indonesian Public Health Nursing Competencies in Achieving Indonesian Healthy Program with a Family Approach: A Pilot Study

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Abstract

Background: Indonesia has the Indonesian Healthy Program with a Family Approach (IHP-FA) to solve various health problems in the country. The public health providers in Indonesia play a very vital role in realizing this program. There have not been clear reference standards regarding the Indonesian Public Health Nursing (IPHN) competencies. This condition causes the provision of nursing services in public health centers (PHCs) to be suboptimal.
Purpose: This study aimed to identify the validity and reliability of the core competencies of IPHN standards in a practice setting to achieve the IHP-FA.
Methods: A pilot study using a descriptive correlational study was conducted among 55 coordinators of public health nursing (PHN) program from 50 PHCs in Jember, Indonesia. The IPHN practices were accessed using the five PHN core competencies (including activities in PHCs and nursing care for follow-up patients, family, special needs group in the community, and community). The IHP-FA was measured using 12 indicators. Content Validity Index (CVI) was used to examine the validity of core competencies. Internal consistency was explored using Cronbach' α coefficient. Construct validity using the known-groups technique was explored to measure the correlational between IPHN competencies and indicator of IHP-FA.
Results: The CVI indicated adequate content validity (0.80-0.10) and high reliability (Cronbach's alpha coefficient=0.81). There was a significant correlation between five core IPHN competencies and achievement of IHP-FA (safe birth delivery, immunization, growth and development, management of tuberculosis, smoking, and access to clean water).
Conclusion: IPHN competencies contain valid, reliable, and psychometrically robust measures. However, some programs in IHP-FA could not be achieved with five IPHN core competencies, demonstrating the need for developing the IPHN competencies in the future.

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1. Introduction

Family health nursing, as a primary form of family service in the community, can facilitate healthy family development through the preservation of healthy values in family institutions and family dynamics based on the family structure and function (Susanto et al., 2018). The government of Indonesia designed the Indonesian Healthy Program through Family approach (IHP-FA) (Ministry of Health Republic of Indonesia, 2016a). This program is realized through the fifth agenda of the 10 Indonesia's president agenda (called in *Bahasa Indonesia: Nawa Cita*) (Rahayu, 2017). The *Nawa Cita* program is related to 17 indicators in Sustainable Development Goals (SDGs) (World Health Organization, 2018), which is to improve the quality of life of the Indonesian people (Ministry of Health Republic of Indonesia, 2016b). On the other hand, families in Indonesia experience problems of family growth and development, both at risk or vulnerable to health problems (Nur et al., 2017; Susanto, Yunanto et al., 2019). This is due to the suboptimal practice of family nursing care services through home visits within the framework of the public health nursing (PHN) program at the public health centers (PHCs) (Susanto, Bachtiar et al., 2019). Therefore, a comprehensive effort to implement PHN is needed to achieve the IHP-FA program at the PHCs.

The IHP-FA consists of four priority areas which include decreasing maternal and infant mortality rates, decreasing stunting prevalence, controlling infectious diseases, and controlling non-communicable diseases (Ministry of Health Republic of Indonesia, 2016b). The target achievement of the SDGs program in Indonesia is still low in the health sector, which includes 3.9% of malnutrition and 11.5% of stunting among under-five children, 17.3% of malnutrition, and 48.9% of anemia among pregnant women (Ministry of Health Republic of Indonesia, 2018). Maternal and child health problems are the fourth indicator of SDGs and priority areas of the IHP-FA program, which are the key to the success of nation-building by describing the socio-economic conditions of the community and their abilities (Ministry of Health Republic of Indonesia, 2016b), thus requiring efforts to improve health services in the community through PHN in reducing the risk and vulnerability of health problems in the community.

An imbalance between host, agent, behavior, and the environment results in changes in the epidemiological transition of infectious diseases in Indonesia. Furthermore, the prevalence rate for communicable diseases in Indonesia is very high, such as 0.4% of tuberculosis, 4% of pneumonia, 6.8% of diarrhea, 0.2% of hepatitis, and 0.4% of malaria. Meanwhile, changes in unhealthy lifestyles that lead to the problem of chronic diseases or non-communicable diseases are increasing in Indonesia, such as 2.4% of asthma, 1.8% of cancer, 10.9% of stroke, 3.8% of kidney diseases, 7.3% of joint and bone diseases, 2% of diabetes, 1.5% of heart diseases, and 8.8% of hypertension (Ministry of Health Republic of Indonesia, 2018). Furthermore, infectious and chronic diseases are triggered by unhealthy lifestyles on the meaning of healthy living and self-improvement desired by individuals and can be changed through health promotion (Pender et al., 2016), thus requiring adaptation because it becomes a burden on family dependents that will be able to weaken general health conditions in the community.

Maternal and child health problems, infectious diseases, and chronic diseases in the community require comprehensive and sustainable treatment. Handling can be done through prevention, promotion, and protection programs at the PHCs to support the sustainability of the SDGs and the achievement of IHP-FA through the PHN program. Meanwhile, the Ministry of Health of Indonesia made regulation of public health nurses (PHNs) duties for PHN services to achieve healthy programs in the PHCs (Ministry of Health Republic of Indonesia, 2006). However, regarding the evaluation of the results of 2015, PHCs still lack for implementing PHN, because only 663 out of a total of 9,655 of PHCs (0.069%) were able to implement PHN services according to the guidelines in 27 provinces from the 33 existing provinces (Ministry of Health Republic of Indonesia, 2015). Furthermore, obstacles in the implementation of the PHN services will have an impact on the implementation of the IHP-FA program at the PHCs in achieving 12 indicators of IHP-FA.

Furthermore, previous studies showed that there was a relationship between PHNs' knowledge and attitudes and the performance of the PHN services that resulted in low coverage of performance implementation PHN services (Susanto, Bachtiar et al., 2019). In an effort to increase the role of PHN, it is necessary to collaborate with the community and family through empowerment and partnership competencies of PHN for implementing PHN services (Widyarani et al., 2020). Furthermore, PHNs in Indonesia have only focused on the indicators of achievements of the program without looking at the extent to which the process of PHNs' activities in the field is related to the role of PHNs based on the indicators of inputs, processes, and outputs of PHN activities (Susanto, Bachtiar et al., 2019). This situation needs a solution for developing PHNs' duties for PHN services to achieve healthy programs in the PHCs. On the other hand, there are no studies in Indonesia setting to develop five core IPHN competencies from the Indonesian Ministry of Health in 2006 (Ministry of Health Republic of Indonesia, 2006), although this regulation has become a standard to evaluate the performance of PHNs in Indonesia. The present study aimed to identify the validity and reliability of core competencies for the IPHN standards in a practice setting by public health professionals for the achievement of IHP-FA in an Indonesian context.

2. Methods

2.1 Research design

A descriptive correlational study design was used to explore the IPHN core competencies for the achievement of the IHP-FA.

2.2 Setting and sample

This study was conducted in May 2019 in Jember regency, East Java, Indonesia. Fifty-five coordinators of PHN program from 50 PHCs in Jember were recruited, involving at least 1 PHN from each PHCs. The data from the Department of Public Health of Jember reported that the achievement of PHN services was only 44.87% of caring for community groups from 50 PHCs (Susanto et al., 2019). Therefore, all coordinators of PHN program from 50 PHCs were included to do an assessment on their competencies. The inclusion criteria in this study were the coordinator of PHN program, length of duties as the coordinator of PHN program was at least 3 months, and had a license of coordinator of PHN program.

2.3 Measurement and data collection

2.3.1 Tools development

The core competencies of PHN in this study were developed based on the five core IPHN competencies (including activities in PHCs and nursing care for follow-up patients, family, special needs group in the community, and community) with regard to the regulation from the Ministry of Health of Indonesia in 2006 (Ministry of Health Republic of Indonesia, 2006). These competencies consist of 35 items that are divided into five core competencies, including activities in PHCs (9 items), nursing care for follow-up patients (7 items), nursing care for family (7 items), nursing care for special needs group in the community (5 items), and nursing care for community (6 items). For developing the tool in this study, the IPHN competencies were accessed using a Likert scale (always=4; often=3; sometimes=2; and never=1). Then, all of the items from the questionnaire were summed to obtain the total score of IPHN and the overall score of five cores of IPHN, respectively.

2.3.2 Measurement

A self-administered questionnaire was used to measure the sociodemographic data of the coordinators of PHN program (including age, gender, educational background, profession status, length of becoming of the coordinator of PHN program, occupation status, PHN training program, and experience of working in a hospital). The IPHN competencies were measured using the PHN competencies developed by the researchers as described in the previous section (tool development).

For the IHP-FA program, we used the IHP-FA from the Ministry of Health of Indonesia in 2016 (Ministry of Health Republic of Indonesia, 2016a). The IHP-FA was measured using 12 indicators (including family planning, safe birth delivery, immunization, exclusive breastfeeding, growth and development, management of tuberculosis, management of hypertension, rehabilitation mental illness, smoking, coverage health insurance, access to clean water, and healthy sanitary). The secondary data of the IHP-FA report were also accessed in this study as reported by PHNs monthly to the Department of Public Health of Jember regency from 50 PHCs.

For the purpose of data collection, 55 coordinators of PHN program from 50 PHCs were invited to attend this study in the Department of Public Health of Jember Regency. These participants were informed of the aim and procedures of this study. They signed informed consent for their participation.

2.4 Data analysis

This study used descriptive and correlational data analyses. Descriptive statistics included frequencies and percentages for summarizing categorical measures. Then, median and standard deviation were used for summarizing continuous measures.

Content Validity Index (CVI) was employed to determine item validity (Polit & Beck, 2017). Three experts of community and family health nurses were asked to rate each of the 35 items of IPHN competencies based on relevance and clarity for measuring the PHNs duties for PHN services to achieve healthy programs in the PHCs. The questions rated employed a four-point Likert scale with a score of 1 meaning not relevant, a score of 2 meaning somewhat relevant, a score of 3 meaning quite relevant, and a score of 4 meaning highly relevant. The survey's internal consistency was assessed using Cronbach's alpha. In reliability analysis, means and standard deviations of the items were examined to measure the item difficulty for judgment and

endorsement purposes, while the item-total correlation was employed to examine item discrimination (Susanto et al., 2018).

Finally, construct validity using the known-groups technique was performed to refer to an instrument's ability to differentiate between the coordinators of PHN program competencies on the achievement of IHP-FA. A Pearson's product moment was used to measure the correlational between coordinators of PHN program competencies and indicator of IHP-FA. To determine the statistical significance based on the assumption of the appropriate test was performed using a two-tailed significance level of 0.05.

2.5 Ethical considerations

This study was approved by the Institutional Review Boards (IRB) of the Faculty of Dentistry, Universitas Jember, Indonesia (reference number 189/UN25.8/KEPK/DL/2018). All participants signed informed consent for their participation.

3. Results

3.1 Characteristics of participants

Table 1 shows that the mean age of the participants was 37.1 years, and the mean of length of becoming PHN coordinator was 10.9 months. The majority of the participants were males (60%) and hold Diploma 3 of nursing/midwifery (60%). Regarding the core competencies for IPHN standard from three expert panels, the content validity index indicated adequate content validity (0.80–0.10).

Table 1. Characteristic of participants (n= 55)

Variable	f	%	Mean ± SD
Age (year)			37.1 ± 8.9
Gender			
Male	33	60	
Female	22	40	
Education			
Diploma 1 (Nursing)	1	1.8	
Diploma 3 (Nursing and Midwifery)	33	60	
Diploma 4 (Midwifery)	1	1.8	
Bachelor of nursing	3	5.5	
Bachelor of public health	16	29.1	
Master of public health	1	1.8	
Status of profession			
Nurse (Diploma)	7	12.7	
Nurse (RN)	5	9.1	
Midwifery	28	50.9	
Sanitarian	2	3.6	
Nutritionist	1	1.8	
Public health	12	21.8	
Length of becoming PHN coordinator (month)			10.9 ± 7.2
Status occupation			
Public government	38	69.1	
Private	12	21.8	
Temporary	5	9.1	
Training PHN program			
Attending	2	3.6	
Not yet	52	94.5	
Having experience working in a hospital			
No	42	76.4	
Under-five years	10	18.2	
More than five years	2	3.6	

3.2 Internal consistency of IPHN competencies

Table 2 indicates that the core competencies of IPHN standards had high reliability (Cronbach's alpha coefficient=0.814), including activities in PHCs (Cronbach's alpha=0.961), nursing care for follow-up patient (Cronbach's alpha=0.946), nursing care for family (Cronbach's alpha=0.974), nursing care for special needs group in community (Cronbach's alpha=0.963), and nursing care for community (Cronbach's alpha=0.966). In Figure 1 (see Appendix 1), from 12 indicators of IHP-FA, the top three achievements of PHN activities were 89.6% for health care of mental illness patients, 86.1% for family planning with contraceptives and 82.7% for birth delivery with midwifery.

3.3 Construct validity of the correlation between IPHN competencies and IHP-FA indicators

Table 3 indicates that there was a significant correlation between the five core IPHN competencies (for activities in PHCs, nursing care for follow-up patient, nursing care for family, nursing care for special needs group in the community, and nursing care for the community) and the achievement of IHP-FA ($p<0.05$). However, there was no correlation between the total score of five core IPHN competencies and the achievement of IHP-FA ($p>0.05$). The core competencies of PHN for activities in PHCs were correlated with safe birth delivery with midwifery, basic immunization for under-five children, and monitoring growth and development of under-five children. Meanwhile, core competencies of public health professionals for nursing care for follow-up patients were correlated with safe birth delivery with midwifery, basic immunization for under-five children, monitoring growth and development of under-five children, management of tuberculosis patients, and access to clean water. Then, core competencies for nursing care for family and nursing care for the community were correlated with safe birth delivery with midwifery and stopping smoking habit in the family. Furthermore, the core competencies of PHN for nursing care for special needs groups in the community was only correlated with stopping smoking habits in the family.

4. Discussion

The IPHN competencies are a valid and reliable instrument for measuring the coordinators of PHN program' duties and PHN services to achieve healthy programs in the PHCs and predict the achievement of IHP-FA. The competencies contained 35 items with five core competencies (including activities in PHCs, nursing care for follow-up patient, nursing care for family, nursing care for special needs group in the community, and nursing care for a community) with adequate content validity (0.8-0.10), and high reliability (overall Cronbach's alpha=0.84). The five core competencies of IPHN are correlated with the achievement of IHP-FA, although some of the core competencies are not predictable for the achievement of IHP-FA.

The IPHN competencies that contained 35 items with five core competencies are valid and reliable, although the items are different from the Quad Council Practice Competencies (QCPC) for PHN (Swider et al., 2013). QCPC for PHN consisted of eight core competencies with a total 79 of items (including analytic and assessment skills, policy development/program planning skills, communication skills, cultural competency skill, the community of dimensions of practice skills, public of health sciences skills, financial management and planning skills, and leadership and systems thinking skills) and ten domains competencies of primary health care professional (professional values, communication, teamwork, management, community-oriented, health promotion, problem-solving, health care, and education and basic public health sciences) (Witt & de Almeida, 2008). Whereas in this study, the IPHN competencies include five core competencies with 35 items, such as activities in PHCs, nursing care for follow-up patient, nursing care for family, nursing care for special needs group in the community, and nursing care for community (Ministry of Health Republic of Indonesia, 2006). However, a previous study reduced the QCPC for PHN to six factors that integrated important concepts of both the nursing process and the intervention wheel (Reckinger et al., 2013). The differences in this competencies may be explained that IPHN competencies are just focused on the duties of coordinators of PHN program for their activities in PHN services. The five core competencies of IPHN are included in both of the core competencies of the QCPC for PHN (including analytic and assessment skills and community of dimensions of practice skills) (Widyarani et al., 2020). Therefore, the IPHN competencies should be developed that used confirmatory factor analysis with QCPC for PHN.

Table 2. Item means, standard deviation, corrected item to total correlations, squared multiple correlations, and alpha if item deleted for PHN competencies scale (n= 55)

Competency of PHN	Mean	SD	CITC	SMC	AID
Activities in PHCs	Cronbach's alpha (α)= 0.961				
Nursing care for out-patient and in-patient	3.07	1.24	0.86	0.81	0.95
Case finding and early detection for out-patient	3.15	1.23	0.82	0.72	0.96
Provide health education	2.85	1.10	0.81	0.74	0.96
Observation and evaluation adherence of medication	2.84	1.13	0.83	0.75	0.96
Case reference or case reports with health care workers in PHCs	2.87	1.17	0.84	0.77	0.96
Provide health counseling	3.04	1.17	0.89	0.82	0.95
Intervention delegation of authority regarding procedures operational standard	2.96	1.10	0.80	0.75	0.96
Provide therapeutic environment during health care services in PHCs	3.15	1.14	0.86	0.83	0.95
Nursing documentation	3.05	1.16	0.81	0.74	0.96
Nursing care for follow-up patient	Cronbach's alpha (α)= 0.946				
Case finding which cross-contact diseases in one home	2.53	0.90	0.72	0.59	0.95
Provide health education for patients and family	2.58	0.97	0.83	0.76	0.94
Observation and evaluation adherence of medication	2.62	0.99	0.85	0.76	0.93
Home visit/home health nursing regarding the schedule	2.53	0.92	0.87	0.79	0.93
Provide direct care and indirect care to fulfill the basic needs of the patient	2.62	1.03	0.84	0.79	0.93
Provide health counseling	2.82	1.00	0.85	0.76	0.93
Nursing documentation	2.75	1.09	0.78	0.63	0.94
Nursing care for family	Cronbach's alpha (α)= 0.974				
Identify family with risk/vulnerable/poverty related to health in the community	2.49	0.96	0.93	0.93	0.97
Case finding which cross-contact diseases in one home	2.45	0.94	0.91	0.91	0.97
Provide health education for the family as a system of care	2.44	0.92	0.92	0.91	0.97
Home visit/home health nursing regarding the schedule	2.33	0.88	0.91	0.92	0.97
Provide direct care and indirect care to fulfill the basic needs of the patient	2.47	0.96	0.88	0.83	0.97
Provide health care regularly based on nursing care plan for long-term care	2.40	0.89	0.90	0.87	0.97
Provide health counseling in home	2.53	0.96	0.91	0.84	0.97
Nursing documentation	2.56	1.03	0.82	0.75	0.97

Table 2. Continued

Competency of PHN	Mean	SD	CITC	SMC	AID
Nursing care for special needs group in the community	Cronbach's alpha (α)=			0.963	
Identify risk factors related to health problem among the groups in the community	2.36	0.97	0.92	0.90	0.95
Provide health education based on the groups' needs	2.38	0.93	0.94	0.90	0.95
Provide direct care for patients in the groups who need nursing care	2.42	0.92	0.92	0.87	0.95
Motivate for forming, guidance, and evaluation health cadres regarding the group	2.27	0.89	0.86	0.76	0.96
Nursing documentation	2.38	1.06	0.85	0.75	0.96
Nursing care for the community	Cronbach's alpha (α)=			0.966	
Identify health problem that founded in the community area related to specific of diseases	2.35	0.93	0.89	0.91	0.96
Encourage participation through motivating the community to form community-based health care	2.35	0.93	0.90	0.87	0.96
Provide health education for the community	2.35	0.89	0.96	0.94	0.95
Motivate to form, develop, and evaluate health cadres in the community	2.29	0.87	0.89	0.81	0.96
Implementing, following, and monitor of clean living and healthy behavior	2.45	0.94	0.88	0.81	0.96
Nursing documentation	2.40	1.01	0.81	0.77	0.97
Overall alpha for PHN competencies	0.814				

Note. PHN=Public health nurses; PHCs=Public health center. SD=Standard deviation; CITC=Corrected item to total correlations; SMC=Squared multiple correlation; AID=alpha if item deleted

Table 3. Correlation between PHN competencies and coverage 12 indicators of healthy of Indonesia with a family approach

12 indicators of healthy of Indonesia with a family approach	PHN Competencies					
	A	B	C	D	E	F
Family planning with contraceptive	–0.103	0.197	0.183	0.079	0.056	1.000
Birth delivery with midwifery	0.379**	0.397**	0.402**	0.134	0.382**	0.225
Basic immunization for under five	0.277*	0.319*	0.210	–0.039	0.263	0.068
Exclusive breastfeeding	0.250	0.248	0.100	0.012	0.206	0.035
Monitoring growth and development of under five	0.279*	0.282*	0.205	0.002	0.257	0.110
Management of tuberculosis patient	0.085	0.279*	0.198	0.132	0.208	0.247
Management of hypertension patient	–0.007	0.051	0.076	–0.044	0.047	1.000
Healthcare for mental illness patient	0.103	–0.016	–0.001	0.057	0.039	0.044
Stopping smoking habit in the family	–0.246	–0.128	–0.348**	–0.413**	–0.277*	0.205
Coverage health insurance for family members	–0.176	–0.055	0.069	–0.074	–0.066	–0.048
Access for clean water	0.265	0.355**	0.253	0.180	0.320*	0.187
Healthy sanitary toilet	0.098	0.160	0.222	0.059	0.133	0.028

Note. PHN=Public health nurses. *p<0.05; **p<0.01.
A= Activities in public health centers; B= Nursing care for follow-up patient; C= Nursing care for family; D= Nursing care for special needs group in the community; E= Nursing care for community; F= Total score of PHN competency

Our finding indicated that the core competencies of coordinators of PHN program for activities in PHCs were correlated with safety birth delivery with midwifery, basic immunization for under-five children, and monitoring growth and development of under-five children. It is similar with a previous study that the overall level of competency of QCPC was most strongly associated with the duration of professional experience in rural areas (Bigbee et al., 2010). This situation shows that the majority of IPHNs work in rural areas, in which the major health problems are maternal and child health care (Susanto, 2018). Therefore, the IPHC competencies could be implemented for PHNs to perform their activities of PHN services in rural areas.

Meanwhile, the core competencies for nursing care for follow-up patients were correlated with safety birth delivery with midwifery, basic immunization for under-five children, monitoring growth and development of under-five children, management of tuberculosis patients, and access to clean water. This indicates that so far, the health services provided by the coordinators of PHN program have focused on completing Indonesia's national agenda in reducing maternal and child mortality (Ministry of Health of Republic Indonesia, 2016a), although several infectious diseases in Indonesia have yet to finish the program (Ministry of Health of Republic Indonesia 2018), and clean and healthy living behavior in Indonesia still low (Susanto et al., 2016). This is likely because the case finding and prevention of some infectious diseases have not been optimal (Susanti et al., 2018). Thus, the tools of competencies of IPHN should be sensitive to measure their activities for preventing communicable diseases.

Then, the core competencies for nursing care for family and nursing care for the community were correlated with safe birth delivery with midwifery and stopping smoking habits in the family. These results are relevant to the previous study that the core competencies model of PHN could predict the family planning program (Hewitt et al., 2014). However, some negative behavior, such as smoking, has begun to be identified as the cause of health problems (Susanto & Widayati, 2018). This indicates that coordinators of PHN program need to conduct regular and continuous home visits in providing nursing care services to reach the level of family independence in solving their health problems. The level of family independence is the main goal of providing family nursing care in facilitating the continuity of family functions (Ministry of Health of Republic Indonesia, 2006). Therefore, family empowerment needs to be carried out optimally by coordinators of PHN program to solve the health problems of fostered families.

Furthermore, the core competencies for nursing care for special needs groups in the community was only correlated with stopping smoking habits in the family. This result is similar with previous studies that chronic diseases and non-communicable diseases is a health problem in the rural area as a state of health transition related to smoking behavior (Low et al., 2015; Ng, 2006). However, smoking regulation needs appropriate bargaining through the government institutions, as previous research indicated that the competence of coordinators of PHN program is required for the management of policies and organizations (Polivka & Chaudry, 2015). Therefore, skills in negotiation and organizational planning need to be developed in PHN services.

