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The Effect of "SELF-HELP Packages" on Post Stroke Depression among Ischemic Stroke Survivors

Fitria Handayani[1], Setyowati Setyowati[2], Dwi Pudjonarko[3,4], Dian Ratna Sawitri[5]

[1]*Department of Nursing, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia*
[2]*Department of Maternity and Women's Health, Faculty of Nursing, University of Indonesia, Indonesia*
[3]*Departement of Neurology, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia*
[4]*Kariadi General Hospital, Semarang, Indonesia*
[5]*Faculty of Psychology, Universitas Diponegoro, Semarang, Indonesia*
Corresponding Author: Fitria Handayani (fitria.handayani@fk.undip.ac.id)

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ABSTRACT

Background: There are several factors that contribute to Post Stroke Depression (PSD). Since a single intervention is proven ineffective to deal with PSD, an intervention which includes biological, psychological, social, and spiritual aspects ("SELF-HELP Packages"), therefore, needs to be established.
Purpose: The purpose of the study was to investigate the effect of "SELF HELP Packages" intervention on PSD among ischemic stroke survivors after three months from onset and its effect after confounding variables were controlled.
Methods: This study was a pre and post quasi-experiment with a control group, involving 34 ischemic stroke survivors each group. The inclusion criteria were survivors after three months from ischemic stroke, no aphasia, having a good hearing, and having Mini Mental Status Examination (MMSE) score of ≥22. GRID-HAMD 17, Multidimensional Scale of Perceived Social Support (MSPSS), and Barthel-Index were used to measure PSD, social support, and functional status respectively. "SELF-HELP Packages" intervention was delivered in three sessions, namely information delivery, discussion and activity. Statistical analyses were conducted using McNemar test, chi-square and logistic regression.
Results: The result showed that "SELF-HELP Packages" considerably decreased PSD in the intervention group (p=0.004). There were also significant differences on PSD after the intervention between two groups (p=0.008). Logistic regression showed that 'SELF-HELP Package" had no effect on PSD when other confounding variables were controlled (p=0.075, OR=0.288, 95% CI 0.073 – 1.135).
Conclusion: SELF-HELP Packages" should be applied in providing the nursing intervention among stroke ischemic survivors in clinical setting. A longer period of time for the intervention is recommended for the next study to obtain a more robust result.

Keywords: Ischemic stroke; post stroke depression; "SELF-HELP Packages" intervention

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BACKGROUND

World Health Organization (WHO) stated that stroke is the fifth rank cause of mortality and contributes to different health status between males and females (World Health Organization, 2019). The prevalence of stroke in Central Java is 11 per miles in 2018 (Ministry of Health of the Republic of Indonesia, 2018), while the number in Semarang City is also high, reaching for 8,808 cases (Health Office of Semarang City, 2020). This high prevalence of stroke should become more concern for management.

Stroke will impact many conditions, such as handicap, family and economic burden and Post Stroke Depression (PSD) (Donkor, 2018). The pattern of PSD is unique in which the incident increases at fourth week after onset and peaks at 14th week (three months) after onset (Gbiri, Akinpelu, & Odole, 2010). Furthermore, PSD possibly continues up to six months, or more than one year after stroke onset (Chau et al., 2010; De Wit et al., 2008). Specific pattern of PSD is explained as a high prevalence of PSD after three month from onset, which ranges from 17.7 to 47.7 % (Handayani & Pudjonarko 2015).

Post Stroke Depression after three months from onset will impact on functional status and handicap, continuous depression, suicidal thought, and fatigue (Bartoli, Di Brita, Crocamo, Clerici, & Carràl, 2018; Kang et al., 2018; Lincoln et al., 2013). PSD leads to fatigue 1.5 year after stroke (Lerdal et al., 2011), and low quality of life 5 years after stroke (Kielbergerova et al., 2015). PSD also contributes to mortality rate (Bartoli et al., 2018; Hackett, Köhler, O'Brien, & Mead, 2014). Some medicines are prescribed to reduce PSD, namely deanxit, fluoxetine, setraline, paroxetine, and citalopram, and their effects will continue to six-eight weeks after treatment (Loubinoux et al., 2012). Although the patients consume medicines, PSD will re-occur in three months to two years after stroke (Guiraud et al., 2016; Kang et al., 2018; Yuan et al., 2012).

Two studies reported that some interventions could not significantly decrease PSD. A study which delivered high intensity of exercise among ischemic stroke patients had no impact on PSD (Holmgren, Lindström, Gosman-Hedström, Nyberg, & Wester, 2010). Another intervention was cognitive rehabilitation among stroke patients in long term health care facilities which was reported to be significant to reduce Geriatric Depression Scale (GDS). Nevertheless, the minimum number of participants in this study (Sakamoto et al., 2018) causing the generalization of the result could not be concluded. These studies revealed that single interventions were not effective to reduce PSD.

Other studies using complex interventions, including aspects of biology, psychology, social, and spirituality show good outcomes. Zimmermann et al., (2016) point out that a complex intervention which consists of biological, psychological, and social aspects, increases perceived self-efficacy and better clinical outcome of anxiety, depression or somatization symptoms. Byrne et al. (2020) claim that Ready to Reduce Risk (3R) complex intervention improves clinical lifestyles of the patients with cardiovascular diseases. The result of these studies supports the claim that complex interventions including biological, psychological, social and spiritual aspects have an opportunity to accomplish the modified behaviour and clinical improvements (Medical Research Council, 2014).

Apart from the interventions to decrease PSD, several factors are reported to affect PSD, of which, in this study, are considered as the confounding factors. A review concludes that a factor related to PSD after three months from stroke onset is social support (Handayani, Setyowati, Pudjonarko, & Sawitri, 2019). A study from Shi et al. (2015) also shows that the predictors of PSD are cognitive aspects and stroke recurrent. Furthermore, functional status is independently associated with PSD after three months from stroke onset (Ojagbemi & Owolabi, 2013). Another relating factor with PSD is Brain Derived Neurotropic Factor (BDNF). Research showed that BDNF has an important role in maintaining neural function, plasticity and neurogenesis regulation (Silakarma & Sudewi, 2019). Specifically, BDNF is related with PSD among ischemic stroke survivor after three months from onset (Li et al., 2014).

Previous studies involving single interventions showed insignificant effect to decrease PSD. On the other hand, complex interventions were reported to yield good outcomes in patients with psychological problems and cardiovascular diseases. In addition, there are several factors contribute to PSD such as social or family support, cognitive functions, functional status and BDNF after three months from ischemic stroke onset. Therefore, a complex intervention which consists biological, psychological, social, and spiritual aspects on ischemic stroke patients needs to be developed. The "SELF-HELP Packages" was a complex intervention, abbreviated of Smart, Effort, Wellness, Feel, Happy and Power, which might be effective to terminate the negative outcomes caused by stroke (Webber & Newby, 2015; Wills, 2011), one of which is PSD.

PURPOSE

The purpose of this study was to investigate the effect of "SELF-HELP Packages" on PSD after three months from ischemic stroke onset and its effect after confounding variables were controlled.

METHODS

Research design and samples

This study was a quasi-experiment study using pre and post-test design with a control group. The samples were 68 stroke ischemic survivors after three months from onset, who were divided evenly into the intervention and control groups, with 34 respondents in each group. The study was conducted in two government hospitals in Central Java, Indonesia for three months in 2018. The respondents in each group were separately recruited from different hospitals. The inclusion criteria were ischemic stroke survivors after three months from ischemic stroke diagnosis, no aphasia, having a good hearing, having Mini Mental Status Examination (MMSE) score of ≥22. The sampling technique used purposive sampling in which researchers relied on their own judgments to choose the respondents among stroke patients. The sample selection is illustrated by Figure 1.

Measurements

Post stroke depression was assessed using GRID-HAMD 17 questionnaire as the main instrument in this study, which consists of 17 questions (Williams et al., 2008). This instrument had interview guidelines for use to establish its validity during data collection (Patrick et al., 2011). The categories for the scores were divided to two; first, patients with no PSD if the scores were ≤ 7; and second, patients with PSD if the scores were >7. This instrument was translated to the Indonesian languages and then back translated to English using two independent translators. Face validity then was carried out to find out any discrepancies and also any changes for every statement based on the Indonesian culture. The reliability test yielded a Cronbach's alpha coefficient of 0.78.

There were four other instruments utilized to measure confounding factors in this study. First, Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure respondent's social supports. This questionnaire had three categories and used *Mean±Standard Deviation* to determine cut off points of the categories due to homogeneity of the data. Language validity resulted in good agreement between translated and back-translated versions while reliability test yielded a Cronbach's alpha coefficient of 0.893.

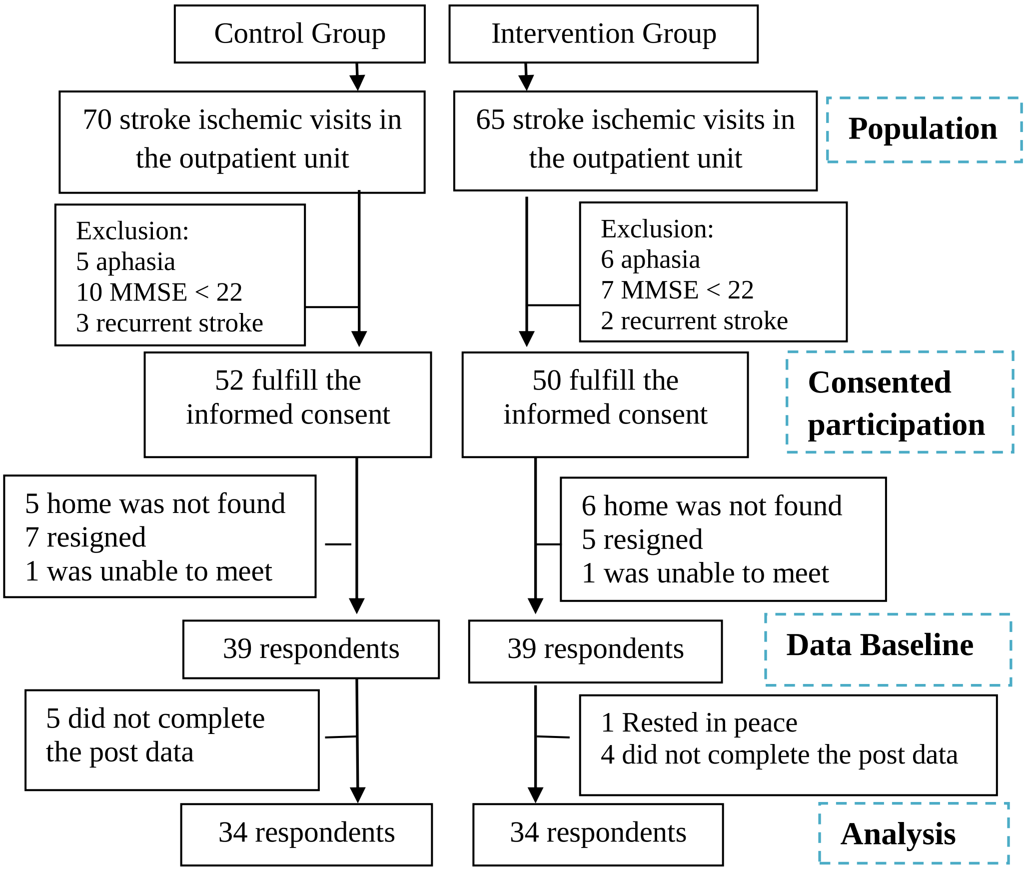

Figure 1. Participants' flowchart

Second, Mini Mental Status Examination (MMSE) was used to measure cognitive functions. MMSE consisted of six subscales of orientation, registration, attention, calculation, recall, and language. There were two categories of this questionnaire in which the scores were ≥ 28 for no cognitive impairment and < 28 for cognitive impairment. A reliability test showed a Cronbach's Alpha coefficient of 0.8. Third, Barthel-Index was used to measure the respondents' functional status. Barthel-Index five categories were transformed to two categories; dependent category with the

Barthel-index scores of < 90, and independent category with the Barthel-index scores of ≥ 90. The Cronbach's alpha coefficient of the Barthel-index was 0.934. Fourth, Enzyme-Linked Immunosorbent Assay (ELISA) was conducted using Emax Immunoassay System Kit (Promega; Madison, WI, USA) (Promega, 2009) to analyse BDNF from patient's blood samples. The blood samples were taken and analysed in the same day.

Intervention

The intervention of "SELF-HELP Packages" consisted of three activities which covered health education, discussion and independent activities (Aranda, 2008). "SELF-HELP Packages" were delivered in four sessions with one week apart between sessions, each of which lasted for 60-90 minutes. Prior to the data collection, eight registered nurses were recruited and trained for two days to deliver the intervention. During the intervention, booklet and self-monitoring chart were provided to the respondents while a SELF-HELP module was given to the nurses to guide them delivering the intervention. A flip chart was also used to help nurses deliver the health education. The activities in the "SELF-HELP Packages" can be seen in Table 1. Once the intervention group completed the packages, the post-tests were measured one week after the fourth session. On the other hand, the control group received standard interventions according to the hospitals and the post-tests were done on the fifth week.

Table 1. The activities of the "SELF-HELP Packages"

Session	Activities	Media
First session	Focusing on the biological and psychological aspects	
	- Involving health education, demonstration and discussion of biological aspect such as knowledge of stroke, life styles to prevent stroke, hypertension diet, ranged of motion (ROM), mobilization and transfer.	Booklets and Flipcharts
	- Facilitating for patients' acceptance and commitment through acceptance and commitment therapy (ACT) toward rehabilitations and treatments of stroke as a part of psychological aspects.	Booklets and Flipcharts
	- Independent activities of the patients during a week to the next meeting.	Booklets and self-monitoring charts
Second Session	Focusing on the social and spiritual aspects	
	- Discussing and encouraging the social aspects, such as family support, social gathering and social activities of the patients during the post stroke period.	Booklets and Flipcharts
	- Discussing spiritual values of the patients and religion activities, such as prayer; and developing patient's spiritual competences	Booklets and Flipcharts
	- Independent activities of the patients during a week to the next meeting.	Booklets and self-monitoring charts

Table 1. (Continued)

Session	Activities	Media
Third Session	Focusing on evaluation of the patient's achievements and progresses along previous weeks	
	- Evaluating and discussing any skill improvements on each aspect. When no improvement was made, another contract would be made to accomplish the skills according to the patient's agreement.	Self-monitoring charts
	- Independent activities of the patients during a week to the next meeting.	Booklets and self-monitoring charts
Fourth Session	Conducting independent activities for the patients under text messaging aids for controlling	Booklets and self-monitoring charts

Data analysis

McNemar test, Chi-square and logistic regression were employed to analysed the data. McNemar test was used to determine the differences on dichotomous dependent variables while Chi-square test was conducted to compare PSD between groups. The logistic regression was finally utilized to measure the effect of "SELF-HELP Packages" on PSD after other confounding variables were controlled.

Ethical considerations

Ethical clearance was gained from the Health Research Ethic Committee of the Faculty of Medicine, Universitas Diponegoro (No. 596/EC/FK-RSDK/X/2017). Informed consents were obtained from all respondents before the data collection. The patients and their families were well-informed about the study before consenting their participation.

RESULTS

Characteristics of respondents

The result showed that the characteristics of respondents between intervention and control groups were homogenous (Table 2).

Table 2. Characteristics of respondents (n=68)

Characteristics	Control group (*n*=34)		Intervention group (*n*=34)		X^2	*ρ*
	f	%	*f*	%		
Gender						
Male	19	52.8	17	47.2	0.22	0.808
Female	15	46.9	17	53.1		
Age						
≤ 60	22	51.2	21	48.8	0.04	1.0
> 60	12	48	13	52		
Employment						
Employed	11	44.0	14	56.0	0.07	0.615
Unemployed	23	53.5	20	46.5		
Monthly income						
Low	21	48.8	22	51.2	0.09	1.0
High	13	52.0	12	48.0		

Table 2. (Continued)

Characteristics	Control group (*n*=34)		Intervention group (*n*=34)		X^2	*ρ*
	f	%	*f*	%		
Education						
Low	31	49.2	32	50.8	0.22	1.0
High	3	60	2	40		
PSD						
No PSD	17	50	14	41.2	.0002	0.627
PSD	17	50	20	58.8		

The effect of "SELF-HELP Packages" on PSD in the intervention group

The result showed that the number of respondents who had no PSD increased from 41.2% to 68% while the number of respondents who had PSD decreased from 58.8% to 32% after "SELF-HELP Packages" intervention. It was shown that the intervention reduced the PSD in the intervention group (*p*=0.004) (Table 3).

Table 3. Differences on PSD in the intervention group (n=34)

Intervention Group	No PSD		PSD		*p*
	f	%	*f*	%	
Pre-test	14	41.2	20	58.8	0.004*
Post-test	23	68	11	32	

*Mc-Nemar

The effect of "SELF-HELP Packages" on PSD between groups

As seen in Table 4, there was a significant difference in the number of PSD and No PSD at post-tests between the intervention and control group (*p*=0.008). It can be concluded that "SELF-HELP Packages" had a significant effect on decreasing PSD.

Table 4. Differences on PSD between the intervention and control group (n=68)

Groups	no PSD		PSD		*p*
	f	%	*f*	%	
Intervention (*n*=34)	23	67.6	11	32.3	0.008*
Control *(n*=34)	11	32.3	23	67.6	

*Chi square

The effect of "SELF-HELP Packages" on PSD after controlling the confounding factors

Logistic regression showed that 'SELF-HELP Package" had no effect on PSD when other confounding variables were controlled (*p*=0.075, OR=0.288, 95% CI 0.073–1.135). However, functional status was shown to be the most affecting factor on PSD (*p*=0.034, OR=0.34 95% CI 0.083–0.907).

Table 5. Effects of "SELF-HELP Packages" on PSD after controlling the confounding factors (n=68)

Interventions /Factors	*B*	*SE*	*Wald*	*p*	*OR*	95 % CI
"SELF-HELP Packages"	-1.243	0.699	3.164	0.075	0.288	0.073–1.135
Social Support	-1.099	0.629	3.056	0.080	0.333	0.097–1.142
Functional State	-1.295	0.611	4.492	0.034	0.034	0.083–0.907
Cognitive	-21.167	13579.827	0.999	0.999	0.000	0.000-
BDNF	-0.661	0.706	0.877	0.349	0.516	0.130–2.059
Constant	-2.310	0.663	12.126	0.000	0.099	

Nagelkerke R Square=0.468; *p*=0.000

DISCUSSION

This study aimed to analysed the effect of "SELF-HELP Packages" on PSD among ischemic stroke survivors after three months from onset. The result showed that "SELF-HELP Packages" had a significant effect on reducing PSD after three months from onset. This result was similar with the result of a study that developed complex interventions which included support psychotherapeutic treatment, information about disease, developing daily activity schedules, coping with daily hassles, using problem-solving skills, engaging in social networks and community activities, learning relaxation techniques and community based psychosocial services (Zimmermann et al., 2014). Another study also found that a complex, nurse-led intervention, which was implemented as a collaborative care model, increased perceived self-efficacy and better clinical outcome of anxiety, depression or somatization symptoms (Zimmermann et al., 2016).

Other studies also showed similar results with this study. Mayo et al. (2015) reported that exercise and project-based activities promoting learning, leisure, and social activities among stroke showed a great gain of stroke-specific health-related quality of life. Evans-Hudnall et al. (2014) revealed that multi-intervention increased the efforts of stroke survivors to control the secondary risk factors of stroke. Stroke survivor who has been showing a good adaptation with their life, will gain a good quality of life although with a handicap (Dharma, 2015). A study by Byrne et al. (2020) also found that a complex intervention, consisting of medication adherence to statins, lifestyle behaviours and cardiovascular risk and delivered by health education session, massage and phone call, resulted in good outcomes in patients with coronary vascular diseases.

The "SELF HELP Packages" consists of biological, psychological, social and spiritual aspects. The biological aspect, which includes life style behaviour in stroke preventions, hypertension diets, range of motion (ROM), mobilization and transfer, facilitates stroke survivors to adapt in their new stroke life and reduce the risk factors of stroke (Dharma et al., 2018). Stroke knowledge (risk factors, causes, diets, treatments, and medications), daily activities, mobilization, transfer and range of motion are also claimed as parts of the biological aspects (Ebert et al., 2017).

The psychological aspect of the packages includes acceptance and commitment therapy (ACT). A study found that ACT was more likely to reduce depression (Majumdar & Morris, 2018). Acceptance and commitment intervention leads the individual to a psychological flexibility. The ACT has become the protocol for chronic illness (Karekla, Karademas, & Gloster, 2018). The flexibility leads the individuals to the adaptive process. ACT should be trained, so that the patients feel safe and comfort, and blend with present moments (stroke). ACT helps the patient in organizing the negative emotions, achieving the coping adaptive, and considering the stressor as the positive things. The actions in ACT guide the personal to step forward in thoughts. Regarding the natural emotion in responding illness, individuals cannot avoid the negative thoughts. Individuals practice in organizing the negative thoughts with stopping spontaneous reactions such as crying, feeling sad and hopeless (Khashouei, Ghorbani, & Tabatabaei, 2016). ACT is effective in a wide range of population, such as breast cancer, (Mahdavi et al., 2017), DM type-II (Gregg, Callaghan, Hayes, & Glenn-Lawson, 2007; Lindholm-Olinder et al., 2015), and multiple sclerosis (Bach, Hayes, & Gallop, 2012).

The social aspect of "SELF-HELP Packages" endorses the patients' motivation to involve in the social activities and the families' motivation to be an informational, emotional, and instrumental support. Social supports facilitate stroke survivors to adapt with post stroke activity daily living (Dharma et al., 2018). A qualitative study stated that family caregivers are playing an important role in caring for their relatives who have suffered from strokes (Agianto, 2018). A meta-analysis concluded that social supports in chronic illness reduce depression (Vallury, Jones, & Gray, 2015).

The spiritual aspect of the packages leads the stroke survivors to have spiritual values which are gained by accepting the illness condition and by religious activities, such as prayer and praying. Spiritual wellness gained the benefits to support stroke rehabilitation (Mundle, 2015; The Joanna Briggs Institute, 2010). Another study supports that spirituality affects the quality of life (Moon & Kim, 2013) and reduces depression among acute coronary and heart disease patients (Abdi, Soufinia, Borji, & Tarjoman, 2019; Warber et al., 2011). Spiritual values indicate that the patients are having hope in illness (Warber et al., 2011). Furthermore, spirituality decreases the mortality risk of 18 % in chronic illness (Lucchetti, Lucchetti, & Koenig, 2011).

The "SELF-HELP Packages" in this study was delivered by health education, discussions and activities. Health education facilitated stroke survivors to meet with the new information about stroke that they need. Stroke survivors need an access to the health information, which can help them respond more quickly to health problems; comprehend their disease and treatment interventions; obtain good recovery; and reduce the chance of a new stroke (Du, Ma, & Li, 2016). Discussion and activities help the stroke survivors adapt the new daily living (Dharma et al., 2018). Health education also contributes to the functional status of stroke (Ning & Te, 2013), self-satisfaction, participation in treatment and rehabilitation, as well as emotional function (Lin, Yih, Shih, & Chu, 2019; Sabariego et al., 2013).

The "SELF-HELP Package" is a nursing intervention derived from "Roy Adaptation Model" nursing theory. Post stroke depression is the negative result of adaptation in dealing with stimuli (Handayani & Pudjonarko 2015; Hubbard & Workman, 1998; Philip & Harris, 2014). The result of this study would improve the nursing intervention protocols toward PSD among stroke survivors after three months from onset, both in the hospital and the community.

However, after the confounding factors were controlled, the result found that the "SELF-HELP Packages" had no significant effect on PSD. The confounding factors included social support, functional status, cognitive function and BDNF. It was assumed that the intervention should be conducted in a long period to achieve an impactful result. This assumption is supported by Byrne et al. (2020) and Medical Research Council (2014). Mayo & Scott (2011) also points out that it may not be a good idea to evaluate a complex intervention though a single outcome. Stroke patients' needs have wide spread and person-varying effects which may not be best represented by the changes on a single outcome variable. Future studies require a longer period of time for the intervention and to investigate more than one outcomes.

The result of the study claimed that functional status was the most affecting factors on PSD. This result is in line with the other studies which state that functional status significantly affect the PSD (Lincoln et al., 2013; Ojagbemi & Owolabi 2013; Stein et al., 2015; Zhang et al., 2012). A meta-analysis shows that the functional status is the risk factor of PSD after three and six months from onset (Shi, Yang, Zeng, & Wu, 2017). Any variations in the functional status need to be controlled in gaining the clear effect of the intervention on PSD. Functional status should be homogenous at the same level.

This study has several limitations. First, there was no randomization in sample. There was only one group intervention and one group control. Thus, the effect of intervention could not be compared with other interventions. Second, there was no follow-up to evaluate the long-term effects. Nevertheless, this study showed a good estimate in the effect of "SELF-HELP Packages", a complex intervention, on PSD in ischemic stroke survivors after three months from onset.

CONCLUSION

The study concluded that "SELF-HELP Packages" significantly decreased PSD. Therefore, it is recommended for nurses to apply the "SELF-HELP Packages" in delivering nursing intervention. Future research is recommended to involve a larger size of sample with randomized controlled trial design in order to be able to generalize the results. The homogeneity should be achieved in the variable of functional status, as this is the strongest affecting factor of PSD. A longer period of time for the intervention is also recommended in order to obtain a more robust result.

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CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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Identifying Community/Public Health Nursing Competencies in Indonesia: A Modified Delphi Method

Destia Widyarani[1,4], Tantut Susanto[2], Dwi Wahyuni[3], Huong Thi Thu Pham[5]

[1]Student of Master of Public Health Science, Universitas Jember, Jember, Indonesia
[2]Department of Community, Family and Geriatric Nursing, Faculty of Nursing Universitas Jember, Jember, Indonesia
[3]Department of Biology, Faculty of Teaching and Education Science, Universitas Jember, Indonesia
[4]Lecturer of Nursing Academy, Universitas Bondowoso, Bondowoso, Indonesia
[5]Adult Nursing Department, Nursing Faculty, Haiphong University of Medicine and Pharmacy, Haipong, Viet Nam
Corresponding Author: Tantut Susanto (tantut_s.psik@unej.ac.id)

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ABSTRACT

Background: Nurses in public health centers, or known as public health nurses (PHNs), have duties in implementing promotive, preventive, curative, and rehabilitative efforts. In Indonesia, there is no basic reference to the competencies that should be performed by PHNs. The provision of health services in the community should cover two areas, namely inside and outside the building (Minister of Health’s Regulation No. 279 Year 2006); it causes nurses in the community to further hone their skills while in the field.
Purpose: This study aimed to identify the competencies of the Indonesian PHNs from experts using the C/PHN competencies of the Quad Council Coalition through a Delphi method.
Methods: This study was quantitative research with a Delphi method. We employed a purposive sampling technique to recruit the experts of public health nurses. The experts did a Delphi method to identify, analyze, and modify the C/PHN Competencies of the Quad Council Coalition into the Indonesian version of C/PHN Competencies with local cultures.
Results: Results showed that from eight domains of the Quad Council Coalition C/PHN competencies, there were changes for priority of the PHN competencies in Indonesia. All priorities were classified into eight groups, namely: (1) Leadership Skills and Thinking Systems; (2) Community Dimensions of Practice; (3) Assessment Analytic; (4) Policy Development and Program Planning; (5) Communication Skills; (6) Financial Planning and Management and Planning; (7) Public Health Sciences Skills; and (8) Cultural Competency.
Conclusion: The Quad Council Coalition of C/PHN competencies are appropriate with the Indonesian PHN competencies, although the priority is changed related to local wisdom as stated in the Minister of Health’s Regulation No. 279 Year 2006. Therefore, the Indonesian P/HN competencies should be developed to support the Indonesian health people through family approach.

Keywords: Community nurse; C/PHN; Delphi method; nurse competencies; public health

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BACKGROUND

Public health nurses (PHNs) are nurses who work with two main types of services, namely inside and outside the building (Swider, Krothe, Reyes, & Cravetz, 2013). The data and information centre of the Indonesian Ministry of Health in 2017 showed that the number of PHNs was less than that of nurses working in hospitals, with a percentage of 29.46% (Ministry of Health Republic of Indonesia, 2018). This number is not equal with the amount of nurses' work in the community. Competencies are one aspect that should be owned by nurses faithfully in the community. With a small number of PHNs but a lot of work to do, it is likely that there are potential problems in achieving the programs in the community, one of which is *Perkesmas* (public health nursing [PHN] services). A study showed that the achievement of a public health program that was still not optimal was due to the inadequacy of the scope of the program with the completion of the social security program, which was strongly influenced by nurses' competencies in the community (Susanto, Bachtiar, & Turwantoko, 2019).

The Ministry of Health of Republic Indonesia made a regulation on PHNs' duties for PHN services to achieve healthy programs in public health centres (Ministry of Health Republic of Indonesia, 2006). Previous studies indicated a relationship between PHNs' knowledge and attitudes and the performance of the PHN services (Septiyani, 2012) that resulted in low coverage of the implementation of PHN services (Susanto et al., 2019). Furthermore, PHN in Indonesia has only focused on indicators of program achievements without looking at the extent to which the process of PHN activities in the field is related to the role of PHNs based on the indicators of inputs, processes, and outputs of PHN activities (Susanto et al., 2019). This situation needs a solution for developing of PHNs' competencies for PHN services to achieve healthy programs in public health centres (Ministry of Health Republic of Indonesia, 2006).

The absence of a national reference competencies of PHNs and the lack of strict rules related to the development of PHN careers is a problem that should be solved. C/PHN Competencies of the Quad Council Coalition mentions the competencies needed by PHNs to analyse health problems in the community to conduct an evaluation. Expected competencies include skills in analysing public health assessments, planning public health programs, communication, understanding community culture, working with communities and stakeholders, as well as skills in using public health sciences, financial management, leadership, and systematic thinking (Quad Council Coalition of Public Health Nursing Organization, 2018).

PURPOSE

This study aimed to identify the competencies of the Indonesian PHNs based on the C/PHN competencies of the Quad Council Coalition through a Delphi method.

METHODS

Design and samples

This research was a quantitative study with a Delphi method. We employed a purposive sampling technique to recruit the PHN experts. In this study, the experts did a Delphi method to identify, analyze, and modify the C/PHN Competencies of Quad Council Coalition into the Indonesian version of C/PHN Competencies with local cultures. The experts were people with expertise of public health nursing and hold a master degree in nursing. The experts were also active in *Tridharma Perguruan Tinggi* (threefold missions of higher education) consisting of (1) education in nursing, (2) research which is to carry out new discoveries in nursing science, and (3) community service which is to carry out the service to the community in maintaining the process of improving the welfare and health. Eight experts from three universities in two districts (Bondowoso and Jember) were involved in this study. In these universities, there are nursing study programs that actively carry out programs of public health nursing.

Research instrument and data collection

The C/PHN of the Quad Council Coalition is a measuring tool that was analyzed by each expert. This measurement tool is used to measure the level of competence of public health nursing and was developed by the Quad Council Coalition. There are 8 domains and 44 items which cover the competencies of public health nursing. Until now, Indonesia does not yet have a measurement tool used to measure the level of competence of public health nursing. The only reference used to guide public health nursing in public health centers in Indonesia is the Minister of Health’s Regulation No. 279 Year 2006 about *Perkesmas*. However, this regulation does not explain in details about the competencies that public health nurses should have; it only describes two parts of the PHNs’ activities: inside and outside the building.

Data analysis

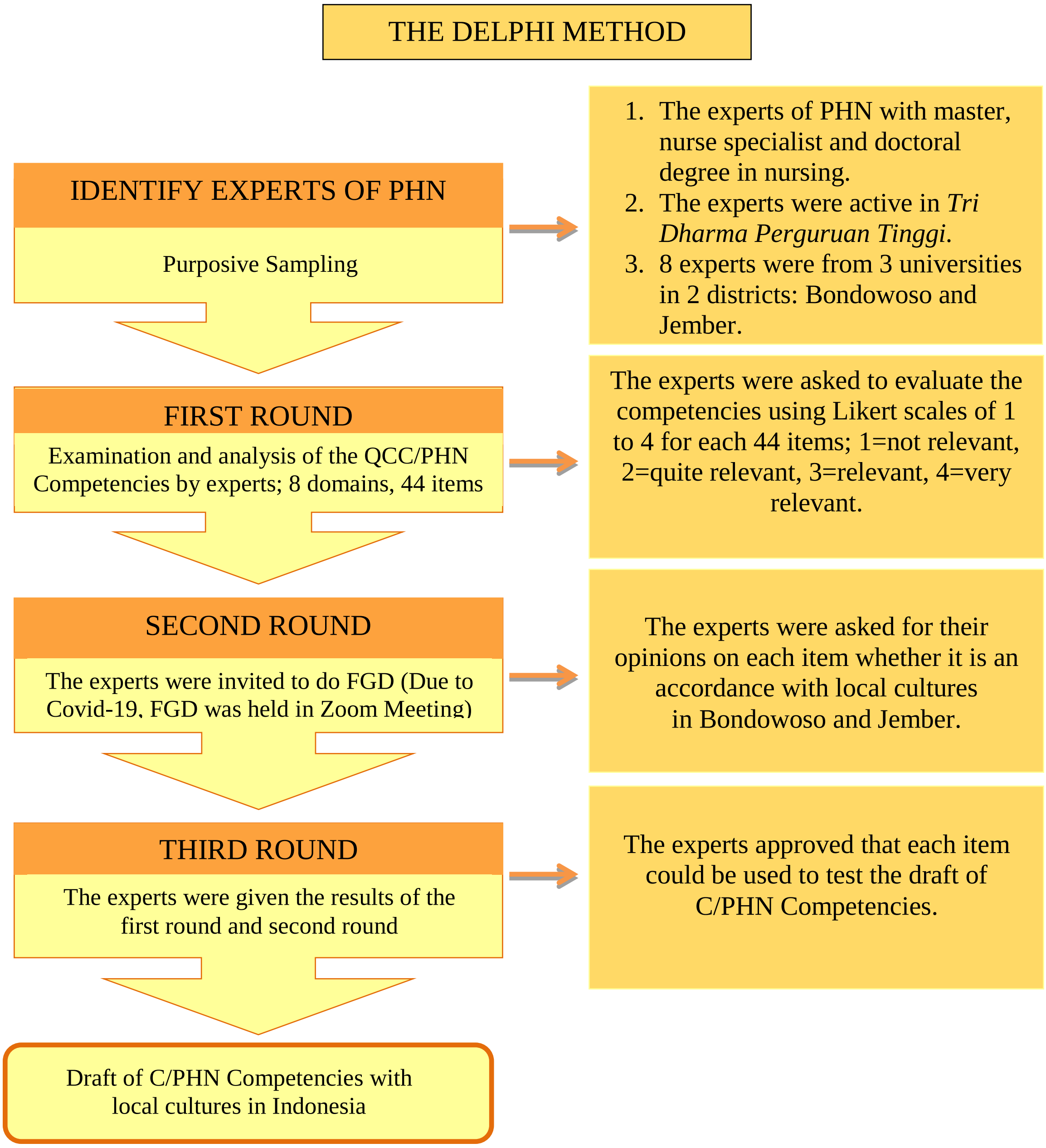
The research consisted of three rounds (Figure 1). In the first round, each expert was given the C/PHN Competencies of the Quad Council Coalition and the Minister of Health’s Regulation No. 279 Year 2006 about *Perkesmas* to be examined and analyzed. The experts were requested to evaluate the competencies using Likert scales of 1 to 4 for each competency item in the C/PHN Competencies: 1=not relevant, 2=quite relevant, 3=relevant, and 4=very relevant.

In the second round, the experts were invited to gather to do FGDs (focus group discussion) in one place. In this round, the experts were asked their respective opinions for each competency item in the C/PHN Competencies. The experts were asked for their opinions on each item whether it is in accordance with local cultures in Bondowoso and Jember. Then each expert made a rating for each item as in the first round.

In the third round, all experts were given the results of the study in the first round and the second round. They were also confirmed for approval for each item whether it could be used to test the draft of public health nursing competencies. In this final stage, the experts were requested to sign the agreement for the approved competencies.

Ethical consideration

The ethical approval of this study was obtained from the Research Ethics Committee of the Faculty of Dentistry, Universitas Jember. All participants were informed of the study's purposes and procedures and signed informed consent for their participation.



THE DELPHI METHOD

IDENTIFY EXPERTS OF PHN

Purposive Sampling

1. The experts of PHN with master, nurse specialist and doctoral degree in nursing.
2. The experts were active in *Tri Dharma Perguruan Tinggi.*
3. 8 experts were from 3 universities in 2 districts: Bondowoso and Jember.

FIRST ROUND

Examination and analysis of the QCC/PHN Competencies by experts; 8 domains, 44 items

The experts were asked to evaluate the competencies using Likert scales of 1 to 4 for each 44 items; 1=not relevant, 2=quite relevant, 3=relevant, 4=very relevant.

SECOND ROUND

The experts were invited to do FGD (Due to Covid-19, FGD was held in Zoom Meeting)

The experts were asked for their opinions on each item whether it is an accordance with local cultures in Bondowoso and Jember.

THIRD ROUND

The experts were given the results of the first round and second round

The experts approved that each item could be used to test the draft of C/PHN Competencies.

Draft of C/PHN Competencies with local cultures in Indonesia

Figure 1. Diagram of the Delphi method

RESULTS

Eight experts of public health nursing selected based on the inclusion criteria of the study participated in the study. These participants came from three universities in the area of Bondowoso and Jember, Indonesia. The characteristics of eight experts of PHN are presented in Table 1.

Table 1. Characteristic of experts of PHN in this study (n=8)

Characteristics	*f*	%
Age		
20s	1	12.50
30s	3	37.50
40s	4	50.00
Gender		
Male	2	25.00
Female	6	75.00
Education		
Master degree	5	62.50
Nurse specialist	2	25.00
Doctoral degree	1	12.50
Experience of training		
Yes	4	50.00
No	4	50.00

Table 1 shows that most community nursing experts in this study were aged in the span of the 40s (50%) and females (75%). Most experts hold master degree education (62.5%). A half of the experts (50%) already attended *Perkesmas* training. Although not all experts had participated in *Perkesmas* training, they are experts in the field of the public health nursing, education, profession, and research.

In round I, the experts as participants were asked to analyze and examine the 44 items in QCC which are divided into eight domains by using Likert scales and compared it with the existing legislation (the Minister of Health's Regulation No. 279 Year 2006 about *Perkesmas*). Then, the result was analyzed based on the mean value of each item.

In round II, eight nursing experts gathered in a place to give the assessment results that had been done before. In this discussion, group forum of experts was requested to assess the items and determine whether words or sentences in the items should be changed according to local wisdom. Once the data were collected, each expert determined to carry out a validity test for each item (Waltz, Strickland & Lenz, 2010). The validity and the reliability test of this instrument was conducted on eight public health nursing experts in February 2020. Table 2 shows the results of round I and II of the study.

Table 2. Competency items by highest rating

Domain	Rank	C/PHN	Delphi Results	Mean ± SD
I. Analytic Skills	1st	1A8	Implement ethical, legal, and policy guidelines, and principles for maintaining, using, and disseminating data and information	3.75 ± 0.46
	2nd	1A5	To interpret valid and appropriate data	3.63 ± 0.52
	3rd	1A11	Using practice results from various fields of science	3.13 ± 0.35
	4th	1A7	Contributing to public health assessments using subjective and objective data	2.88 ± 1.13

Table 2. (Continued)

Domain	Rank	C/PHN	Delphi Results	Mean ± SD
I. Analytic Skills	5th	1A1	Assess health status using multiple data sources	2.75 ± 1.04
	6th	1A2a	Using ecological and epidemiological perspectives	2.75 ± 1.04
II. Policy Development and Program Planning Skills	1st	2A7	Organizational plan development	3.88 ± 0.35
	2nd	2A9	Using program planning skills and CBPR (Community Based Participatory Research (i.e., collaboration, reflection, capacity building)) to implement strategies to engage marginalized/ disadvantaged population groups in making decision that affect their health and well-being	3.13 ± 0.35
	3rd	2A2	Explaining the implications of the potential impact of public health policy programs	3.00 ± 0.93
	4th	2A5	Using decision-making methods	3.00 ± 0.93
	5th	2A6b	Planning a consistent public health care service	3.00 ± 0.93
	6th	2A8	Adherent to organizational procedures and policies	2.75 ± 1.04
III. Communication Skills	1st	3A6	Using communication model in communication	3.75 ± 0.46
	2nd	3A4	Using various methods in spreading general health information	3.00 ± 0.93
	3rd	3A2b	Use input from individuals, families and groups	2.88 ± 1.13
	4th	3A5a &b	Presenting health information	2.88 ± 1.13
	5th	3A2a	Applying critical thinking and cultural conscious	2.75 ± 1.04
	6th	3A1	Determining health, awareness, and health-conscious	2.63 ± 0.92
IV. Competency Skills	1st	4A5	Using cultural models based on research results in a working environment	3.00 ± 0.93
	2nd	4A3	To provide a responsive public health care service using cultural aspects	2.88 ± 1.13
	3rd	4A1	Determining effective health in cooperation	2.63 ± 0.92
V. Community Dimensions of Practice Skills	1st	5A3a	Choosing the stakeholders needed to address public health issues	3.75 ± 0.46
	2nd	5A6	Use input from multiple sources	3.75 ± 0.46
	3rd	5A5	Using Community assets and resources	3.13 ± 0.35
	4th	5A8	Identifying evidence of the effectiveness of community engagement strategies	3.00 ± 0.93
	5th	5A2	Developing formal and informal networks	2.88 ± 1.13

Table 2. (Continued)

Domain	Rank	C/PHN	Delphi Results	Mean ± SD
VI. Public Health Sciences Skills	1st	6A5	Using various sources and methods to access public health information	3.88 ± 0.35
	2nd	6A1	Using health determinants and research-based practices	2.75 ± 1.04
	3rd	6A6a	Utilizing research results to inform public health nursing practices	2.75 ± 1.04
	4th	6A7	Complying with all aspects of client confidentiality and protection	2.75 ± 1.04
	5th	6A2b	Assess hazards and reduce risk of exposure and injuries in natural and artificial environments	2.63 ± 1.06
	6th	6A3	Using research-based practices in the program (12 indicators of PIS PK)	2.63 ± 0.92
VII. Financial Planning and Management and Planning Skills	1st	7A6	Explain the priority implications of organizational financing	3.13 ± 0.35
	2nd	7A7	Explaining public health care services and programmatic needs to inform budget priorities	3.13 ± 0.35
	3rd	7A11	Using information systems and public health communication	3.13 ± 0.35
	4th	7A2	Explaining the role of public health nurses in emergency preparedness and disaster response	2.88 ± 1.13
	5th	7A5	To interpret the impact of financing limitations in service delivery	2.63 ± 0.92
	6th	7A8a	Identifying data to evaluate services	2.63 ± 0.92
VIII. Leadership Skills and Thinking Systems	1st	8A2	Implementing a thinking system	3.88 ± 0.35
	2nd	8A6	Committed to lifelong learning, professional development, and advocacy	3.88 ± 0.35
	3rd	8A8	Facilitating the development of working groups	3.75 ± 0.46
	4th	8A1	Demonstrate the ethical standards of practice in all aspects	3.00 ± 0.93
	5th	8A3	Participating in stakeholder meetings	2.75 ± 1.04
	6th	8A4a	Identifying internal and external factors	2.63 ± 0.92

In round III, the experts approved the feasibility of instrument with 44 items by signing a letter. Additionally, the researchers also get the results of domain rankings from Delphi results by experts and presented these results in Table 3.