5. Implication and limitation

The IPHN competency instrument developed in this study can be used as a reference in measuring the performance of PHNs in Indonesia. The results of this pilot study could be used by the government, especially the health office, in developing the competencies of coordinators of PHN program in PHCs. This tool could also be used for evaluating the performance of the coordinators of PHN program in carrying out the HIP-FA. However, it can only estimate the tasks and obligations that must be performed at PHCs. In order to be able to measure more broadly, the competency standard of PHN in Indonesia needs to be developed again related to other dimensions by referring to the QCPC for PHN. Therefore, the achievement of IHP-FA can be accelerated in its completion.

This study has some limitations. First, PHN competencies developed in this study only used the IPHN competencies, so the results cannot be generalized. For this reason, further research can conduct explanatory and confirmatory factor analysis between IPHN competencies and QCPC for PHN. Second, the research is only conducted in one region in Indonesia; therefore, it needs to be conducted in a larger population in order to measure the achievement of IHP-FA.

6. Conclusion

The IPHN competencies contain valid, reliable, and psychometrically robust measures. However, some programs in IHP-FA could not be achieved with the five core competencies of IPHN, demonstrating the need for developing the IPHN competencies in the future. The IPHN competencies are very important to be a standard for achieving the 12 indicators of IHP-FA. Therefore, developing the PHN core competencies of IPHN should be standardized in the Indonesian setting. Subsequent research to focus more on confirmatory and explanatory factor analysis between the IPHN and QCPC for PHN is necessary; therefore, IPHN competences can measure PHN services in PHCs in achieving the IHP-FA.

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Conflict of interest

The authors declared no conflict of interest in this study.

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Appendix 1. Coverage of 12 indicators of healthy Indonesia program with a family approach (HIP-FA)

PHN	12 indicators of healthy of Indonesia with family approach (%)											
	A	B	C	D	E	F	G	H	I	J	K	L
PHN 1	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
PHN 2	70.0	68.0	78.0	80.0	70.0	70.0	70.0	80.0	70.0	70.0	60.0	50.0
PHN 3	44.0	32.0	70.0	60.0	75.0	50.0	65.0	95.0	20.0	35.0	98.0	50.0
PHN 4	59.7	69.8	67.6	81.4	57.9	67.0	53.3	94.4	23.3	87.4	29.0	20.0
PHN 5	57.9	69.8	67.6	81.4	57.9	67.0	53.3	94.4	23.3	20.0	87.4	29.0
PHN 6	57.6	82.2	73.2	74.6	73.2	55.3	31.4	47.6	35.2	36.7	100	85.7
PHN 7	68.0	66.0	78.0	80.0	73.0	75.0	77.0	64.0	62.0	62.0	70,9	81.0
PHN 8	51.8	92.0	85.0	40.0	64.3	10.0	13.9	50.0	44.7	45.7	98.7	96.7
PHN 9	37.0	46.0	62.0	42.0	69.0	65.0	65.0	78.0	71.0	87.0	23.0	38.0
PHN 10	85.2	95.0	95.2	79.3	92.7	88.2	38.7	43.0	38.4	25.3	99.2	76.0
PHN 11	87.1	89.1	71.4	60.5	85.0	60.0	52.0	63.0	32.0	41.0	86.0	79.0
PHN 12	72.6	98.6	76.0	65.0	80.0	100	17.0	100	74.2	41.5	96.7	90.1
PHN 13	73.0	86.0	72.0	45.0	73.0	68.0	50.0	65.0	68.0	45.0	55.0	55.0
PHN 14	71.0	87.0	72.0	45.0	73.0	68.0	50.0	65.0	68.0	45.0	55.0	55.0
PHN 15	74.0	81.0	72.0	45.0	73.0	68.0	50.0	65.0	68.0	45.0	55.0	55.0
PHN 16	95.0	90.4	90.0	65.0	85.0	100	100	100	50.0	45.0	85.0	70.0
PHN 17	95.0	99.0	97.0	40.0	95.0	90.0	90.0	70.0	37.0	40.0	100	64.0
PHN 18	83.0	80.0	72.0	45.0	73.0	68.0	50.0	65.0	68.0	45.0	55.0	55.0
PHN 19	65.0	90.0	98.0	90.0	100	100	80.0	100	50.0	40.0	75.0	60.0
PHN 20	85.0	98.0	95.0	65.0	98.0	95.0	65.0	85.0	28.0	32.0	98.0	92.0
PHN 21	82.0	90.0	92.0	85.0	96.0	80.0	42.0	65.0	21.0	25.0	75.0	70.0
PHN 22	60.0	100	90.0	80.0	82.0	80.0	50.0	60.0	30.0	20.0	100	87.0
PHN 23	80.0	60.0	90.0	62.0	90.0	80.0	42.0	80.0	90.0	25.0	100	65.0
PHN 24	87.0	96.0	96.0	75.0	96.0	45.0	56.0	65.0	27.0	56.0	95.0	32.0

PHN	12 indicators of healthy of Indonesia with family approach (%)											
	A	B	C	D	E	F	G	H	I	J	K	L
PHN 25	82.0	86.0	72.0	71.0	76.0	74.0	57.0	92.0	31.0	21.0	87.0	75.0
PHN 26	92.0	62.0	85.0	90.0	100	20.0	40.0	1000	5.0	15.0	100	25.0
PHN 27	95.0	80.0	85.0	82.0	99.0	75.0	76.0	71.0	50.0	50.0	80.0	65.0
PHN 28	95.0	90.0	95.0	60.0	99.0	90.0	60.0	80.0	10.0	65.0	99.0	50.0
PHN 29	95.0	90.0	95.0	85.0	95.0	70.0	75.0	90.0	10.0	40.0	95.0	80.0
PHN 30	80.0	90.0	90.0	60.0	85.0	90.0	70.0	80.0	10.0	50.0	70.0	70.0
PHN 31	79.9	100	100	98.0	100	98.0	94.9	100	46.5	36.0	100	90.0
PHN 32	70.0	94.0	95.0	68.0	85.0	90.0	70.0	80.0	42.0	75.0	89.0	89.0
PHN 33	70.0	94.0	95.0	85.0	95.0	90.0	45.0	85.0	40.0	55.0	95.0	80.0
PHN 34	61.9	85.4	85.3	74.2	90.8	38.8	55.2	42.9	19.9	96.6	64.3	36.8
PHN 35	78.0	81.0	72.0	45.0	73.0	68.0	50.0	65.0	68.0	45.0	55.0	55.0
PHN 36	84.0	96.0	100	79.6	95.0	75.0	51.6	28.5	26.9	36.5	37.0	96.0
PHN 37	72.6	100	100	96.3	96.9	32.7	17.9	38.5	43.7	29.6	95.6	94.8
PHN 38	76.0	100	92.0	71.0	87.0	100	64.0	100	42.0	56.0	100	100
PHN 39	59.6	69.8	67.6	81.4	57.9	67.0	53.3	94.4	23.3	20.0	87.4	29.0
PHN 40	93.0	100	100	99.0	100	80.0	95.0	100	22.0	42.0	100	71.0
PHN 41	90.6	90.3	86.3	80.8	85.8	100	96.5	100	25.7	21.3	89.6	52.0
PHN 42	33.0	70.0	71.2	23.0	12.0	46.0	34.0	63.0	27.0	19.0	39.0	26.9
PHN 43	90.6	90.3	86.3	80.8	85.8	100	96.5	100	25.7	21.3	89.6	52.0
PHN 44	70.3	95.18	78.4	94.6	89.7	100	37.8	50.0	80.4	48.1	83.2	35.1
PHN 45	68.9	80.0	91.7	96.1	96.1	80.0	25.5	29.6	22.6	47.2	92.5	39.1
PHN 46	72.6	100	100	96.3	96.9	32.7	17.9	38.5	43.7	29.6	95.6	94.8
PHN 47	79.2	100	97.1	86.7	96.3	73.5	69.7	79.1	31.3	22.2	100	79.0
PHN 48	79.2	100	55.0	76.0	96.3	73.5	69.7	79.1	31.3	22.2	100	79.3
PHN 49	83.0	73.0	72.0	45.0	73.0	68.0	50.0	65.0	68.0	45.0	55.0	55.0

PHN	12 indicators of healthy of Indonesia with family approach (%)											
	A	B	C	D	E	F	G	H	I	J	K	L
PHN 50	90.0	85.0	90.0	90.0	90.0	99.0	75.0	90.0	20.0	85.0	90.0	85.0
PHN 51	90.0	85.0	90.0	85.0	90.0	95.0	95.0	75.0	25.0	75.0	99.0	90.0
PHN 52	60.0	85.0	80.0	40.0	90.0	80.0	40.0	60.0	10.0	65.0	60.0	60.0
PHN 53	93.7	100	98.9	87.8	100	91.4	60.4	77.8	48.7	34.9	99.9	94.8
PHN 54	36.0	65.0	47.0	38.0	40.0	50.0	20.0	67.0	30.0	60.0	40.0	70.0
PHN 55	71.0	63.0	72.0	45.0	73.0	68.0	50.0	65.0	68.0	45.0	55.0	55.0
Total	4736.5	4552.88	4495.7	3847	4531.6	4015	3124.5	4931	2196.84	2438	4388.65	3580.2
Average	86.1	82.8	81.7	69.9	82.4	73.0	56.8	89.6	39.9	44.3	79.8	65.1

Note: A=Family planning with contraceptive; B=Birth delivery with midwifery; C=Basic immunization for under five; D=Exclusive breastfeeding; E=Monitoring growth and development of under-five; F=Management of tuberculosis patient; G=Management of hypertension patient; H=Healthcare for mental illness patient; I=Stopping smoking habit in the family; J=Coverage health insurance for family members; K=Access to clean water; L=Healthy sanitary toilet.

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ORIGINAL RESEARCH

Knowledge, Attitude, and Practice toward COVID-19 among Healthy Population in the Philippines

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Abstract

Background: COVID-19 pandemic has become a severe health threat to the Philippines and around the world. At the early onset of the pandemic, it is imperative to measure the knowledge, attitude, and practice (KAP) among healthy individuals to better understand the causes, transmission, and preventive measures.
Purpose: This study aimed to identify the knowledge, attitude, and practice towards COVID-19 in a healthy Filipino population during the early onset of the pandemic outbreak.
Methods: This cross-sectional rapid online and web-based survey was conducted among healthy Filipino population. A total of 1634 subjects participated via the Google survey link. Descriptive statistics were used to describe the respondents' profile characteristics and KAP scores. The One-Way ANOVA or independent sample t-test was used to measure KAP scores' differences when grouped according to respondents' profile characteristics. Pearson correlation was used to measure the relationship among the KAP scores. The data were all analyzed using the SPSS version 26.0.
Results: The overall knowledge scores revealed 67.7%. Filipinos believed COVID-19 would finally be successfully controlled and confident that the Philippines can win the battle against the virus through preventive practices. KAP scores showed significant differences with age, sex (p<0.000), and place of residence (p<0.000), occupation (p<0.000), and marital status (p<0.000). A significant positive low correlation between knowledge and practice (r=0.076, p<0.01), attitude and practice (r=0.100, p<0.01).
Conclusion: Albeit a low knowledge of COVID-19, healthy Filipino populations had a positive attitude and compliant with the preventive measures. This study hopes to contribute to the growing corpus of literature on COVID-19 to provide evidence-based information towards health promotion, illness prevention, and control of possible virus' spread.

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1. Introduction

COVID-19 pandemic has become a severe health threat around the world. The novel coronavirus (SARS-CoV-2), the organism responsible for the disease belonging to the family known as coronavirus, was first identified and reported in December 2019 in Hubei, Wuhan,

China has spread to more than 151 countries since then. For several months since the Coronavirus disease (COVID-19) began, it has been at the center of public health agendas. The alarming increase of transmission and susceptibility to the disease led the World Health Organization (WHO) to characterize COVID-19 as a pandemic on March 11, 2020. Many countries had declared national emergencies as the COVID-19 spread rapidly, causing mortality rates in several countries to exceed 10%, economic losses, and threatening people's lives globally (Mei et al., 2020).

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and diverse transmission routes. People exposed to COVID-19 may present a wide range of symptoms ranging from mild to severe after 2-14 days from exposure. The symptoms include fever, chills, cough, sore throat, shortness of breath or difficulty breathing, muscle or body aches, fatigability, headache, loss of taste or smell, congestion or runny nose, nausea or vomiting, and diarrhea (Centers for Disease Control and Prevention, 2020b). Moreover, current reports of virus transmission from asymptomatic individuals (Zheming et al., 2020). Infectious disease epidemics are a constant threat to everyone (Sigfrid et al., 2019). On July 24, 2020, WHO has reported more than 15 million confirmed COVID-19 cases and had over 600,000 deaths worldwide (World Health Organization, 2020). Since the World Health Organization (WHO) declared a global public health emergency, the battle against COVID-19 has not yet ended. Across the world, the pandemic crippled most countries on the daily emergence of confirmed cases, which accounted for nearly three million people (Johns Hopkins University (JHU), 2020).

In the Philippines, President Rodrigo Duterte issued Proclamation No. 929, declaring the whole Philippines in the State of Calamity for six (6) months from March 16, 2020, and imposed an Enhanced Community Quarantine (ECQ) throughout the island of Luzon (Republic of the Philippines, 2020). This ECQ provided clear pathways on various government offices' restrictions, judicial courts acting in a legal capacity, and business establishments. Also, a mandatory home quarantine was imposed except to certain individuals (i.e., employees of establishments allowed to operate, law enforcement and certain public officials, health workers, and media and except to access necessities) (Republic of the Philippines, 2020).

During the early onset of the COVID-19 pandemic outbreak, few studies were conducted that measured the knowledge, attitude, and practices across populations primarily in China (Zhang et al., 2020; Zheming et al., 2020; Zhong et al., 2020; Zhou et al., 2020). These studies served as an impetus in this similar study due to the dearth of evidence within the Philippine context. For this reason, this study was conducted to identify the knowledge, attitude, and practices towards COVID-19 in a healthy Filipino population as a preliminary pursuit to obtain relevant information on the phenomenon of interest to offer relevant information for healthcare providers, particularly nurses on their roles in health promotion and illness prevention. Concomitantly, this study hopes to provide evidence-based data to prevent the virus's possible spread and future-related pandemic outbreaks.

2. Methods

2.1 Research design

A cross-sectional rapid online and web-based survey is a widely used approach during fast-moving infectious disease outbreaks (Geldsetzer, 2020). This design was chosen to identify the general population's knowledge, attitudes, and practices towards COVID-19 and the associated factors.

2.2 Setting and samples

The study was conducted among healthy Filipino population from March 16 to June 15, 2020. During the study period, an online survey was done in this study as the country was in a state of national lockdown, so it was not feasible to do a community-based national sampling survey during this special period (Asraf et al., 2020).

The sample size was calculated using Raosoft software based on a 20,000 random sample with a 3% margin of error, 95% confidence interval (CI) ± which yielded a required sample size of 1,014. The researchers anticipated a non-response rate of 50.0% (1,014×0.50 = 507) that provided a final total sample size calculated as 1,014 + 507 = 1,521 (Fincham, 2008). The inclusion criteria include healthy Filipinos without identified comorbid diseases, 16 years or more, Internet access, and agreed to participate in the study (n=1634), while a total of fifty-two were excluded who did not meet the inclusion criteria.

2.3 Measurement and data collection

A self-report questionnaire was adapted from the recent study conducted by Zhong et al. (2020) with a Cronbach alpha of 0.71 consisting of two parts. Part 1 described the respondent's age, gender, marital status, occupation, and place of residence. Part 2 measured the respondent's knowledge about the clinical presentations (4 items), transmission routes (3 items), and prevention and control (5 items). This 12-item questionnaire required the participants to answer with 1 point for correct response and 0 for the wrong response. The total knowledge score ranged from 0 to 12 and was calculated and summed up to give the total knowledge score with the following formula (Mean Score/Total Number of Items multiply by 100) (Zhong et al., 2020). The knowledge scores were categorized as high knowledge with a 76-100% score and low knowledge with 75% and below. The attitude was assessed by giving 1 to the agree and 0 to the disagree (2 items). The practice was assessed by giving 1 to the yes and 0 to the No response (2 items).

The researchers used the Google Survey Form with a link that allows the respondents to answer. The invitation link was posted on Facebook, LinkedIn, and Twitter. Also, email invitations were sent to those identified as eligible respondents who were required to answer each item before proceeding to the next question to minimize missing data. All the individual responses were saved and stored in password-protected computers.

2.4 Data analysis

After the data collection, responses were uploaded using Microsoft Excel and Statistical Package for Social Sciences (SPSS) for quantitative data analysis (IBM Corporation, 2020). Descriptive statistics were used in describing the demographic characteristics of the respondents and KAP scores. To identify the significant differences in the KAP scores when grouped according to the demographic variables, ANOVA or independent sample t-test were used. The relationship among the KAP scores was measured using Pearson correlation. An alpha level of <0.05 or less was used to identify the statistical significance.

2.5 Ethical considerations

This rapid online, web-based survey complied with the Ethical Approach to Gathering Survey Data Online (Callegaro et al., 2014; Ess & Jones, 2004; Fielding et al., 2008; Gaiser & Schreiner, 2009). Before the data collection, a letter of request was sent to the Ethics Committee of Research Development Office, St. Dominic College of Asia, approved the study protocol and procedures (SDCA-RDO-03-2020). The researchers only had access to the data and permanently deleted it after completing data collection, and the required number of participants was reached (Ess & Jones, 2004). Also, the respondents were informed about their voluntary participation, may partially or wholly withdraw during the study, their identity was anonymous, and no personal identification information was retrieved from them to ensure confidentiality (Kahn, 2000; Quinton & Smallbone, 2006).

3. Results

3.1 Profile characteristics in healthy Filipino population

The respondents mainly belonged to age group 16 to 29 (62.3%) with a mean average of 29.36 (standard deviation [SD]=0.78, range: 16-74), were female (60.1%), single (75.4%), engaged in non-medical occupation (45.7%) and resided in the National Capital Region (41.8%) (Table 1).

3.2 Knowledge scores according to profile characteristics in healthy Filipino population

Table 2 shows the knowledge scores on COVID-19 in a healthy Filipino population. Results revealed that scores ranging from 60.9% to 98.2 %, with an average mean of 8.12±.1.54 suggesting an overall knowledge of 67.7% (8.12/12*100), indicating a low knowledge.

3.3 Attitude toward COVID-19 in healthy Filipino population

Table 3 shows the attitude toward COVID-19 in a healthy Filipino population. A total of 1,402 respondents believed COVID-19 would finally be successfully controlled (85.8%) than those 232 who did not (14.2%). Also, 1487 (91.0%) respondents have the confidence that the Philippines can win the battle against the COVID-19 virus.

Table 1. Profile characteristics in healthy Filipino population

Profile characteristics	f	%	M±SD
Age			29.361± 0.781
16 to 29	1018	62.3	
30 to 49	491	30.0	
Above 50	125	7.6	
Sex			
Male	652	39.9	
Female	982	60.1	
Marital Status			
Single	1232	75.4	
Married	379	23.2	
Common Law	11	0.7	
Widowed/Separated	12	0.7	
Occupation			
Medical	221	13.5	
Non-medical	746	45.7	
Student	519	31.8	
Unemployed	148	9.1	
Place of Residence			
National Capital Region	683	41.8	
Ilocos Region (Region 1)	13	0.8	
Cagayan Valley (Region 2)	27	1.7	
Central Luzon (Region 3)	32	2.0	
Calabarzon (Region 4 Southern Tagalog)	319	19.5	
Bicol Region (Region 5)	40	2.4	
Western Visayas (Region 6)	186	11.4	
Central Visayas (Region 7)	11	0.7	
Eastern Visayas (Region 8)	35	2.1	
Zamboanga Peninsula (Region 9)	15	0.9	
Northern Mindanao (Region 10)	17	1.0	
Davao Region (Region 11)	10	0.6	
Soccsksargen (Region 12)	205	12.5	
Caraga (Region 13)	32	2.0	
Bangsamoro Autonomous Region in Muslim Mindanao	9	0.6	

Table 2. Knowledge scores according to profile characteristics in healthy Filipino population

Profile Characteristics	Knowledge Scores	
	M±SD	Scores in %
Age		
16 to 29	8.12±1.31	67.7
30 to 49	8.35±1.37	69.6
Above 50	7.14±2.96	59.5
Sex		
Male	7.88±1.88	65.7
Female	8.27±1.25	68.9
Marital Status		
Single	8.09±1.62	67.4
Married	8.18±1.32	68.2
Common Law	8.82±1.08	73.5
Widowed/Separated	8.00±0.00	66.7
Occupation		
Medical	8.21±1.31	68.4
Non-medical	8.08±1.65	67.3
Student	8.19±1.37	68.3
Unemployed	7.91±1.87	65.9

Table 2. Continued

Profile Characteristics	Knowledge Scores	
	M±SD	Scores in %
Place of Residence		
National Capital Region	7.84±1.77	65.3
Ilocos Region (Region 1)	7.62±1.12	63.5
Cagayan Valley (Region 2)	8.11±1.22	67.6
Central Luzon (Region 3)	8.50±1.52	70.8
Calabarzon (Region 4 Southern Tagalog)	8.22±1.32	68.5
Bicol Region (Region 5)	8.18±1.30	68.2
Western Visayas (Region 6)	8.52±1.18	71.0
Central Visayas (Region 7)	8.09±1.14	67.4
Eastern Visayas (Region 8)	8.83±1.44	73.6
Zamboanga Peninsula (Region 9)	7.80±1.01	65.0
Northern Mindanao (Region 10)	7.65±1.00	63.8
Davao Region (Region 11)	7.40±1.17	61.7
Soccsksargen (Region 12)	8.35±1.43	69.6
Caraga (Region 13)	8.84±1.05	73.7
Bangsamoro Autonomous Region in Muslim Mindanao	7.67±1.87	63.9
Knowledge Mean Score	8.12±.1.54	67.7

Table 3. Attitude toward COVID-19 in healthy Filipino population

Attitude towards COVID-19	Agree	Disagree	M±SD
I believe that COVID-19 will finally be successfully controlled.	1402(86)	232(14.2)	0.858±0.35
I have confidence that the country (i.e., the Philippines) can win the battle against the COVID-19 virus.	1487(91)	147(9)	0.910±0.29

3.4 Practice toward COVID-19 in healthy Filipino population

Table 4 presents the practice toward COVID-19 in a healthy Filipino population. A total of 1343 (82.2%) respondents have not gone to any crowded place, in recent days, compared to those 291 (17.8%) who have been out. On the other hand, 1428 have worn a mask when leaving home (87.4%) than those 206 respondents who have not (12.6%).

Table 4. Practice toward COVID-19 in healthy Filipino population

Practice towards COVID-19	Yes	No	M±SD
In recent days, I have gone to any crowded place.	291(17.8)	1343(82.2)	0.1781±0.038
In recent days, I have worn a mask when leaving home?	1428(87.4)	206(12.6)	0.8739±0.033

3.5 Significant difference in the knowledge, attitude, and practice toward COVID-19 in healthy Filipino population

Table 5 shows the significant difference in the KAP scores when grouped according to the respondents' profile characteristics. Results revealed that the knowledge scores were significantly different in terms of age (p<0.000), sex (p<0.000), and residence (p<0.000). Also, the attitude scores showed a significant difference in age (p<0.000), occupation (p<0.000), and place of residence(p<0.000). The practices also showed a significant difference with sex (p<0.000) and place of residence (p<0.000).