As shown in Table 3, the highest rated domain is Domain VIII: Leadership Skills and Thinking Systems, while the lowest one is Domain IV: Cultural Competency Skills.

Table 3. Domains by highest rating

Rank	Domains	Mean ± SD
1st	VIII. Leadership Skills and Thinking Systems	3.32 ± 0.59
2nd	V. Community Dimensions of Practice Skills	3.30 ± 0.42
3rd	I. Assessment Analytic Skills	3.15 ± 0.44
4th	II. Policy Development and Program Planning Skills	3.13 ± 0.39
5th	III. Communication Skills	2.98 ± 0.40
6th	VII. Financial Planning and Management and Planning Skills	2.92 ± 0.25
7th	VI. Public Health Sciences Skills	2.90 ± 0.48
8th	IV. Cultural Competency Skills	2.84 ± 0.19

DISCUSSION

In this study, we identified the competencies of Indonesian of PHN from experts using the C/PHN Competencies of the Quad Council Coalition through a Delphi method. From eight domains of the Quad Council Coalition C/PHN Competencies, there were changes for priority of PHN competencies in Indonesia. All priorities were classified into eight groups, namely: (1) Leadership Skills and Thinking Systems; (2) Community Dimensions of Practice Skills; (3) Assessment Analytic Skills (4) Policy Development and Program Planning Skills; (5) Communication Skills; (6) Financial Planning and Management and Planning Skills; (7) Public Health Sciences Skills; and (8) Cultural Competency Skills.

In this study, Domain VIII (Leadership Skills and Thinking Systems) in C/PHN Competencies of the Quad Council Coalition became the top rank after the Delphi and was followed by Domain V (Community Dimensions of Practice Skills). This is influenced by the implications in Indonesia. In fact, there is no basic reference to the competencies of public health nurses, it is distinguished by location of activities that are in the building and outside the building (Minister of Health's Regulation No. 279 Year 2006). It causes the nurses in the community to further hone their skills while in the field (Ministry of Health Republic Indonesia, 2006). According to the authors' observations, Domain VIII became first domain in the Indonesian version of C/PHN Competencies, according to experts, because the critical thinking ability of a nurse in primary health care is very important. Public health nurses are required to have good leadership skills because they are responsible for the success of the promotive and prevention program of a health problem in an area. In addition to being responsible for leading the community in efforts to improve health status, public health nurses must also have the ability to develop good interactions with cross-sectors. Therefore, this is related to the domain that is ranked second in the Indonesian version of C/PHN Competencies, i.e., Community Dimensions of Practice Skills. In Domain V, public health nurses have the ability to manage good relations between stakeholders, business owners, community leaders, religious leaders, and the community themselves in handling all health problems in an area.

Being third rank in the study was Domain I (Assessment Analytic Skills) of the C/PHN Competencies of the Quad Council Coalition, followed by the fourth rank was Domain II (Policy Development and Program Planning Skills). In Indonesia, there are no rules governing the competency of nurses in the community (Reckinger, Cross, Block, Josten, & Savik, 2013). The rules in Indonesia used by nurses in the community as a reference work contain only job description and targets for the achievement of the program (Ministry of Law and Human Rights Republic Indonesia, 2014). The rule of law used is Minister of Health's Regulation No. 279 Year 2006 (Ministry of Health Republic Indonesia, 2006) and the Minister of Health's Decree No. 908 Year 2010 (Ministry of Health Republic Indonesia, 2010). The third rank in the Indonesian version of C/PHN competencies according to experts was Domain I (Assessment Analytic Skills). Public health nursing experts agree that public health nurses must have good analytical skills. Community nurses must be able to analyse health problems obtained from a variety of data sources, including ecological perspectives, epidemiological data, and health risk findings from cross sectors in both qualitative and quantitative data. The experts agreed that Domain II (Policy Development and Program Planning Skills) was ranked fourth in the Indonesian version of the C/PHN Competencies domain because public health nurses have a very important role in introducing government programs in the health sector, even from the planning stage to ensuring compliance with policy, ethical code, and law.

The fifth place in this study was Domain III (Communication Skills) and as the sixth rank was Domain VII (Financial Planning and Management Skills and Planning). There are no laws or regulations governing the competency of nurses in the field of communication and finance that are destined for nursing personnel in primary service order. Some experts argue that good communication skills and financial management skills are both programs acquired by the community nurse in the work. It can be concluded that this ability can be improved from work experience; the longer the community nurse experience works, the better the ability of communication and financial management in the community will be. Different from the management and planning skills, although specifically nurses have a branch of nursing management (Cross et al., 2006; Hewitt, Roye, & Gebbie, 2014; Polivka & Chaudry, 2015), but the theory is more appropriate to use by nurses in clinical settings, not in the community. In the public order, in relation to primary service, nurse should carry out the rules and policies that are contained in the Minister of Health's Regulation No. 279 Year 2006 about *Perkesmas* (Ministry of Health Republic Indonesia, 2006) and the Minister of Health's Decree 908 Year 2010 about family care (Ministry of Health Republic Indonesia, 2010).

Domain VI (Public Health Sciences Skills) in the C/PHN Competencies of the Quad Council Coalition was ranked seventh in this study. The last rank was Domain IV (Competency Skills with Cultural Aspects). Some experts in the study agreed that the competencies that the nurses have in the community are heavily influenced by the nurses' work experiences. Longer working experience will make nurses increase their expertise in doing their job in the field. In addition, regional cultures also greatly affect the working style as well as the results of working nurses in the community (American Public Health Association, 2013). Clearly, there is no rule to set points on culture in the implementation of the program by the nurses in the community (Ministry of Law and Human Rights Republic Indonesia, 2014).

The implication of this study is the development of the Indonesian version of the PHN competencies. There are no rules governing nurses’ competencies in the community. The rules used by community nurses as a reference work contain only job description and targets for the achievement of the program (Kalb et al., 2006; Carter, Kaiser, O'Hare, & Callister, 2006). The nurses in the community are to further hone their skills while in the field. There are no laws or regulations governing the nurses’ competencies in the field of communication and finance that are destined for nursing personnel in primary service order. Community nurses’ ability can develop from work experiences. The longer the experience, the better the ability of communication and financial management in the community will be. The nurses’ competencies in the community are significantly influenced by the nurses’ work experiences.

CONCLUSION

The Quad Council Coalition of C/PHN Competencies are appropriate with Indonesian P/HN competencies, although the priority is changed that is related of local wisdom of *Perkesmas* as stated in Minister of Health’s Regulation No. 279 Year 2006. Therefore, the Indonesian P/HN competencies should be developed to support the Indonesian Health People through family approach.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Preparedness among Family Caregivers of Patients with Non-Communicable Diseases in Indonesia

Ike Wuri Winahyu Sari[1], Novita Nirmalasari[1]

[1]*Faculty of Health, Universitas Jenderal Achmad Yani Yogyakarta, Indonesia*
Corresponding Author: Ike Wuri Winahyu Sari (ike.wuri@yahoo.com)

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ABSTRACT

Background: Family caregivers spend 24 hours a day looking after and assisting patients. However, they are not always adequately prepared for all the problems they face. There is a lack of evidence exploring caregivers' preparedness among family caregivers of patients with non-communicable diseases in Indonesia.
Purpose: This study aimed to identify caregivers' preparedness among family caregivers of patients with non-communicable diseases.
Methods: This cross-sectional study was conducted on 120 Indonesian family caregivers for patients with non-communicable diseases, who were selected using a purposive sampling technique. Data were collected using the Indonesian version of the Preparedness for Caregiving Scale (PCS) which had been validated before its use. The possible scores of this tool ranged from 0.00 to 4.00. The higher the score, the more prepared the family caregivers were. Data were analyzed using one way ANOVA.
Results: Family caregivers reported the feeling of moderately prepared for caregiving. The score of family caregivers' preparedness for patients with diabetes, cancer, and chronic kidney disease were 2.97±0.42, 2.83±0.40, and 2.89±0.49, respectively with a possible range from 0.00 to 4.00. There were no differences in the preparedness among family caregivers of patients with non-communicable diseases (p=0.387).
Conclusion: Caregivers' preparedness is an essential element of patient care. Nurses have to be proactive in assessing each family caregiver's preparedness to enhance the quality of life of both the family caregivers and the patients themselves so that they can be empowered as a source of nursing care.

Keywords: Caregiver preparedness; Indonesia; non-communicable disease; PCS

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BACKGROUND

Chronic non-communicable diseases (NCDs) such as cancer, chronic kidney disease (CKD), and diabetes pose a significant ongoing public health problem. They are responsible for 75% of global mortality (Wang et al., 2016). Cancer and CKD have escalated by 0.4% and 1.8% respectively from 2013 to 2018 (Ministry of Health of

Republic Indonesia, 2018). Also, diabetes is now globally in the top six of NCDs (International Diabetes Federation, 2017). The risk factors of the diseases need to be controlled to address patients' needs through self-management and family caregiver support with the supervision of the health care providers.

Cancer, diabetes, and CKD patients have both physical and emotional problems. Cancer patients have three main physical symptoms, namely, pain, fatigue, and difficulty sleeping. Furthermore, emotional problems that include depression, fear of the disease, and difficulty solving problems, seeking support, and avoiding problems are all associated with the disease (Effendy, Vissers, Tejawinata, Vernooij-Dassen, & Engels, 2014; Werdani & Silab, 2020). For diabetes patients, they have symptoms such as polyphagia, weight loss, fatigue, neuropathic complications, and prolonged infections (International Diabetes Federation, 2017). Patients with CKD also have related issues such as fatigue, nausea, vomiting, anemia, headaches, sleep changes, and psychological problems such as depression, anxiety, and social distress (El-Majzoub et al., 2019).

The family caregiver is an individual who looks after patients as an extension of the health care provider, and who provides care related to the functional status of family members suffering from an illness (Given, Given, & Sherwood, 2012). They can be the spouse, parents, daughters or sons, or other relatives (Effendy et al., 2014). The studies conducted in East Java (Werdani & Silab, 2020), and Yogyakarta and Central Java (Sari, Warsini, & Effendy, 2018), Indonesia, showed that the patients have their nuclear family as their support system. Taking care of NCD patients has been transformed from curing the disease to offering comfort and a better quality of life. This situation is a challenge for family caregivers who take responsibility for caring for patients who suffer from NCDs (Rha, Park, Song, Lee, & Lee, 2015; Wolff & Jacobs, 2015). The challenge is that family caregivers spend 24 hours a day helping and assisting patients with their physical and psychological conditions, as well as financial and autonomous problems (Effendy et al., 2014; Machado, Dahdah, & Kebbe, 2018). The study conducted by Sari et al. (2018) on 178 family caregivers of advanced cancer patients in Yogyakarta and Central Java showed that the burden was higher for family caregivers who spent more time each day looking after their sick family members.

The complicated problems among family caregivers are usually not balanced with their preparedness (Maheshwari & Mahal, 2016). Their preparedness includes how ready the family caregivers see themselves for the tasks and roles demanded from them when looking after family members who suffer from illness, including the provision of physical care and emotional support, preparing support services at home, and compensating for the burden of responsibility (Gonzales, Polansky, Lippa, Gitlin, & Zauszniewski, 2014; Petruzzo et al., 2017). It is also about dealing with the stress of the care process (Gonzales et al., 2014). Less-prepared caregivers feel anxious about the caring process, feel burdened, stressed, and have mood swings (Carter, Lyons, Stewart, Archbold, Scobee, 2010; Grant et al., 2013; Schumacher, Stewart, & Archbold, 2007). Furthermore, they have poorer health than caregivers who are better prepared (Ahn, Hochhalter, Moudouni, Smith, & Ory, 2012). In contrast, well-prepared caregivers with appropriate skills and knowledge feel happy about the care they provide; they have better hope (Henriksson, Andershed, Benzein, & Arestedt, 2012) and well-being, both physically and emotionally (Shyu et al., 2010).

It is essential to investigate the caregivers' preparedness as the preparedness has been shown to predict caregiving rewards and improve family caregivers' mental health as well as patients' quality of life. The preparedness of family caregivers has been confirmed in the previous studies from New York (Otto et al., 2020), Ohio (Mazanec, Reichlin, Gittleman, & Daly, 2018), China (Liu et al., 2020), India (Maheswari & Mahal, 2016), and Italy (Petruzzo et al., 2018, Vellone et al., 2020). However, they only focused on preparedness for a specific disease such as stroke, congestive heart failure, and cancer. The family caregivers for each disease play a different role in caregiving situations because they have different complex problems and needs. To the authors' knowledge, there was no study comparing the preparedness among family caregivers of cancer, CKD, and diabetes in Indonesia, especially in Yogyakarta. For these reasons, there is a need for more attention to caregivers' preparedness for patients with cancer, CKD, and diabetes that has not yet been compared in the previous studies.

PURPOSE

This study aimed to identify and assess the differences in the caregivers' preparedness among family caregivers for cancer, diabetes, and CKD patients.

METHODS

Research design and samples

This study was a descriptive-analytic study using a cross-sectional approach. Data were collected from June to July 2020 from 120 family caregivers of NCD patients selected using a purposive sampling technique. There were 40 family caregivers of cancer patients in the Oncological Clinic of one general hospital in Bantul, Yogyakarta; 40 family caregivers of CKD patients in hemodialysis units of a general hospital in Bantul, Yogyakarta; and 40 family caregivers of diabetes patients in Candibinangun village, which were in the area of a public health centre in Sleman, Yogyakarta. The eligibility criteria of the family caregivers were: (1) a family member that was looking after a patient with NCD and confirmed as the primary caregiver by the patient (they could be the spouse, parent, adult child, or relative); (2) being a family caregiver for at least two months; (3) living with the patient or delivering care for at least three hours per day; (4) adults (18 years or older); and (5) willing to consent to participate in the study.

Instruments

This study used two questionnaires. The first one was for the demographics of the respondents, and another one was the Preparedness for Caregiving Scale (PCS). The demographic questionnaire included the respondents' age, religion, gender, marital status, education level, monthly income, relationship with the patient, functional status, length of care, the current treatment for the patients, and health education experience about the patients' illnesses. The original version of the PCS (Archbold, Stewart, Greenlick, & Harvath, 1990), was translated into Indonesian, and re-named the Indonesian version of PCS (I-PCS). The permission had already been granted from the developers, Archbold et al. (1990), to translate the original version into the Indonesian language by providing a proper citation. All the items in the I-PCS were confirmed to be valid and reliable, with

Pearson-*r* values higher than 0.320, and the Cronbach's alpha coefficient value was 0.933. I-PCS consisted of eight questions with five answer choices using a Likert scale ranging from 0 (not at all prepared) to 4 (very well prepared) and one open question about the specific preparedness desirable in the caregiving process. The possible score ranged from 0.00 to 4.00. The higher the score, the more prepared the family caregivers were.

Data collection

The family caregivers for cancer and CKD who met eligibility criteria were identified through the ward manager based on the medical record. Meanwhile, the family caregivers for diabetes were identified through data from the public health centre by cadres in that area. They were fully informed about the study's aim and signed the informed consent after they were identified as potential respondents. Then, the family caregivers completed the instruments, including the socio-demographic and caregiver preparedness questionnaires. The completed forms were corrected and clarified again to the respondents before they were processed and analyzed. Four research assistants administered the data collection.

Data analysis

The Statistical Package for Social Sciences (SPSS) version 21 software package (IBM SPSS, Chicago, IL, USA) was used for data entry and analysis. Descriptive statistics were used to summarize the demographic characteristics and caregivers' preparedness. The Shapiro Wilk normality test was used to describe the normality of the numerical data. The result showed that caregivers' preparedness in each group had a normal distribution ($p>0.05$), so a one-way ANOVA test was used to assess the differences on caregivers' preparedness for cancer, diabetes, and CKD patients. A p-value of <0.05 was considered to be significant.

Ethical issues

The Health Research Ethics Committee, Faculty of Health, Universitas Jenderal Achmad Yani Yogyakarta, approved all the materials and protocols used in this study (Number: SKep/05/KEPK/II/2020). Family caregivers were fully informed about the aims of the study. They signed an informed consent form and were informed that they could withdraw from the study at any time. They were also assured that all collected data would be kept confidential.

RESULTS

Demographic characteristics of the respondents

The respondents' characteristics are shown in Table 1. There were 40 consenting family caregivers for each disease included in the final analysis. The mean age of the family caregivers for diabetes, cancer, and CKD patients was 48.26±15.13, 39.54±12.30, and 47.95±12.17 years old, respectively. The majority of family caregivers were female for diabetes and male for cancer and CKD, Moslem, and married. Most family caregivers for diabetes and CKD were spouses, and for cancer, they were parents. Most of them had a senior high school education, and a low-income level. Only 85.0% and 80% had ever received health education about diabetes and CKD, respectively, while 82.5% had no health education for cancer. The majority of the treatment experienced by diabetes patients' caregivers was in seeking medical treatment (80.0%), while it was chemotherapy for cancer caregivers (40.0%), and hemodialysis for CKD caregivers (100%). They all had good health and had been taking care of the patients for approximately a minimum of two months up to two years.

Table 1. Demographic characteristics of family caregivers (n=120)

Characteristics	Diabetes (*n*=40)		Cancer (*n*=40)		CKD (*n*=40)	
	f	%	*f*	%	*f*	%
Age (years)						
Mean±SD	48.26±15.13		39.54±12.30		47.95±12.17	
Gender						
Female	27	67.5	18	45	14	35
Male	13	32.5	22	55	26	65
Religion						
Moslem	36	90	40	100	39	97.5
Catholic	4	10	-	-	1	2.5
Marital status						
Single	4	10	6	15	3	7.5
Widow/widower	1	2.5	-	-	-	-
Married	35	87.5	34	85	37	92.5
Relationship with patient						
Spouse	22	55	10	25	29	72.5
Parent	14	35	24	60	9	22.5
Child	2	5	-	-	1	2.5
Relatives (brother, grandmother)	2	5	6	15	1	2.5
Education level						
Illiterate	-	-	1	2.5	-	-
Elementary school	4	10	3	7.5	5	12.5
Junior high school	5	12.5	5	12.5	12	30
Senior high school	24	60	23	57.5	19	47.5
College	7	17.5	8	20	4	10
Family income[a]						
<Minimum income level	35	87.5	25	62.5	32	80
≥Minimum income level	5	12.5	15	37.5	8	20
Health education experience						
No	6	15	33	82.5	8	20
Yes	34	85	7	17.5	32	80
Health status						
Good	40	100	40	100	40	100
Have symptoms of a disease	-	-	-	-	-	-
Patient's treatment						
Chemotherapy	-	-	16	40	-	-
Surgery	-	-	-	-	-	-
Seek medical treatment	32	80	-	-	-	-
Hemodialysis	2	5	-	-	40	100
Oral medication combined with transfusion	-	-	4	10	-	-
Chemotherapy and surgery	-	-	13	32.5	-	-

Table 1. (Continued)

Characteristics	Diabetes (*n*=40)		Cancer (*n*=40)		CKD (*n*=40)	
	f	*%*	*f*	*%*	*f*	*%*
Chemotherapy, surgery, and radiotherapy	-	-	7	17.5	-	-
Others (diet, no current treatment)	6	15	-	-	-	-
Stage of cancer	N/A				N/A	
I			3	7.5		
II			4	10		
III			15	37.5		
IV			8	20		
Unknown			10	25		
Length of care (months)						
Median (Min-Max)	30 (4-240)		10 (2-180)		18 (3-108)	

[a]the minimum income level in Yogyakarta, Indonesia: 1,790,500 IDR; SD=Standard Deviation; Min=Minimum; Max=Maximum; N/A=No available data

The caregivers' preparedness

The preparedness of family caregivers for NCD patients is summarized in Table 2. The caregivers' preparedness among family caregivers of NCD patients was in the range from 2.83 to 2.97 (±0.40 to ±0.49). The lowest caregivers' preparedness was for cancer caregivers (2.83±0.40), and the highest preparedness was for the diabetes caregivers (2.97±0.42).

Table 2. The caregiver preparedness among family caregiver of NCD patients (n=120)

Caregiver preparedness	Possible range	Diabetes	Cancer	CKD
		Mean±SD	*Mean±SD*	*Mean±SD*
The I-PCS score	0.00-4.00	2.97±0.42	2.83±0.40	2.89±0.49

I-PCS=The Indonesian version of the Preparedness for Caregiving Scale; SD=Standard Deviation

The specific desirable preparedness in the caregiving process is shown in Figure 1. From this result, it can be concluded that financial preparedness is the principal preparedness that is desirable by the family caregivers (63.0%).

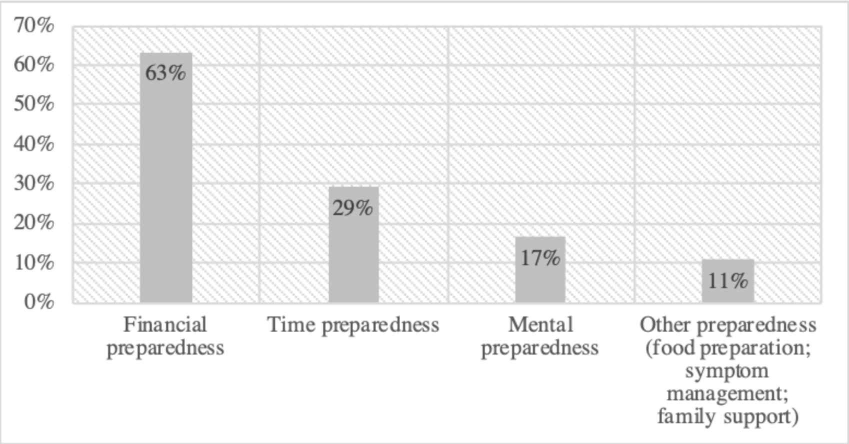

Figure 1. The desirable preparedness in caregiving process (*n*=120)

The comparison of caregivers' preparedness of NCD patients

The comparison of caregivers' preparedness among family caregivers for diabetes, cancer, and CKD is shown in Table 3. There were no differences on the caregivers' preparedness among family caregivers for diabetes, cancer, and CKD (*p*=0.387).

Table 3. The comparison of caregivers' preparedness among diabetes, cancer, and CKD patients (n=120)

Caregiver preparedness	NCD	*n*	*Mean±SD*	*p*
The I-PCS score	Diabetes	40	2.97±0.42	0.387[a]
	Cancer	40	2.83±0.40	
	CKD	40	2.89±0.49	

[a]One-way ANOVA significant with *p*<0.05; NCD=Non-communicable disease; I-PCS=The Indonesian version of the Preparedness for Caregiving Scale

DISCUSSION

This study is a limited study outlining how well-prepared family caregivers are to look after their family members suffering from chronic illnesses in Indonesia. On average, family caregivers reported feeling moderately prepared for caregiving. A study in New York on 84 family caregivers for cancer patients showed the same result. The family caregivers reported a moderate level of preparedness (*M*=21.33, possible range=0 to 32) (Otto et al., 2020). The previous study in Ohio family caregivers showed a lower range of preparedness for the admission phase than this current study (2.65±0.78). However, during the post-discharge phase, the score escalated and had the same range as this current study (2.97±0.72) (Mazanec et al., 2018).

In the Asian context and especially in the Indonesian culture, there is a large family structure called an extended family (Subandi, 2011) with a strong bond between each other (Subandi, 2011; Yoon, Kim, Jung, Kim, & Kim, 2014). Although NCDs require a caregiving process, it is still considered to be a "normal condition" for people in Indonesia. Looking after sick family members, such as by providing personal care, daily need, and health management (Kaye, Harrington, & LaPlante, 2010) is, in Indonesian culture, accepted as a duty that should not be questioned (Funk, Chappell, & Liu, 2011; Kristanti et al., 2017). To be a caregiver for their loved ones suffering from illness is natural. This condition makes the family caregivers feel more prepared to look after their family members, so they become more confident in doing this (Vellone et al., 2020).

This study demonstrates a contrasting result with Maheswari & Mahal (2016) for 226 family caregivers of cancer patients in India. The mean of their preparedness was at a low level (13.56±2.8) with a possible range from 9.00 to 22.00. A lack of caregivers' preparedness was also an issue for Italian family caregivers who cared for heart failure patients. Their PCS score was 2.13±0.77 (Petruzzo et al., 2018) and 2.11±0.76 (Vellone et al., 2020) with a possible range of 0.00 to 4.00. Contrary to this current study, a study of Chinese family caregivers for stroke patients demonstrated a considerably low score for their preparedness (*M*=4.42 of 32.00), indicating that the family caregivers were not well prepared (Liu et al., 2020). The low level of preparedness occurred due to family caregivers' inadequate training for their caregiving skills and education (Maheswari & Mahal, 2016). The significant factors that affected the low preparedness were low educational background and caregiving experience. The low educational level could affect the family caregivers' ability to communicate effectively with the health care providers. The higher the degree of education, the greater the preparedness since they had a more excellent opportunity to improve awareness and expertise and gain more accurate caregiving information (Liu et al., 2020).

Surprisingly, there were no differences on caregivers' preparedness for diabetes, cancer, and CKD patients in this current study. It means that all the family caregivers who look after family members suffering from chronic illnesses have the same moderate preparedness. The moderate level of preparedness means that the family caregivers feel prepared but, on the other hand, also need help in certain situations. This may happen because all chronic illnesses, including cancer, CKD, and diabetes, have the same problems that must be faced by a family caregiver. The problems include physical and psychological aspects (Effendy et al., 2014; Machado et al., 2018). The family caregivers must prepare for caring process, such as preparedness to provide physical care, emotional support, support services at home, and compensation for the burden of care resulting from the caring process (Petruzzo et al., 2017).

Interestingly, the cancer family caregivers had the lowest preparedness compared to the others in this study. Uncertainty about cancer is considered a significant source of psychological distress (Guan, Santacroce, Chen, & Song, 2020). Besides this, the degree of severity of the disease also influences the caregivers' preparedness (Liu et al., 2020; White, Barrientos, & Dunn, 2014). The family caregivers felt severe pressure, burdened, and anxiety about their patients' disease. They could not predict whether the healthcare team would provide help, which would have a significant impact on the caregivers' preparedness (White et al., 2014).

The additional question (item number 9 of the I-PCS) showed that the family caregivers want to be better prepared for the financial aspects of illness. The family caregivers in this study faced financial problems because they had low-income levels. Although they received some funding from National Insurance programmes (i.e., BPJS or KIS), there were still other expenses that the insurance could or would not cover. These expenses, such as for specific drugs, specific diagnostic procedures, accommodation and other needs, such as food, occur during the process of seeking treatment (Kristanti et al., 2017).

This study has limitations such as having no data about what kind of caring the family caregivers give to their loved ones. The kind of caring would be valued data for comparing the caregivers' preparedness on each disease. The data in this study were collected at one-time period, so any dynamic changes could not be evaluated. However, this study is relatively heterogeneous because it captures three problems and has a low level of missing data indicating the accurate preparedness score.

CONCLUSION

In conclusion, caregiver preparedness is an essential element of care. Caregiver's preparedness in this study was in moderate level. The healthcare team needs to screen the preparedness of family caregivers because this is a critical step as they are an excellent source for optimized quality of care. As family caregivers also play an essential role in palliative care, family members need to include in the medical record to be part of advance care planning. The I-PCS is highly recommended for use in the hospital or public care services settings. It is a valid and reliable scale that could facilitate nurses to measure caregivers' preparedness. This assessment's response can be used to plan the interventions to enhance the preparation of family caregivers with a family-centered care approach. The interventions can be encompassing routine assessment for the family caregivers, promoting the knowledge with education and basic training skills of care, and always making excellent communication. Further research is needed to investigate the interventions to improve family caregivers' preparedness. The study that highlights the caregiving role and patients' quality of life is also needed to investigate whether the caregivers' preparedness affects them or not.

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CONFLICT OF INTEREST

None.

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Peer Learning: An Effective Teaching-Learning Method for Improving Ability in Arterial Blood Gases Interpretation

Riana Mauliandari[1], Made Sumarwati[1], Arif Setyo Upoyo[1]

[1]Faculty of Health Sciences, Jenderal Soedirman University, Purwokerto, Indonesia
Corresponding Author: Riana Mauliandari (mauliandari@gmail.com)

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ABSTRACT

Background: Competent nurses are expected to be able to interpret arterial blood gases (ABGs). The benefits of peer learning, an innovative teaching-learning method today, have long been recognized. However, to date, no studies have compared the effect of this method and the traditional classical method in interpreting ABGs.
Purpose: This study aimed to compare the effect of peer learning and classical learning methods on the nurses' ability to interpret ABGs.
Method: This was a quasi-experimental research with pre and post-test design. Forty ward nurses were invited in the peer learning method group, and another 40 ward nurses were invited in the classical learning method group through a randomization process. Data were collected using a questionnaire before and after the educational intervention. The classical class was taught by an experienced trainer, while peer groups, divided into groups of 5-6, were taught by one member of each group who obtained the best pre-test score and received special training first. The analysis of data was performed by t-test.
Result: The result showed that after the intervention, the mean score of interpreting ABGs in the peer learning group increased by 3.18±1.12 (p<0.001), while in the classical learning method, it only increased by 2.32±0.988 (p<0.001). Although there were significant increases in ABGs analysis's ability in both groups, the peer teaching-learning group demonstrated a significantly greater improvement in interpreting ABGs (p=0.001).
Conclusion: The peer learning method facilitates a more significant improvement in the nurses' ability for ABGs interpretation. Peer learning is appropriate as one of the methods in clinical education for nurses.

Keywords: ABGs analysis; classical teaching-learning; peer teaching-learning

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BACKGROUND

One common investigation for monitoring the patient's respiratory status is through arterial blood gases (ABGs) analysis. The ABGs analysis is also applied to assess the need for oxygen therapy in patients (Jeeva, 2019; Mohammed & Abdelatief, 2015). The result of ABGs interpretation can help in the assessment of a patient's gas exchange, ventilatory control, and acid-base balance. It indicates blood pH, carbon dioxide, or bicarbonate concentrations (Jeeva, 2019).

Nurses in clinical practice are usually involved in taking and analyzing ABGs. Nurses regularly report the ABG results to the physicians. Based on these results, the physician will determine the patient's specific respiratory problems and prescribe a therapy or further treatment. Nurses' reports on the results of ABGs may influence the establishing diagnosis and treatment (Mathew, Hemavati, Pillai & Biswal, 2014). Therefore, nurses need to be able to analyze each component of the ABGs. Nurses must be familiar with the information obtained in the ABGs' results (Safwat & Khorais, 2018). Failure to see a change that is shown on the ABGs' results could result in an inaccurate interpretation and may lead to inappropriate treatment (Barnette & Kautz, 2013). In Indonesia, the level I of clinical nurses must be able to interpret ABGs.

ABG analysis is a complex concept requiring a great deal of study in order to improve the knowledge regarding ABG and interpretation of results. Research found that some nurses had deficit knowledge of ABGs' interpretation. In India, one study was conducted to assess the knowledge of 30 nurses in analyzing and interpreting ABGs, and it found that none of them had an excellent grade and that 20% of staff nurses had less than 55% of this knowledge (Jeeva, 2019). In a large hospital in Yogyakarta, where this study took place, a preliminary assessment of 12 nurses found that 66.7% were unable to interpret ABGs accurately. These results indicate a need for efforts to increase nurses' knowledge so that they are able to interpret ABGs correctly.

In order to increase nurses' abilities in interpreting ABGs, the hospital needs to arrange classes regularly to deepen the understanding of ABGs and their interpretations. The common teaching-learning method that is usually applied in the hospital is a classical method. The classical teaching-learning method is a method where the teacher serves as a center of learning while students listen to the material delivered by the teacher (Xu, 2016). The method may not be the most interactive and participative teaching method (Hassan, Aslam, Shah, & Luqman, 2016; Radha & Chandekar, 2013). The class is scheduled according to the agreement of time and place by teachers and students (Mathew et al., 2014). The hospital needs to continue improving nurses' ability, so it is essential to assess the effectiveness of this learning method or find another better method. Comparing classical methods with other learning methods can be a reasonable solution to find new and better methods.

One of the innovative teaching methods that are relevant today is the peer learning method. Peer learning applies to learning methods in small groups and is student-centered, which provides educational benefits to the instructors (tutors) and participants (tutees) (Yu et al., 2011). Peer learning provides tutors and students an opportunity to learn and teach one another, where tutees feel more comfortable learning with friends, thereby increasing learning activity (Gray, Wheat, Christensen & Craft, 2019). Furthermore, it is believed that this method can make the learners easily understand the content and can keep the learners motivated and engaged. This method transfers the learning responsibilities from the instructors to the students (Stone, Cooper & Cant, 2013). Since this method makes students more responsible for their learning, it is convinced to be the most excellent way to learn, including ABGs. Meehan and Beinlich (2014) have proven that peer-to-peer learning/teaching is an effective way to change practices and prevent pressure ulcers in surgical patients. Surabenjawong et al. (2020) proved that the peer-to-peer method of instruction is not inferior to the standard instructor-led method to increase students' level of knowledge and confidence.

There were relatively many learning methods about ABGs, but only a few were specific on ABGs interpretation. Mathew et al. (2014) revealed that the structured teaching program effectively improved ICU staff nurses' knowledge of ABG interpretation. Basnett, Devi, and Chetia (2016) found that pocket reference effectively improved nurses' knowledge regarding ABG interpretation. Peer learning, a method that excels in creating a relaxed atmosphere to support the learning process enormously (Gray et al. 2019; Yu et al., 2011), has never been tested to increase nurses' ability to interpret ABGs. There have been no reports in the literature on peer learning methods in interpreting ABGs results for nurses. ABGs interpretation can be a daunting and challenging concept for students and new nurses to grasp; furthermore, Barnette & Kautz (2013) did not mention that peer learning was one of the ways to teach arterial blood gas interpretation. Therefore, it became a challenge to test whether this method effectively increased nurses' ability to interpret ABGs.

PURPOSE

This study aimed to compare the effect of peer learning and classical learning methods on the nurses' ability to interpret ABGs.

METHODS

Research design and samples

This study used a quasi-experimental research design with pre and post-test comparisons of two group designs. This study was conducted in Yogyakarta's largest hospital in December 2019. Using a random sampling technique, level I and II clinical ward nurses with ages 25-45 years old who had never attended emergency training and never worked in critical care were invited. Based on these criteria, a total of 218 nurses were filtered into 134, a lottery was done to divide the peer group and the classical group. According to the earlier similar research (Brannagan et al., 2013), the calculation determines that a sample of 40 participants in each group was sufficient. The participants' flowchart in this study is presented in figure 1.

Measurements

The data were collected using a questionnaire that consisted of two parts: demographic data and ABGs result analysis. The demographic questions consisted of the nurse's age, gender, duration of work experience, and nursing education background. The ABGs analysis part consisted of 20 items of multiple-choice examination related to ABGs components. The ABGs component questions were developed to focus on the most frequently used parameters and often adequate in diagnosing and managing most clinical situations —PaO2, SaO2, pH, PaCO2, HCO_3, and lactate. The questions had been tested for validity and reliability. The questions showed an overall item-level content validity index (I-CVI) of 1. The item-level response process validity index of 1.00 was obtained from ten clinical nurses I and II, inferring that each item was clear and comprehensible. The logical validity of the instrument was conducted by four experts (one physician and three critical nurses) who independently evaluated the instrument. Expert judgment results were calculated using the Aiken's V formula with a V result of 0.970. The reliability analysis to determine the internal consistency of the instrument was performed on 30 nurses. The Cronbach alpha value for the items was 0.826 that confirmed the reliability of the instrument ($p<0.05$).

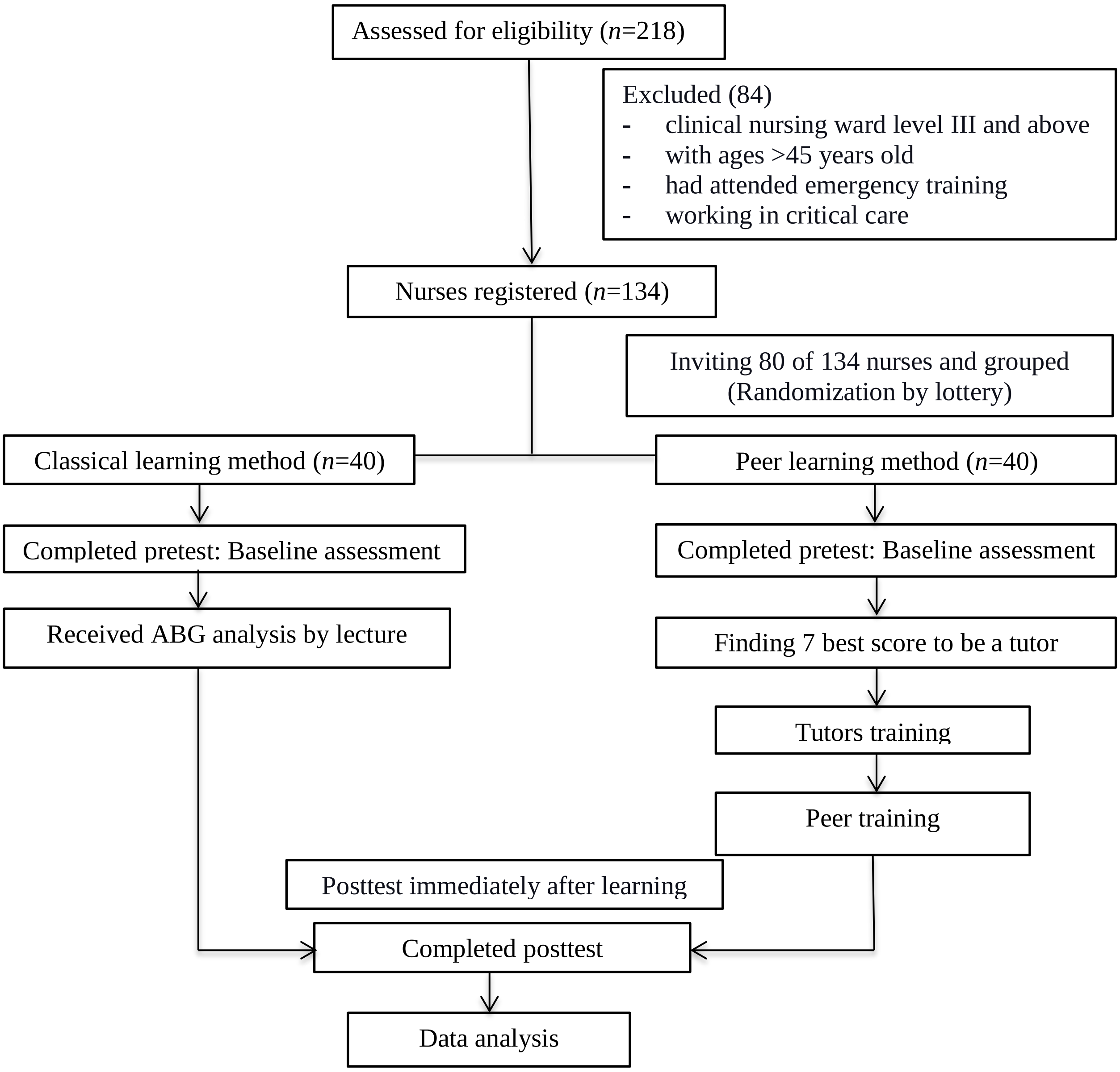

Figure 1. Flowchart of the study

Intervention

First, both groups underwent a pre-test. Next, the classical study group followed a learning session about ABGs and how to interpret the result. The material was given by a trainer who had received certificates to train ABGs. During the training, the participants were explained about the course objectives and guided through a lecture with PowerPoint slides. The participants had the opportunity to do questions and answers. The participants completed the post-test immediately after learning was concluded. On the other hand, in the peer learning group, seven participants with the best scores based on the pre-test results were placed as tutors and received special ABGs interpretation training given by the same trainer as the classical class to deepen the ABGs interpretation. After completing the training, these tutors shared knowledge in small groups with 4-5 participants in a different time. At the time set by each group, training with a peer was carried out and ended with a post-test.

Data analysis

The paired t-test with a 95% confidence interval (CI) was applied to measure the difference between the pre and post-test of the two groups, and the independent t-test was used to determine the effect of the methods.

Ethical considerations

This study was approved by the Research Ethics Committee of Faculty of Medicine, Public Health, and Nursing, University of Gadjah Mada (No. KE/FK/1377/EC/2019). The study purposes and details were explained to the respondents, and all respondents reviewed and signed the voluntary participation and informed the consent form before starting the study.

RESULT

Characteristics of participants

The characteristics of the participants in the two groups showed no differences (Table 1). The majority were females, graduated from Diploma nursing education, and the level I clinical nurse category.

Table 1. Characteristics of participants (n=80)

Characteristics	Peer Learning Group (n=40)		Classical Learning Group (n=40)		*p*
	f	%	*f*	%	
Age (years old)					
Median (min-max)	32 (26-43)		31 (25-45)		0.582*
Working experience					
Median (min-max)	9 (2-23)		8 (2-25)		0.904*
Gender					
Male	11	27.5	9	22.5	0.399**
Female	29	72.5	31	77.5	
Education					
Diploma	27	67.5	29	72.5	1.00**
Undergraduate	13	32.5	11	27.5	
Clinical nurse category					
Level I	29	72.5	25	62.5	0.273**
Level II	11	27.5	15	37.5	

*Mann-Whitney test, **Fisher’s exact test

The effect of peer learning and classical learning methods

The result showed that after the learning, the score of ability in interpreting ABGs result in peer learning increased from 5.51±1.35 to 8.60±0.90, while the score in the classical learning group increased from 6.04±1.25 to 8.34±1.03 (Table 2). The result showed that both groups experienced a significant increase in the ability to interpret ABGs' results (*p*<0.001).