3.6 Significant relationship among KAP scores on COVID-19 in healthy Filipino population

Table 6 shows the significant relationship among KAP scores on COVID-19. Results indicated a positive low correlation knowledge and practice (r=0.076, p<0.01), attitude and practice (r=0.100, p<0.01). Correlations were interpreted using the following criteria: 0–0.25=weak correlation, 0.25–0.50=fair correlation, 0.50–0.75=good correlation and greater than 0.75=excellent correlation (Cohen, 1988).

Table 5. Significant difference in the knowledge, attitude, and practice toward COVID-19 in healthy Filipino population (n=1,634)

Profile Characteristics	Knowledge		Attitude		Practices	
	t/F	*p*-value	t/F	*p*-value	t/F	*p*-value
Age†	11.796	0.000	4.415	0.000	3.328	0.507
Sex† †	-5.008	0.000	-.076	0.894	-2.284	0.000
Marital Status†	1.161	0.323	1.728	0.174	1.358	0.254
Occupation†	1.756	0.154	17.712	0.000	2.053	0.105
Place of Residence†	4.738	0.000	5.014	0.000	4.198	0.000

Note. M=Mean; SD=Standard Deviation; **p*<0.05.; ***p*<0.01.; ****p*<0.001
†One -Way ANOVA; ††Independent sample t-test

Table 6. Significant relationship among KAP scores on COVID-19 in healthy Filipino population

		Knowledge	Attitude	Practices
Knowledge	Pearson Correlation		0.016	0.076**
	Sig. (2-tailed)		0.522	0.002
Attitude	Pearson Correlation	0.016		0.100**
	Sig. (2-tailed)	0.522		0.000
Practices	Pearson Correlation	0.076**	0.100**	
	Sig. (2-tailed)	0.002	0.000	

** Correlation is significant at the 0.01 level (2-tailed).

4. Discussion

The present study's findings revealed a low knowledge of COVID-19, as depicted by an overall score of 67.7%; since this study was conducted in the early stages of a pandemic outbreak, respondents may have not heard about the disease prevention and control measures and its possible impact. Moreover, the overreliance on social media to gain information may have contributed to the low knowledge because of the overlapping information and reliable sources. On the contrary, in a study conducted by Lau et al. (2020), among the households experiencing extreme poverty in the Philippines, 94.0% of respondents had already heard of COVID-19. Another study among employed Filipinos showed a 92% had high knowledge about the disease (Bautista Jr. et al., 2020). This finding supports the variations of knowledge in terms of age, sex, and place of residence found in the present study and in the study conducted by Zhong et al. (2020). Ergo, this further requires a large-scale inclusion of the population across the Philippines to establish a stronghold baseline information about the knowledge among Filipinos using a standardized tool that can be utilized by all other researchers having similar interests about the phenomenon.

Moreover, although the knowledge was not related to the attitude apparent in the present study, it requires further continued support through various integration using social media platforms about the disease that should be developed by the Department of Health, other healthcare institutions, and even the civil society organizations. According to Lau et al. (2020), only 20.7% of people reported consulting internet or social media sources. The Philippine response to the COVID-19 pandemic lags behind, contributing to varying knowledge scores about the disease. Undeniably, other countries have responded at the early onset of the pandemic, evident in the knowledge scores about the disease, including China (Chen et al., 2020; Zhong et al., 2020), South Korea (Lee et al., 2021), Bangladesh (Ferdous et al., 2020), Malaysia (Azlan et al., 2020) and Indonesia (Sulistyawati et al., 2021; Widayati, 2021).

Various measures were imposed, including community quarantine restricting the people's mobility and non-essential activities, but the virus's spread remains uncontrolled. At this rate, the Enhanced Community Quarantine and Modified Enhanced Community Quarantine were also imposed (Bautista Jr. et al., 2020). Albeit these measures, 86% agreed that the outbreak would be successfully controlled, and nearly 91.5% believed that the country could win the battle; the government should continue to strengthen its mechanisms through proper coordination from the national to local government city health offices. The attitude towards COVID-19 showed a

variation in age, occupation, and place of residence. Such difference may be attributable to the extent of information received during the pandemic outbreak. For instance, Zhong et al. (2020) found that women are knowledgeable about COVID-19 and had positive attitudes and appropriate practices among the Chinese residents with a relatively high socioeconomic status. In Malaysia, the respondents' age and occupation depicted variation on COVID-19. Similar to other studies conducted in Asian countries, a majority showed a positive attitude on the COVID-19 pandemic (Ferdous et al., 2020; Neupane et al., 2020; Sulistyawati et al., 2021; Widayati, 2021; Zhang et al., 2020; Zhong et al., 2020; Zhou et al., 2020). Undeniably, maintaining a positive attitude can help address a high level of anxiety, psychosis-like symptoms, and many other psychological-related issues. Several studies suggest that mental health must be integrated into the current response due to the pandemic's rippling effects on mental health (Assari & Habibzadeh, 2020; Li et al., 2020; Xiang et al., 2020). Assari and Habibzadeh (2020) surmised that emergency responses are incomplete unless mental health is prioritized.

The practices on preventive measures are also identified in this present study. The participants who opted not to go out to public places and wore a mask were considered as first-line prevention in contracting the virus. These findings are in concert with the previous studies conducted in other Asian countries (Ferdous et al., 2020; Neupane et al., 2020; Sulistyawati et al., 2021; Widayati, 2021; Zhang et al., 2020; Zhong et al., 2020; Zhou et al., 2020). The early onset of the pandemic, the Philippines' Department of Health continued the information dissemination campaigns about the importance of handwashing, covering of nose and mouth while coughing and sneezing, use of sanitizers, use of face masks, avoiding contact of fingers with mouth, nose, and eyes (Philippine Daily Inquirer, 2020; Republic of the Philippines, 2020). Another public action being implemented is through social distancing or physical distancing, which is people should practice being at least 6 feet apart from each other, avoidance of group gathering and crowded places (Centers for Disease Control and Prevention, 2020a).

The significant relationship between knowledge and practice was highlighted in this study. This means that having high knowledge about the clinical presentations, transmission routes, and prevention and control, the higher the chance that the general population may continue to advocate on various mechanisms in contracting the virus. Also, the more positive attitudes that the general population has, the more they would advocate preventive measures. Other studies found similar results (Ferdous et al., 2020; Neupane et al., 2020; Sulistyawati et al., 2021; Widayati, 2021; Zhang et al., 2020; Zhong et al., 2020; Zhou et al., 2020).

5. Implication and limitation

This present study is a preliminary pursuit to identify the healthy Filipino population's knowledge, attitude, and practice on COVID-19 at the early onset of the outbreak. Although the study poses limitations primarily on the inclusion of other populations across the country, it provides baseline information about the key areas where healthcare providers and particularly nurses should focus on health promotion, health education, and illness prevention. Moreover, Mesa Vieira et al. (2020) emphasized that special attention must be given to homeless, indigenous, migrant, and imprisoned populations, people living with disabilities, and the elderly. Another limitation, this study was conducted at the early stage of the pandemic, which may contribute to the low knowledge among the surveyed population about the disease. Hence, the researchers further suggest conducting a follow-up using a similar approach to the phenomenon being studied.

6. Conclusion

During the early onset of the pandemic outbreak in the Philippines, the researchers conducted a preliminary study to identify the knowledge, attitude, and practice in a healthy Filipino population. Based on the findings as presented, respondents' had low knowledge of COVID-19. Also, the correlation revealed significant positive low correlations between knowledge-practice and attitude-practice. This study's findings provide relevant baseline information that can be used for further development of evidence-based interventions and healthcare best practices, including nursing, to prevent the spread of COVID-19 and possible future pandemic outbreaks. Concomitantly, it is suggested to make a follow-up study during the later onset of the pandemic to measure if there is a significant change in the knowledge, attitude, and practice in the same population. Also, there is a need to develop a standardized and culturally

fit tool to measure the knowledge of the populations currently surveyed across the country to establish a more reliable and valid instrument. Further studies on other COVID-19 related topics require covering a large population with inclusion and involvement of vulnerable populations.

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Conflict of Interest

The authors declare that there was no conflict of interest.

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ORIGINAL RESEARCH

Nurses' Intention to Work during the COVID-19 Outbreak in West Sumatra, Indonesia

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Abstract

Background: Nurses who work on the front-line and are involved in caring for COVID-19 patients have a high risk of transmission. The increase in the number of confirmed and suspected cases, followed by an increase in workload, a limitation of personal protection equipment, a lack of effective treatment, and inadequate emotional support may contribute to the work intention during a pandemic.
Purpose: This study aimed to describe nurses' intention to work and provide care when people may be at risk of the COVID-19 and examine its relating factors.
Methods: This was a cross-sectional and survey-based study that collected the respondents' characteristics and the intention to work measurements from 238 nurses in 36 hospitals in West Sumatera, Indonesia. Data analysis was performed using descriptive statistics, T-tests, and ANOVA.
Results: The mean and standard deviation scores of nurses' intention to work during the COVID-19 outbreak were 42.49±5.92. The isolation experience, the presence of authorized beds for COVID-19, and sufficient protection equipment supply, were correlated to the intention to work (p=0.016, p=0.035, p=0.000). Nurse respondents expected that hospital managers should provide more attention to nurses who agreed to attend to work during the COVID-19 outbreak.
Conclusion: Nurses showed preserved intention to work during the COVID-19 outbreak. The factors correlated with intention to work were isolation experience, the presence of authorized beds for COVID-19, and protection equipment supply. The government and hospital management should ensure strategies and regulations to provide adequate hospital protective equipment supplies. They should also support compensations to nurses who actively care for patients during the COVID-19 outbreak.

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1. Introduction

The outbreak of coronavirus disease 2019 (COVID-19) has shown its effect globally. By 15 April 2020, WHO reported 1,918,138 persons confirmed of COVID-19, with 123,126 deaths. In Indonesia, the number of infected COVID-19 patients in early 2020 was 5,136, and the number of death was 469 (WHO, 2020), including 13 nurses (Nurita, 2020). This disease spreads quickly from infected person to healthy person and could transmit from an asymptomatic carrier person (Bai, Yao et al., 2020).

Nurses who work on the front lines are involved in delivering care to COVID-19 patients (Cai et al., 2020; Tan et al., 2020). The high risk of transmission from the COVID-19 exposes the nurses a lot. Therefore, working in an outbreak of COVID-19 may differ from that in daily routines. The increased number of confirmed and suspected cases, followed by an increase in workload, a constraint of personal protection equipment, a lack of effective treatment, and inadequate emotional support, contribute to intention to attend work (Lai et al., 2020). Nurses who work in an infectious disease outbreak have increased pressure and capability to experience a new challenge (Kim & Choi, 2015).

A previous study showed that when the Severe acute respiratory syndrome (SARS) outbreak occurred, healthcare workers were afraid of contaminating their family and friends (Mounder et al., 2003). It is reported that stigmatization impacts the nurse's psychological well-being (Tan et al., 2020), reluctance to work, and consideration of resignation (Bai, Lin et al., 2004). The nurses revealed high levels of stress, anxiety, and depression symptoms, which could have long-term

psychological implications (Lee et al., 2007). This situation is similar to COVID-19 outbreak issues in which healthcare providers suffer from mental health symptoms, psychological adjustment, and unwillingness to work.

Reports on mortality from COVID-19 infection and concerns on personal and family safety could lead to psychological effects. However, nurses had a social and professional obligation to deliver health care, even though the adverse consequences might arise (Lai et al., 2020). According to Oh et al. (2017), the intention to provide care for patients in response to infectious disease emergencies is associated with nursing professionalism. Several factors influence a person's willingness to attend work and are involved in their workplace during a disaster, such as individual characteristics, family, and workplace factors (Arbon, Ranse et al., 2013).

Previous narrative reviews reported that healthcare workers' willingness to work during an influenza pandemic was moderately high (Aoyagi, 2015). Another study reported that 60.4% of nurses were willing to accept their work during the COVID-19 outbreak in South Korea, and the hospital employees' intention to work was associated with the perceived threat and effectiveness of hospital response (Jang et al., 2020). Nevertheless, a study on this phenomenon could be said immature to conclude the whole population. In COVID-19, research shows different phenomena from previous emerging diseases. The COVID-19 spreads very rapidly globally all over the world to all populations, including nurses (Bai, Yao et al., 2020). The nurses' working environment is highly contagious compared to the previous pandemic. Therefore, it is necessary to investigate nurses' intention to work during a pandemic and its related factors. This study aimed to describe the nurses' intention to work and provide care when people may be at risk of COVID-19 and examine its relating factors.

2. Methods

2.1 Research design

This study used a cross-sectional descriptive design. This survey-based study collected the respondents' characteristics and the intention to work measurements from nurses who worked at 36 hospitals in West Sumatra, Indonesia.

2.2 Setting and sample

This study involved nurses from public and private hospitals in West Sumatra Province, Indonesia, working during the COVID-19 outbreak, and was conducted in April 2020. The inclusion criteria were nurses having clinical experience at the specified hospital for more than 1 year, whereas the exclusion criteria were pregnant women and nurses who were on temporary leave for one month before the time of the study. There were 238 nurses from 36 public and private hospitals who responded voluntarily to an online survey according to the criteria. This study included nurses who work in a hospital in 18 out of 19 regions in West Sumatra.

2.3 Measurement and data collection

An online survey was designed based on the intention to work questionnaires. We constructed the intention-to-work questionnaire since no existing published and validated tool was suitable for this study. We referred to literature with the relevant topic (Arbon, Cusack et al., 2013; Arbon, Ranse et al., 2013), extracted information, and developed 12 items, a five-point Likert scale (strongly disagree to agree strongly) assessing the nurse willingness to attend work during an emergency infectious disease pandemic. For statistical analysis purposes, the respondents' response was scored from 1 for strongly disagree to 5 for strongly agree, for favorable items; and reversely for unfavorable items. The total score ranged from 12 to 60. The questionnaire was piloted on 20 nurses from one public and one private hospital in Padang. The researcher asked respondents to answer the questionnaire and write down comments on the clarity of the questions at the end of the instrument. The statements of the respondents were used to improve the face validity. These pilot study results were summarized, discussed by the research team, and minor adjustments were made in response to the pilot's comments. The instrument's internal consistency coefficients in this study were 0.824, and the range of reliability scores of the instrument was between 0.71-0.89 (Cronbach's α). We created an online form and distributed the survey link via social media to approximately 200 personal accounts and 50 group accounts from 6 to 13 April 2020. There were 238 nurses from 36 hospitals who completed the survey. At the beginning of the questionnaire, there were questions on the hospital's characteristics (the

presence of authorized beds for COVID-19 and protection equipment supply), job-related characteristics (working division, clinical experience, duty type, type of hospital, and employment status), and the stated intention to attend work conditions during the COVID-19 pandemic.

2.4 Data analysis

The characteristics of the respondents and the intention to work were explored using descriptive statistics. Univariate association between the overall intention to attend their workplace and the participants' characteristics were assessed using t-tests and ANOVA. T-test was used to analyze differences of willingness to attend work for dichotomous data such as gender, marital status, presence of children, and isolation experience. ANOVA was used to analyze differences in willingness to attend work for data with more than two groups: age, clinical experience, and education. The data were previously tested for normality by the Kolmogorov-Smirnov test and were tested by the Levene test for homogeneity. The test showed that the data were normally distributed and homogenous.

2.5 Ethical considerations

The ethics approval to conduct this research was granted by the Medical Research Ethics Committee of Faculty of Medicine Universitas Andalas (reference number: 281/KEP/FK/2020). The study was conducted following the approved protocol. Surveys were anonymous, and informed consent was implied when participants completed and returned their survey.

3. Results

3.1 Personal characteristics, job-related characteristics, and hospital condition during the pandemic

Among 238 nurses who responded to the survey and worked in West Sumatera, most of them were 30-39 years old (48.7%), female (86.1%), married (74.4%), with children (59.2), with 1-4 persons at home (57.1%), completed undergraduate level of study (62.2%), and without isolation experience (84.9%). Based on job-related characteristics, 36.6% of respondents worked at wards, 54.6 % had more one to ten years of clinical experience, 81.5% were shift workers, and 78.2% worked as a permanent employee. Regarding the characteristics of hospitals during the COVID-19 pandemic, 67.2% of respondents reported the presence of authorized beds for COVID-19 patients, and 67.6% reported insufficient protection equipment supply to the hospital (Table 1).

Table 1. Personal characteristics, job-related characteristics of study subjects, and relationships with the intention to work (n=238)

Variables	Frequency (%)	Intention to work Mean±SD	*t*	*F*	*p*
Personal characteristics					
Age (year)					
20-29	77 (32.4)	42.29±6.88		0.98	0.376
30-39	116 (48.7)	42.19±5.67			
40-50	45 (18.9)	43.60±4.65			
Gender					
Male	33 (13.9)	43.67±6.17	1.19		0.241
Female	205 (86.1)	42.30±5.88			
Marital status					
Not married	61 (25.6)	43.15±6.07	9.99		0.323
Married	177 (74.4)	42.26±5.87			
Presence of children					
No children	97 (40.8)	42.87±6.39	0.79		0.427
With children	141 (59.2)	42.23±5.59			
Number of the person at home					
1-4	136 (57.1)	42.17±6.46		0.95	0.385
5-8	98 (41.2)	43.03±5.14			
≥9	4 (1.7)	40.00±4.08			

Table 1. Continued

Variables	Frequency (%)	Intention to work Mean±SD	t	F	*p*
Education level					
Diploma	83 (34.9)	43.00±5.56		0.80	0.447
Undergraduate	148 (62.2)	42.13±6.07			
Postgraduate	7 (2.9)	44.00±7.23			
Isolation experience					
Yes	36 (15.1)	44.75±5.89	2.50		0.016*
No	202 (84.9)	42.08±5.85			
Job-related characteristics					
Working division					
Emergency	27 (11.3)	42.04±5.55		1.39	0.226
ICU/HCU	41 (17.2)	43.32±5.81			
Ward	87 (36.6)	41.87±6.37			
Ward for COVID-19	19 (8)	45.26±5.89			
Outpatient clinic	28 (11.8)	41.46±5.62			
Others	36 (15.1)	42.69±5.23			
Clinical experience (years)					
1-10	130 (54.6)	41.92±6.26	-1.66		0.098
>10	108 (45.4)	43.18±5.45			
Duty type					
3-shifts per day	194 (81.5)	42.44±5.91	-0.26		0.792
Daytime only	44 (18.5)	42.70±6.05			
Type of hospital					
Public	186 (78.2)	42.42±6.13	-0.33		0.738
Private	52 (21.8)	42.73±5.20			
Employment status					
Permanent	186 (78.2)	42.35±5.76	-0.63		0.529
Non-permanent	52 (21.8)	42.98±6.51			
Hospital condition during the pandemic					
The presence of authorized beds for COVID-19					
Yes	160 (67.2)	43.06±5.86	2.12		0.035*
No	78 (32.8)	41.32±5.93			
Protection equipment supply					
Sufficient	77 (32.4)	45.21±5.09	5.41		0.000*
Insufficient	161 (67.6)	41.19±5.87			
Intention to work		42.49±5.92			

Note. The t is the result for the T-test, and F is the result for ANOVA; * Statistically significant ($p<0.05$).

3.2 Intention to work according to personal characteristics, job-related characteristics, and hospital condition during the pandemic

The mean scores of intention to work are also presented in Table 1. The overall mean score of intention to work during the COVID-19 pandemic was 42.49, and mean scores of intention to work were significantly higher in respondents with isolation experience ($p=0.016$), the presence of authorized beds for COVID-19 ($p=0.035$), and in respondents who work at a hospital with sufficient protection equipment supply ($p<0.001$).

3.3 Intention to work among nurses during COVID-19 pandemic

Table 2 shows each statement's mean scores on nurses' intention to attend to work during a pandemic. The highest mean score of intention to work was for the information, "Hospital managers should pay more attention to the nurses who agreed to attend work during the COVID-19 pandemic," which was 4.69. The lowest score was for the statement "I have the right to say 'no' to attend work during the COVID-19 pandemic if it is threatening to my family", which was 2.33.

Table 2 also illustrates the frequency of respondent agreement or disagreement with each intention to work statement outlined in the survey. Responses demonstrated that nurses have a great expectation to hospital managers to pay more attention to the nurses who agrees to attend work during the COVID-19 outbreak. The majority of respondents agreed on all other statements except that they have the right to say 'no' to attend work during the COVID-19 outbreak if it is threatening themselves or their family.

Table 2. Mean scores and agreement or disagreement with statement intention work among nurses during COVID-19 outbreak (n=238)

No	Willingness to attend work	Mean±SD	Strongly Disagree f (%)	Disagree f (%)	Undecided f (%)	Agree f (%)	Strongly Agree f (%)
1	I would attend the workplace even knowing there is COVID-19 outbreak	3.94±0.69	2 (0.8)	8 (3.4)	29 (12.2)	163 (68.5)	36 (15.1)
2	I have a responsibility to work during the COVID-19 outbreak.	4.10±0.63	1 (0.4)	3 (1.3)	22 (9.2)	158 (66.4)	54 (22.7)
3	I have the knowledge to work during the COVID-19 outbreak	3.72±0.78	1 (0.4)	20 (8.4)	50 (21)	140 (58.8)	27 (11.3)
4	I have skills to deal with the COVID-19 outbreak	3.60±0.82	4 (1.7)	19 (8)	66 (27.7)	128 (53.8)	21 (8.8)
5	I feel I will be able to work during the COVID-19 outbreak	3.58±0.78	4 (1.7)	13 (5.5)	81 (34)	122 (51.3)	18 (7.6)
6	My work environment supports working in the COVID-19 outbreak	3.50±0.90	7 (2.9)	27 (11.3)	65 (27.3)	119 (50)	20 (8.4)
7	I have rights to say 'no' to attend work during the COVID-19 outbreak if it is threatening to me	2.42±1.12	52 (21.8)	94(39.5)	40 (16.8)	43 (18.1)	9 (3.8)
8	I have rights to say 'no' to attend work during the COVID-19 outbreak if it is threatening to my family	2.33±1.05	58 (24.4)	90 (37.8)	46 (19.3)	42 (17.6)	2 (0.8)
9	Hospital managers should pay more attention to nurses who agree to attend work during the COVID-19 outbreak	4.69±0.49	0	0	3 (1.3)	68 (28.6)	167 (70.2)
10	I feel that I have a high level of choice to actively participate in response to COVID -19 outbreak	3.76±0.83	3 (1.3)	12 (5)	64 (26.9)	120 (50.4)	39 (16.4)
11	I believe that there is personal protection equipment available during the COVID-19 outbreak	3.49±0.89	9 (3.8)	16 (6.7)	85 (35.7)	105 (44.1)	23 (9.7)
12	Management in my working place ensures security and safety at the workplace	3.37±0.93	14 (5.9)	18 (7.6)	87 (36.6)	104 (43.7)	15 (6.3)

3.4 Relationship between the isolation experience, the presence of authorized beds for COVID-19, and protection equipment supply with the statement on the intention to attend work

Table 3 shows the significance value *(p-value)* of the t-test to measure differences of the average in the intention to work expressed on each statement within the questionnaire with three characteristics that have a significant relationship with the intention to attend work. The result shows that the hospital protection equipment supply has a significant correlation with 6 out of 12 statements on the intention to attend work ($p<0.05$). The presence of authorized beds for COVID-19 also has correlations with five statements on the questionnaire, and isolation experience has a significant correlation with two statements on the questionnaire.