The independent t-test was run on the data, with a 95% confidence interval (CI) for the mean difference. Table 2 indicated that the two groups were homogeneous in their pre-intervention scores (*p*=0.082). Although there was no difference in the ability to interpret ABGs between the two groups after the training (*p*=0.230), statistical tests showed that classes with the peer teaching-learning method provided a significantly greater range of improvement in interpreting ABGs (*p*=0.001).

Table 2. The effect of peer learning and classical learning methods

Group	Pre-test *Mean ±SD* (n=40)	Post-test *Mean ±SD* (n=40)	*Mean Difference±SD*	*t*	*p*
Peer learning	5.51±1.35	8.60±0.90	3.18±1.12	-14.44	<0.001*
Classical learning	6.04±1.25	8.34±1.03	2.32±0.99	-18.34	<0.001*
t	0.51	-0.26	-3.35		
p	0.082**	0.230**	0.001**		

*Paired-sample t-test, **Independent-sample t-test

DISCUSSION

This study aimed to compare the effect of peer learning and classical learning methods on the nurses' ability to interpret ABG analysis. This study demonstrated that both methods significantly improved the nurses' ability to interpret ABG results.

The finding showed that peer learning improves the nurse's ability to interpret ABG results. This finding is in line with the research conducted by Polkowskia, Jadejab and Duttac (2020) wherein the class with peer learning method was conducted, the student performance was higher compared to the performance of traditional methods. As group characteristics, peer learning can significantly improve participants' ability to interpret ABG results because learning in small groups increases member involvement in problem-solving and understanding the material (Tandel et al., 2019). In the group, the progress of one member in understanding material will inspire other members to achieve. Since they are peers and familiar with each other, each learner motivates to help one another, share knowledge, and eliminate the awkwardness to ask questions (Husain, Kusuma & Johan, 2020; Meehan, 2014). Peer learning also allows learners to get a better understanding of the topic. Peer learning can reduce the respondent's anxiety as it increases the sense of comfort when learning, whereas the comfort of learning will affect one's learning outcomes (Gray et al., 2019).

The classical group participants have also experienced an increase in ability to interpret ABGs significantly. This study showed that although lecturing seems to be a somewhat old teaching method, it is still validly used to increase learners' understanding. This study's results correspond with previous research on the interpretation of ABGs, and it was found that after classical structured learning, there was a significant influence on the value of respondents' knowledge and skills (Kaur & Charan, 2018).

In this study, the classical learning method could improve ABG nurses' interpretation ability because of several factors. One factor is the trainer. In this study, the trainer had received certificates to train and had often been taught how to interpret ABG results in the hospital. A well-experienced trainer is positively associated with student achievement since the trainer can focus on learning and emphasize practical aspects to fit what learners need (Podolsky, Kini & Darling-Hammond, 2019). Besides the experienced trainer, the factor that affects the improvement of ABG's ability is the profile of the participants themselves. The participants in this study were nurses who had a nursing diploma educational background and worked for an average of 8 years. Hailikari, Tuononen, and Parpala (2018) found that students who already had experienced had fewer obstacles in their studies. The process of teaching also influences the achievement of learning. At the beginning of the teaching, the learning objectives were delivered. Delivering the learning objectives encouraged participants to focus on the learning outcomes. The material was presented systematically, providing clear information that can improve learners' concentration to learn (Xu, 2016). Lastly, there was a question-answer session. This session is essential because it creates trainer-learner interaction and provides learners with opportunities to express understanding and ascertain learners' personal difficulties (Radha & Chandekar, 2013).

Comparing the effect of peer learning and classical methods, the findings showed that there was no difference in groups' ability to interpret ABGs after learning. However, the peer learning group experienced more significant improvement than the classical learning group even though both methods increased nurses' ability to interpret ABGs. Similar to the research of Stone et al. (2013) which found that peer learning methods and classical conventional methods were equally able to improve the ability of nursing students to develop skills, communicate and think critically, this study showed that peer learning methods helped to increase nurses' ability to interpret ABGs than classical methods. Thus, this supports the study of El-Sayed, Metwally, and Abdeen (2013) and Dwijayanto, Wijayanti and Supardi (2018) that peer learning methods give a more significant effect on increasing knowledge than conventional classroom methods.

There are several factors which influence the difference in improvement between classical learning groups and peer learning. First, compared to classical methods, peer learning surpasses in providing a more relaxed and less intimidating environment (Gray et al., 2019). A relaxing environment made participants easier to communicate their doubts, lack of understanding, or misunderstanding. The participants were free to express their understanding without judgment or intimidation. Some learners were more intimidated by larger groups. Anxiety in peer learning was also low-level; therefore, peer learning can promote discussions and solve problems (Ribera, Gato, Guillem & Pérez, 2014). In the classical learning method and peer learning, the participant may experience reflective knowledge-building by linking their past practical experiences with learning. Second, being in small groups and with peers, participants experienced reflective knowledge-building and each member gets a great opportunity to express themselves (Gray et al., 2019; Polkowskia et al., 2020). Unlike peer learning, reflective knowledge-building in classical learning depends on the trainer's ability to stimulate it; besides, each student keeps it in his or her own mind. Building reflective knowledge facilitated better understanding and deepened knowledge. Third, in the peer learning method with 5–6 nurses in each group, scheduling and venue arrangement were not difficult to carry out. It is different from the classical learning method where participants need to spend time and sacrifice other interests according to a particular schedule. Thus, this method can result in low motivation or a lack of compulsion and, ultimately, influence the results (Wijnia, Loyens & Derous, 2011).

The test's maximum score in this study was 10, yet the achievement of both groups was less than 90% (the mean of the post-test was 8.60±0.90 in peer learning and 8.34±1.03 in the classical learning method). This may occur due to the participants' physical condition, in which the participants in both groups were off-duty nurses. The physical conditions and fatigue experienced by night-shift nurses may influence the participants' performance. Physical conditions and anxiety influence nurses' critical thinking skills (Ribera et al., 2014). The peer learning method and the classical method have their particular advantages. Both methods can be applied to increase nurses' ability in interpreting the result of ABGs, but the statistical test presented a more significant improvement in the peer learning group than the classical group.

This study has a limitation. The pre and post-tests were both using the same questions and asked immediately after learning methods, which could result in test-retest bias, falsely inflating correct responses. Thus, it was highly recommended to do another post-test seven days after learning was completed.

CONCLUSION

The findings showed a marked increase in the score on interpreting ABGs before and after the intervention of the two groups. The peer teaching-learning method, however, showed a significantly higher improvement in the score, which indicates that this method is more effective in increasing the ability of nurses to interpret ABGs. The researchers recommend that hospital institutions improve staff competence by applying peer teaching-learning methods because this study demonstrates that the method gave more remarkable improvement for nurses. Furthermore, nurse colleagues are expected to keep and improve their competence in interpreting ABGs by regularly studying with peers (peer learning). It is expected for further researchers to conduct a study on ABGs interpretation by lengthening the post-test.

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CONFLICT OF INTEREST

The authors report no conflict of interest.

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The Effect of Hypnotherapy on Anticipatory Nausea in Head and Neck Cancer Patients Undergoing Chemotherapy

Dadi Hamdani[1], Awal Prasetyo[2], Anggorowati[3]

[1]*Department of Nursing, STIKes Muhammadiyah Ciamis, Indonesia*
[2]*Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia*
[3]*Department of Nursing, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia*
Corresponding Author: Dadi Hamdani (dadi_ham@yahoo.co.id)

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ABSTRACT

Background: One of the chemotherapy side effects on head and neck cancer patients is anticipatory nausea. However, the anticipatory nausea problem has not been properly resolved. Nausea might be psychologically reduced by hypnotherapy. There only have been very few studies conducted to examine the effects of hypnotherapy in alleviating anticipatory nausea.

Purpose: This study aimed to determine the effect of hypnotherapy using Hanung induction technique on anticipatory nausea in head and neck cancer patients undergoing chemotherapy.

Methods: This research employed a pre-post test of quasi-experiment with control group design. Consecutive sampling technique was used to obtain 64 subjects who met inclusion and exclusion criteria and were equally divided into the intervention and control groups. Hypnotherapy as the intervention was carried out in two sessions, each of which lasted for 20 minutes, with a week distance between sessions. The data were collected using a visual analog scale (VAS), which was used twice to measure anticipatory nausea and analyzed using the paired and independent-sample t-test.

Result: The results showed that the mean score of anticipatory nausea in the intervention group reduced from 7.6±1.4 to 2.3 ±1.2 after hypnotherapy, while the mean in the control group increased from 6.4±1.6 to 6.7±1.4. There was a significant difference in the score of anticipatory nausea after the implementation of hypnotherapy between the intervention and the control group ($p<0.001$).

Conclusion: The study concluded that hypnotherapy is effective in reducing the intensity of anticipatory nausea in head and neck cancer patients undergoing chemotherapy. Therefore, hypnotherapy can be applied by oncology nurses as an intervention in treating anticipatory nausea.

Keywords: Head and neck cancer; anticipatory nausea; chemotherapy; hypnotherapy

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BACKGROUND

Head and neck cancer was the seventh most common cancer worldwide, with 890,000 new cases and 450,000 deaths (Bray et al., 2018). Head and neck cancer is the third common cancer in Indonesia (Ministry of Health Republic of Indonesia [MoHRI], 2018a). The Health Research and Development Agency of the Republic of Indonesia notes that the number of cancer patients in Central Java was 132,565 in 2018 (MoHRI, 2018b). Cancer must be controlled through chemotherapy treatment to reduce mortality. However, chemotherapy can cause patients to experience severe anticipatory nausea (Prapti, Petpichetchian & Chongchareon, 2012).

Anticipatory nausea creates a significant burden on patients and increases the potential to leave treatment. This is due to the patients' bad experience at the time of chemotherapy that was previously undertaken. Anticipatory nausea is a symptom of nausea in patients undergoing a chemotherapy program and occurs just before the chemotherapy injection is given (Rao, 2012). Anticipatory nausea is mediated by anxiety which affects the vomiting center in the brain stem (Stitch, Rock, Limebeer & Parker, 2014). Anticipatory nausea is a common complaint among cancer patients and is often based on the progression of chemotherapy-induced nausea. The nausea is reported by 20%-50% of patients, in which the frequency and intensity increase during the chemotherapy cycle (Kamen et al., 2014; Molassiotis et al., 2016). Anticipatory nausea is one of the causes of discontinuation or early termination of chemotherapy in head and neck cancer patients. It was found that 30% of the cancer patients stopped chemotherapy due to complaints of anticipatory nausea (Mustian et al., 2011).

The trigger for the emergence of anticipatory nausea is caused by the patients' experience during previous chemotherapy. Patients who receive the doxorubicin cytostatic regimen in red color with nausea experience will experience nausea again in the next chemotherapy program. Each time the patients see a red color cytostatic regimen given to them, they imagine the previous chemotherapy experience, and it triggers nausea anticipatory that occurs before the injection of chemotherapy regimens. It suggests that this type of nausea is difficult to control by antiemetics (nausea-reducing drugs) because it is triggered by psychological factors (Kamen et al., 2014; Kravits, 2015;).

Psychological factors are stimuli that are most often discussed with anticipatory nausea, which arises from olfactory stimulation and cognitive stimulation. Another factor that has been identified to contribute to nausea in association with conditioning is the suggestion (Roscoe, Morrow, Aapro, Molassiotis & Olver, 2011). A suggestion is the patients' belief that they will experience nausea during chemotherapy. This significantly increases the risk of the occurrence of nausea. Those who believed it was "very likely" that they would have severe nausea from chemotherapy were five times more likely to experience severe nausea than fellow patients who thought its occurrence would be "very unlikely" (Kamen et al., 2014).

Non-pharmacological approaches, which include behavioral interventions, can be reviewed in relieving symptoms of chemotherapy. However, little evidence supports the use of complementary and alternative methods in eliminating anticipatory nausea. Behavioral interventions and hypnotherapy, particularly systematic desensitization, should be reviewed to prevent and treat anticipatory nausea (Figueroa-Moseley et al., 2012). Hypnotherapy is a psychotherapeutic technique conducted between a patient and a trained clinician who uses therapeutic suggestions to produce changes in perception, cognition, affect, mood, behavior, and sensation that are deemed desirable by both parties (Kamen et al., 2014; Kravits, 2015). Hypnotherapy can influence and access the limbic system, namely the amygdala in the human brain. It can instill suggestions, change perceptions and affect the emotional situation of feelings through the subconscious, theta waves (Barber & Wilson, 2011; Hamdani, Prasetyo & Anggorowati, 2019; Kendrick, 2012).

Research shows that hypnotherapy with the pendulum induction technique can treat anticipatory nausea and is even more valuable for preventing anticipatory nausea progression when used before starting chemotherapy (Garba & Mamman, 2019). Furthermore, the use of shock induction techniques and the hypnotherapy stage also affect anticipatory nausea experienced by cancer patients undergoing chemotherapy (Richardson et al., 2007). Pendulum, guided imagination and shock induction techniques in hypnotherapy often make patients feel dizzy after the hypnotherapy session ends and must provide a long time for nurses to provide complete therapy. Therefore, other induction techniques need to be considered in hypnotherapy to prioritize comfort (Kravits, 2015). A comfortable induction technique is introduced by Hanung induction hypnotherapy. This technique is done by gently massaging the *neguan*, *yintang*, and *tayiang* acupuncture points, accompanied by giving suggestions with a blend of conventional hypnosis, awareness, quantum touch, and neuro-linguistic programming (Prasetya, 2017; Prasetya, Murti & Anantanyu, 2018).

Previous studies have applied Hanung induction hypnotherapy to increase compliance for the treatment of TB patients. The results showed that this hypnotherapy technique increases adherence in the treatment undertaken, and patients get a sense of security and comfort with the method of induction technique given (Prasetya, 2017; Prasetya et al., 2018). The Hanung induction technique provides a gentle touch to the three points of the forehead, temples, and hands, so this hypnotherapy technique is safe to apply in the clinic. In previous studies, hypnotherapy using pendulum induction techniques, shock, and guided imagination, was found to cause dizziness after the hypnotherapy session ended, resulting in a longer time for nurses to complete therapy. Therefore, it is important to investigate how Hanung induction hypnotherapy reduces anticipatory nausea in head and neck cancer patients undergoing chemotherapy.

PURPOSE

This study aimed to determine the effect of hypnotherapy using Hanung induction technique on anticipatory nausea in head and neck cancer patients undergoing chemotherapy.

METHODS

Research design and sample

This study was a quasi-experimental study using pre and post-test design with a control group. A consecutive sampling technique was used to recruit subjects who met the inclusion and exclusion criteria. The study was conducted in the chemotherapy unit of a regional hospital in Central Java, Indonesia, in May-June 2019 with a total sample of 64 participants, assigned to two groups, i.e., the intervention and the control group. The intervention group consisted of 32 participants receiving hypnotherapy intervention and antiemetic therapy, whereas the control group consisted of 32 participants receiving only antiemetic therapy according to clinical standards. The inclusion criteria of this study were head and neck cancer patients who experienced anticipatory nausea, had never received hypnotherapy before, able to follow orders during the research process, were willing to become respondents, and followed research procedures. The exclusion criteria were patients with anxiety, acute psychosis, dementia, paranoid or compulsive obsession, and had wounds in three areas of massage points (*neiguan*/wrist, t*aiyang*/temples, and *yintang*/forehead), not easily hypnotized (hard susceptibility of Barber Suggestibility Test). The participants' flowchart in this study was presented in Figure 1.

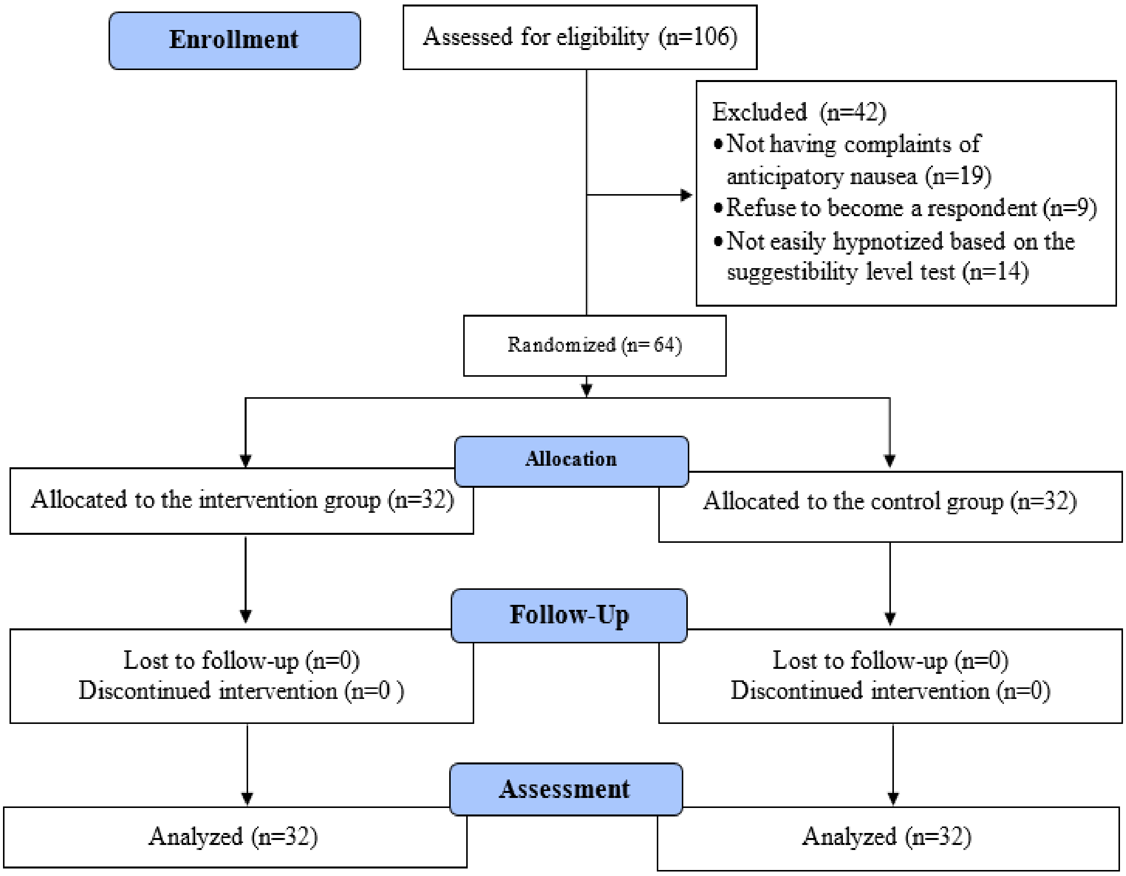

Figure 1. Participants' flowchart

Measurements

The measurement of the anticipatory nausea level was performed using the visual analog scale (VAS), of which the patients were asked to mark the point on a horizontal line along 10 cm. VAS instrument was a valid measuring instrument with the reliability of 0.95, validity of r=0.62, and had been used to rate and monitor the severity of nausea in the emergency department (Meek, Kelly & Hu, 2019). VAS was an instrument designed to measure internal feelings such as sensation, experience, and perception (Lee & Kieckhefer, 2011; Van den Bosch, Moons, Bonsel & Kalkman, 2010). VAS was used in this study as it was considered the best method for measuring nausea experienced by the patients. Also, it had been used in previous studies to measure nausea (Billhult, Bergbom & Stener-Victorin, 2007; Grealish, Lomasney & Whiteman, 2000). Measurement of nausea was done twice, once before the first hypnotherapy and once again after the second session of hypnotherapy. Barber suggestibility test was also used to determine the level of client susceptibility to hypnosis. The barber suggestibility test had two levels, namely, hard susceptibility and easy susceptibility. Hard susceptibility was scored when respondents could not respond to suggestions and instructions given by the therapist to lock/attach both hands, while easy susceptibility was marked when respondents could respond to the same suggestions and instructions (Barber & Wilson, 2011; Roy, 2010).

Intervention

The intervention began with a pre-test of patients who experienced anticipatory nausea and had met the inclusion criteria. Hypnotherapy was given 30 minutes before cytostatic injection followed by antiemetic after hypnotherapy. Hypnotherapy interventions were given by a certified therapist and carried out for two sessions with one week apart between sessions, each of which lasted for 20 minutes. The stages of hypnotherapy were: (1) pre-induction, which was an opening conversation to build patients' confidence for the therapy, minimize feelings of fear, and provide explanations of hypnotherapy; (2) suggestibility test to identify the level of patients' suggestion using Barber suggestibility test; (3) induction process using Hanung induction technique with a massage on wrist, temples, and forehead area for 2-5 minutes each area with a clockwise massage; (4) deepening, a process to bring the patients into a deeper trance; (5) instilling suggestion (therapeutic) to give positive suggestions to patients until embedded in the subconscious mind and to make positive changes for patients, e.g *"Open the subconscious mind wide… from now on, when given chemotherapy, your body will enjoy comfort, you will feel the freshness, and when your hands are rubbing your throat, your body will be more comfortable, and when you see the nurse, you feel calm and become very relaxed and comfortable"*; and (6) termination to bring patients from his hypnotic state towards full consciousness. Around 10 minutes after the hypnotherapy session ended, a post-test was conducted using the visual analog scale. In the control group, participants were only tested for nausea on the first week and the second week with only given antiemetics as the standard care.