Table 3. Job-related characteristics and hospital condition predictors of the statement intention to attend work

No	Intention to attend work, mean (SD)	Isolation experience			The presence of authorized beds for COVID-19			Protection equipment supply		
		No	Yes	*p-value*	No	Yes	*p*-value	No	Yes	*p*-value
1	I would attend in the workplace even knowing there is COVID-19 pandemic	3.91 (0.69)	4.11 (0.71)	0.114	3.74 (0.75)	4.03 (0.65)	0.004 *	3.91 (0.63)	3.99 (0.82)	0.485
2	I have a responsibility to work during the COVID-19 pandemic	4.07 (0.63)	4.22 (0.64)	0.205	3.95 (0.56)	4.17 (0.66)	0.008 *	4.04 (0.62)	4.21 (0.66)	0.067
3	I have the knowledge to work during the COVID-19 pandemic	3.73 (0.79)	3.69 (0.79)	0.816	3.56 (0.78)	3.80 (0.78)	0.031 *	3.59 (0.83)	4.00 (0.63)	<0.001 *
4	I have skills to deal with the COVID-19 pandemic	3.58 (0.85)	3.72 (0.66)	0.258	3.44 (0.86)	3.68 (0.79)	0.036 *	3.47 (0.87)	3.87 (0.66)	<0.001 *
5	I feel I will be able to work during the COVID-19 pandemic	3.54 (0.79)	3.78 (0.68)	0.065	3.45 (0.82)	3.64 (0.76)	0.089	3.47 (0.79)	3.81 (0.69)	0.001*
6	My work environment supports working in the COVID-19 pandemic	3.46 (0.90)	3.72 (0.91)	0.113	3.35 (0.91)	3.57 (0.90)	0.077	3.24 (0.91)	4.03 (0.63)	<0.001 *
7	I have rights to say 'no' to attend work during the COVID-19 pandemic if it is threatening to myself	2.36 (1.11)	2.78 (1.19)	0.058	2.53 (1.13)	2.38 (1.13)	0.335	2.39 (1.14)	2.49 (1.12)	0.513
8	I have rights to say 'no' to attend work during the COVID-19 pandemic if it is threatening to my family	2.29 (1.05)	2.56 (1.05)	0.166	2.28 (1.04)	2.35 (1.07)	0.640	2.30 (1.01)	2.38 (1.15)	0.638
9	Hospital managers should pay more attention to nurses who agree to attend work during the COVID-19 pandemic	4.68 (0.49)	4.72 (0.45)	0.642	4.65 (0.48)	4.71 (0.49)	0.435	4.69 (0.49)	4.69 (0.49)	0.987
10	I feel that I have a high level of choice to actively participate in response to COVID -19 pandemic	3.72 (0.83)	3.97 (0.85)	0.101	3.60 (0.73)	3.83 (0.87)	0.034 *	3.70 (0.85)	3.88 (0.78)	0.094

Table 3. Continued

No	Intention to attend work, mean (SD)	Isolation experience			The presence of authorized beds for COVID-19			Protection equipment supply		
		No	Yes	*p*-value	No	Yes	*p*-value	No	Yes	*p*-value
11	I believe that there is personal protection equipment available during the COVID-19 pandemic	3.44 (0.89)	3.81 (0.92)	0.030 *	3.44 (0.86)	3.52 (0.92)	0.497	3.26 (0.93)	3.97 (0.58)	<0.001 *
12	Management in my working place ensures security and safety at the workplace	3.32 (0.94)	3.67 (0.86)	0.031 *	3.33 (0.96)	3.39 (0.92)	0.680	3.12 (0.98)	3.90 (0.53)	<0.001 *

* Statistically significant ($p<0.05$)

4. Discussion

This study aimed to describe the nurse's intention to work and provide care during the COVID-19 pandemic and examine its related factors. The result showed that the mean intention to work score was 42.49 (70.8%), which is higher than a previous study, with approximately 60% of hospital workers willing to accept their work during the early COVID-19 outbreak in South Korea (Jang et al., 2020). The nurse faces the challenge to balance professional roles in delivering care of high-risk patients without adequate personal protective equipment. It affects the nurses' intention to work due to lack of medication or available COVID-19 vaccine at the time of this study. However, even COVID-19 is very contagious (Devnani, 2012), the nurses in Indonesia do not want to quit their jobs since it is a generally permanent employee. Even the level of attendance might be disrupted, the nurses' sense of responsibility obliged them to work during an infectious disease pandemic (Ives et al., 2009).

Previous studies showed different results related to the nurse's willingness to work during a pandemic. In the Ebola virus, 26.8% of the nurses were willing to care for infected patients (Kim & Choi, 2016). It is quite low compared to the nurses' willingness to work during the COVID-19 pandemic. A study conducted by Jang et al. (2020) found that 60.4% of the nurses were willing to attend their work during the early COVID-19 outbreak, while 90% of nurses indicated an intention to work during a pandemic (Martin et al., 2013). In addition, Lee and Kang (2020) found that the willingness to care for novel H1N1 patients scored 4.31 of 7 points (61.6%), which is lower than the present study results. According to these results, the researchers suggest that this condition corresponds with previous work, which showed an ambiguity between feeling motivated by a sense of obligation to work and a significant barrier that might prevent from doing so (Ives et al., 2009).

The intention to work during a pandemic was closely linked to duty's dedication (Damery et al., 2010). According to this study's results, a sense of responsibility was reported as high by the respondents. When natural disasters occur, healthcare workers are more likely to be willing and able to respond, and otherwise, less likely to be willing and able during infectious outbreaks (Couig, 2012). Therefore, the nurses' intention to work during a pandemic should be prepared with several policyholders' attempts, such as developing self-efficacy education programs and the capability to care for infected patients and train nurses accordingly (Lee & Kang, 2020). The most learning need for nurses regarding disaster nursing was mitigation/ prevention, response phase, and disaster nursing management plans (Phakdeechanuan et al., 2015). These aspects found compelling on willingness to work as training in pandemic preparedness, confidence in individual skills, general and specific role knowledge, good communication skills, and perception of role (Aoyagi et al., 2015).

The study results showed that the presence of authorized beds for COVID-19 was associated with the nurses' intention to work during the COVID-19 outbreak. The nurses provide care and make direct contacts with COVID-19 patients; they are more exposed to traumatic events such as patients' suffering and deaths (Pappa et al., 2020). Among healthcare workers, nurses were reported to experience the highest anxiety levels and the highest prevalence of anxiety, ranging

from 15% to 92% (Luo et al., 2020). Fear and anxiety are associated with a willingness to work (Wong et al., 2011). Shanafelt et al. (2020) identified one of the sources of anxiety in nurses is the lack of personal protective equipment (PPE); therefore, hospitals need to supervise and monitor employees' safety by providing appropriate PPE and mental health support during an outbreak. Previous studies have reported that the intention to work and willingness to work increase when hospitals provide PPE (Martin, 2011; Chaffee, 2009) and accurate information appropriately (Gershon et al., 2010). In particular, hospitals need to consider the types of tasks that workers conduct during emergencies, and the government should emphasize the efforts to provide physical and psychological worker protection programs and policies to improve healthcare workers' presence at work (Gershon et al., 2010). Healthcare workers' feeling of being protected is treasurable because it increases the healthcare workers' motivation and lowers reluctance to work (Imai et al., 2010).

The isolation experienced was significantly correlated to the intention to work during the COVID-19 pandemic. The isolation experienced indirectly built up the knowledge and skills of a nurse. Control factors such as knowledge and skills (internal) and supplies (external) influenced more than normative aspects on the intention to respond to an outbreak period (Connor, 2014). This study result suggests the need for attention from the hospital management and government to be prepared for the emergency needs during a pandemic and considering the potential that staff may be absent for reasons beyond those today expected. A hospital is a health institution that deals directly with victims when a disaster or disease outbreak occurs. Therefore, the organization must provide well-planned workplace protocols, such as guidelines for caring for affected patients, a set of actions related to a disaster or disease outbreak, and safety practices when treating patients. Hospitals should also collaborate with institutions at the local and national levels in preparing appropriate training and response plans (Hirshouer et al., 2020). As nurses are front-line health workers, they must be oriented and familiar with workplace protocol content; they should be knowledgeable and skillful in carrying it out (Labrague et al., 2018).

The highest mean score of intention to work was for the statement regarding attention from hospital managers to the nurses who agree to attend during the COVID-19 pandemic. The lowest score was for the statement "I have rights to say 'no' to attend work during the COVID-19 pandemic if it is threatening to my family." Previous research demonstrated the same result on institutional support would influence positive attitudes among nurses and the intention to work during new emerging infectious diseases (Lee & Kang, 2020). Nurses would appreciate the compensation payments and confession from management. The executive hospital gives compensation, appreciation and ensures nurses and their families are safe. Simultaneously, they care for patients with Ebola infection disease (EID) to improve nurses' positive attitudes and reduce nurse managers' concerns and anxieties (Lee & Kang, 2020). Another study reported that hospital response's perceived threat and effectiveness were associated with hospital employees' intention to work during the early COVID-19 outbreak (Jang et al., 2020).

Respondents demonstrated that the hospital managers should provide more attention to the nurses during the COVID-19 outbreak. This study found most of the nurses agreed with some statements such as, "My work environment supports working in the COVID-19 outbreak", "I have a responsibility to work during the COVID-19 outbreak", and "Hospital managers should pay more attention to the nurses who agree to attend work during the COVID-19 outbreak." These three items showed that the government needs to scrutinize healthcare providers' technical problems and demands for establishing a safe healthcare system. The hospital managers should develop strategies to protect healthcare workers' providers from severe physical and psychological stress related to pandemic (Kim, 2018). Besides, the majority of respondents agreed on all statements unless if the pandemic threatens themselves or their family. Compared to the general population, nurses have a higher risk of infected COVID-19. Therefore, it causes the nurse's anxiety to increase at work, fear of infection from the patients, fear of accidentally infecting family, friends, and other people. Besides, with the increasing number of patients, the workload and limitations of personal protective equipment related to COVID-19, social distancing, and community quarantine increase fear among nurses that also affects performance, psychological and emotional well-being (Maben, 2020).

Specifically, the results showed that more than half of nurses agreed with the statement "I have rights to say 'no' to attend work during the COVID-19 outbreak if it is threatening to my family", "I have rights to say 'no' to attend work during the COVID-19 outbreak if it is threatening

to myself", "I have the knowledge to work during the COVID-19 outbreak" (70.1%), "I have skills to deal with the COVID-19 outbreak", and I feel I will be able to work during the COVID-19 outbreak. According to the theory of Ajzen's planned behavior (TPB) (2005), three main factors contribute to the intention to work: the attitude toward the behavior, subjective norms, and perceived behavioral control. The results are consistent with the TPB theory, in which many of the nurses are married, have children, and have large families living together. The personal condition could be social pressure for nurses considering COVID-19 is an infectious disease and could be transmitted to their families. So, the subjective norms explained in the TPB theory have been proven in this study.

5. Implication and limitation

This study has implications for nursing and health policy to maintain an adequate workforce during the COVID-19 pandemic. The government and hospital management should ensure that policies and regulations include providing adequate hospital goods supply. Moreover, we suggest that hospital administrators provide compensations and recognitions to nurses who actively care for patients during the COVID-19 pandemic, thereby cultivating positive attitudes, guaranteeing nurses and their family's safety, and reducing distresses and anxieties of the nurse managers. Furthermore, this study has limitations. It was an online survey that distributed the link to the contact persons that the researchers have and then spread the survey link to their contacts. As a result, the proportion of nurses in each hospital who responded to this survey varied. However, the respondents have represented a large number of institutions and regions in West Sumatra. The researchers do not have comparable data on the desire to work for nurses before the COVID-19 pandemic, so the researchers cannot conclude whether there has been a change in nurses' willingness to work. This study cannot determine whether the COVID-19 pandemic influenced nursing professionalism. Besides, the instrument's development seemed to be immature, although the reliability test showed an excellent mark. Therefore, there is a need to test the validity and reliability of this study's questionnaire to prove its psychometric properties.

6. Conclusions

The factors correlated with intention to work were isolation experience, the presence of authorized beds for COVID-19 and sufficient protection equipment supply. This study revealed that nurses has a professional responsibility to care for patients during the COVID-19 pandemic. The nurses may be in a dilemma and try to balance their role to take care of patients with risks of infection and even death without adequate PPE. Future studies are recommended to distribute the survey link through the hospital management. It is expected the distribution of the association will occur equally, and the proportion of responses received is more significant.

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Conflict of interest

The authors have no conflicts of interest associated with this study.

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ORIGINAL RESEARCH

A Qualitative Study on the Breastfeeding Experiences of Young Mothers

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Abstract

Background: Breastfeeding practice for young mothers could be problematic, especially when supports are absent. Evidence reported that young mothers have risks of experiencing mental health problems and of behavioural problems in their children. Data showed that 36 per 1,000 childbirth occurred among Indonesian female adolescents aged 15-19 during 2018. Nevertheless, the breastfeeding experience of young mothers has not been well studied, particularly in the Indonesian context. Therefore, to develop professional caring and supporting relationships, it is important to address this knowledge gap.
Purpose: This study aimed to explore the experiences of breastfeeding practices among Indonesian young mothers.
Methods: A qualitative exploratory study was employed, and one-to-one in-depth interviews were conducted on 18 young mothers between May until August 2019. Data analysis was guided by Colaizzi's thematic approach.
Results: Four key themes emerged from the qualitative data, i.e., formal support of breastfeeding, the role of family, partner and peers, culture and judgement, and future aspirations and healthcare. Indonesian young mothers sought formal information on breastfeeding from healthcare providers. However, there was a lack of translation into practices due to lack of supports from partners, cultural beliefs, and parents' interference, which consequently led to the failure of breastfeeding. Indonesian young mothers were suggesting that breastfeeding information should also be provided to their circle of supports, such as partners and close relatives.
Conclusion: Indonesian young mothers experienced complex situations through their journey of breastfeeding practices. A tailored maternity health service involving partners, parents, and communities into culture-sensitive programme intervention is needed to provide professional caring, and reliable supportive sources of breastfeeding for young mothers.

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1. Introduction

Pregnancy and the child's birth for the first time is a major development transition period with important implications for women at any age (Esmaelzadeh Saeieh et al., 2017; Sriyasak et al., 2016). Studies consistently indicated that becoming a new mother requires the development of capacities to provide care for children, including breastfeeding and complementary feeding. While for young mothers, it can be problematic, especially when there is supports absence in their relational environment (Gyesaw & Ankomah, 2013; Pradanie et al., 2020; Smith et al., 2012).

Evidence shows that breastfeeding reduces the risks of many diseases in childhood and thereafter in adulthood; it also brings benefits to mothers' health (Beyerlein & von Kries, 2011). For instance, infants exclusively breastfed to six months are less likely to have gastrointestinal infections than mixed-fed or early weaned babies and show no significant markers of malnutrition (Frank et al., 2019). The content of breast milk itself may help limit obesity as it contains factors that inhibit adipocyte formation (Beyerlein & von Kries, 2011; Uwaezuoke et al., 2017). Breastfeeding also brings advantages for mother's health outcomes, such as reduces risks of maternal bleeding after birth (Dieterich et al., 2014), breast and ovarian carcinoma (Chowdhury et al., 2015), and postpartum depression (Sukriani et al., 2020). A longitudinal study based on a pregnancy cohort of 2,900 women, followed for 14 years, found that a shorter duration of breastfeeding (defined as less than six months, if at all) might be predictive of adverse mental health outcomes through to early adolescence (Oddy et al., 2011). This has implications for young mothers, who are more at risk of both mental health problems themselves and of behavioural

problems in their children (Rokhmah & Astuti, 2020). Indonesian national data shows that 36 per 1,000 childbirth occurred amongst female adolescents aged 15-19 (Ministry of Health Republic of Indonesia, 2018).

World Health Organisation (WHO) recommends exclusive breastfeeding for the first six months of life, which means giving the infant breast milk only, except for drops/syrups containing vitamins and minerals (WHO, 2018). However, data show that there was only 29.5% of Indonesian infants exclusively breastfed in 2017 (Ministry of Health Republic of Indonesia, 2018), which was far from the national target, i.e., 80% of infants exclusively breastfed. Previous studies conducted in Indonesia reported that socio-economic, environmental, pregnancy-birthing characteristics, mothers' employment, and maternal health services were factors associated with exclusive breastfeeding practices (Alifia, 2016; Anggorowati et al., 2017). Additionally, infants from high household wealth-index, infants whose parents were employed, and infants whose mothers had obstetric complications at childbirth had significantly decreased odds of exclusive breastfeeding (Titaley et al., 2014). It also needs to be highlighted that there is no available national data provided regarding the age of women who are exclusively breastfed.

Studies related to breastfeeding practices conducted in other countries focused on diverse aspects and participants, such as exploring young mothers experience of breastfeeding practice in the US (Smith et al., 2012), misconception and socio-cultural barriers of exclusive breastfeeding among Ghanaian women (Nsiah-Asamoah et al., 2020), and involvement of the leaders of religion in breastfeeding initiation in Nigeria (Oladejo et al., 2019). Growing numbers of studies are also emerging in Indonesia concerning the exclusive breastfeeding practice, for instance, the prevalence of exclusive breastfeeding in Indonesia (Yohmi et al., 2016), barriers factors associated with breastfeeding practices (Alifia, 2016), annual cost-effectiveness of breastfeeding practices (Siregar et al., 2018), and supports of breastfeeding practices within Indonesian context (Titaley et al., 2014). However, there are no studies conducted in Indonesia that focus on exploring young mother experiences of breastfeeding and infant feeding practice. Given that there is a high number of adolescent pregnancies in Indonesia, it is important to have evidence from the Indonesian context related to breastfeeding practice among young mothers to provide specific supports based on their real context life. Accordingly, this study aimed to explore the experiences of breastfeeding practices among Indonesian young mothers.

2. Methods

2.1 Research design

Exploratory qualitative research was applied as this research focus on understanding Indonesian young mothers' experiences of breastfeeding.

2.2 Setting and participants

This study involved participants from three local public health centres in Yogyakarta, Indonesia and was conducted from May to August 2019. A purposive sampling technique was used in this qualitative research, and qualitative samples were drawn to reflect the purpose and aim of the research (Percy et al., 2015). Therefore, the sample size was planned due to the practicality of this research in order to gain an in-depth understanding of young mothers being studied (Creswell & Poth, 2017). The research participants were 18 young mothers. Young mothers with the first children aged above 6 months up to 2 years old were included. Whilst, young mothers with learning disabilities were excluded as it was considered unjust to approach them as they were less likely to understand what was required from them and why. They may be less likely to provide informed consent to be involved in this research.

A midwife was selected as a gatekeeper to introduce this study to the potential participants by using flyers that included a brief overview of this study. When participants were interested to contribute to this study, potential participants were requested to provide their telephone number, and they were suggested that the researcher would contact them. After the list of potential participants with their telephone numbers from the midwife was gathered, author 1 or 2 or 3 contacted them via telephone, and made an appointment with participants for interview sessions.

2.3 Data collection

A one-to-one non-structured in-depth interview was used to collect sensitive data and facilitated young mothers to freely express their views privately. Seven participants were interviewed twice (Participant 2, 7, 9, 10, 11, 14, 18) to gain more clarity, while others were interviewed once. Data saturation was reached after 25 interviews with 18 participants. Interviews were conducted by using a topic guideline and audio recorded in Bahasa Indonesia. Probing questions were also applied to gain more rich and in-depth data. Table 1 shows the interview question guidelines.

Table 1. Interview question guidelines

Interview Questions
- When did you first think about breastfeeding?
- What aspects influenced your breastfeeding experience?
- What is/was your breastfeeding practice like?
- What was your breastfeeding experience like in the hospital?
- What was your breastfeeding experience like when you went home from the hospital?
- What were your expectations for the breastfeeding experience, and how do/did your experience match those expectations?
- What is/ was your experience like when you were out in the community?
- What support would you have wished for that you did not have or did you have all the support you wanted?

All interviews were undertaken in a private room of the primary health care during daily working hours, for approximately 60 minutes per interview. Field notes were written soon after each interview to capture context, such as participant behaviours during interviews and/ or the researcher's thoughts and feelings in relation to the interview process.

2.4 Data analysis

Thematic analysis was conducted by using Collaizi's methods (Colaizzi, 1978) and N-Vivo 10 software was used for data management (Hoover & Koerber, 2011). The application of Collaizi's methods analysis steps included: (1) Familiarisation: transcripts were read and re-read to become familiarised with data by author 1,2 and 3; (2) Identifying significant statements: identification of all statements that were directly related to young mothers' experiences of breastfeeding practice; (3) Formulating meaning: identification of the meaning of statements relevant to the study; (4) Clusters of themes: common themes were clustered across data; (5) Developing an exhaustive description: narratively built full and inclusive description of young mothers' experiences; (6) Producing a fundamental structure: exhaustive descriptions were reduced to dense statements to capture central points; (7) Final validation: during analysis, verification was sought through co-researcher validation and feedback from participants for this study findings.

2.5 The rigour of the study

To maintain the rigour of the study, the authors conducted several strategies to improve credibility, transferability, dependability, and confirmability (Flick et al., 2007). Table 2 describes strategies implemented to maintain the rigour of the study.

2.6 Ethical considerations

Ethical approval was gained from the Ethical Board of Universitas Respati Yogyakarta, Indonesia (Reference Number: 143.3/FIKES/PL/V/2019). Permission from the Local Indonesian Ministry of Health and directors of primary health centres were secured before data collection. All potential participants were given participant information sheets, including the purpose of research, the role of the researcher, data confidentiality, right to withdraw, and length of interviews. A sign for consent needed to be obtained first before the interviews were conducted. Since all young mothers were married at the time of the interviews, consent was obtained from the individual.

Table 2. Strategies to improve the rigour of the study

Criterion	Application
Credibility	- Discussion meeting with co-author and assistants of the study. - Used a digital audio voice recorder to produce high quality audio records. - Verbatim transcription processes were carried out. - Transcripts were also checked against their recordings to ensure that the information obtained from participants were accurately converted. - Transcripts were translated from Bahasa Indonesia to English, and back translations were conducted by using a professional fellow who fluent in Bahasa Indonesia and English, as well as has experiences in transcriptions and translations of qualitative interviews. - Process of analysis also been recorded to enable the researcher to do an iterative process of data analysis.
Transferability	- Audit trail by documenting detailed account of study process including the study setting, methods and justification, and processes of interviews, data analysis and reporting findings.
Dependability	- Verbatim transcription processes were carried out. - Transparent description of the study steps taken from the start of a research project to the development and reporting of findings. - Used N-Vivo 10 to store and manage the data. The data were coded and analysis decisions recorded within this software. Labels and descriptions of the codes, initial grouping of codes and eventual theme building were recorded. This essentially provided a central point through which the research analysis process can be tracked.
Confirmability	- Audit trail by documenting detailed account of the research process including the research setting, methods and justification, and processes of interviews, data analysis, and reporting findings. - Keeping a reflective journal through the process of study. - Translations and back translations. - Member check was applied when data analysis completed to obtained participants' feedback on this study findings.

3. Results

3.1 Characteristics of participants

Eighteen young mothers from two public health centres consented to share their experiences of breastfeeding and infant feeding practice. All were married and had a first child above 6 months up to 2 years old. The characteristics of young mothers are described in Table 3.

Table 3. Characteristics of participants

Participant	Age (years old)	Profile	Age of first child (months old)
Participant 1	18	She completed high school and married due to premarital pregnancy, and at the time of interview, she was not employed. She lives with her husband and child together in her parents' house.	9
Participant 2	18	She left school at year XII due to premarital pregnancy, married, and at the time of interview she is working as a janitor in a primary school. At the time of interview, she, her husband and her child live together in her parents' house.	12
Participant 3	17	She left school at year XI due to premarital pregnancy, married, and at the time of interview she was not employed. At the time of interview, she, her husband and her child live together in her parent in law's house.	9

Table 3. Continued

Participant	Age (years old)	Profile	Age of first child (months old)
Participant 4	19	She completed school and married due to premarital pregnancy. At the time of interview, she was working as a cashier in a convenience mart. She lives with her husband and her child in a small rent house.	12
Participant 5	19	She completed school and at the time of the interview, she was working as a cashier in a western restaurant. She decided to marry on her own to a mature man. She lives with her husband and her child in a small rent house.	11
Participant 6	18	She completed school and at the time of the interview, she was looking for a job. She married as her parents asked her to marry; therefore, she married her mature boyfriend. She and her husband, as well as her child live in her parents' house.	7
Participant 7	17	She left school due to premarital pregnancy when she was in year X and then married. At the time of interview, she was not employed. She lives with her husband and her child in a small rent house.	6
Participant 8	17	She completed her secondary school and decided to marry her boyfriend due to parents' request. She was not employed at the time of interview. She and her husband as well as her child live in her parents' house.	8
Participant 9	19	She left school due to premarital pregnancy when she was in year X and then married. At the time of interview, she was not employed. She lives in a small rent house with her husband and child.	14
Participant 10	19	She completed school and worked as an employee in a textile manufacturer. She got married to her boyfriend due to premarital pregnancy and she is on the process of divorce.	16
Participant 11	19	She completed her school and worked as an employee in a textile manufacturer. She married due to parents' request. She married with close family and at the time of interview, she lives with her parents' in law with her child, whilst her husband works in a different province.	7
Participant 12	17	She left school due to premarital pregnancy when she was in year X and then married. She was not employed at the time of interview. She lives with her parents as well as with her child. She was in the process of divorce.	13
Participant 13	17	She completed secondary school and worked as a housemaid, but then due to premarital pregnancy, she resigned from the job and married with her boyfriend. She lives with her parents as well as her husband and child in her parents' house.	10
Participant 14	17	She completed secondary school and worked as a housemaid. She resigned from the job since her parents arranged married for her with her close family. She married a mature man and at the time of interview she and her child live in her husband house.	15

Table 3. Continued

Participant	Age (years old)	Profile	Age of first child (months old)
Participant 15	16	She completed her secondary school and didn't continue to high school due to premarital pregnancy. She married her mature boyfriend and at the time of interview her small family lives in a small rent house.	7
Participant 16	17	She completed her secondary school and decided to marry her boyfriend due to parents' request. She was not employed at the time of interview. She and her husband as well as her child live in a small rent house.	8
Participant 17	18	She completed her school and worked as a shop keeper. She decided to married her boyfriend as she felt ready to get married. She and her husband as well as her child live in a small rent house.	8
Participant 18	18	She left school due to premarital pregnancy when she was in year X and then married. She was not employed at the time of interview. She lives with her parents as well as with her child. She was in the process of divorce.	12

3.2 Themes emerged

Four key themes emerged from the data analysis: formal support of breastfeeding; social support and barriers for exclusive breastfeeding; culture and judgement; and future aspirations for healthcare.

3.2.1 Formal support of breastfeeding

Formal support of breastfeeding theme describes the experiences of young mothers who sought supports from healthcare services in regards to breastfeeding. Some participants stated that information related to breastfeeding was sought from midwives, as described by Participant 18:

> *"… She (midwife) was really helpful (pause); she taught me about how to breastfeed (pause); she said that my baby's tummy was only small so I had to breastfeed once within two hours and soon and soon (pause). I remember that the midwife taught me starting from when I still got pregnant, and again she taught me just hours after my baby born…" (Participant 18, 18 years old, mother of 12 months old child)*

Additionally, antenatal care visit provided by midwives was most popular as a way to access formal information of breastfeeding. Meanwhile, community health workers became the most frequent information sources to access infant feeding practices among young mothers in this study. This experience was articulated by Participant 10:

> *"Bu Kader (community health worker) in my village was great (pause); she visited me and asked me if I need help (pause); she also told me how to cook healthy foods for my child (pause). She also told me how many times a day my child needs to be fed…" (Participant 10, 19 years old, mother of 16 months old child)*

Other healthcare providers such as obstetricians and community nurses provided formal information for young mothers as well. However, they were accessed by the minority of participants within this study, as what was explained by Participant 1:

> *"…The doctor explained something about the benefit of breastfeeding (pause); she (doctor) said that breastmilk is the best food for my child, and she also taught me how to keep the breastmilk last longer in the fridge…" (Participant 1, 18 years old, mother of 9 months old child)*

However, many young mothers experienced challenges to practice breastfeeding, although they have sought formal information. They found differences in regards to the way the information explained by midwives, doctors, and nurses with the real practice. Participant 3 describes her experiences.

> *"... It was very challenging when there were no midwives around; I felt like shaking and overwhelming to start breastfeeding (pause), particularly when my child cried (pause); my brain was like stopped working (pause). I then forgot every single piece of information I have sought." (Participant 3, 17 years old, mother of 9 months old child)*

3.2.2 Social supports and barriers to practice breastfeeding

The theme explains participants' experiences in regards to the supports sought and barriers to practice breastfeeding, which came from the families, partners, and peers, in the process of practicing breastfeeding and infant feeding. Young mothers were turning to their close relatives when they found challenges in their breastfeeding and infant feeding practices. Participant 8 articulated her experiences as follow:

> *"... my mother helped me and showed me how to (breastfeeding and infant feeding), and she was the first person I ask until today when I found problems with breastfeeding and infant feeding...." (Participant 8, 17 years old, mother of 8 months old child)*

Interestingly, the majority of participants explained that their partner was not necessarily become a source of supports within the process of breastfeeding and infant feeding, as stated by Participant 11.

> *"My husband was also panic if my child cried (pause); he then stayed away and always asked me to seek help from my mother or my mother in law (pause). I understand that it is my role to taking care our child (pause) and his role is to earn money." (Participant 11, 19 years old, mother of 7 months old child)*

Additionally, several young mothers admitted that family was the first source to be turned when they found difficulties. However, young mothers sometimes regretted as their family had a lack practice of exclusive breastfeeding. This experience was demonstrated by Participant 5:

> *"My sisters did not breastfeed their children exclusively and neither my mother (pause); so sometimes I felt like that I had no support to keep going and trying this (exclusive breastfeeding); then at the end I gave up." (Participant 5, 19 years old, mother of 11 months old child)*

There was also evidence that need to be highlighted that all participants did not exclusively breastfeed their child due to factors related to employment constraint, lack of supports from family, and misunderstanding of the information related to exclusive breastfeeding. Participant 6 and 17 described their experiences.

> *"...I know it was not a wise decision, but really I was like in a battle alone (pause). Nobody support me to keep trying and keep going (pause), even my husband (pause). My peers were also giving formula milk to their child (pause), then I feel like just wanted to make my life easier so then I started to give my child formula milk in her 3 days old... I thought that I could partially breastfeed her, but then, after that, there is no milk at all from mine (breasts)" (Participant 6, 18 years old, mother of 7 months old child)*

> *"...I was trying to breastfeed exclusively so I prepared the fridge to store my breastmilk to make it stay longer (pause). It was smooth at the beginning since I was really confident with 3 shelves full of breastmilk (pause); but then, when I started to work (pause) the production was less and less (pause). It might be because I have no time to pump the milk..." (Participant 17, 18 years old, mother of 8 months old child)*

3.2.3 Culture and judgement

Culture values and judgement theme explains the experiences of young mothers related to local Indonesian culture which is associated with breastfeeding and infant feeding practices as well as social judgements they faced within the community. The majority of young mothers stated that their breastfeeding and infant feeding practices were influenced by their parents or their parents in law, which were instructed by community leaders. Such situations appeared to be one of factors that created internal tension amongst young mothers in regards to breastfeeding practices. Many young mothers had to practice breastfeeding contravening with what they wished due to cultural discourse and practice. This experience was described by Participant 13.

> *"...my mother in law gave her (baby) honey hours after she was born (pause); it is a local culture actually to do so (pause). Mbah Carik (community leader) said that honey needs to be given to newborn in order to prevent any diseases (pause). I was not thinking so but I was not brave enough to tell my mother in law..." (Participant 13, 17 years old, mother of 10 months old child)*

Additionally, the majority of young mothers experienced a lack of autonomy in breastfeeding and infant feeding against their parents or parents in law, as what was articulated by Participant 12.

> *"...I was like had no autonomy to take care of my own baby (pause), especially when against my mother in law (pause). I was placed as a person who did not know nothing about breastfeeding and infant feeding (pause). I was heartbroken (pause) when I found my 7 days old baby had been fed with a mashed banana by mother in law (pause)." (Participant 12, 17 years old, mother of 13 months old child)*

Some young mothers also experienced negative judgement which consequently had an effect on their breastfeeding and infant feeding practices. Some young mothers found the attitudes of the wider world, sometimes including health care professionals, to be threatening and sometimes, in the case of a new mother, directly unhelpful. They were aware that there were criticisms of young mothers such as immaturity and lack of preparation. This experience was explained by Participant 14.

> *"He (the baby) was crying so much at the time when I visited the public health centre and everyone was looking at me down (pause). I gave a bottle of milk to calm him down (pause), then suddenly a nurse came to me and briefly said that my baby should not have it in front of public (pause). I was really upset I felt like I could not look after my baby well (Participant 14, 17 years old, mother of 15 months old child)*

3.2.4 Future aspirations for healthcare

This theme describes young mothers' aspirations related to breastfeeding and infant feeding practices for health and social care. It was evident that young mothers sometimes found healthcare and social care interventions had not meet their real needs. Participant 2 articulated her experience:

> *"... The midwife was telling me to give my baby only breastmilk (pause); she also gave me many brochures with many pieces of information related to breastfeeding (pause); but actually what I really need was that she told to my mother in law (pause). It is because I was like powerless against my mother in law (pause); she is the one who gave my baby mashed rice few days after my baby born..." (Participant 4, 19 years old, mother of 12 months old child)*

Many of the young mothers also hoped that any information related to breastfeeding and infant feeding practice should also be given to partners and other close relatives, such as mothers and mothers in law, as what was described by Participant 2:

"... I believe if I could get a strong support, I could exclusively breastfeed my baby (pause). The problem was my partner was like do not do anything (pause) about baby's matter. I meant (pause), then he kept asking my mother in law (pause), then he asked me to do whatever my mother in law said (pause). He said that I need to believe an experienced person (pause) well, in this case, was my mother in law..." (Participant 2, 18 years old, mother of 12 months old child)

Some young mothers also hoped that healthcare professionals should coach new mothers to succeed in exclusive breastfeeding. Participant 9 articulated her experience.

"... it was challenging to implement theory which midwives said in public health centres to practice in my real life (pause). I think it would be great if midwives could visit new mothers like me at home and couch me once or two times in a week at the beginning (pause), then when I have got settled, it could be once in a month (pause). I don't know if it is possible." (Participant 9, 19 years old, mother of 14 months old child)

Other young mothers explained that healthcare facilities should provide more supports for breastfeeding. Several young mothers found that healthcare facilities had limited supports for breastfeeding. Participant 16 demonstrated her experiences.

"... I didn't understand the way the nurses and other healthcare providers in that hospital behave (pause). Compared to the hospital where my sister gave birth (pause), it was much different (pause). My sister was supported to breastfeed just right after she gave birth (pause); she could even have skin to skin after her baby born (pause). Meanwhile, in my case, there was nothing like this (pause); a nurse showed my baby then told me that the baby was girl. She was right (pause); then my baby was brought to a different room..." (Participant 16, 17 years old, mother of 8 months old child)

A similar experience was also described by Participant 8, as follow:

"... I think the hospital where I gave birth was not breastfeeding friendly (pause) the doctor did not say anything about breastfeeding and the midwives only provided breastfeeding information by saying (pause), yes only by saying (pause). She didn't teach me how to breastfeed in practice (pause). I did not really understand actually (pause); it was different from the hospital where my friend gave birth..." (Participant 8, 17 years old, mother of 8 months old child)

4. Discussion

This study was to explore Indonesian young mothers' experiences of breastfeeding and infant feeding practices. It delineates that young mothers within this study experienced challenges to practice breastfeeding due to limited support sources, parent interferences, culture, and social judgement.

4.1 Formal support of breastfeeding

In this study, some participants found health care professionals were useful as formal information sources related breastfeeding practices. Additionally, an antenatal care visit is an important time for young mothers to access information related to breastfeeding. This evidence is echoed by other studies that mothers with frequent antenatal care attendance have a high level of knowledge related to breastfeeding practices (Biks et al., 2015; Tewabe et al., 2017). However, the findings of this study show that the young mothers found challenges in practice it or even some the young mothers did not practice it. This situation has been shown elsewhere that awareness of optimal breastfeeding messages does not necessarily translate into practice (Joseph & Earland, 2019). Others reported that even though women receive and understand the information at the time of antenatal care visit, healthcare professionals should provide continued supports for mothers, especially those who experiences first mother in order to minimise barriers of sustainable breastfeeding practice (Danso, 2014; Sukriani et al., 2020).

Furthermore, the strategies, attitudes and behaviours of healthcare professionals were also influencing the breastfeeding practice of first time mother (Johnson at al., 2016). It is in line with findings of this study that threatening behaviours such as judgement and stereotype as well as lack of engagement to support young mothers discouraged young mothers to practice breastfeeding in this study. Although there is a national protocol provided by the Indonesian government to provide breastfeeding friend in Indonesian healthcare facilities, there are many healthcare facilities which have not adopted the protocol as hospital policy. Commitment of policy makers to promote breastfeeding friendly within healthcare facilities is necessary to support breastfeeding practice (Hughes, 2015).

4.2 Social supports and barriers to practice breastfeeding

Parents' interferences were also experienced by young mothers in this study in practicing breastfeeding and infant feeding practice. Previous literature reported that parent's and children's relationships in some cultures and communities become interlocked relationships throughout the life course and in many aspects of life (Reczek at al., 2011). Findings from the study also suggest that all participants were not exclusively breastfeeding and the findings also indicate that parents' interferences influence their breastfeeding practices. Even though some young mothers explained that they obtained adequate information from healthcare providers, they were powerless to practice them, which were hindered by their common family practices. The finding is similar with previous research findings as factors that significantly contribute to breastfeeding practices are family, social community and cultures (Titaley et al., 2014).

In addition, less autonomy as parents was also depicted from the experiences of young mothers, for instance, in decision related to breastfeeding practices. It is most probably because they were living with their parents. In the parents' home, they were still situated as children but they also desire to and are expected to find a parenting identity. Therefore, it was more likely that conflicting identities appeared. For example, young mothers need to behave based on their parent's or parent's in law's family rules which resulted in personal tensions, issues, and conflict in their own decisions. The finding is consistent with other literature that tensions usually appeared in between conflicting identities of being parents and children when people are living with their extended families (Reczek et al., 2011). However, for some young mothers, close relatives such as partners, mothers, mothers-in-law, and sisters were firstly being first sources to seek helps when young mothers find issues related to breastfeeding and infant feeding practice. Previous literature reported that grandmothers and fathers have a key role in the decision of breastfeeding and infant feeding practice in many countries (Bich et al., 2019; Draman et al., 2017).

There is also interesting evidence that husbands were not the first source that had been accessed by the majority of young mothers when they found difficulties in regards to breastfeeding. It is seemingly that there are role divisions influenced by gender role differences within the Indonesian community. It is a fact that in Yogyakarta Province, Indonesia, where this study was conducted, patriarchal culture is still considered strong and it influences many life discourse and practices within communities. For instance, women are responsible for domestic tasks and caring for any matters related to the children, whilst men are responsible for earning money (Platt, 2017). Therefore, as breastfeeding is considered as an aspect related to child care, Indonesian women need to manage it (Astuti et al., 2019). The finding denotes that husbands lay on their mothers when young mothers require support to practice breastfeeding. In fact, studies reported that verbal encouragement and involvement in breastfeeding activities from partners perceived by mothers was positively associated with capability and confidence as well as self-esteem of mothers to practice breastfeeding (Mannion et al., 2013).

4.3 Culture and judgement

The culture was also found to play an important role in the failure of exclusive breastfeeding practice amongst young mothers within this study. Young mothers experienced powerless against the cultural discourse and practice applied by their parents and parents-in-law in which led to the failure of exclusive breastfeeding practices such as giving certain foods or liquid to infants. This has been echoed by others that cultural beliefs and practice within local context have significantly influenced breastfeeding practices, such as in India and Kenya, people believe that colostrum needs to be avoided (Subbiah & Jeganathan, 2012; Wanjohi et al., 2017). Studies of feeding

practices in different countries have also shown a large variety of beliefs and traditions related to breastfeeding that discourage women to practice breastfeeding. Therefore, there is a need to provide an innovative intervention to promote intervention which contextually suitable within communities (Hunegnaw et al., 2017), for example involving community leaders and leaders of religion to promote breastfeeding (Kamoun & Spatz, 2018; Wanjohi et al., 2017). There were success stories in implementing breastfeeding promotion involving community leaders and leaders of religion in Indonesia, however, the programme interventions were only provided in few provinces as the funds from international Non-Government Organisations (NGOs).

4.4 Future aspirations for healthcare

A strong finding from the in-depth interview was that healthcare workers were perceived by young mothers in some points did not meet their real needs. This experience was probably because in Indonesia, there are specific maternal healthcare services for young mothers. In fact, young mothers have a higher risk to have a negative experience during their maternal period than their older counterparts, including difficulties and failures in breastfeeding practices (Astuti et al., 2020; Hodgkinson et al., 2014). It is evident that some young mothers within this study experienced a lack of support to practice breastfeeding that discourages them to breastfeeding practices and subsequently led them to give formula milk. It is probably because healthcare professionals were not being involved in any training to support breastfeeding practices (Pérez-Escamilla et al., 2016). Other possibilities are that there is a distribution of formula milk pack to young mothers at hospitals. It is fact that a formula milk is often found in a mother package which is distributed as hospital package. This practice is also reported elsewhere that commercial hospital discharge packs are one of several factors that influence breastfeeding duration and exclusivity (Astuti & Morgan, 2018; Baker et al., 2016). Barriers from husband and family members were also identified as aspects contributing to the failure of breastfeeding practices among young mothers in this study. Given that experiences, young mothers in this study provide aspirations that healthcare providers should have professional training to support breastfeeding practices that involves young mothers' partners, parents, and parents-in-law to provide support for breastfeeding mothers. Day-to-day coaching for breastfeeding practices was also found to be useful to address young mothers' needs particularly during the first days of the postnatal period. Additionally, educating men in regards to breastfeeding practice could be considered as an alternative way to promote breastfeeding practice, as successfully implemented in many countries (Brown & Davies, 2014; Hansen et al., 2018).

5. Implication and limitation

As this study aimed to explore breastfeeding practices among Indonesian young mothers, thus, learning from this findings creates implication that policy makers and health care providers, such as midwives or nurses, should enable young mothers to practice breastfeeding appropriately. Selecting an exploratory qualitative study as the study design to achieve the aim was also appropriate because it helped the researchers gain in-depth information from young mothers, and generate data directly from young mothers' voices, not from other third parties such as parents, partners, or healthcare providers. The credibility, transferability, dependability, and confirmability were maintained during the study to improve the rigour of this study. However, it should be acknowledged that, despite the strengths of the approach adopted, there are some limitations to be considered. Since this study is a reflection of young mothers' perspectives in only a single case study and at a particular place and time, the evidence of this research may not reflect the larger perspectives. Additionally, it can be noted that transcriptions were not checked by participants, but, transcripts were checked against their recordings by more than two authors (author 1, 2, and 3) to ensure that the information obtained from participants was accurately converted. Therefore, future studies could be conducted using more research fields, which may consequently provide a wider spectrum of experiences. Having participants' validation during the process of transcriptions could also be implemented in future qualitative studies related to breastfeeding experiences of young mothers to enhance the rigor of the study.

6. Conclusion

This study added knowledge from a specific Indonesian context that Indonesian young mothers have already sought information about breastfeeding at the time of antenatal care visit,

however, there is a lack of translation into practice. A specific intervention such as a home visit could be arranged to sustain breastfeeding practice when young mothers leave maternity services. The role of parents played an important aspect in a breastfeeding practice, therefore a programme intervention involving or targeting parents and parents-in-law could be feasible to implemented. Additionally, culture-sensitive and community-driven policies and integrated interventions throughout the prenatal to a postnatal period that address social and cultural barriers could be tailored. Strengthening policy implantation of breastfeeding-friendly hospital is another important aspect need to be considered.

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Conflict of interest

None

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ORIGINAL RESEARCH

Exploring Health Professionals' Perceptions of Husbands' Responsibilities in Muslim Women's Health

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Abstract

Background: The husband has an important role in women's health. However, the information related to their roles is limited, including from the perspectives of health professionals. The health professionals' support and behavior have influenced men's and women's health behavior.
Purpose: This study aimed to determine the health professionals' perceptions of husbands' roles and behavior in women's health, especially in the Muslim community.
Methods: A qualitative descriptive approach applied in this study. Data were collected using the interview method. Ten health professionals from rural and urban areas of West Java, Indonesia, with a range of experience engaging with Muslim husbands involved in this study. Semi-structured interviews were recorded and then transcribed by the researchers. The transcribed data were analyzed using the comparative analysis for the interview technique.
Results: Four main themes were identified: (1) Contextual factors impact husbands' roles in women's health; (2) Extensive roles of Muslim husbands in women's health; (3) Husbands and others involved in decisions about women's health; and (4) Level of health literacy affects husband's actions in women's health and cancer.
Conclusion: Health professionals perceived that husbands' roles in Muslim women's health are pivotal, especially in supporting health treatments in health services. Little information was obtained about husbands' support in cancer prevention and early detection. Nurses can take the lead in improving Muslim husbands' understanding of women's health and cancer and raising their awareness of cancer screening for their wives.

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1. Introduction

Health professionals have a role in facilitating access to and positive experiences in women's health. Women in developing countries such as Indonesia are challenged with sociocultural problems, marginalization, and health problems that may endanger their quality of life (World Health Organization, 2017). Women, especially married women, have comprehensive family roles, including taking care of their children, husband, and other family members. Although women are precious in the family, they are often challenged with many health issues because of their gender status. The top 10 women's health issues worldwide, including Indonesia, were non-communicable diseases such as cancer, maternal health, reproductive health; social problems such as violence against them, mental health; communicable diseases such as human immunodeficiency virus (HIV), sexually transmitted infections (Bustreo, 2015). However, there are limited national data of women's health in Indonesia; the data provided are mostly related to maternal health, no specific disease report in women's health problems.

A study has identified many factors that influence women's health behavior, including women's knowledge and information, awareness, attitudes, socio-demographic features, economic barriers, religion and beliefs, and health providers and service arrangements (Nabieva & Souares, 2019). In addition, a study with participants from several ethnicities of Sunni and Shia Muslim communities found that religion and beliefs, including Islamic teaching, impact positively and negatively on men's and women's health behavior (Alghafli et al., 2014). Even though 87% of Indonesians are Muslim, there are no studies conducted in Indonesia that have assessed Muslim

husbands' roles in women's health. There is a possibility that Islamic teaching influences how Muslim husbands behave regarding women's health, as men have an important role in their family, including health.

According to the Holy Quran (Muslim holy book), a husband is fully responsible for his wife, including her health. Muslim husbands have to treat their wives with good behave as mention in the Surah An Nisa verses 19 and 34 (Ministry of Religion Republic of Indonesia, 2015). They are the protectors of their wives and daughters and also responsible for preparing *akherat* (of life after death) as written in the Surah At Tahrim verse 6 (Ministry of Religion Republic of Indonesia, 2015). Muhammad, the prophet, provided an example related to Muslim husbands' behavior toward their wives, children, parents, and other members of the family, including caring for them kindly, appreciating, supportive, and protecting their wife including women's body parts, safeguarding, and believing them (An-Nawawi, 2020).