Data analysis

The characteristics of participants, such as gender, age, and status performance, were analyzed using descriptive statistics. The homogeneity of the two groups was tested using the Chi-square test. The data normality on anticipatory nausea was examined using the Shapiro Wilk test, and the result showed that the data were normally distributed. Therefore, the paired t-test was used to analyze the difference in the mean score of anticipatory nausea before and after the intervention, while the independent t-test was used to compare the mean score of anticipatory nausea between the intervention and the control groups.

Ethical consideration

This study was approved by the Health Research Ethics Committee of Dr. Moewardi Hospital Surakarta with the number 633/V/HREC/2019. Informed consent was obtained from all patients. Important information related to the purpose of the study, procedures, risks, and benefits of the study were explained to the patients. The confidentiality of the patients was also maintained throughout the study.

RESULTS

Characteristics of the participants

The results showed that the participants in the intervention and control groups were homogenous (p>0.05). As shown in Table 1, most participants in both groups were late adults (41-65 years old) and unable to carry on normal activities. The intervention group was dominated by men, while the control group were dominated by women.

Table 1. Characteristics of participants (n=64)

Characteristics	Groups				*p*
	Intervention Group (n=32)		Control Group (n=32)		
	f	%	*f*	%	
Gender					
Male	15	47	18	56	0.453*
Female	17	53	14	44	
Age					
Early Adult (18-40 years old)	5	16	4	12.5	0.338*
Late Adult (41-65 years old)	27	84	28	87.5	
Performance Status					
Able to carry on normal activities	14	44	11	34	0.856*
Unable to carry on normal activities	18	56	21	66	

*Chi-square test

Differences in the anticipatory nausea score before and after the intervention

Table 2 showed that after the hypnotherapy, the mean score of anticipatory nausea in the intervention group reduced from 7.6±1.4 to 2.3 ±1.2, while in the control group, the mean increased from 6.4±1.6 to 6.7±1.4. The anticipatory nausea score in the intervention group (*p*=0.001) decreased significantly compared to the control group (*p*=0.107)

Table 2. Differences in nausea pre and post-intervention (n=64)

Group	Pre-test *Mean±SD*	Post-test *Mean±SD*	Mean Difference	*t*	*p*
Intervention	7.6±1.4	2.3±1.2	5.3	22.2	0.001*
Control	6.4±1.6	6.7±1.4	-0.3	-1.6	0.107*

*****Paired t-test

Differences in the anticipatory nausea reduction after intervention in both groups

Table 3 showed that there was a significant difference in the mean differences between the intervention and control group (*p*=0.001) after hypnotherapy. It can be concluded that there was a positive effect of hypnotherapy on the reduction of anticipatory nausea in patients with head and neck cancer undergoing chemotherapy.

Table 3. Difference means nausea between the two groups (n=64)

Mean Differences	Intervention Groups (post-test)		Control Groups (post-test)		*t*	*p*
	MD	*SD*	*MD*	*SD*		
Nausea	5.3	1.3	-0.3	0.9	13.0	0.001*

*****Independent t-test

DISCUSSION

This study investigated the effect of hypnotherapy on anticipatory nausea in patients with cancer undergoing chemotherapy. The results showed a positive effect of hypnotherapy on reducing anticipatory nausea in cancer patients undergoing chemotherapy. This finding is similar to a previous study that hypnotherapy can reduce nausea, anxiety, and psychological pressure in cancer patients undergoing chemotherapy (Booth, 2020; Carlson et al., 2018; Richardson et al., 2007). Similarly, another study also showed that hypnotherapy could reduce nausea (Kravits, 2015).

Hypnotherapy is defined as a therapy carried out by a hypnotherapist to patients for hypnosis by providing encouragement or suggestions for healing (Hakim, 2009). Hypnotherapy is all types of utilization of hypnosis for therapeutic purposes, both physical and mental therapies. Hypnosis is a state of mind where attention becomes very focused, so the level of suggestibility (acceptability) increases. Hypnosis is a penetrating area of criticism of the conscious mind and acceptance of certain thoughts. Someone who is in a hypnotic state will display several different characteristics and tendencies compared to someone who is not in a hypnotic state. In a hypnotic state, a person is more likely to accept encouragement or suggestions. Hypnotherapy relies on the mechanism of the human mind, namely the conscious and the subconscious minds. Hypnotherapy provides direction, encouragement, and suggestions that generate self-power and enlighten creative thoughts that are directed directly at the human subconscious mind (Assen, 2016; Umami, Sudalhar, Pratama, Fitri & Firmansyah,, 2020).

A physiological state will occur when hypnosis is carried out, such as drowsiness and relaxedness. Nerve nodes in human beings stimulate the production of neurotransmitters, which are brain chemicals such as serotonin, dopamine, norepinephrine, and noradrenaline that are used to relay, modulate, and strengthen signals between neurons and other cells. These brain chemicals products are then absorbed by the hippocampus and distributed to all brain cells. The products include: (1) endorphins that make the persons happy, excited, cheerful, and motivated; (2) enkephalin that make the persons calm, relaxed, comfortable, and far more focused; (3) beta-endorphins that make the persons not easily discouraged, whiny, or ashamed and more trustworthy; and (4) melatonin that makes the eyes tired, sleepy, lazy, and comfortable. These regulate a person’s emotional behavior and valves when he cries, screams, gets angry, and sings (Carlson et al., 2018).

Hypnotherapy using the Hanung induction technique promoted non-shock induction because it was done by gently massaging the *neguan*, *yintang*, and *tayiang* acupuncture points accompanied by giving suggestions. Hanung induction is a blend of conventional hypnosis, awareness, quantum touch, and neuro-linguistic programming. Conventional hypnosis involves relaxation until the patient is in a trance. Mindfulness facilitates awareness by providing suggestions during acupoints’ massage with the appropriate rhythm of words following the patient’s breathing rhythm. Quantum touch is sincerely done during massage and intended for the good of the patient. Neuro-linguistic programming helps to provide suggestions according to the type of modality, condition, and condition of the patient. As Hanung induction hypnotherapy combines various techniques, it results in a fast, safe, and comfortable reaction to put the patient into a hypnotic trance (Prasetya et al., 2018). So, this hypnotherapy technique is highly recommended for nausea cancer patients undergoing chemotherapy.

This study showed that hypnotherapy could enter the human subconscious mind with sentences delivered by researchers so that it gives an influence for chemotherapy patients who hear them. It is implied that the patients feel comfortable, do not experience nausea, and are more excited about undergoing chemotherapy (Robert, Kenneth, & Paul, 2011). Based on the adaptation theory, giving hypnotherapy induction can improve a patient’s adaptive response by manipulating external contextual stimuli (positive suggestions) so that some psychological effects arising from the presence of stressors can be conditioned adaptively to control anticipatory nausea (Janie, 2015).

The result of this study showed that the anticipatory nausea score before the intervention was moderate-high. It means that the head and neck cancer patients undergoing chemotherapy generally experience moderate to high anticipatory nausea. This result is supported by Kamen et al. (2014) and Molassiotis et al. (2016), who claimed that 20%-50% of chemotherapy patients reported anticipatory nausea, and it could increase during the therapy. Chemotherapy patients experience anticipatory nausea that is triggered by emotional, cognitive, and anxiety responses by remembering the previous chemotherapy experience. Nausea occurs again when the patients are undergoing further chemotherapy treatment (Roscoe et al., 2011). Anticipatory nausea is mediated by anxiety related to unpleasant feelings, vision, smell, memory of cytostatic drugs, and fears that are responded through the limbic system (visual-vestibular mismatch), which then stimulates the thalamus and is mediated by the neocortex of the amygdala, which is a part of the central telencephalon for long-term memory. This type of nausea is difficult to control (Kamen et al., 2014; Kravits, 2015). The belief of a patient that he will experience nausea during chemotherapy will significantly increase the risk of nausea (Navari, 2016; Roscoe et al., 2011).

This study found that anticipatory nausea in head and neck cancer patients undergoing chemotherapy was more common in men over 40 years of age. This result is supported by Mosa, Hossain, Lavoie & Yoo (2020), who found a higher proportion of men who had head and neck cancer accompanied by anticipatory nausea. At the age of 40 years and over, the lower esophageal muscle weakens; this is also caused by the influence of drugs consumed to reduce symptoms of chronic disease. This muscle is supposed to contract and close the channel to the esophagus after food has passed into the stomach. When muscles are weak, the throat will remain open, and stomach acid may rise back into the esophagus that causes nausea (D'Souza et al., 2014). When a man has a terminal illness and is required long-term treatment, it is a psychological impact that creates stress. Man hormones do not develop under stress. This stress hormone creates new havoc for the body. Stress can trigger feelings of nausea (Jung, Tae, Moon, Kim & Shim, 2019). Sometimes adult patients with terminal illness also lose complex health management, including support from family and fellow patients (Husain, Kusuma, & Johan, 2020).

The results also showed that there were more patients with anticipatory nausea who were unable to carry out normal daily activities. This is supported by Azam et al. (2019), who claimed that the patients who were unable to carry out activities were found to be higher in experiencing anticipatory nausea while undergoing chemotherapy. These patients will have a reduction in the metabolic rate causing gastrointestinal disorders. Gastric secretions can collect around and compress the lower esophageal sphincter (irritation). Therefore, bedridden patients may experience gastroesophageal reflux symptoms leading to excessive nausea (Azam et al., 2109; Yildiz, Suren, Demir & Okan, 2019).

This study has limitations. First, the measurements were only taken two times at the beginning and at the end of hypnotherapy rather than every day. Third, confounding factors such as the giving of antiemetics could not be controlled, although the antiemetics were given after the hypnotherapy. However, a homogeneity test was carried out to minimize bias.

CONCLUSION

This study found that Hanung induction hypnotherapy decreased anticipatory nausea intensity in head and neck cancer patients undergoing chemotherapy. Hanung hypnotherapy induction intervention can be considered for use by nurses as part of nursing interventions in managing patients with anticipatory nausea. Further research can be conducted by involving a larger number of samples and enhancing the hypnotherapy session.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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Factors Associated with Mothers' Behaviors in Selecting Complementary Feeding in Surabaya, Indonesia

Retnayu Pradanie[1], Praba Diyan Rachmawati[1], Meilia Dwi Cahyani[1]

[1]Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia
Corresponding Author: Retnayu Pradanie (retnayu-p@fkp.unair.ac.id)

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ABSTRACT

Background: Complementary feeding is provided for babies at the age of 6 to 24 months. Appropriate types, amounts, and methods of feeding are crucial for baby growth and development. Many factors affect mothers' behavior in selecting complementary feeding.
Purpose: This study aimed to investigate factors affecting mothers' behaviors in selecting complementary feeding for their babies.
Methods: A descriptive analytical study with a cross-sectional approach was conducted on 153 mothers having babies aged 6-12 months old in Surabaya, Indonesia, recruited using simple random sampling. The independent variables were knowledge, attitude, belief, family income, and family support, while the dependent variable was mothers' behavior in selecting complementary feeding. Data were collected using questionnaires and analyzed using the Spearman rho's test with a significance level of <0.05.
Results: The results showed that knowledge (p=0.021), attitudes (p=0.030), beliefs (p=0.006), income (p=0.000), and family support (p=0.006) were factors affecting mothers' behavior in selecting complementary feeding.
Conclusion: Knowledge, attitudes, beliefs, income and family support had a significant correlation with mothers' behaviors in selecting complementary feeding. This finding emphasizes pivotal needs to increase knowledge and attitude of complementary feeding for both mothers as the infant primary caregivers, and families as the closest support system for mothers.

Keywords: Complementary feeding; feeding behavior, infant feeding

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BACKGROUND

The golden and critical periods of growth and development of infants occur at the age of 0 to 23 months old. The golden period can be achieved if the infants receive appropriate nutritional intakes that are suitable with their growth and development. On the contrary, infants that experience unmet nutritional needs can be in a critical period of growth and development (World Health Organization, 2020).

Research shows that 45% of the Infant Mortality Rate (IMR) in Indonesia is related to malnutrition (Ministry of Health of the Republic of Indonesia, 2018). In addition, the prevalence of stunting in Indonesia has also increased by 29.6% in 2018 from the previous year at 29% (Data and Information Center, 2018). However, the largest proportion of stunting occurs during the complementary feeding period (6-23 months). Adequate complementary feeding is critical to support optimal physical growth and brain development in children. Complementary foods need to be nutrient-rich and be fed frequently to prevent stunting (Aguayo & Menon, 2016). According to the World Health Organization, one third of Indonesian children who experienced stunting at the age of 5 months already lacked of height about 7 cm, and nearly 14 cm at the age of 17 years old. The common cause of stunting and malnutrition is improper intakes. Research in Purworejo, Indonesia, on 577 children aged 11-23 months showed that energy adequacy of complementary feeding was only 30%, while the protein adequacy was 45% (Indonesian Pediatric Association, 2015).

The age of 6-12 months old is a critical period for introducing solid foods gradually to stimulate oral-motor skills. A delay in the introduction of solid food until more than 12 months of age can lead to the possibility of having eating problems at a later age. The World Health Organization (2020) has recommended guiding principles for appropriate complementary feeding, that include on-demand breastfeeding until the age of two years old or beyond, responsive feeding, good hygiene and proper food handling, and gradual increase of food consistency and variety. Furthermore, increasing the number of times that the children are fed, use of fortified complementary foods or vitamin-mineral supplements as needed, and increasing fluid intakes, as well as offering soft and favorite foods during illness are also recommended (World Health Organization, 2020).

Mothers play a significant role in providing complementary feeding for infants. However, many mothers lack the knowledge of proper types, amounts, and methods of complementary feeding. A preliminary study found that there were some mothers who thought that feeding a baby with rice and mashed bananas was sufficient to meet the baby’s needs. Infants need the most nutrient-rich foods since children of less than two years of age have high nutrient needs to support their growth and development (Dewey, 2013). Another phenomenon shows disagreement about giving instant porridge as a complementary feeding due to suspicion of flavoring and food preservatives. Research in Padang, Indonesia, shows that 42% of children who were given instant porridge had better nutritional status compared to those who received home-made foods (10%) (Lestari, Lubis, & Pertiwi, 2014).

Various factors can influence mothers’ behavior in selecting complementary feeding. Previous research has showed that the determinants of maternal behaviors in fulfilling complementary feeding can be examined by the PRECEDE-PROCEED model (Shams, Mostafavi, & Hassanzadeh, 2016). The model explains that there are predisposing, enabling, and reinforcing factors that influence a person’s behavior. However, no previous studies have examined overall factors in the PRECEDE-PROCEED model in relation to the selection of complementary feeding. In this study, the factors related to this behavior include knowledge, attitudes, beliefs, income, and family support. Mothers’ knowledge and attitude are closely related to the selection of food ingredients, processing, and provision of appropriate complementary feeding (Susanto, Syahrul, Sulistyorini, Rondhianto, & Yudisianto, 2017). Belief is assessed due to the existence of traditions about the types and ways of feeding for generations and the participation of grandmothers (Gross, Van der Sand, Girardon-Perlini, & Cabral, 2011). Economic status and family support are needed to ensure sustainability in providing quality complementary feeding in a family. More adequate family income will lead to higher ability to buy nutritious foods for children (Schuster, Szpak, Klein, Sklar, & Dickin, 2019). Complementary feeding is, therefore, essential to support children's growth and development, but there are many incidents in which mothers do not provide proper complementary feeding for their babies. There is necessity to conduct a study to determine what factors are related to mothers' behavior in selecting complementary feeding, so that the right solutions can be drawn up.

PURPOSE

This study aimed to investigate factors affecting mothers' behavior in selecting complementary feeding for their babies based on the PRECEDE-PROCEED model, including the knowledge, attitudes, beliefs, income, and family support.

METHODS

Research design and participants

This study used a descriptive design with a cross-sectional approach, and was conducted in one of the public health centers (PHCs) with the highest incidence of malnutrition in Surabaya, Indonesia. The population in this study was mothers having babies aged 6-12 months in the area of the selected PHC with a total of 248 mothers. Based on the sample size calculation, 153 mothers were randomly recruited to participate in the study.

Data collection

The data were collected in May 2019 by visiting the respondents' homes with the help of cadres of the integrated healthcare center to distribute the questionnaires. Permission from the midwife in charge of the PHC was obtained prior to data collection. The midwife provided information about the address of cadres and mothers with babies of 6-12 months. During the visit, the researchers provided an explanation of the aims and objectives of the study, and asked respondents' availability to participate in the study. Those who agreed to participate signed an informed consent. Respondents' participation was voluntary without coercion. Furthermore, respondents were asked to complete the questionnaires of demographic data, knowledge, attitudes, beliefs, income, family support, and maternal behavior in selecting complementary foods for their babies.

Instruments

The independent variables in this study were knowledge, attitudes, beliefs, income, and family support, while the dependent variable was mothers' behavior in selecting complementary feeding. All variables were measured using the questionnaires that were developed by the researchers by accommodating the parameters of each variable. The questionnaires were tested for validity and reliability to 20 people outside the research respondents. The questionnaires were considered valid if the Pearson's product moment test showed that that the r-count for each question in the questionnaires was higher than the r-table (0.444, 95% CI). The results showed that the r-count for all questions in each questionnaire was as follows: knowledge (0.457-0.8060), attitude (0.525-0.788), belief (0.483-0.703), family support (0.591-0.806), and mothers' behavior (0.445-0.803). The Cronbach Alpha test was also used to examine the reliability of the questionnaires. The results showed that the Cronbach alpha scores for each questionnaire were as follows: knowledge (0.846), attitude (0.842), belief (0.763), family support (0.910), and mother behavior (0.904). Thus it can be concluded that all questionnaires were reliable.

In this study, the knowledge was measured by asking 12 questions about the definition, time of delivery, type, benefits, method of administration, conditions, and composition of complementary feeding. A correct answer would obtain a score of 1, while a wrong answer would obtain a score of 0. The total score ranged from 0-12. The total score of knowledge then was categorized into good (9-12), moderate (5-8), and poor (0-4). Meanwhile, the attitude questionnaire measured mothers' response to reasons and considerations in fulfilling the four conditions (i.e., timely, adequate, safe and properly fed) for providing complementary feeding. Likert scales with options of never (1), ever (2), rare (3), and often (4) were utilized. There were 8 questions, so that the total score ranged from 8 to 32. The attitude was categorized into positive if the total score was higher than the mean data, and negative if the total score was less than mean data.

The questions about the belief included the myths and facts related to the tradition of complementary feeding that applies in the community. The questionnaire consisted of 8 questions with Likert scales of strongly disagree (1), disagree (2), agree (3), and strongly agree (4). The total score ranged from 8-32, and were categorized into positive (the score was higher than the mean data) and negative (the score was less than the mean data). Furthermore, the family income was grouped as inadequate and adequate based on the monthly family income, whether above or below the regional minimum wage in Surabaya. Meanwhile, the family support questionnaire was developed based on parameters of emotional, material, and informational support provided by families in selecting complementary feeding. There were 13 questions with never, rarely, often, and always options (score 1-4). The total score ranged from 13-52. The family support was categorized into good (higher than the mean data) and poor (less than the mean data). The last, the behavior of mothers in selecting complementary feeding was measured by asking questions regarding the way of the food was prepared, type (instant and / or homemade), composition, and variations of complementary feeding menus. There were 16 questions with the options of never (1), rare (2), often (3), and always (4), with a total score of 16-64. The behavior was categorized as appropriate if the score was higher than the mean data, and inappropriate if the score was less than the mean data.

Data analysis

All data in this study were ordinal since the total score of measurement was categorized into several levels. The Spearman's rho statistical test with a significance level of ≤ 0.05 was, therefore, utilized to determine the relationship between variables.

Ethical considerations

This study obtained ethical approval from the Health Research Ethics Committee of the Faculty of Nursing, Universitas Airlangga (No. 1415-KEPK). All participants were informed of the study and signed an informed consent for their voluntary participation.

RESULTS

Demographic data of the participants

The results of study showed that the majority of respondents were aged 20-35 (109; 71.2%), senior high school graduates (89; 58.2%), housewives (130; 85%), Javanese (114; 74.5%), and had inadequate family income (123; 81.6%), and extended family (86; 56.2%) (Table 1).

Table 1. The demographic characteristics of respondents (n=153).