Health professionals are an important aspect of health services, including women's health and husbands' decisions regarding their wives' health. Health professionals' support and behavior have been identified as motivators and barriers to men's and women's health actions (Marlow et al., 2013). Health professionals are health educators and motivators of screening (Kim et al., 2012). However, other studies identified that health professionals could negatively influence women's health behavior as results of language barriers (Torres et al., 2013), poor communication (Ma et al., 2012), and their limited capability in carrying out health procedures (Lor et al., 2013). Studies about health professionals' roles and behavior were conducted, yet limited study explores health professionals' views of patients and family behavior.

Health professionals are at the forefront of health services in Indonesia. Studies in Indonesia found their roles in health services such as health education, services, and treatment (Handayani, 2013; Nurhayati, 2016). Furthermore, Nurhayati (2016) identified several health service barriers women face in Indonesia especially in rural areas, such as no general practitioner (GP) and limited facilities. Not surprisingly, the studies found that health professionals are the main sources in providing health services, including women's health. When available, health professionals mostly have a close relationship with patients and their families: husbands, children, or parents. However, little is known about health professionals' perspectives on Muslim husbands' roles in women's health. Understanding health professionals' perspectives and experiences would help develop inventions to improve women's health and health services engagement. This study aimed to determine the health professionals' perceptions of husbands' roles and behavior in women's health, especially in Muslim community.

2. Methods

2.1 *Research design*

This study applied the descriptive qualitative approach to describe health professionals' views related to Muslim husbands' roles and responsibilities in women's health. This approach focuses on explaining people's attributes, conditions, and experiences as part of a qualitative research design (Polit & Beck, 2014).

2.2 *Setting and participants*

This study was conducted in five health services located in two districts in West Java Province as the representative of the urban (Bandung City) and the rural districts (Pangandaran district). The five health services were four Primary Health Care (PHC) services and a national referral hospital. This study's participants were 10 health professionals, including six midwives, two nurses, and two GPs. The head of PHC aided participants in recruitment for the PHC settings and the nurse coordinator for the hospital setting. The inclusion criteria were that health professionals had to be involved in women's health services and programs. Another criterion was a minimum of one year experience in women's health area; it is expected that participants have experience in observing husband's behaviour in supporting their wives' health in health services. Even though participants were recommended by the head of PHC or the nurse coordinator, they had to provide voluntary written consent to be a part of this study.

2.3 *Data collection*

There were two steps to data collection; participants filled in a social-demographic survey related to their educational background, years of work, profession, and workplace. Secondly, the

principal investigator (RW) interviewed participants using a semi-structured guideline and recorded in the audio-recorder tool. The interview guideline was informed by the theory Basic Model of Religiosity and Health (BMRH), the Health Belief Model (HBM) and the Help-Seeking Behaviour and Influencing Factors Framework (HSBIFF). Questions explored health professionals' perceptions of Muslim husbands' actions and behavior in women's health, influencing factors in husbands' behavior, and health professionals' views of husbands' roles related to women's health prevention, including women's participation in cancer screening. The duration of interviews was about 30-60 minutes. The data collection processes were completed in April 2017.

2.4 *Data analysis*

Following transcription, the data were analyzed using the comparative analysis for the interview (CAI) technique for the descriptive qualitative study (Widiasih & Nelson, 2018). The CAI is divided into four main steps, including pre-coding of each interview, coding using NVivo 10 software of each interview, data comparison across interviews and codes, and theme formulation across interviews and codes. These analysis steps were developed based on two integrated methods of qualitative analysis (Polit & Beck, 2014). The analysis results were presented in themes, and a quotation of participants' perspectives follows each theme. We used the terms participants, health professionals, and clinicians alternately in the findings report.

2.5 *Trustworthiness*

Polit and Beck's (2014) trustworthiness criteria, including credibility, dependability, confirmability, and authenticity, were applied in this study. To achieve credibility, the interviews were recorded; the interview processes were documented in a daily journal, and followed data analysis to find themes. The theme presents in the report with extracts of quotes. The quotes were obtained as evidence for the theme. Dependability and confirmability had been done by audit trials; themes were independently verified and discussed with the research team. Authenticity was delivered by an adequate and app sample, and having participants provide examples of experiences to support their perspectives. Transferability was determined by the reviewer and was supported by having a sufficient description of the research. This study approach aimed to generate a summarization of everyday life experienced by health professionals, so the focus of the study was to gather various data until they were saturated. No member checking process was applied as the study focused on the data's variation, not the specific meaning of participants' information as in other qualitative approaches such as the ethnography study. However, the researcher applied the four principles of trustworthiness in this study.

2.6 *Ethical considerations*

The ethics approval was released by the Human Ethics Committee of Victoria University of Wellington, New Zealand with a reference number of 21192. This study is part of a large project developed in New Zealand (Widiasih & Nelson, 2018). Key ethical issues were respected for personal autonomy, confidentiality, and safety. Indonesia's government also supported this study via the National and Political Unity Board (BKBP), a formal organization that permits researchers to approach the community. They released a letter of site permission approval for this study. This study was voluntary; the potential participants obtained informed consent and asked for their approval before participation.

3. Results

3.1 *Characteristics of participants*

Table 1 describes the demographic characteristics of the participants. The urban participants were two midwives who worked in PHC, two midwives from outpatient services of a national referral hospital, and a specialist maternity nurse from a gynecology ward. Midwives had graduated from the level III diploma in midwifery (equivalent to 3 year tertiary education), and the nurse was a master's and specialty degree in maternity nursing. They worked in their workplace for about 6 years on average, with a range of 2-10 years. The rural participants were two doctors, two midwives, and a nurse. The doctors and nurse worked in PHC, and the midwives worked as *Bidan Desa* (a midwife who delivers health care, especially to women and children in a village) as part of the PHC services. The rural participants had worked for 17 years on average,

with a range of 11–23 years. There were two main differences between the urban and rural clinician groups. The urban participants had, on average, 10 fewer years in practice than the rural participants, and there were differences in their experience of providing women's health services, for example, cervical cancer screening procedures.

Table 1. Characteristics of participants

No	Length of work	Workplaces	Profession
HU1	4	PHC	Midwife
HU2	2	PHC	Midwife
HU3	4	Hospital	Midwife
HU4	8.5	Hospital	Midwife
HU5	10	Hospital	Nurse
HR1	16	PHC	Doctor
HR2	23	PHC	Nurse
HR3	17	PHC	Doctor
HR4	11	Community	Midwife
HR5	17	Community	Midwife

Notes. HU: Urban participants; HR: Rural participants

3.2 *Emerging themes*

Data analysis from health professionals' perspectives found four main themes: Contextual factors influence husbands' roles in women's health; Extensive roles of Muslim husbands in women's health; Husbands and others involved in decisions about women's health; and Level of health literacy affects husband's actions in women's health.

3.2.1 *Contextual factors impact husbands' behavior in women's health*

The contextual factors include age, occupations, ethnicity, faith, and education levels, which were recognized by clinicians as men's internal factors that influence their behavior to wife's health. Both urban and rural participants have reported differences between older and young men in treating their wives in health services and talking with health professionals. In rural settings, *"…women would depend on their children, not their husband, maybe because the husband also already old*" (HR1). Other reasons for this delegation were rural older men were not familiar with public transportation in Bandung city where the referral hospital was located; they lacked familiarity with the referral hospital administration system and had difficulties understanding the clinician's explanation. Older men were reported to show more interest and care in their wives' health than the women's children or younger husbands. Most men were reported to remain faithful to their wives when they were in the advanced stage of cancer.

The type of occupations influenced men's actions when their wives were sick. The majority of rural men are farmers, while urban men have a variety of jobs, such as businessmen, employees, soldiers, and government officers. *"I don't think these* [rural] *men would take their wives for treatment to a PHC because in the village, 80–90% are farmers; they say they're too busy as they go to the paddy field around 6 am to -12 noon*" (HR5). The urban Health professionals also shared that job types are difficult to manage when helping their wife to the PHC or a hospital because of no permission from their office or working overseas (HR4). In addition, business people could usually make time to help their wives in visiting health services.

Culture and religion have influenced husbands' actions in their wives' health. Health professionals reported that religious men take care of their wives appropriately, for example, they are beneficial when his wife was hospitalized in the hospital. The religious man was indicated by men's behavior, clothes, and beard.

> *"In my view, a husband has broad roles in his wife's health and care. The roles may depend on his religiousness particularly, when coping with a severe condition or dying of his wife. I talk about a severe disease case, Ma'am; when a husband knows about their responsibilities in the Islamic teaching, then he will treat and take care his sick wife appropriately."* (HU2)

The Islamic teaching stated husbands' responsibilities to their wives, including protecting her *aurat* and preventing this area from being touched by other men. However, in terms of the health professional gender, none of the participants shared experiences about men requesting female health professionals for their wives. Health professionals said male health professionals in PHC commonly refer women's patients to female health professionals, especially reproductive problems.

A clinician shared that men's formal education affects their knowledge, health understanding, and behavior regarding one of the women's health problems, cancer (HU4). The participants shared that well-educated men had different behavior to those men who were less well educated. Well-educated men took a significant interest when their wives in the stages of diagnostic and treatment. They knew how to take care of their wives and provide time to listen to her opinions or decision (HU5).

3.2.2 *Extensive roles of Muslim husbands in women's health*

All participants stated that Muslim husbands' men actively participated when their wife was sick. Their actions provided psychological support, money, and discussing the wife's health with health professionals about diet, medications, treatment (HU1, HU3, HU4, HU5, HR2, HR4, HR5). They also wanted to know about tips and tricks to keep their wives in motivation in the long therapy. However, participants had opinions that husbands showed different behavior related to the prevention and early detection of women's cancer.

> *"In my view, the rural people, especially men, were not concerned about early detection. In a rural area, like this area, women keep silent for their sick, as long as she walks it means healthy; women think they only need more time to take a rest. Yet, when the health conditions become severe, husbands are confused. They lack of knowledge and also actions." (HR3)*

Even though husbands provided help and support to their wives with health issues, they appear to pay little attention to health prevention and screening.

3.2.3 *Husbands and others involved in decisions about women's health*

Health professionals perceived that husbands are actively involved in women's health decision-making in several ways. First, women rely on men's decisions mostly because of financial reasons.

> *"I faced a problem when a patient woman must refer to a hospital. I waited the decision for hours. I thought it was because of no permission from the family. In fact, it was because of money. My husband asked me about the reason for referral and the therapy processes in the hospital. I described the interventions and times. I explained that I need do administration stuff regarding the referral processes as I will send to the hospital in Bandung or Purwokerto. The family discussed it for a long time." (HR1)*

The rural area participant reported that men with a financial problem visited the local government or community leaders asking for their help or the government's health subsidy (HR2). While wealthy people mostly go directly to hospitals. Participants also reported that women's reasons for following their husbands decide that they consider men's decisions the best and believe in Islamic teaching (HU1, HR3). A midwife participant noted that according to the religious teaching, women had believed that following men's advice is good as the husband is her leader and have responsibilities to the family.

Secondly, women and men have discussed healthcare and decided whether they follow the therapy process or not. The third was women made decisions by themselves. The fourth was the patient and family rely on health workers' recommendations. Mothers, parents in law, older brothers or sisters, children, relatives, leaders in the community, and religious leaders were reported by participants, especially those from rural areas, as other factors that influence husbands' decisions related to their wives' health. Health professionals perceived that husbands are actively involved in women's health decision-making in several ways. First, women rely on men's decisions mostly because of financial reasons.

> *"...I need to refer a woman patient to hospital, then I asked to the family. Commonly, it took time for them to decide whether they agree or no. Different behaviour when a woman visited the Primary Health Center with her child, and I said that your Mom need to go hospital, the child could not make a decision at the time, he called his Ma'am's older brother, father, and other relatives, if the situation was emergency, I decided to send the patient as soon as possible to hospital by myself." (HR1)*

Community leaders helped men make decisions. A rural midwife participant reported that the word hospital scares men and women. Sometimes, men ask her to delay the referral because husbands need to discuss with the donor or helper, commonly the local community leader. A rural medical participant also noted that a lack of experience about the hospital services made rural people afraid, anxious, and looks for external supports.

3.2.4 *The level of health literacy affects husbands' actions in women's health*

The majority of participants from both areas agreed that men have a limited understanding of women's diseases, such as cervical cancer, which might influence their actions because men offered little support in illness prevention. They noted that health education programs about women's health, especially women's cancer for husbands, are limited.

> *"We had a Pap smear program and health education programs that were funded by a women organization last year. It was the one we have done because the budget is limited, only targeted women, no husbands, and it is difficult to develop health education programs or other programs in women's health." (HU1)*

The only program that involves men was the family planning program. However, although health professionals invited them to the program, most men did not attend the invitation. They said the invitation time was not suitable for their free time.

The health education program of women's health by involving husbands is not a priority for PHC, especially women's cancer. A rural participant communicated the focus of health prevention and promotion programs in the PHC related clean and healthy lifestyle, TB Programs, and HIV AIDS. Two urban PHC participants shared a similar opinion about the minimum health education programs for men about women's cancer, yet men were invited to attend prenatal classes. The health education program in the hospital is targeting patients and their families. The content was mainly about medications and other treatments, and less content about illness preventions. Health workers approved that cancer knowledge is significant for men's understanding of women's health as spouses; both men and women appreciate and care for each other, including health.

A medical participant in a rural area said that community leaders are potential sources in improving husbands' health knowledge.

> *"One of the potential resources is the leaders of the local government; in this sub-district, there is a meeting of local leaders, monthly including community leaders, religious leaders to socialize the government programs. Before we start the formal meeting, health professionals can share health information; then, they can share it with people in their areas. It is good, I think, rather than nothing." (HR1)*

Midwives and nurses from rural areas revealed that leaflets, TV programs, movies, and other electronic media were options for husbands' health education.

4. Discussion

4.1 *The impact of husbands' contextual factors on their roles in* women's *health*

The comparative analysis in this study found different actions and attitudes by older and younger, and types of jobs, whether farmers, employees, or businesspeople, influenced husbands' behavior in women's health. These findings, in line with a study by Hasson-Ohayon et al. (2014) study, highlighted a significant difference between older and younger spouses in levels of depression in women with breast cancer. A prospective cohort study of urban and rural women in

Lithuania regions also found that young and poorly educated women were more exposed to HPV than older and more highly educated women (Gudlevièienë et al., 2010).

From this study, the researchers assumed that health professionals were aware that living in rural or urban areas influences men's accessibility to health services and information about women's health and cancer. Living in rural areas in Indonesia is a struggle because of limited health facilities, human resources, and bad infrastructures, for example, damaged roads, electricity issues, and transportation problems. These access issues and the experience of the financial burden of hospitalization may influence rural people's health outcomes. This finding provides additional information for the Indonesian government about the gap between urban and rural, including health, especially women's health.

4.2 *Massive roles of Muslim husbands in women's health*

According to this study, health professionals' experience various husbands' roles in women's health. Previous Indonesian's study had assessed husbands' roles in several specific areas, for example, husbands' support during breastfeeding (Pratami, 2016), family planning (Kusmindari et al., 2016; Setiadi, 2015), and cancer screening (Aggraeni, 2016; Arkiang, 2016; Marlina, 2015). Not only in Indonesia, but studies with focus on husbands' support were also conducted in several Muslim dominated countries: Egypt and Jordan (Hamdan-Mansour et al., 2016; Ohashi et al., 2014; Taha et al., 2013). Those studies' participants were women or husbands; none of the studies gathered information from health professionals.

This study's findings have added new insight into husbands' roles from different perspectives, including clinicians' perspectives in broad women's health, including prevention actions and supportive actions. They perceived that husbands' roles are essential; however, some husbands were not fully supportive of their wives' health. This finding is in line with previous studies that husbands' awareness of women's health needs to be improved when women face a serious or terminal illness; men can provide maximum support (Maree et al., 2013). Such support makes a significant contribution to women's daily emotional and physical welfare, including women with cancer (Gremore et al., 2011). Health professionals shared limited information about men's participation in promoting women's health; the finding possibly reflects that health promotion activities are mostly done at home, which health professionals would not see.

4.3 *Women's health decision-maker*

Health professionals' perceptions and experiences were that women commonly involve their husbands in their health decisions. Studies from non-western countries are about women's autonomy in health decisions in maternal health and family planning (Osamor & Grady, 2016). Mboane and Bhatta (2015) have mainly found that involving husbands in women's health was associated with women's behavior in the maternal check-up and family planning choices. A study in Angola by Prata et al. (2017) that assessed husband/partner support related to family planning and modern contraceptive found a significant influence of husband/partner in women's decision making. The study discovered that husband's/partner's approval was significantly associated with women's contraceptive self-efficacy and contraceptive use, and not significantly related to socio-demographic factors and spouse communication. Increasing communication between both husband and wife would help women's understanding of husbands' approval.

Limited studies assessed husbands' involvement in cancer screening (Kim et al., 2012). Our study finding indicates that the Muslim husband is the potential to help women in improving their health. We found that women involve their husbands in decisions because of the influence of Islamic teaching. A verse in the holy Quran states that a Muslim wife's responsibility is respecting and obeying her husband (Surah An Nisa verse 34). Health professionals should therefore consider husbands having comprehensive involvement in women's health. Providing various alternative media and health interventions about women's health for husbands would improve their involvement in supporting their wives' health.

4.4 *Health literacy and husbands' actions*

The finding that Muslim husbands often had limited health literacy about women's health, especially cancer, is similar to studies conducted in other Muslim countries such as Saudi Arabia and Malaysia (Al-Amoudi & Abduljabbar, 2012; Al-Naggar et al., 2012). A Latino study also found that most men had little knowledge about cancer and were unfamiliar with screening (Trevino et

al., 2012). In contrast, an exploratory study of 24 Muslim married men in Jordan found the men understood that early detection is the best way to control breast cancer, and they encouraged women to do that (Taha et al., 2013). Men in Jordan may know more about women and women's cancer than those in Indonesia for two reasons. The first is the population size; Jordan has approximately 7,594,000 people and Indonesia 257,564,000 (WHO, 2015). Getting a shared message to a smaller population will be easier. Secondly, Jordan spent 798 international dollars on health per capita in 2014, whereas Indonesia only spent 299 international dollars per capita (WHO, 2015). The expenditure difference in Jordan is likely to contribute to increased health education. In addition, unlike Jordan, Indonesia does not maintain a cancer registry.

According to the HSBIFF theory, knowing health and illness influence health-seeking (O'Mahony et al., 2011; O'Mahony et al., 2013). This study's findings informed that health professional perceived the lack of husbands' knowledge could contribute to the low uptake by women of cancer screening and treatment, given the Muslim husband's significant position in the family. In the absence of such knowledge, people are unlikely to seek screening when well or seek assistance when they have symptoms as they do not understand what they mean. Addressing the knowledge gap will require health education programs in Indonesia to encourage screening and teach people that early diagnosis of abnormality can improve health outcomes. Providing a variety of health education for men and women is very important given the men's various backgrounds regarding knowledge, experience, and socio-demographics. Developing men's health centers and men's health forums such as fairs or peer group discussions that also provide information about women's health may be a way forward.

5. Implication and limitation

This study provides new insight into assisting men and families in rural areas to overcome the obstacles faced when attending hospitals in main centers. Developing outreach clinics in rural settings and appointment systems in the hospital is important, as the current system that means the first people to present daily get seen is a burden for rural people. Rural families also need people to assist them in navigating the hospital system. Mechanisms for helping people to navigate the referral hospitals are also needed. Nurses, for example, could teach administrators to orient people. There is also a potential role for community volunteers.

Even though the Muslim husbands' behavior, as reported by health professionals, maybe similar to those of other religions, nurses, midwives, and other health professionals can take the lead in improving Muslim husbands' understanding of women's health and cancer, raising their awareness of women's cancer and screening, and enhancing the quality of health services for women. This will require nurses and midwives to provide health education programs informed by Islamic teachings for Muslim husbands about women's cancer. The Islamic approach means approaching men via their Islamic activities, for example, providing flyers about women's cancer and screening in the Mosque because it is compulsory for Muslim men to attend the weekly Friday prayer. Flyers could help the men access information about cancer and screening, including their roles in supporting and encouraging women to attend health services. Other methods for distributing information are visiting men's community groups, including sports clubs and farmers associations.

This study has a limitation that the participants were all female as they were the leaders of women's health programs, recommended by the heads of the PHCs, and were considered experts in their field. The information they provided was comprehensive and appropriate to achieve the aim of this study. However, male health professionals' perspectives of husbands' roles in women's health may differ. Further studies that involve male health professionals' perspective is needed to achieve a maximum variation of the qualitative data.

6. Conclusion

This study provides health professionals' perspectives on husbands' roles in women's health. They described husbands' extensive roles in women's health, and husbands are essential for improving women's health. Health professionals need to recognize that husbands' actions are part of their responsibilities as guided by Islamic teaching; husbands are not always the decision-maker; rather, couples have many ways of managing decision-making. This study indicates that rural husbands faced more barriers than their urban in accessing women's health information and health services. As participants in this study were all female health professionals, there is a need

for a further study that involves male health professionals to gather comprehensive data for this study topic.

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Conflict of interest

None

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ORIGINAL RESEARCH

From Nursing to Courtroom: A Qualitative Descriptive Study of the Preparations, Motivations, and Barriers of Nurses Becoming Lawyers

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Abstract

Background: Transitioning is a common phenomenon that happens such as in a career shift provoked by either internal or external factors. This phenomenon also occurs to nurses becoming lawyers. Considering its complexity, such transition entails a process.
Purpose: This study aimed to describe and uncover the preparations, motivations, ad barriers of nurses who transitioned into nurse-lawyers in the Philippines.
Methods: The study employed descriptive-qualitative research design utilizing twenty participants selected through purposive and snowball or referral sampling techniques. A semi-structured interview guide was used for the data collection using Google form. Braun and Clarke's thematic analysis was utilized as the primary treatment of the transcribed data. Strict observance of ethical standards in conducting research was ensured.
Results: The study found out several themes and subcategories from the thematic analysis conducted. These included (1) "pre-planning emotive expressions"; (2) "motivations of career shift"; (3) "support mechanisms to afford career shift"; (4) "barriers to career shift"; (5) "the interconnectedness of law and nursing"; and (6) "impacts of the career shift."
Conclusion: Generally, the career shift of the nurse-lawyers presented significant themes pertinent to their preparations, motivations, and barriers in becoming lawyers. Apparently, these are all primordial in the career transition of the nurse-lawyers. Essentially, the study provides preliminary findings that may become springboard in the construction of a grounded theory that would explicate the transition of the nurse-lawyers as a phenomenon uniting and expanding nursing and the practice of law as complementary sciences.

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1. Introduction

Transition is described as the passage from one life phase, condition, or status to another as periods in between fairly stable states (Lindmark et al., 2019). As a concept, transition is based on the response to change. Transition is also touted to be a dynamic process necessitating transformation and adjustment occurring over time and requires a reconstruction of self-identity (Chamberlain et al., 2019). The phenomenon of transition occurs anytime within the life span that entails significant implications in various aspects of life. Nurses, in this regard, are no exemptions.

Nursing is a profession intertwined with caring (Blasdell, 2017), while lawyering is a profession that can be associated with feistiness (Salerno et al., 2018). This fact leaves one to ask why nurses would suddenly become lawyers. Deciding to take law is a result of a process (Garcia, 2013). Most often than not, the Bachelor of Science in Nursing (BSN) program is commonly used as a prerequisite for nurses to enroll in the Doctor of Medicine program (Batongbakal Jr, 2020). If a student considers to become a medical doctor someday, a BSN program would probably be among his or her choices (Makino, 2020). Conversely, while the admission to law school does not specify a certain bachelor's degree, only a few would select the BSN program as their pre-law. In this regard, a student would probably take a degree in business or perhaps in political science. However, regardless of the preparatory law degrees taken, in the end, all pre-bar degrees are equal

in the study of law (Sentillas, 2020). Interestingly, a strong interest in both law and healthcare leads many to become nurse attorneys (Registered Nursing, 2020).

In the Philippines, one would usually enroll in the BSN program with high hopes of working overseas. Considering the socioeconomic conditions, staying in the Philippines will not be a viable option for nurses to practice as healthcare workers (Castro-Palaganas et al., 2017). Additionally, with more Filipino nurses suffering from continued unemployment in the Philippines, the situation has driven them to seek overseas learning and foreign work opportunities. As a result, this situation has led to the rapid development of travel and placement agencies enticing nurses to grab greener pastures abroad (Brush, 2010).

Accordingly, there are many reasons why professionals like nurses change jobs or careers. In one study, it was highlighted that temporal, physical, emotional and mental workloads and job stresses were strongly and positively associated with thoughts of leaving the nursing profession (Hämmig, 2018). Furthermore, Hamcomb et al. (2018) also found out that many nurses are dissatisfied with their job and the dissatisfaction provoked them to leave their current nursing position. The intentions to leave nursing jobs are influenced by many factors. For instance, Albougami et al. (2020) affirms that being single or having low monthly gross salary is correlated with a high intention to leave the profession. Improving the welfare of nurses may significantly impact retention, hence the intention to leave is not desired for. Without due consideration to their general welfare, nurses begin to undergo career shift. And, in the absence of a healthy work environment, poor administrative support, among other factors, nurses tend to increase their motivation to leave the profession and look for better opportunities elsewhere.

Notably, there is a dearth of academic papers or journal articles tackling the transitioning of nurses into becoming lawyers. Using Google alone with search phrase "nurses becoming lawyers", the search resulted to about 4,980,000 results in 0.54 second but none of them were academic papers or journal articles fully related to what was explored in the current study. One article, however, discussed opportunities for nurses for a legal career. Brous (2008), for instance, cited that the experience of nurses and the knowledge about standards of patient care, medical terminology and abbreviations, medical records, pharmacology, diagnostic procedures, and treatments are invaluable in or attorneys and law firms, health care facilities, insurance companies, private agencies, and consulting firms (Brous, 2008). In several instances, blogs and websites focus on matters pertinent to how nurses can emancipate others through their knowledge in nursing and the law (Brent, 2020; Wofford, 2020).

With one of the authors' personal and professional experience as a nurse-lawyer, some nurse-attorneys validate that having good nursing background have helped them prepare more persuasive legal arguments. Their nursing knowledge have been considered advantageous in their practice of law. Considerably, the delivery of healthcare has become more efficient and effective with nurses who have taken law degrees or as law practitioners. For instance, as administrators of healthcare agencies, their knowledge and skills in policy-making have contributed significantly in managing the healthcare system. The ability to translate the legal and health issues involved in health regulation, risk management, malpractice litigation, and other matters involving health and legality inspires nurses-lawyers. Many nurses decide to take career path combining nursing and law as professions (Brent, 2020). Hence, this increasing interest of nurses enrolling in law school in the Philippines has given the researchers the *raison de etre* to uncover and describe the experiences concerning career shift of nurses into becoming lawyers. The present study explored the transitioning experiences of nurse-attorneys. It specifically described their preparations, motivations, and barriers in transitioning from being nurses into being lawyers. Relevant exploration on the implications of their career shift to themselves, their significant others, the nursing profession, and their community were also investigated.

2. Methods

2.1 Research design

To describe the phenomenon explored, this study utilized a descriptive-qualitative research design to generate straight descriptions of the phenomenon (Sandelowski, 2000). Furthermore, the inspiration to use this design has transpired from the description of Sandelowski (2000) citing that qualitative descriptive designs typically are an eclectic but reasonable combination of sampling, and data collection, analysis, and re-presentation techniques. Additionally, the selected research design did not intend to penetrate the data in any interpretive depth and opted to present

comprehensive summaries of phenomena (Polit & Beck, 2009); hence, suited to the aim of this study.

2.2 Setting and participants

This study was conducted in April, 2020. Due to the current COVID-19 pandemic, a combined purposive and referral sampling techniques were employed in the selection of the study participants. Certain criteria were observed in the selection process. Firstly, they have to be both registered nurses and lawyers in the Philippines. Secondly, the participants should be with or without hospital/community work experience. Lastly, they are currently in the practice of law in either private or public agencies.

2.3 Data collection

Initially, a letter of invitation to participate was sent through email to twenty-five prospective participants giving them a week to decide. Out of the twenty-five purposively sampled and referred by the prospective study participants, twenty participants sent their approval to participate in the study. Within a week, a validated structured interview protocol, embedded in Google form, was deployed to them to obtain the data required. The researchers maximized the mentioned online platform because face-to-face interview was not possible to be conducted due to the strict community quarantine measures imposed by the Philippine government. Nonetheless, the researchers took this as a challenge to complete the data collection despite said limitation.

The interview protocol contained questions focusing on the transitional experiences of the twenty RN-JD such as, "What were your motivations of transitioning your career from being a nurse to being a lawyer?", "What were the barriers to entry in your current career considering your first profession as a nurse? How did you work through them?", "Between being a nurse and being a lawyer, which one exactly manifested your vision for your life?" among other relevant questions. All responses collected were written in English language. The average time to finish the structured interview was 45 minutes.

The researchers transcribed the data, treated, and presented back to the participants for validation purposes hence, to establish the rigor and trustworthiness of the treated data. Common themes emerged during the thematic analysis where data saturation was also ensured.

2.4 Data analysis

Thematic analysis was done using the method introduced by Braun and Clarke (2011). The thematic analysis conducted involved the process of coding in six phases to create and establish meaningful patterns. The steps included familiarization of data, generating initial codes, searching for themes among codes, reviewing themes, defining and naming themes, and producing the final report. In the familiarization of data, the transcribing of data, reading and re-reading the data as well as the noting down of initial ideas was made. Then generating initial code follows where the coding of interesting features of the data in a systematic fashion across the entire data set and collating data relevant to each code was made. Then the searching for themes follows if the themes work in relation to the coded extracts and the entire data set as well generating a thematic map of the analysis. Defining and naming themes were also made where ongoing analysis to refine the specifics of each theme and the overall story the analysis tells, generating clear definitions and names for each theme was made. Lastly, producing the report. The final opportunity for analysis was made where the selection of vivid compelling extract examples, final analysis of selected extract, relating back of the analysis to the research question and literature thus producing a scholarly report of the analysis. The thematic analysis was done manually.

2.5 Trustworthiness

The researchers ensured the trustworthiness of this study. Trustworthiness is considered a more appropriate criterion for evaluating qualitative studies than rigor (Maher et al., 2018). Four criteria must be satisfied (Maher et al., 2018; Guba, 1978), and these include credibility, transferability, dependability, and confirmability. Credibility ensures the study measures what is intended and is a true reflection of the social reality of the participants (Maher et al., 2018; Guba, 1978). Researchers in this study ensured credibility through triangulation. Researcher's invested

sufficient time during interview and investigation of its participants. Persistent observation was made by identifying characteristics and elements that are relevant to this study. Transferability relates to the ability of the findings to be transferred to other contexts or settings (Maher et al., 2018; Guba, 1978). Researchers in this study used the strategy of thick description where the widest possible range of information was provided. Dependability ensures the process is described in sufficient detail to facilitate another researcher to repeat the work (Maher et al., 2018; Guba, 1978). The practice of systematically documenting the processes and products of the study allows the auditors for further verification. Confirmability is comparable to objectivity in quantitative studies (Maher et al., 2018; Guba, 1978). To ensure confirmability, the researchers affirm that the findings of the study were confidently derived from the participants' responses and were free from any researchers' biases. In addition, the researchers ensured that their positionality was observed to be able to objectively treat and analyze the collected data of the participants.

2.6 Ethical considerations

Informed consent was obtained from the participants. The Ethics Review Committee (ERC) of the José Rizal University approved the conduct of the study with reference details JRUREC2020-003. The participants were oriented that they can freely withdraw anytime when they wish not to continue to participate anymore because of some constraints. Informed consent was also obtained from the participants. To ensure confidentiality and anonymity, the researchers assigned pseudonyms for each of the research participants such as P1, P2, P3, to P20.

3. Results

3.1 Characteristics of participants

Table 1 presents the characteristics of the twenty nurse-lawyers who were recruited as research participants. They were selected through purposive and referral sampling techniques. Interestingly, majority of the participants did not have any clinical experience (n=12; 60%), while others ranged from 1 to 15 years. The mean age was 32.13 years and most of them were single, and never been married (n=17; 85%).

3.2 Emerging themes

The study found out several themes and subcategories from the thematic analysis conducted. These include: (1) Pre-planning emotive expressions (i.e., spur of the moment, personal goal/dream, inspiration from others, and self-empowerment/self-regulation); (2) Motivations of career shift (i.e., childhood dream, family as a source of inspiration, triggering painful circumstances, unjust-work-related experiences, and monetary gains); (3) Support mechanisms to afford career shift (i.e., familial support, self-sufficiency and determination, and academic competence); (4) Barriers to career shift (i.e., personal biases towards non-nursing preparatory courses, lack of experience at court, conflicting value-belief system, work-family-life balance, and null curriculum experiences); (5) The interconnectedness of law and nursing (i.e., a helical relationship of nursing and law in medical-related cases at court, critical thinking, problem-solving, decision-making, and therapeutic nurse lawyer-client interaction); (6) Impact of the career shift (i.e., service to society (impact to society), respect, pride, and admiration (impact to self), joy and fulfilment (impact to others), improved quality of life (Impact to self and family).

3.2.1 Pre-planning emotive expressions

The *pre-planning emotive expressions*, as a theme, refers to the multiple emotional responses regarding the visions of the nurses prior to becoming nurse-lawyers. This theme has sub-categories namely, "spur of the moment", "personal goal/dream", "inspiration from others", and "self-empowerment/self-regulation".

Table 1. Characteristics of participants

P	Age	Gender	CS	Year NLE passed	Nursing specializations	Year Bar Exam passed	Law specializations
1	32	Male	S	2009	Obstetric-Pediatric Nursing	2019	Criminal Law
2	29	Male	S	2011	None specified	2019	Criminal Law
3	27	Female	S	2012	Community Health Nursing	2020	Taxation Law
4	31	Male	S	2009	Medical-Surgical Nursing	2019	Civil Law
5	45	Female	S	1996	Medical-Surgical Nursing	2018	Civil Law
6	31	Female	M	2010	None specified	2018	Civil Law
7	29	Male	S	2011	Hemodialysis	2018	Criminal Law
8	32	Female	M	2010	None specified	2016	Civil Law
9	29	Female	S	2010	Emergency and Medical-Surgical Nursing	2017	Commercial Law
10	29	Female	S	2011	Community Health Nursing	2017	Labor Law
11	31	Female	S	2009	Jail Nursing	2018	Criminal Law
12	31	Female	S	2009	None specified	2019	Civil Law
13	30	Female	S	2010	None specified	2017	Criminal Law
14	28	Male	S	2013	General Ward	2018	Labor Law
15	28	Male	S	2012	None specified	2020	Criminal Law
16	31	Female	S	2009	None specified	2014	Civil Law
17	30	Female	S	2010	Medical-Surgical Nursing	2017	Civil Law
18	35	Male	M	2007	Emergency Nursing, General Ward	2018	Criminal Law
19	30	Female	S	2010	Geriatric Nursing	2019	Criminal Law
20	30	Male	S	2010	None specified	2018	Criminal Law

Note. P=Participant; Civil Status (CS) (S=Single; M=Married)

"Spur of the moment" refers to sudden inclination that affected the disposition of one registered nurse in becoming a lawyer. "Personal goal/dream" pertains to deliberate intention to pursue one's goal or dream of becoming a lawyer. "Inspiration from others" refers to gaining motivation from someone who models desired goal. "Self-empowerment or self-regulation" refers to one's level of emancipation to become independent or autonomous in directing one's career.

"I have always wanted to become a lawyer since childhood because my father is a lawyer and I wanted the same career path. Even upon my enrolment in nursing, I had no intentions of working as a nurse. It was merely in compliance with the four-year undergrad requirement. Nursing was chosen due to limited courses available in the City and because at that time, nursing was a huge trend." (P8)

"Got in touch with a godparent who turned out to be my mentor." (P9)

"I didn't really plan anything. Everything was more like a spur of the moment. I saw an ad, tried law school. Most people around me, after the passing the bar, applied for the same career I have known so, tried to apply for it as well." (P13)

"I have built certain amount of experience in drafting simple pleadings, took English grammar courses online and establishing connections with experienced lawyers." (P15)
"I was inspired by my family to take law." (P16)

3.2.2 *Motivations of career shift*

Motivations of career shift pertains to the internal and external drivers that inspired the nurses to becoming juris doctors. The theme explicates the sub-categories of being a juris doctors as a "childhood dream", "family as a source of inspiration", "triggering painful circumstances", "unjust RN work-related experiences", and "monetary gains".

"Since childhood, I always look up to my brother to the extent that I always wanted to follow his way of life - even hairstyle, fashion, and the way he laughs -. Such that when he studied law and eventually became a lawyer, I learned to love lawyering as well. To be able to have our own law firm then became our dream which, by God's grace, did come true as we manage our own firm now. The practice of law became our avenue to be able to lend legal assistance to the oppressed." (P7)

"Too many labor laws violations in the company I worked with. I realized that the world is cruel and unjust to those who do not know their rights and I refused to be victimized by such system." (P12)

"My parents wanted me to try a semester to see if I would like it. Also, the hospital setting for nurses was/is tremendously stressful and I could not see myself committing to it long term, so I thought might as well make the career shift early while I was young and capable." (P14)

"I tried to practice my nursing profession but then I got scammed with the placement agency I enrolled in. From there my working abroad dreams were put to an end and I thought I should go into law school to secure a bright future locally." (P19)

"It is too difficult to earn when you are a nurse in a hospital. So, I decided to take law. Being a lawyer in the Philippines is financially rewarding." (P1)

3.2.3 Support mechanisms to afford career shift

The s*upport mechanisms to afford career shift* refers to the support system and other mechanisms that helped in the transitioning from being nurses to juris doctors. The theme includes sub-categories such as "familial support", "self-sufficiency and determination", and "academic competence".

"It was planned long time ago from the day I finished my nursing course. However, I learned to love nursing profession, so the plan of taking up law temporarily went off my head. Until one day, I discovered, I really wanted to become a lawyer." (P5)

"I was motivated to pursue law. My family has inspired and supported me." (P4)

"My parents shouldered all expenses. All I had to do was pass all my subjects and the Bar Exam." (P8)

"I worked while studying. I also worked while doing self-review for the bar exams." (P4)

"I met the right people who could support me in my career shift." (P17)

3.2.4 Barriers to career shift

Barriers to career shift refers to the challenges encountered in the transitioning of nurses into juris doctors that include the sub-categories like "personal biases towards non-nursing preparatory courses", "lack of experience at court", "conflicting value-belief system", "work-family-life balance", and "null curriculum experiences".

"Lack of knowledge as to how to interact in court and other practical application of law such as drafting contracts due to lack to exposure at courts which was dealt with by observing court hearings and following pieces of advice of other lawyers." (P2)

"A solo parent with 2 kids and a full time Clinical Coordinator in a Nursing school, i got only about 3 hours sleep every night, just to juggle multiple tasks apart from starting law course at the age of 39. It was hard understanding and memorizing the concepts." (P5)

"Medical and legal field can be said to be at opposite ends of the spectrum. Studying law, therefore, became an entirely new and different universe for a medical practitioner like me. Every little thing seemed like a barrier or hindrance to me. Grit and of course, prayer, were my effective tools to work through said barriers." (P7)

"I didn't have a background on business and accounting so when I face problems in relation to business and accounting I still have to ask some friends or research about prevailing business and accounting practice." (P10)

"Not quite a barrier but prospective employers were always intrigued. I always call focus to my workmanship, ethics, and attitude, degree/prelaw notwithstanding." (P6)

3.2.5 The interconnectedness of law and nursing

The interconnectedness of law and nursing pertains to the intimate relationship or connection of law and nursing as perceived by the RN-JD. This theme has several sub-categories like "a helical relationship of nursing and law in medical-related cases at court", "critical thinking, problem-solving, decision-making", and "therapeutic nurse lawyer-client interaction".

"There is interconnectedness in being emphatic to the situation of clients which can be further elaborated to communication techniques and also the awareness of injustices experienced by some nurses in the field which can be addressed through law." (P2)

"Nurses are trained to have critical thinking skills in every situation, which helps us to understand the complexity of the law better. We were trained to look on every angle of every situation and not just be contented on what is presented or what majority sees. We dig deep. We were trained to remain calm in life threatening situations and emergencies. Thus, with this, sometimes in law, I am not easily perturbed with deadlines and crash times. We are also trained to have a clinical eye, such that we would know if someone is exhibiting physical manifestation of lying and uneasiness. We easily build rapport with people which helps in getting information from everyone and building a good PR." (P3)

"Having to always find the best solution to a situation. There is no outright right or wrong answer, in both careers knowing more makes you able to better address concerns, among others." (P6)

"Even though nursing wasn't really a choice, the values I learned during that 4-year course have become an integral part of my being (like building rapport, sympathizing and empathizing with others, dealing with persons who are in grief or denial, building therapeutic communication, etc.). So being a lawyer for me goes beyond the legal works by actually connecting with the client and seeing things from their perspective. This way, I can better understand their needs and offer the appropriate help. I must admit, though, this can be stressful at times given our line of work and the clients we have to deal with (victims of human rights abuses). Because by going deep into the client's thoughts and feelings, you are in a way evaluating your own feelings about the situation and making yourself vulnerable to the surge of emotions like pain, anger, and frustration." (P8)

"Knowledge in both medical and legal field makes me eligible to be appointed in significant designations. It affords me the luxury to choose." (P11)

3.2.6 Impact of the career shift

The *impact of the career shift* refers to the implications of the career shift or transitional experiences of the RN-JD. This involves some sub-categories such as "service to society (impact

to society)", "respect, pride, and admiration (impact to self)", "joy and fulfilment (impact to others), and "improved quality of life" (impact to self and family).

"Nobody believed in me from the start except my sisters. And when I finally signed the Roll of Attorneys, everyone became proud of me. Nevertheless, i have given my family a chance to be recognized in our place as a family with a lawyer daughter/sister. I am still working as a clinical coordinator, and my school depends on my legal opinion on matters that pertain to our department and school. I am at the same time the legal consultant of our school and a private law practitioner. My friends said they are happy because they can easily come and ask for legal advice anytime (pro bono)." (P5)

"After becoming a lawyer, modesty aside, I felt like my status in the community was somehow raised to a significant level. All the people I come in contact with hold me in high regard which I do not even feel worthy of. My significant others also felt the same as they use to express that they have been afforded respect already by people in the community who do not even care to notice them before." (P7)

"Better pay to be honest. It improved my way of life." (P11)

"My career shift is not a loss in the field of nursing. My friends would even make compliments for said career shift. My fellow nurses would tell me that they're happy to see me in legal profession." (P18)

"I am not easily persuade by others' opinions anymore unless you prove it with facts and evidences, and legal basis. When I talk to them about Medical related and Law related topics, everybody listens." (P3)

"My life is far better now as well as my family's." (P17)

"I can offer my help now to those who really are in need of fair trial." (P20)

4. Discussion

This study aimed to describe and uncover the preparations, motivations, and barriers of registered nurses who transitioned into being lawyers in the Philippines. The study found out several themes and subcategories from the thematic analysis conducted. These include (1) "Pre-planning emotive expressions"; (2) "Motivations of career shift"; (3) "Support mechanisms to afford career shift"; (4) "Barriers to career shift"; (5) "The interconnectedness of law and nursing"; and (6) "Impacts of the career shift".

Nurses are considered the heart of healthcare organizations and keeping them remains a challenge for nurse administrators (Labrague et al., 2018). Nurse leaders can enhance their own resilience and then recruit, hire and retain resilient staff nurses in an effort to improve nurses' intent to retain (Hudgins, 2015). Improving the work environment for nurses, according to Nantsupawat et al., 2016), may lead to lower levels of job dissatisfaction, intention to leave, and burnout. However, professional turnover is a complex, ongoing, multidimensional process (Valizadeh et al., 2016). The shortage of health care providers is a major concern worldwide (Mudallal et al., 2017).

The results detailed above depict the findings of registered nurses experience in their career transition from being a nurse to becoming lawyers. It can be gleaned from the result that each participant had different reasons why they entered law school. For some, it was their childhood dream, a spur of a moment and for some, because they have been inspired by others and to empower themselves. However, it all boils down to one theme, leaving the nursing profession to becoming a lawyer. In one study, young nurses leave the nursing profession because of demanding work content as well as poor environment and the inability to identify with stereotypical images of nurses were main themes that emerged from these career (Flinkman et al., 2013). Novice nurses expressed that they had high levels of stress in their first months of employment (Hezaveh et al., 2014). Additionally, Labrague et al. (2017) found out that workplace stress and job satisfaction had a significant impact on nurses' decision to leave. A favorable work environment significantly

reduces job burnout and job stress (Falguera et al., 2020). The formulation of programs for nurses such as incentives and professional development can help foster and sustain a positive practice environment and job satisfaction (Berandino & Soriano, 2019).

Nurses' experiences in their practice of profession have contributed to their intention of leaving the nursing profession as well. This concluded in a study where it was found out that nurses leaving the profession is determined by their general satisfaction with management and leadership quality, their satisfaction with pay and benefits, their job satisfaction and work-to-home interference issues they have to deal with, but not by career development opportunities (Homburg et al., 2013). One of the participants in this study decided to become a lawyer because of some unjust work experience. According to the participant, there are too many labor law violations in the company he used to work for. Further, the hospital setting for nurses was tremendously stressful. This experience was also true in a study where an examination of the experiences of recent graduates of nursing revealed that the intention to leave the nursing profession was because of having poor working environment (Lavoie-Tremblay et al., 2010). Comfortable work environments are vital in any healthcare settings (Atefi et al., 2014). When new nurses are well supported in the clinical environment, retention occurs (Leong & Crossman, 2016). Moreover, nurse managers and hospital administrators should establish an effective management system to cultivate a healthy workplace and adopt positive attitudes and harmonious relationships (Guo et al., 2017). Furthermore, supportive nurse managers reduce coworker incivility (Smith et al., 2017). Educational intervention through social network had a positive effect on oncology nurses' job stress and job self-efficacy (Bozorgnejad et al., 2020).

In a study conducted by Lorenzo et al. (2007), one out of every five employed workers is underemployed, underpaid, or employed below their full potential. This correlates to the study findings of the current research where monetary gains was one of the reported reasons why nurses transitioned to becoming a lawyer. A satisfactory wage is a significant factor in job-seeking behavior and is especially important in keeping workers in their current positions (McHugh & Ma, 2014). The Philippines has been reported as one of the countries where factors of low wages, increased workload, and poor benefits encourage Filipino nurses to exit their home country (Marcus et al., 2014). For some, they tend to change or shift career like the nurse-lawyers. In a general sense, these reverberate the need for policy improvements. Considering the factors cited, it is vital for nurse leaders to continuously act and lobby for the welfare of the nurses to keep them in the profession.