Characteristics	*f*	%
Age of mother		
<20 years old	18	11.8
20-35 years old	109	71.2
>35 years old	26	17.0
Education		
Junior high school	41	26.8
Senior high school	89	58.2
Higher education	23	15.0
Family income		
Inadequate	123	81.6
Adequate	30	18.4
Occupation		
Housewife	130	85.0
Employed	17	11.1
Self-employed	6	3.9
Tribe		
Javanese	114	74.5
Madurese	38	24.8
Others	1	0.7
Type of family		
Nuclear	67	43.8
Extended	86	56.2
Age of infant		
6 months	29	19.0
7 months	10	6.5
8 months	16	10.5
9 months	27	17.6
10 months	21	13.7
11 months	17	11.1
12 months	33	21.6
Weight of infant		
(6.0 – 8.0) kg	76	50
(8.0 – 10.0) kg	31	20
(10.0 – 12.0) kg	46	30
Height of infant		
(60.0 – 80.0) cm	26	17
(80.0 – 100.0) cm	89	58
(100.0 – 120.0) cm	38	25

Factors associated with mothers' behavior in selecting complementary feeding

Table 2 shows factors associated with mothers' behavior in selecting complementary feeding based on the PRECEDE-PROCEED model which include knowledge, attitudes, beliefs, income, and family support. The result showed that 102 (66.6%) mothers had appropriate behavior in fulfilling complementary feeding for their babies. A majority of mothers (118; 77.1%) had good knowledge and adequate income (123; 81.6%). Nearly half of respondents (76; 49.6%) had positive attitude, 81 (53%) had positive beliefs, and 78 (50.9%) had good family support. The statistical test showed that all independent variables (knowledge, attitudes, beliefs, income, and family support) had a significant yet a weak correlation with maternal behavior in selecting complementary feeding.

Table 2. Factors associated with mothers' behavior in selecting complementary feeding (n=153).

	Mothers' behavior		Total	Spearman-rho test	
	Appropriate	Inappropriate		*p*	*r*
	f (%)	*f(%)*			
Knowledge					
Good	84 (54.9)	34 (22.2)	118 (77.1)	0.021	0.187
Moderate	17(11.1)	13(8.49)	30 (19.6)		
Poor	1 (0.65)	4 (2.61)	5 (3.26)		
Attitude					
Positive	57 (37.2)	19 (12.4)	76 (49.6)	0.030	0.176
Negative	45 (29.4)	32 (21)	77 (50.33)		
Belief					
Positive	62 (40.5)	19 (12.4)	81 (53)	0.006	0.222
Negative	40 (26.1)	32 (20.9)	72 (47)		
Income					
Inadequate	28 (18.3)	2 (1.3)	30 (18.3)	0.000	0.582
Adequate	74 (48.3)	49 (33.3)	123 (81.6)		
Family support					
Good	60 (39.2)	18 (11.7)	78 (50.9)	0.006	0.222
Poor	42 (27.4)	33 (21.5)	75 (49.0)		
Total	102 (66.6)	51 (33.3)	153 (100)		

Notes: p = Significance value; r = Correlation strength value

DISCUSSION

The PRECEDE-PROCEED model is a comprehensive structure used to assess health related behaviors and environments that affect it. PRECEDE stands for Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation, while PROCEED stands for Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development (Shams et al., 2016). The discussion of this study will be focus on the predisposing, reinforcing, and enabling factors associated with mothers' behavior in selecting complementary feeding, so that they can contribute to developing programs as an effort to solve the problems.

The results of this study reported that most respondents with good knowledge showed appropriate behavior in selecting complementary feeding. In contrast, respondents who had poor knowledge tended to show inappropriate behavior of selecting complementary feeding. This result is in line with a previous study (Yeganeh, Motamed, Boushehri, Pouladi, & Ravanipour, 2018) which reported that mothers who have good knowledge will provide appropriate complementary foods, as they know more about breastfeeding, complementary feeding practices, food safety, suitable food for children, how to cook the right food and how to access the information needed.

The results also showed that there was a significant correlation between attitude and the choice of complementary feeding. The majority of respondents had positive attitudes and appropriate behavior in choosing the type of complementary feeding. This result is in line with a study conducted in India, reporting that most mothers have a positive attitude towards infant nutrition (Deshpande & Gokhale, 2020). Another study stated that attitude is one of the factors that determine the behavior of complementary feeding (Fabrizio, Van Liere, & Pelto, 2014). This study also found that respondents with negative attitudes tend to have inappropriate behavior in fulfilling complementary foods for their children, which can be due to their low education background. Educational level is in line with the knowledge and thinking patterns (Kim, Mejía-Guevara, Corsi, Aguayo, & Subramanian, 2017). Attitude is one of the factors that can encourage certain actions to be taken by someone. Attitude is a predisposition to do or not to do a thing or behavior, so that attitude is not only a condition from within a person that involves the purely physical inner state, but it is more interpreted as a process of awareness that is individual. If a mother has good or positive attitudes towards the provision of complementary feeding, the behavior in selecting the type of complementary feeding to be given to her baby will also be good or positive. In this case, this mother will choose the right type of complementary feeding that is complete in macro and micro-nutrient composition, so that the nutritional needs of the baby can be fulfilled (Kittisakmontri, Fewtrell, Roekworachai, Phanpong, & Lanigan, 2018). There are many factors that influence mothers' attitudes in selecting complementary feedings, including experience, cultural influences, religion and the influence of others (Yeganeh et al., 2018). A person can still have positive attitudes even though he/she has moderate or inadequate knowledge due to the influence of environment around them (Yeganeh et al., 2018).

This study showed that there was a correlation between the beliefs and the selection of complementary feeding. Respondents with positive beliefs had the appropriate selection of complementary feeding, while respondents with negative beliefs had the opposite. This is in line with research in Ghana which reported that beliefs and cultures are factors that influence the determination of complementary feeding in Infant and Young Child (IYC) (Kalra et al., 2018). In addition, ethnographic-based research in Kenya stated that culture and beliefs are the determining factors for complementary feeding for IYC (Thuita, Pelto, Musinguzi, & Armar-Klemesu, 2019). The respondents in this study were mostly Madurese and Javanese who are already known for their belief in and adherence to the culture of their ancestors; one of which is providing single menu for babies. They believe that babies will experience allergies if given food consisting of various ingredients (Nurzeza, Larasati, & Dyah Wulan, 2017)). Mothers who are born and raised in such an environment will automatically follow the way of life carried out by parents and their environment. In other words, they adhere to the traditions of their parents (Wang et al., 2019). Lack of knowledge about nutrition in extended families who live with mother and child will also have an impact on the practice of feeding for toddlers (Manjunath, Biradar, Goud, & Rajagopal, 2016). In addition, the characteristics of the respondents in this study indicate that more than half of the respondents have the extended family type, meaning that mothers, in caring for their children, also get the influence of culture from their family.

This study showed a significant correlation between income and behavior in selecting complementary feedings. The higher the income, the more the respondents pay attention to the type of complementary feedings given to their babies, so that they had appropriate behavior in selecting complementary feeding. Respondents with low income, that is less than the minimum wage, were less concerned about the type of foods given to their babies, leading to inappropriate behavior. This result is line with previous research in Makassar, Indonesia, which reported that family income affected children's nutritional status, due to feeding patterns (Tahangnacca, Ridwan, Ansariadi, & Syam, 2020). Research in Romania suggests that parents with low incomes are at risk of providing inappropriate complementary feeding (Becheanu, Ţincu, & Leşanu, 2018). Socio-economic factors are factors related to financial conditions that cause greater purchasing power for foods. In the case of complementary feeding, family income is important because higher family economy will increase the purchasing power of complementary foods, and in contrast, low family economy will decrease the purchasing power of such foods (Barachetti, Villa, & Barbarini, 2017).

In this study family support is significantly related to the selection of complementary feeding behavior. This means that respondents with good family support had more appropriate behavior in selecting complementary feedings than those with poor family support. Previous research states that proper family support in childcare plays a role in children's nutritional status (Cislak, Safron, Pratt, Gaspar, & Luszczynska, 2012). In terms of feeding the baby, good family support is motivating the mother to provide appropriate complementary feeding, giving psychological support to the mother and preparing balanced nutrition for the baby (Barachetti et al., 2017). In this study the majority of respondents showed good family support since the majority of them lived in their extended families. Respondents who live in extended families will have greater family support in terms of emotional, material and informational support due to direct interactions (McDole & Limke, 2008).

This study has a limitation concerning a small number of respondents who participated in the questionnaire validity and reliability test. Despite the limitation, this study provides significant information on the factors affecting mothers' behaviors in selecting complementary feeding in Surabaya, Indonesia.

CONCLUSION

The application of the PRECEDE-PROCEED model as a diagnostic tool to identify factors associated with mothers' behavior in selecting complementary feeding in babies age 6-12 months yielded findings that mothers' knowledge, attitudes, beliefs, family income, and family support were factors that determined mothers' behaviors. Good knowledge and positive attitude are the main assets for mothers to be able to choose the appropriate complementary feeding for babies. Beliefs about the culture and traditions held by the community and the environment around the mothers also greatly influence the mothers' behavior in selecting complementary feeding. Family income is related to the purchasing power of a family, so good income affects the selection of appropriate complementary feeding as well. The last but not least, good family support is a driving factor for mothers to be able to choose the appropriate complementary feeding.

The findings in this study are useful for arranging interventions in order to improve mothers' behavior in providing complementary feeding by improving training services provided by health practitioners to increase knowledge and attitudes about appropriate complementary feeding in terms of types, numbers, methods of processing, and modes of administration. The services should be continuously given both to mothers as the primary caregiver of infants and families as the closest support system for mothers.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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The Relationship between Job Stress and Job Satisfaction among Saudi Nurses: A Cross-Sectional Study

Omar Ghazi Baker[1], Bandar Dhafer Alshehri[2]

[1]College of Nursing, King Saud University, Riyadh, Kingdom of Saudi Arabia
[2]Nursing Administration Department, King Saud Medical City, Riyadh, Kingdom of Saudi Arabia
Corresponding Author: Omar Ghazi Baker (obaker70@gmail.com; obaker@ksu.edu.sa)

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ABSTRACT

Background: The productivity of nurses and patient healthcare is highly influenced by nurses' stress-related factors and job satisfaction. Nursing is the least preferred career opportunities for Saudi residents as compared to other options. Nurses' perceptions of intention to quit contributes to their shortage in Saudi health care institutions.
Purpose: The study aimed to examine the relationship between work-related stress and job satisfaction among Saudi nurses working at a public hospital.
Methods: The research used a cross-sectional design that collected data from samples of 297 nurses working at a specified public hospital and aged over than 20 years old. Convenient sampling was employed to recruit the samples. Data were collected using the Expanded Nursing Stress Scale (ENSS) and Job Satisfaction Scale (JSS). The Statistical Package for Social Sciences (SPSS) version 20.0 was applied, and Pearson's correlation test was to identify the relationship between variables.
Results: The results indicated that the nurses at the hospital where the study took place experienced low levels of stress with a mean value of 2.1995. Besides, the nature of work indicated maximum job satisfaction with a mean value of 15.666, whereas minimum job satisfaction levels (11.569), were related to benefits provided to nurses. A positive correlation was found between the level of stress and satisfaction with a p-value of 0.041.
Conclusion: The stress factors were highly correlated with job satisfaction. The identification of stress factors is important as it may create a negative impact on patients' care and their well-being. It is suggested that changes in managerial affairs and policies are essential for implementing beneficial strategies that may assist in resolving the issue.

Keywords: Nurses; patient care; Saudi Arabia; work-related stress

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BACKGROUND

Nurses are considered integral for ensuring the nation's adequate health, while studies have recognized it as the most stressful profession (Chien & Yick, 2016; Muhawish, Saleem, Baker, Elbilgahy & Hashem, 2019). Muhawish et al. (2019) stated that stress jeopardizes individual and organizational efficiency. For instance, it causes an adverse impact on the nurse job satisfaction, well-being, and health at an individual level, and leads to increased turnover and absenteeism at an organizational level. This eventually causes an adverse impact on healthcare efficiency and quality (Sharma et al., 2014).

Stress can also transform into a negative phenomenon if it is intense and continuous, leading to physical illnesses and psychological disorders (Gulavani & Shinde, 2014). AbuRuz (2014) stated that undesirable consequences result due to work-related stress among nurses that decreases their level of job satisfaction. Chien and Yick's (2016) study provided an international perspective concerning nurse stress and strain. The study confirmed it as the most stressful profession across different industries and on a global scale. This is also evident from its prevalence at 55% (Nasr-Esfahani, Masoumi & Mohamadirizi, 2017). Dagget, Molla, and Belachew (2016), further showed that job-related stress affects 9.2-68% of the total nurse population. Job satisfaction is among the most significant organizational problem concerning job stress (Hosseinabadi & Etemadinezhad, 2018; Nehrir, Ebadi, Tofighi, Karimi Zarchi, & Honarvar, 2010; Shahnazi, Daniali & Sharifirad, 2014). There is an increase in the level of self-confidence, improved physical, mental and social health, improved communication, and reduction in the level of psychological distress due to job satisfaction (Shahnazi et al., 2014). Other factors such as salary, job dimensions, company policies, and personality characteristics also affect the level of job satisfaction among nurses (Emadzadeh, Khorasani & Nemtizadeh, 2012).

Nurses experience a variant level of job stress when they are unable to meet the work requirements that negatively affect their performance, leading to job dissatisfaction. Previous research reported a positive association between job satisfaction and staff performance (Mohammadi, 2016). Also, similar findings were reported by a study conducted among Saudi nurses working in the critical care unit (Awajeh, Issa, Rasheed, & Amirah, 2018).

The environment is usually stressful due to different factors where in which nurses work. Soltanmoradi, Ansari, and Heidari (2017) determined the sources of stress among Iranian nurses working in the University of Medical Sciences, Iran. Among various reasons, death and dying were the most top-rated situations that were stressful for Iranian nurses. In contrast to this, discrimination among nurses was identified as the least stressful variable. Another common reason includes treatments related to various uncertainties. Similarly, the rate of stress in the general operating rooms was significant, with the highest mean scores of conflicts with a physician along with inadequate preparation (Soltanmoradi et al., 2017).

Chaudhari, Mazumdar, Motwani and Ramadas (2018) conducted a study to further highlight the levels of occupational stress among western nurses. The results showed that almost half of the overall nurses experienced mild stress; the other 34% experienced moderate stress. The remaining 2% of nurses experienced high-level stress. Besides, the study has identified different reasons that serve as the sources of stress among American nurses. The factors include conflicts with families and supervisors, and increasing workload serves as the leading cause of stress. Similarly, nurses with professional experience of almost 6-10 years faced maximum stress. Jackson (2016) pinpointed the sources of satisfaction among nurses; the factors, include maximum level of age (oldest or youngest), nurses with master's degree, and females belonging to two or more races.

García-Izquierdo, Meseguer de Pedro, Ríos-Risquez and Sánchez (2018) showed that stress emerges due to interpersonal conflicts, inadequate social support, and patient-induced violence, which leads to burnout development (chronic stress). To subside its impact, nursing attitude and their relationship with their peers, colleagues, and supervisor are found to reduce their stress levels. The offering of economic benefits, including a better salary, can lead to a reduced stress level and induces job satisfaction. This highlights the need for a study that analyses the correlation between job stress and job satisfaction level to help overcome the adverse outcome on nurses, facilitating the provision of better care quality.

Similar to other countries, the Saudi healthcare sector is also found to suffer from increased stress leading to nurse shortage. Almajwal (2016) noted a shortage of nurses in Saudi Arabia, which present only 25% of the overall workforce. In addition, Saudi Arabia experiences a shortage of nursing staff with one nurse for 296 patients, unlike the developed countries having one nurse for 135 patients (Ministry of Health [MOH], 2012). Besides, the ratio of population and nurses is also projected to be below the developed countries (World Health Organization, 2018), emphasizing a further analysis of nurses' job satisfaction and stress level. Further, studies also indicate that workload increases due to nurse shortages, leading to psychological distress (Li et al., 2016), which is likely to affect the care delivery to patients. Based on each nurse's individual differences, there is an increased chance of developing work-related stress that leads to differences in job satisfaction. For instance, almost 3,950 nurses in King Saud Medical City received 1.06225 million patients within one year. Thereby, continuous complaints are received by nurses regarding work-related stress. A previous study showed that health care systems and patient care is negatively affected as a result of stress, depression, job satisfaction, and psychological distress (Salam, 2016). Improved quality of care and a reduction in medical errors are possible when work-related stress is reduced and job satisfaction is increased among the nurses. This also helps contribute to the Saudization policy of the country (Alboliteeh, Magarey & Wiechula, 2017).

Previous studies have indicated a more significant influence of stress on job satisfaction of nurses. The complexity of critically ill patients' circumstances and workload in the hospital put forth nurses under further stressors. A research study is needed to reduce the adverse outcomes on nurses, correlating the role of job stressors on the satisfaction rates of nurses. In this research, the researchers have hypothesized a correlation between the two factors: job satisfaction and job-related stressors among nurses. Therefore, there is a need to investigate the relationship between work-related stress and job satisfaction to direct the administrators towards reducing stress and increasing job satisfaction among nurses in Saudi Arabia.

PURPOSE

The present study aimed to examine the relationship between work-related stress and job satisfaction among Saudi nursing staff.

METHODS

Research design and participants

The study adopted a cross-sectional design to investigate the relationship between work-related stress and job satisfaction among Saudi nurses. The emergency department, intensive care unit (ICU), surgical ward, neuroscience ward, dialysis ward, and pediatric ward in a public hospital in Riyadh, Saudi Arabia, were approached for collecting data from nurses. These units were incorporated, given the lack of studies concerning the cumulative effect.

The samples comprised 297 nurses that were recruited using a convenient sampling method, which provided a minute opportunity to control for biases. The sample size was computed using the sample size formula, where the population was 1,000. The error of margin was kept at 5% and the confidence interval at 95%. The sample size for it should be at least 278. The targeted sample size was justified using the Raosoft sampling size formula. The nurses who were above 20 years old, registered nurses, and working at the specified hospital fulfilled the inclusion criteria. No confounding factors were used to confine the sample size. Among them, those who gave consent to participate in the study were recruited. The nurses lacking any of these qualities were excluded from this research. Figure (1) depicts the overall selection procedure.

Research instrument and data collection

The data in this study were collected using the Expanded Nursing Stress Scale (ENSS) and Job Satisfaction Scale (JSS) (original versions) between July 2017 to December 2017. Job-related stressors among nurses were measured using the ENSS, an expanded and updated revision of the classic Nursing Stress Scale (NSS) developed by Gray-Toft and Anderson (1981). The ENSS is a validated and widely used scale to assess work associated stress among nurses (Milutinović, Golubović, Brkić & Prokeš, 2012). In connection with the changing times of the domestic work environment in nursing, the ENSS scale is also the updated version of NSS to accommodate the effect of stressful conditions such as the dying and death of patients, unfair demands of patients and their families, various violence, conflict with peers, conflict with physicians, working with opposite gender nurses, or discrimination are the recent problems faced by the nurses (French, Lenton, Walters, & Eyles, 2000). Meanwhile, the JSS is also a validated tool to assess job satisfaction level in hospital jobs and on nursing staff (Kvist et al., 2012).

The ENSS targets the prevalence of stress among the nursing staff by measuring the frequency and major sources of stress in patient care situations similar to that of NSS. However, NSS is updated to ENSS to accommodate the change in stress factors with respect to the changing nursing environment. The degree to which people like their jobs was assessed through JSS (Spector, 1985). This scale provides an overall job satisfaction score after the assessment of nine facets that include: pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, nature of work, and communication. The questions were responded on a 6-point scale for each item (1=much disagreement, 2=disagree moderately, 3=disagree slightly, 4=agree slightly, 5=agree moderately, and 6=agree very much). The values for stress level were differentiated in three sections: continuum, descriptive meanings (0-0.99 = does not apply, to 4.0 and above = above extreme), and overall meaning interpretation (0-0.99 = no stress, to 4.0

and above = very high level of stress). In addition, satisfaction was measured on a three-item scale (4.00-12.00 = dissatisfied to 16.00-24.00 = satisfied).

In the present study, Cronbach's coefficient alpha was calculated for determining the reliability of the subscales of ENSS (Milutinović et al., 2012) and NSS (Gray-Toft & Anderson, 1981). The alpha scores of the questions ranged between 0.70 to 0.85, showing good reliability. The validity of the questionnaire was calculated with proper designing, piloting, and addressing the reference group's feedback.

The questionnaires were administered to the nurses with the presence of a researcher for clarifying unclear questions. Similar instructions were provided to all recruited nurses. Enough time was provided to the nurses for filling the questionnaires and this entire procedure was completed in four weeks.