Social and academic support are influential factors in student resilience (Thomas & Revell, 2016). Participants in their career transition has cited familial support. Family function is considered to be a critical component of academic success (Rezaei-Dehaghani et al., 2018). Throughout their career transition process, these nurses had the possibility to make financial and personal sacrifices for a new education, and they were supported by their families (Flinkman et al., 2013). In the same aforementioned research, it has been said that several factors affect the academic performance of students and one identified significant factor is parenting style. Further, it stated that supporting family warmth and independent motivation directly affects academic achievement. This includes family emotional atmosphere, family member's communication, and interactions and parenting styles influence member's performance in different fields. For some participants their determination and academic competence has afforded them career shift. In one study, to understand the factors that facilitate career success, it has been cited that personal factors that facilitated success include persistence and resilience, initiative, autonomy, and personal and professional balance (Robinson et al., 2016). Research reported that a lack of professional opportunities and restricted professional autonomy were central reasons for leaving (Fochsen et al., 2005).

Transitioning from one profession or another is about handling the complexity of the process and ever-present barriers. Several factors are related to young RNs' intentions to leave the profession, including an imbalance of effort and reward, high psychological demands, and higher job strain, which all influence young nurses' intention to resign from their nursing careers (Lavoie-Tremblay et al., 2010). Furthermore, the same aforementioned study revealed that nurses who intended to quit their positions perceived a significant effort/reward imbalance as well as a lack of social support.

The nurses who intended to quit the profession perceived a significant effort/reward imbalance (Derycke et al., 2010), high psychological demands (Dall'Ora et al., 2020) and elevated

job strain (Riedl & Thomas, 2019). In the current study, the participants have identified "personal biases towards non-nursing preparatory courses", "lack of experience at court", "conflicting value-belief system", "work-family-life balance", and "null curriculum experiences" as barriers in their career shift. However, despite these, participants were able to successfully overcome the barriers and eventually became lawyers. It has been said that in the business of life, the journey is as important as the destination. Time does not stop so one can achieve a goal, and our responsibility to our families does not pause for our careers. This shows that nurses are resilient to whatever endeavor they are facing on. Being resilient is about being able to withstand setbacks, frustrations and personal tragedies. One of the participants is a solo parent and a full time clinical coordinator in one nursing school, who despite her busy schedule, was able to pull it through. According to Hasselhorn et al. (2003), a proportion of nurses with an intention to leave the profession are young, highly qualified, and seeking a new challenge.

Among the themes that emerged, one of the most significant is the "interconnectedness of law and nursing". Considering the transition, nurses who became lawyers have seen the complementary blend of nursing and law as sciences. The knowledge, skills, and attributes acquired in formal nursing education and practice of the profession are vital in finding resolutions of medical-related cases that nurse-lawyers help resolve. Participants have reported that nursing profession and the legal profession is interconnected in some unique ways. While there is no vast wealth of research made on this matter, this study has found that there is interconnectedness in both mentioned professions. For one, the use of therapeutic communication has been cited as helpful. Also, being knowledgeable in both medical and legal fields makes one eligible for significant designations. This makes gives one more choices and opportunities. A nursing background is extremely helpful in working in legal practice areas (Brent, 2020). Nurse-lawyers can work in family law, elder law, representing nurses in professional negligence cases, and representing nurses in professional disciplinary cases. Brent (2020) also highlighted nursing as a noble, trusted and respected profession. Considering this finding, nurse-lawyers may contribute significantly in policy development to uphold the general welfare of the profession ensuring healthcare equity and equality for all.

Data collated from the participants also showed that their career transition has given them self-respect, pride, admiration, joy and fulfilment and most of all improved quality of life. In one study it was reported that one year after career change, individuals reported higher job satisfaction, improved job security and a reduction in the number of hours worked (Carless & Arnup, 2011). Furthermore, changing workplace, and even career, can provide nurses with the opportunity to move to positions better suited to their motives, ambitions, skills, and career goals. Job satisfaction is indispensable in the daily life of the workforce (Akinwale & George, 2020). Managers of nurses should strengthen the areas that contribute to higher employee satisfaction (Brayer & Marcinowicz, 2018).

5. Implication and limitation

The study provides preliminary findings vital to understanding the phenomenon of transition among nurse-lawyers. While the study is limited to a number of nurse-lawyers, the study significantly contributes to the body of knowledge. The dearth of related literature may provoke further exploration of any related topics relevant to the transitioning experience of nurse-lawyers. Since the study is descriptive-qualitative in nature, it is suggested that other researchers should delve into more intensive or comprehensive research undertaking to capture the lived experiences of nurse-lawyers. Such research has direct implications to both nursing as a practice and profession.

6. Conclusion

Any career transition involves tedious preparations, motivations, and challenges influenced by a number of factors. Nurses becoming lawyers are no exemptions in experiencing career shift. With the career shift, the challenge is set to combine nursing and law as equally noble and respected professions capable to emancipate clients across the lifespan regardless of race, creed, gender, and other socio-demographic indicators.

Exhumed from the results of this study are the nurse-lawyers pre-planning emotive expressions that help them attain and endure their career shift. Their motivations ranging from personal, familial and other enablers have expanded their capacity to decide to undergo the career

transition. Interestingly, the identification of exemplars made them more inspired to become nurse-lawyers. However, the career shift of the nurse-lawyers was not without any challenges related to their family, work and studies, and life dimensions. These challenges have tested their perseverance, resilience, mental acuity and agility. These soft skills are but a few of the much needed skills required of being good nurse-lawyers. Apart from these findings, the nurse-lawyers have identified the strong interrelationship of law and nursing, which influence their chosen career path. Nurse-lawyers both uphold and protect the combined professions of nursing and law.

While the study was limited to the aspects of transitioning in terms of preparations, motivations, and challenges of the nurse-lawyers, the uniqueness of this transitioning experience suggests the need to further examine the extent of how nurse-lawyers forge the complementary blend of nursing and law for the welfare of individuals, families, and communities under their care.

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Conflict of interest

None

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ORIGINAL RESEARCH

Spiritual Care Competence among Malaysian Staff Nurses

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Abstract

Background: Perceptions and levels of understanding of spiritual care vary among nurses, which may affect their competency to meet the patient's spiritual needs. Therefore, determining nurses' perception of spiritual care is the first important step in addressing the spiritual needs of patients, and may also help nursing management in developing spiritual care education and training programs.
Purpose: This study aimed to assess the competence of Malaysian nurses toward providing spiritual care and identify the relationship between nurses' spiritual care competence and their sociodemographic factors.
Methods: This study employed a cross-sectional design to assess nurses' competence in spiritual care by using a simple random sampling method which involved 271 staff nurses from a public hospital in Northeast of Peninsular Malaysia. Spiritual care competence scale in Bahasa Malaysia version was used for data collection. Data analysis was performed using descriptive (frequency, percent, mean, standard deviation) and inferential (Chi-square and Pearson's correlation test) statistics.
Results: This study showed that 69.7% of staff nurses had an average level of competence toward providing spiritual care for the patients (M=95.44, SD=4.34). The highest mean difference among the domains was personal support and patients counseling (MD=5.789), while the lowest mean difference was assessment and implementation of spiritual care (MD=1.258). Furthermore, there was no significant relationship between spiritual care competence and sociodemographic factors (gender, age, marital status, educational level, nurses' experience, race, religion, and previous participation in training spiritual care programs).
Conclusion: The majority of nurses have an average level of competence toward providing spiritual care. There is no significant relationship between nurses' spiritual care competence and sociodemographic factors.

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1. Introduction

Based on World Health Organization (WHO), spiritual care can be deemed as an essential part of the definition of health since 1998 (Alliance & Organization, 2014; Nagase, 2012), and it is one of the important elements in the holistic nursing care provided by nurses (Caldeira et al., 2013). However, many nurses still have an inadequate understanding of the significance of spirituality and spiritual care (Lalani, 2020; Wu et al., 2016). The term spirituality can be labeled as "an umbrella term" (McSherry & Jamieson, 2011) due to the variety of individual meanings, associates, and descriptions that people often use to describe and make clear of their understanding of this term. Therefore, spiritual care is recognized as an important part of nursing care towards patients, and understanding patients' spiritual needs must be held significant among nurses because every part of health care dimensions of the patients falls under nursing responsibility (Jafari et al., 2016).

The term 'competence' describes a set of features and characteristics that create the best performance (Schneider, 2019). These features and elements are related to knowledge, skill, attitude, management, communication, and other features (Sharifi et al., 2019). However, a competent nurse would be able to effectively provide quality service to patients and cover all of

their needs (Lee et al., 2020). Nurses must not be afraid to discuss spiritual issues with their patients (Gore, 2013). Despite numerous indications that spiritual care is part of nursing duty, it is apparent that there is an inadequate understanding of their responsibility (Zehtab & Adib-Hajbaghery, 2014).

Many studies have mentioned various reasons for the lack of spiritual care provided by the nurses toward patients, which include the lack of skills and knowledge, belief that patient's spirituality is private, time pressure, the difference of culture and religion between patients and nurses, and the difficulty to differentiate proselytizing from spiritual care (Caldeira et al., 2013; Gallison et al., 2012; McSherry & Jamieson, 2011; O'brien et al., 2019; Paal et al., 2015; Rushton, 2014). Therefore, nurses' knowledge, awareness and comprehension on spiritual care are significant to meet patients' spiritual needs (Veloza et al., 2016). When these nurses are more mindful and aware of their spiritual status, they will be more aware of their patients' spiritual needs (Yousefi & Abedi, 2011).

Many previous studies have emphasized the importance of individual and contextual factors when addressing spiritual care competence. Individual factors include age, gender, marital status, education level, working experience, religion, and race. On the other hand, contextual factors include interest in spirituality and spiritual care as well as previous attendance at spirituality/spiritual care courses or training courses (Hsieh et al., 2020; Timmins & McSherry, 2012; van Leeuwen & Schep-Akkerman, 2015). According to van Leeuwen (2009), personal factors such as age, gender, and level of education were assumed to have an essential role in some of the concerns the nurses had in spiritual care. In contrast, Wu et al. (2016) highlighted that age, gender, clinical experience, level of education, and nurses' religiosity did not have an effect on providing spiritual care. The same study, however, noted that the nurses who received sufficient education and training programs in providing spiritual care felt more competent to meet patients' spiritual needs (Wu et al., 2016).

Based on the literature that has been reviewed, it seems that most of the studies regarding spiritual care were applied in Western countries. They were largely from the Christianity perspective, and this included a study conducted in the United States by White and Hand (2017), in Netherland by Vogel and Schep-Akkerman (2018), as well as in Canada by Petersen et al. (2017). As a multi-racial country, the number of populations and different cultures practiced in Malaysia are the factors in providing a different perspective of spiritual care among nurses. However, this topic is not widely discussed in Malaysia (Atarhim et al., 2019). Therefore, this study expects to help nursing management identify the competence of nurses toward providing spiritual care among patients, especially during this critical period as the world is battling a pandemic like COVID-19, including Malaysia. Accordingly, this study aimed to assess nurses' competence toward providing spiritual care in Malaysia and identify the relationship between nurses' spiritual care competence and their sociodemographic factors.

2. Methods

2.1 Research design

A cross-sectional study was used to assess nurses' competence toward spiritual care in a single hospital in Malaysia.

2.2 Setting and samples

This study was conducted in a public hospital in Northeast of Peninsular Malaysia in July 2019. The population was staff nurses at the specified hospital with a total number of 1,530 at the time of the study. The sample size was determined by using a margin error of 5%, a confidence interval (CI) of 95%, and an expected response rate of 70% (Raosoft, 2004). In lieu of that, the recommended sample size was 267 participants. An additional 15% was added after considering the factor of drop-out from the study, which resulted in 267/(1-0.15) = 314 participants. A simple random sampling method was applied to this study, as all staff nurses had the same ability to participate in this study. This study had included staff nurses with at least one year of working experience to ensure they had valid experience in communicating with patients (Herlianita et al., 2018), and possessed diploma certificates. Staff nurses who had no direct contact with patients prior to this study were excluded.

2.3 Measurement and data collection

The researchers used a set of self-administered questionnaires in Bahasa Malaysia that would take an average of 10–15 minutes to complete. The instrument consisted of two parts. The first part included eight questions on participants' sociodemographic factors such as age, gender, marital status, race, religion, experience, and previous experience in attending a spiritual care workshop. The second part consisted of 27 items adopted from the survey of the Spiritual Care Competence Scale developed by van Leeuwen et al. (2009) to measure nurses' competence in providing spiritual care to the patients. It consisted of six domains: first domain included six questions to measure the assessment and implementation of spiritual care (6 items with Mean=18); the second domain consisted of six questions to measure the professionalization and to improve the quality of spiritual care (6 items with Mean=18); the third domain consisted of six questions to measure the personal support and patient counseling (6 items with Mean=18); the fourth domain included three questions to measure the referral to professionals (3 items with Mean=9); the fifth domain consisted of four questions to measure the attitude towards patient spirituality (4 items with Mean=12), and the last domain consisted of two questions to measure the communication (2 Item with Mean=6). All 27 items were rated using a Likert scale ranging from 1 to 5 (1=strongly disagree, 5=strongly agree). The questionnaire had a minimum of 27 scores and a maximum of 135 scores in which the score lower than 64 was categorized as low spiritual competence, the score of 64-98 suggested average spiritual care, and the score of 99 and above demonstrated high spiritual competence.

After obtaining the authors' permission, two Malaysian experts working at a Language Centre in a public university in Northeast of Peninsular Malaysia, who were proficient in English and Bahasa Malaysia (BM), performed the Forward-Backward translation procedure from English to Bahasa Malaysia to the original survey. In order to ensure each translated item reached the required consensus, the questionnaire was then sent to a native BM-speaking Malay lecturer and worked in the English Literature program in Universiti Kebangsaan Malaysia (UKM) and a lecturer in the Nursing program in Universiti Sains Malaysia (USM). Both experts reported that all questionnaire items were appropriate, acceptable, and understandable.

The validity and reliability of the Bahasa Malaysia version of the questionnaire were already tested in a previous study (Abusafia et al., 2020). A total of 320 participants were involved in validation of the questionnaire. The confirmatory factor analysis (CFA) measurement was used to validate the questionnaire. The result showed acceptable fit indices for the 6-factor model: root mean square error of approximation (RMSEA) = 0.050, comparative fit index (CFI) = 0.900, Tucker–Lewis index (TLI) = 0.885, and standardized root mean square residual (SRMR) = 0.065. The total Cronbach alpha of the questionnaire was 0.926, while for the subdomains was 0.685-0.851 (Abusafia et al., 2020).

2.4 Data analysis

Apart from descriptive statistics, the Pearson Chi-square test was also used to determine the relationship between sociodemographic factors (gender, marital status, race, religion, and previous experience of attending spiritual care workshop/training) and spiritual care competence among staff nurses. Pearson's correlation coefficient (r) test was used to measure the association between age, nurses' experience, and spiritual care competence score. The statistical significance level was set at 0.05. Data were analysed using SPSS version 24.0 for Windows.

2.5 Ethical considerations

The study protocol was reviewed and granted approval for implementation by the Research Ethics Committee *(Jawatankuasa Etika Penyelidikan Manusia)* Universiti Sains Malaysia (JEPeM-USM). The study had been assigned a study protocol with a code of USM/JEPeM/18080366. The permission to complete the survey at the hospital was obtained from the director of the hospital. The researchers provided a briefing about the aim, risk, and benefit of the study. The researchers also informed the participants that all data would be kept confidential, anonymous, and they were only used for the purpose of the study. Participation in this study was voluntary. The researchers ensured that the participants' working progress would not be affected. Lastly, formal written consent was obtained from every participant who agreed to participate in this study.

3. Results

3.1 Characteristics of respondents

A total of 271 out of the initial 314 staff nurses (86%) had participated and completed the questionnaire. Table 1 shows that 92.6% of the participants were female, and 96.3% were married. On top of that, 96.7% of the participants had diplomas, 87.8% were Muslims, and 79.3% were Malays. More than half of the nurses had not participated in any spiritual care workshop or training prior to the study. The mean (M) age of the nurses was 34.75, the standard deviation (SD) was 8.359, and the experience years were M=12.09 and SD=8.359.

Table 1. Sociodemographic variables

Variables	f	%	Mean (SD)
Gender			
Male	20	7.4	
Female	251	92.6	
Age			34.75 (8.359)
Marital status			
Married	261	96.3	
Not Married	10	3.7	
Education level			
Diploma	262	96.7	
Bachelor	8	2.9	
Master	1	0.4	
Religion			
Muslim	238	87.8	
Non-Muslim	33	12.2	
Nationality			
Malay	215	79.3	
Non-Malay	56	20.7	
Experience years			12.09 (8.359)
Attendance previous workshop			
Yes	161	59.4	
No	110	40.6	

SD=Standard Deviation

3.2 Level of nurses' competence toward spiritual care

Table 2 shows that the mean score of SCCS was 95.44 with a standard deviation of 4.34 and most of the nurses were in the average level (69.7%) of competence toward spiritual care.

Table 2. Level of nurses' competence toward spiritual care

Level of Spiritual Care Competence (SCCS)	f (%)	Mean (SD)
Low	-	
Average	189 (69.7)	95.443 (4.34)
High	82 (30.3)	

Table 3 shows that the mean score of each domain of the questionnaire on the perception of spiritual care competence was significantly above the average mean. Comparing between domains, the domain of personal support and patient counseling had a high mean difference. At the same time, the assessment and implementation of the spiritual care domains had a lower mean difference.

3.3 The relationship between the sociodemographic factors and spiritual care competence

According to the results in Table 4, there was no significant relationship observed in the sociodemographic factors (p>0.05).

Table 3. The Mean difference of domains the spiritual care competence

Domains	Mean	Average mean	Mean difference
Assessment and implementation of spiritual care	19.258 (1.961)	18	1.258
Professionalization and improving the quality of spiritual care	19.885 (2.121)	18	1.885
Personal support and patient counseling	23.789 (1.960)	18	5.789
Referral to professionals	10.823 (1.395)	9	1.823
Attitude towards patient spirituality	15.919 (1.092)	12	3.919
Communication	7.731 (0.846)	6	1.731

Table 4. Cross tabulation results and the association between spiritual care competence and demographic factors.

Factors	Spiritual care competence		X_2 (df)[a]	Correlation (R)[b]	*P*-value
	Average	High			
Gender			0.283		0.595[a]
Male	15(13.9)	5 (6.1)	(1)		
Female	174 (69.3)	77 (30.7)			
Age				-0.060	0.324[b]
Marital status			0.467		0.494[a]
Married	183 (70.1)	78 (29.9)	(1)		
Not Married	6 (60)	4 (40)			
Education level			0.888		0.346[a]
Diploma	184 (70.2)	78 (29.8)	(1)		
Bachelor	5 (55.6)	4 (44.4)			
Religion			0.644		0.422[a]
Muslim	164 (68.9)	74 (31.1)	(1)		
Non-Muslim	25 (75.8)	8 (24.2)			
Race			1.660 (1)		0.198[a]
Malay	146 (67.9)	69 (32.1)			
Non-Malay	43 (76.8)	13 (23.2)			
Experience years				-0.017	0.785[b]
Attendance previous workshop			0.213 (1)		0.644[a]
Yes	75 (68.2)	35 (31.8)			
No	114 (70.8)	47 (29.2)			

[a]Pearson chi-square test; [b]Pearson correlation test.

4. Discussion

This study explored the competence of nurses toward providing spiritual care to patients. The results of the study showed that the mean score of spiritual care competence was 95.44, and the competence of nurses was at the average level, which is consistent with other studies conducted among nurses in Iran (Jahandideh et al., 2018) and Taiwan (Chen et al., 2020; Ebrahimi et al., 017), which demonstrated that the nurses have average competence in providing spiritual care. In contrast, the results of this study were higher than a study in the United States among nurses, which showed the mean score of SCCS was 71.96 (Hellman et al., 2015). This indicates a need to provide educational programs on spiritual care for the nurses to improve their competence and capabilities, which is congruent with studies by Melhem et al. (2016) and Abell et al. (2018).

In addition to exploring the competence of nurses in spiritual care, the results showed that each domain's mean scores were significantly above average. However, the highest mean difference was personal support and patient counseling (5.789). This is different from a study conducted by Ebrahimi et al. (2017), which showed that the mean difference was (3.0). Based on van Leeuwen et al. (2009), this domain was considered as the heart of spiritual care due to the actual provision and evaluation of spiritual care with patients and their families. However, the highest results in the current study could be related to the spiritual care services provided by the team from the Islamic center in the hospital where the study took place.

The second highest domain was the attitude towards patient spirituality (MD=3.919), which was almost similar (MD=4.0) to a study conducted by Ebrahimi et al. (2017). Based on van Leeuwen et al. (2009), this domain is referred to as personal factors that are relevant in providing spiritual care. It is known that Malaysia has different cultures and races (Ramalu & Subramaniam, 2019). These results indicated the extent to which the nurses would accept and provide spiritual care to their patients irrespective of their race.

For other domains, the mean difference score was lower than 2.0, which indicated an apparent deficiency of knowledge and practice among nurses in providing spiritual care to the patients and a need for the hospital nursing management to assess, implement and evaluate the nursing spiritual care plan. Not only that, the need to increase the relationship between nurses and patients and develop nurses' communication therapy to meet the patients' needs should not be overlooked. This is supported by Kourkouta and Papathanasiou (2014) which confirmed the importance of having good communication between nurses and patients for a positive and effective outcome of patients' nursing care.

Surprisingly, this study showed no factors that had a significant difference in the spiritual care competence score. The results were similar to a study conducted by Vogel and Schep-Akkerman (2018). In contrast, it was different from a study conducted by Chen et al. (2020), which showed that the SCCS was significantly associated with the educational level variable and previous education experience in spiritual care. In addition, van Leeuwen and Schep-Akkerman (2015) believed that demographic factors, such as gender, age, level of education, and nursing experience, play an important role in providing spiritual care to the patients. Meanwhile, Melhem et al. (2016), in their study among Jordanian nurses, discovered that female nurses have a high perception of spirituality and spiritual care than male nurses. This may be due to the way that females have a superior capacity to impart feelings and emotions to patients. Male nurses, on the other hand, caring more about the physical sides of the patients.

In the current study, it is not easy to interpret the results. However, spiritual care competence is a skill that all nurses should have to be able to meet patients' spiritual needs, and they have to be aware of their spiritual care regardless of their gender, age, experience, or any other factors. This is supported by McSherry et al. (2008), which reported that staff nurses should have the ability to provide spiritual care to the patients.

5. Implication and limitation

The results of this study could be a valuable input for the head of nurses and nursing management to evaluate nurses during their practice of providing spiritual care to the patients. This study has limitations that can be summarized in two points. The first was the usage of self-reported measures. The self-reported measures could have specific high response biases, which could have decreased the acquired data accuracy. However, the participants aware that their identity and names were not involved in the study, which can reduce the bias in response and increase the confidence and honesty of participants in answering the questionnaire. Secondly, this study was carried out in one hospital only, which might limit the ability to generalize the results to other hospitals in Malaysia. However, it is important to note that there was enough sample size obtained which had strengthened the conclusions and findings of the study. Therefore, the researchers would recommend further studies to include a larger sample size from various healthcare professions or a more generalized population of nursing specialties from different hospitals. Another recommendation to be made in the future study may explain the natural association between sociodemographic factors and spiritual care competence. It is also important to explore the barriers and motivators for providing spiritual care among the patients.

6. Conclusion

The present study revealed that the competence of nurses toward providing spiritual care was at an average level. Thus, nursing administrators should give more attention to increasing nursing competence by providing training and educational programs on spiritual care. Nurses also need to continue to discover their spirituality and must make more effort to involve themselves in spiritual activities. Lastly, developing a validation educational program on spiritual care is required to increase nurses' and other healthcare providers' competence.

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Conflict of interest

The authors certify that there is no actual or potential conflict of interest in relation to this study.

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