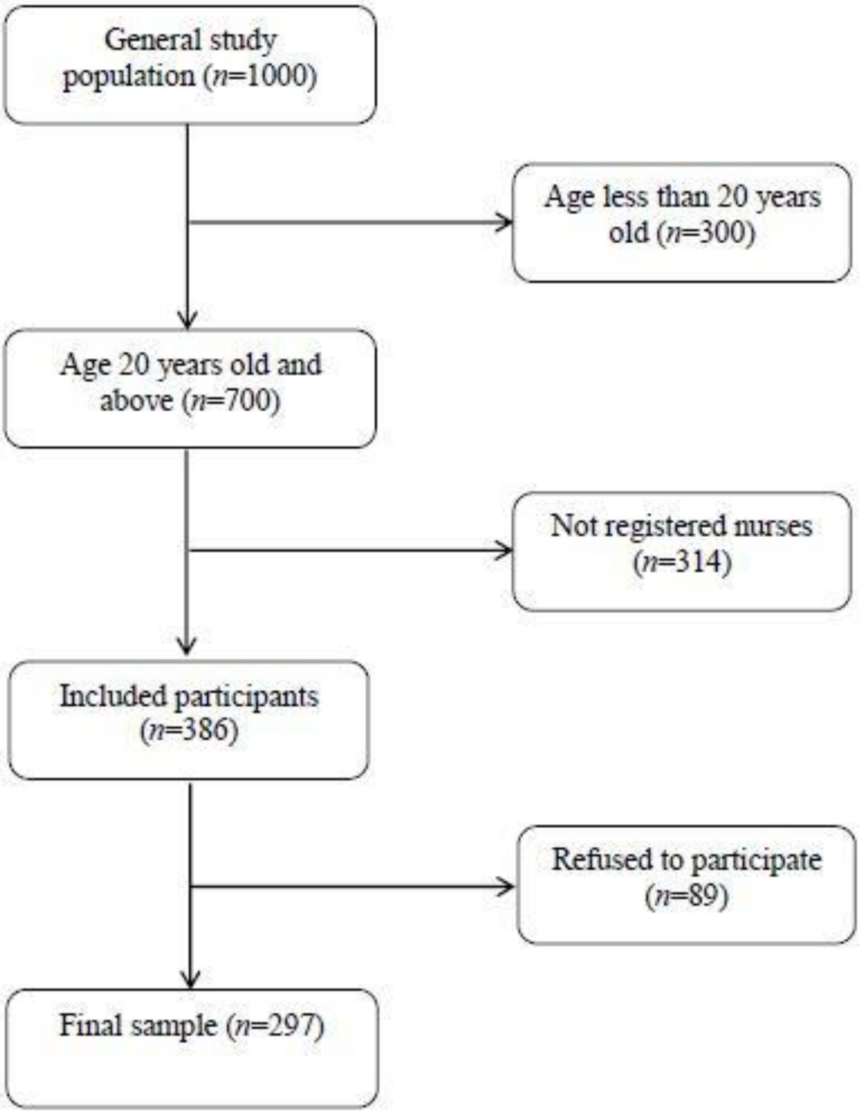

Figure 1. Participants' selection

Data analysis

The data collected through the questionnaires were coded and entered on the excel sheet for analysis. The completeness of the questionnaire was verified after completing the procedure of data collection. The data from excel was coded and analyzed using Statistical Package Social Science Software (SPSS) version 20. The characteristics of nurses and the level of stress and satisfaction among them were determined using the descriptive statistics, whereas the relationship between stress and job satisfaction among nurses was investigated using Pearson's correlation test.

Ethical considerations

This study was approved by the Institutional Review Board (IRB) of King Saud University [Ref. No. 17/0292/IRB, 29 March 2017]. Permission to use the ENSS and JSS in this study was also obtained from their original authors. All the recruited nurses were explained of the study's purpose and procedures. Also, a sign was obtained for an informed consent form explaining their rights in the study.

RESULTS

Demographic characteristics of the respondents

The results of this study showed that the majority of the respondents were females, with an overall percentage of 89.9%, and belonged to the age group between 20-30 years old, with a given percentage of 53.5%. Furthermore, most of them (75.4%) were holding Bachelor's degree and working in the unit with a duration of above 4 years (52.5%). Similarly, 82.2% of nurses were working in the night shift, while 82.2% of nurses were on rotation shifts. Most nurses were employed as registered nurses, between 5 to 10 years, with a given percentage of 40.4%. Concerning the nurses' level of salary, most of the nurses were paid between SAR 5,000 to 10,000 (65.7%). Table 1 provides a detailed description of the characteristics of the respondents.

Level of stress and satisfaction among nurses

Table 2 provides results related to the level of stress among nurses. According to the results, the given participants' stress level is low, with a mean value of 2.1995. Regarding the level of satisfaction among nurses, findings proposed that most of the nurses were dissatisfied with the benefits provided to them, with a mean value of 11.569. Contrary to this, maximum satisfaction was provided for the nature of work with a mean value of 15.666.

The correlation between the level of stress and satisfaction is provided in Table 3. Results indicate a positive association between the level of stress and promotion, with a significant p-value of 0.041. Moreover, participants with maximum satisfaction level in terms of the level of promotion usually experience maximum stress. In contrast to this, participants with low satisfaction level towards promotion experience minimum stress. Therefore, the results indicate that the level of satisfaction among nurses is not entirely related to stress.

Table 1. Demographic characteristics of respondents (n=297)

Demographic characteristics	Frequency *(f)*	Percentage *(%)*
Gender		
Male	30	10.1
Female	267	89.9
Age		
20-30 years	159	53.5
31-40 years	110	37.0
41-50 years	27	9.1
>50 years	1	0.3
Marital Status		
Single	120	40.4
Married	177	59.6
Education Level		
Diploma	70	23.6
Bachelors	224	75.4
Masters	3	1.0
Duration in the unit		
<1 year	41	13.8
1-4 years	100	33.7
>4 years	156	52.5
Shift		
Day	53	17.8
Night	244	82.2
Nature		
Day	53	17.8
Night	0	0
Rotating	244	82.2

Table 2: Level of stress and satisfaction among nurses (n=297)

	N	Min	Max	Mean	SD	Remarks
Stress	297	0.67	4.00	2.1995	0.61159	Low stress
Satisfaction (Subscales)						
Pay	297	4.0	23.0	12.808	3.922	Ambivalent
Promotion	297	4.0	23.0	12.053	3.647	Ambivalent
Supervision	297	4.0	24.0	13.976	4.143	Ambivalent
Fringe/Benefits	297	4.0	21.0	11.569	3.840	Dissatisfied
Contingent	297	4.0	24.0	12.181	4.231	Ambivalent
Operating Conditions	297	4.0	20.0	12.612	3.435	Ambivalent
Coworkers	297	7.0	24.0	14.828	3.446	Ambivalent
Nature of Work	297	5.0	24.0	15.666	4.477	Ambivalent
Communication	297	4.0	24.0	13.478	3.88	Ambivalent
Satisfaction	297	71.0	186.0	119.1	20.63	Ambivalent

Table 3: Correlation between levels of stress and satisfaction among nurses (n=297)

Components of Satisfaction	Level of Stress Point Biserial Correlation	Pearson's Correlation p-value
Stress	1	
Pay	0.82	0.161
Promotion	0.119*	0.041
Supervision	0.057	0.327
Fringe Benefits	0.017	0.771
Contingent	-0.006	0.921
Operation	-0.062	0.288
Co-workers	0.030	0.610
Nature of work	0.086	0.139
Communication	0.039	0.500
Satisfaction	0.071	0.225

*Correlation is significant at the level of 0.05

DISCUSSION

The study intended to explore the relationship between stress and job satisfaction among nurses through various variables. The health care manager, nursing instructors, and hospital policymakers would be able to provide appropriate strategies and programs for promoting job satisfaction by understanding the association between job-related stress and job satisfaction among the nurses. The level of productivity and efficiency among nurses is likely to increase by promoting job satisfaction, which would improve their performance (Ella, Asuquo, Akpan-Idiok, & Ijabula, 2016).

Results in this study have indicated that supervision, operating conditions, nature of work, satisfaction and communication are associated with high-level job satisfaction among nurses. These results are supported by Loh, Gan, Lim, Loh, and Yong (2016), which showed that supervisor's support provided a positive influence on job satisfaction among nurses. Kula and Guler (2014) also indicated similar findings and concluded that supervisor support is important in providing job satisfaction to nurses (Kula & Guler, 2014). Results of the present study are also endorsed by Saleh, Saleh, and AbuRuz (2013), as the maximum level of job satisfaction among nurses was related to the nature of work with a mean value of 4.46. However, the minimum level of job satisfaction was related to the operating conditions with a mean value of 2.85.

The findings highlight that the work environment and job-related benefits of the health care organization should be redesigned for promoting positive outcomes. This involves the instigation of a better system that uses transparent practices concerning the reporting and as well as providing support for improved satisfaction level. The practitioners are suggested to introduce different reimbursement practices that recognized nurses' high performance and productivity. This could be based on fewer complaints of the patients or on regularity, as these are the primary factors that affect the care quality. Improvements should be instigated in terms of individual responsibilities, work delegation, and breaks to help eliminate the stress-inducing promoters. To ensure healthy interaction among the staff and the patient, different strict protocols can be implemented.

Nurses should be provided with counseling sessions as well as practices that enable them to communicate with the patient and the staff, and this should follow a continual screening procedure where nurses are frequently screened for identifying any psychological distress (Villani et al., 2013). Also, policies should be implemented by the Ministry of Health and the management of the hospital to address the factors that lead to stress. Besides, different psychological distressed interventions could be performed to improve the nurse satisfaction level (Heath, Sommerfield & von Ungern-Sternberg, 2020). The curriculum highlighting the stress-inducing factors should also be introduced along with the different interventions that can be applied for reducing it.

Results indicated that the majority of the nurses belonged to the age group between 20-30 years, while 40% of the total nurses were employed as registered nurses from 5-10 years. Salaries for most of the nurses ranged between SAR 5,000-10,000. The literature suggests that job satisfaction leads to decreased job-related stress. Kvist et al. (2012) further suggests that this job satisfaction is related to the perceived quality of care provided by their unit. Holmberg, Sobis, and Carlström (2016) found a strong correlation between a good salary and job satisfaction. As in this study, the nurses had a steady salary and were mostly registered for 5-10 years; the results indicated low levels of stress among the given sample of nurses. Participants that enjoy maximum promotion usually experience a high level of stress. This could be due to the effect of promotion on job performance. Razak, Sarpan, and Ramlan (2018) posit that promotion to dominant or positions with responsibilities often affects job performance, which could lead to added job-related stress. Results of the study are in contrast to those proposed by Jawad, Jeffery and Wanton (2015), according to which, the level of stress among nurses increases with the deaths of patients. In contrast to this, the minimum stress level was related to the emotional needs of patients.

Similarly, results of the present study are in contrast to the results proposed in the study of Galdikiene, Asikainen, Baciunas, and Suominen (2016). They posit inadequate preparation of nurses, conflicts with a physician, problems with supervisor and coworkers, served as the major stress factors among nurses. Also, most of the nurses, when working as a team, experienced stress due to treatment uncertainties. Chatzigianni, Tsounis, Markopoulos, and Sarafis (2018) provided conflicting results regarding age and stress among nurses. According to the findings, nurses aged between 30-34 years experienced maximum stress and vice versa. The findings contradict the results proposed in the present study since the study's maximum population belongs to the age group between 20-30 years.

There was a positive and significant impact on nurses' perceptions of their promotion on their job stress. Consequently, the impact of effective promotion in the work environment is examined on the individual, including job satisfaction. The transmission of information can be obstructed in multicultural personnel such as the ones revealed in the industry because of differences in values, beliefs, religion, attitudes, behaviors, education, and cultural norms of individuals. Increased job satisfaction, enhanced working conditions, and additional opportunities for professional growth were the reasons cited for returning to nursing profession. Likewise, nurses' professional growth is improved by educational opportunities and therefore had a substantial influence on job satisfaction.

Transparent organizational policies are required to increase communication satisfaction and influence nurses' intention to leave health institution jobs to a greater extent. Staff should be aware of better communications throughout the institution and be able to play an active role in solving issues that root from the paucity of communication. In this regard, the support of the systematic enhancements and hospital administration for all staff will be required for assuring communication satisfaction among nurses. Efficient feedback frameworks can be developed for nursing applications to reduce the communication chaos and conflicts faced by nurses in health care centers. Administrators can reduce nurses' intention to quit by facilitating them with a trust-based work environment and giving them a higher quality of work life.

Several factors are highlighted that create a valuable impact on job satisfaction among nurses. The identification of stress factors is important as they may create a negative impact on patients' care and their well-being (Arnetz, Sudan, Goetz, Counts & Arnetz, 2019). Nurses also reflect a sense of dissatisfaction with their jobs resulting in high turnover rates and absenteeism, which directly impacts the quality of patient care (Arnetz et al., 2019). According to the given results, nurses enjoying maximum promotions have a significantly high level of stress. Maximum job satisfaction was related to the nature of work. The results of the study are important as they provide an important evaluation regarding the stress factors among nurses. This provides a responsibility to nurses' managers to make important measures that may reduce the level of stress among nurses while providing maximum job satisfaction. The results provided in the study exposed several different factors that may directly impact the level of job satisfaction among individuals. Change in policies and managerial affairs are important to implement useful strategies that may help to resolve the issue.

Despite the abundant information, the research involves certain limitations in the form of time and financial resources. The use of a cross-sectional study design limits the study results as the cause of the stress cannot be determined. It was also conducted on a single institute, which limits its results generalization to a greater population. The study is further limited due to the small sample size, as some of the nurses refused to participate due to work management or unavailability. This provides an opportunity for future researchers to conduct the study by involving a large sample in other Saudi Arabia hospitals. Findings provided in the study are important and can be implied in other Saudi Arabia hospitals to a certain extent. Further studies help policymakers make important measures regarding stress factors among nurses working in the specified hospital where the study took place. Future studies can include the qualitative research design for comprehensively evaluating the different stress-inducing factors. Also, different interventions can be introduced and evaluated concerning its impact on the nurse stress level as well as satisfaction.

This study has recommended that the shortage of nurses in Saudi Arabia can be handled by appropriate nursing management by making enhancements in communication satisfaction and work environment, as this would reduce nurses' intention to quit. Thereby, the nursing management bodies should emphasize promoting a professional practice environment to protect job satisfaction among nurses. Consequently, healthcare centers can accomplish the objective of providing quality care to the patients. The goal of patients' enhancement is directly proportional to the better professional work environment in the job satisfaction and well-being among nurses.

CONCLUSION

This cross-sectional study showed the relationship between work-related stress and job satisfaction among Saudi nurses involved in the study. Using the ENSS and JSS, the results depicted that the promotion of the nurses' help mitigates the stress level among them. The healthcare management at the hospital needs to induce different policies and practices that help overcome the professional outbreak among the Saudi nurses and improve their satisfaction level. These practices are likely to help improve patients' care and their well-being.

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The author declares no competing interest.

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Volunteering in Health Care Context: A Concept Analysis Using Rodger's Evolutionary Approach

Muhamad Zulfatul A'la[1,2], Khanitta Nuntaboot[2], Somporn Rungreangkulkij[2]

[1]Faculty of Nursing, Universitas Jember, Jember, Indonesia
[2]Faculty of Nursing, Khon Kaen University, Khon Kaen, Thailand
Corresponding Author: Muhamad Zulfatul A'la (m.zulfatul@unej.ac.id)

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ABSTRACT

Background: Volunteering is a common concept used in various disciplines including in the health care context. Nursing plays a role in volunteering concept development. However, the use of volunteering concept is still interchangeable. The clear definition concept about volunteering will promote the improvement in healthcare system quality.
Purpose: This study aimed to clarify the volunteering concept in the health care context using Rodger's evolutionary concept analysis.
Methods: This study used a literature review for collecting the exemplars. Researchers used articles published in 2010-2020 in ScienceDirect, PubMed, Web of Science, and Google Scholar. Articles were searched using OR and AND. The keywords and MeSH used were "Volunteering OR Volunteerism OR volunteers AND Health OR Care OR Nursing" in the title, abstract, and keyword articles. Inclusion criteria were full articles in English. Rodger's evolutionary concept analysis was implemented in this study with six steps.
Results: This study used 39 eligible articles analyzed by providing codes of each article and then classified them in attributes, antecedents, and consequences of concept. Five attributes of volunteering, namely, giving help freely, as long-term planned, as giving a benefit to another individual, group, or organization, as working at a formal organization, and as a long-life activity were found. Antecedents of volunteering include motivation, social demographic, and philanthropic behavior. The consequences of volunteering were consequences for volunteers, patients, and the health care system.
Conclusion: Volunteering is a complex concept and many surrogate concepts have similar definitions. The attributes are still debatable and need to be explored. Also, the consequences of volunteering are still rarely discussed in a particular health care system context. Further studies need to analyze the measurement of volunteering development based on the nursing theory framework and explore the consequences of volunteering in the health care system related to the nursing care context.

Keywords: Concept analysis; health care system; helping behavior; volunteering

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BACKGROUND

Volunteering is part of helping behavior that is one of the activities that contribute positively to human life. Also, volunteering is a crucial renewable resource for social and environmental problem-solving over the world, although it is sometimes under-appreciated (International Labour Organization, 2011; Wilson, 2000). Therefore, many researchers have tried to describe the concept of volunteering from various disciplines.

Nowadays, the concept of volunteering is still debatable. Some of the terms used are also unclear and interchangeable. Other terms have similarities meaning with the concept of volunteering, such as volunteerism, social activism, or philanthropic behavior (Alias & Ismail, 2015; Hustinx, Cnaan, & Handy, 2010; Wilson, 2000). Volunteering has a broad meaning. In general, volunteering is a social activity given freely and has an advantage within individuals, groups, and organizations (Stukas, Snyder, & Clary, 2014). The concept of volunteering is rooted in psychology, political science, economy, and sociology (Hustinx et al., 2010).

In sociology and political context, many scholars stated that volunteering is associated with social activism (Stukas, Snyder, & Clary, 2016; Wilson, 2000). These two concepts are quite different. Social activism is oriented toward social change; however, volunteering focuses on helping with individual problems (Wilson, 2000). Furthermore, in the psychology context, volunteering is sometimes associated with altruism and philanthropic behavior, although some scholars consider this interchangeability concept (Alias & Ismail, 2015; Nothwehr & Rohlman, 2019). In the economic context, volunteering is a form of employment without payment and labor contracts (International Labour Organization, 2011). Mismatch naming and misuse concepts might make difficulties in developing research related to volunteering.

Volunteering is commonly utilized in health care context. Volunteering is an integral part of the health services system and needs special attention (Jenkinson et al., 2013; Pilayon & Nuntaboot, 2017; Singh, Cumming, Mohajer, & Negin, 2016). Many studies revealed that volunteering effectively improves the quality of health services (Jenkinson et al., 2013; Singh et al., 2016). Furthermore, volunteering can improve volunteers' and patients' health status in the health care context (Hsiao et al., 2020; Papa, Cutuli, Principi, & Schere, 2019; Poulin, 2014; Stukas, Hoye, Nicholson, Brown, & Aisbett, 2016). Thus, it is necessary to explain the concept of volunteering in the health care context and become the foundation for further research in instrument development.

Concept analysis is an essential strategy for clarifying concepts that are still ambiguous and vagueness (Rodgers & Knafl, 2000). Also, concept analysis can help explain the antecedents, attributes, and consequences of a concept, making it easier for researchers or scholars to develop research or understand a concept in daily practice implication (Paley, 1996). Although there is limited nursing theory as the conceptual framework, the concept of volunteering needs to be developed from research to practice in nursing (Witucki Brown et al., 2011). Volunteering is close to the nursing context, especially in the concept of altruism and community participation model. Altruism becomes a foundation in the caring process, and community participation is a nursing care strategy of increasing the quality of health care systems (Smith, 1995; Stukas et al., 2014).

Therefore, nurses must know the concept of volunteering for developing research and improving health care quality.

Previous research about volunteering in healthcare context is rarely conducted. There is a study about developing instruments in observing the burden experienced by volunteers (Gau, Buettner, Usher, & Stewart, 2014). However, the study only described the aspect of burden, not seeing the attribute of volunteering comprehensively as well as not being specific in the health care context. Volunteering is a dynamic concept and needs multi-perspective views in the analysis process. Rodger's evolutionary method emphasizes the context of the concept and uses an inductive approach (Tofthagen & Fagerstrøm, 2010), and is suitable for the analysis of the concept of volunteering in health care context. It is pivotal to conduct a concept analysis in volunteering to know the concept components comprehensively.

PURPOSE

This study aimed to clarify the concept of volunteering in the health care context using Rodger's evolutionary concept analysis. Moreover, the coding method was utilized to collect and classify the antecedents, attributes, and consequences of the concept of volunteering.

METHODS

This study used Rodger's evolutionary concept analysis. This concept analysis aimed to describe the concept clearly and distinguish one concept from other concepts. Rodger's evolutionary concept analysis emphasized the literature review process in collecting data. Moreover, data analysis used the articles' codes and classified them into the antecedents, attributes, and consequences of the concept of volunteering. Rodger's evolutionary approach has six steps, namely: (1) identifying the concepts and associated expressions (such as surrogate terms), (2) selecting an appropriate data collection realm, (3) collecting data, (4) analyzing data, (5) identifying an exemplar of the concept, and (6) identifying implications or proposing hypotheses (Rodgers & Knafl, 2000).

Data collection

In collecting data for the literature review, ScienceDirect, PubMed, Web of Science, and Google Scholar databases were used. An additional resource, a printed journal without an online version, was also explored to enrich the literature review. Searching literature used two Boolean operators, namely "OR" and "AND". The keywords and MeSH used were "Volunteering OR Volunteerism OR volunteers AND Health OR Care OR Nursing" in the title, abstract, and keyword articles. Inclusion criteria were full articles in English published from 2010 to January 2020.

In the first step, we found 1,235 articles. We adopted the screening method for literature review from Stovold, Beecher, Foxlee, and Noel-storr (2014) started from identification, screening, eligibility, and included articles. Furthermore, to make the literature review more focused on volunteering in the health context, further inclusion and exclusion criteria were added. Inclusion criteria were volunteering activities in the community or hospital settings and all health contexts by untrained or trained laypeople. Articles explaining about the health workers or health students as volunteers were excluded.

Volunteering for health workers or health students may differ in the concept and theory foundation as well as different consequences. At last, we found 39 articles that were used in the concept analysis process (see Figure 1).

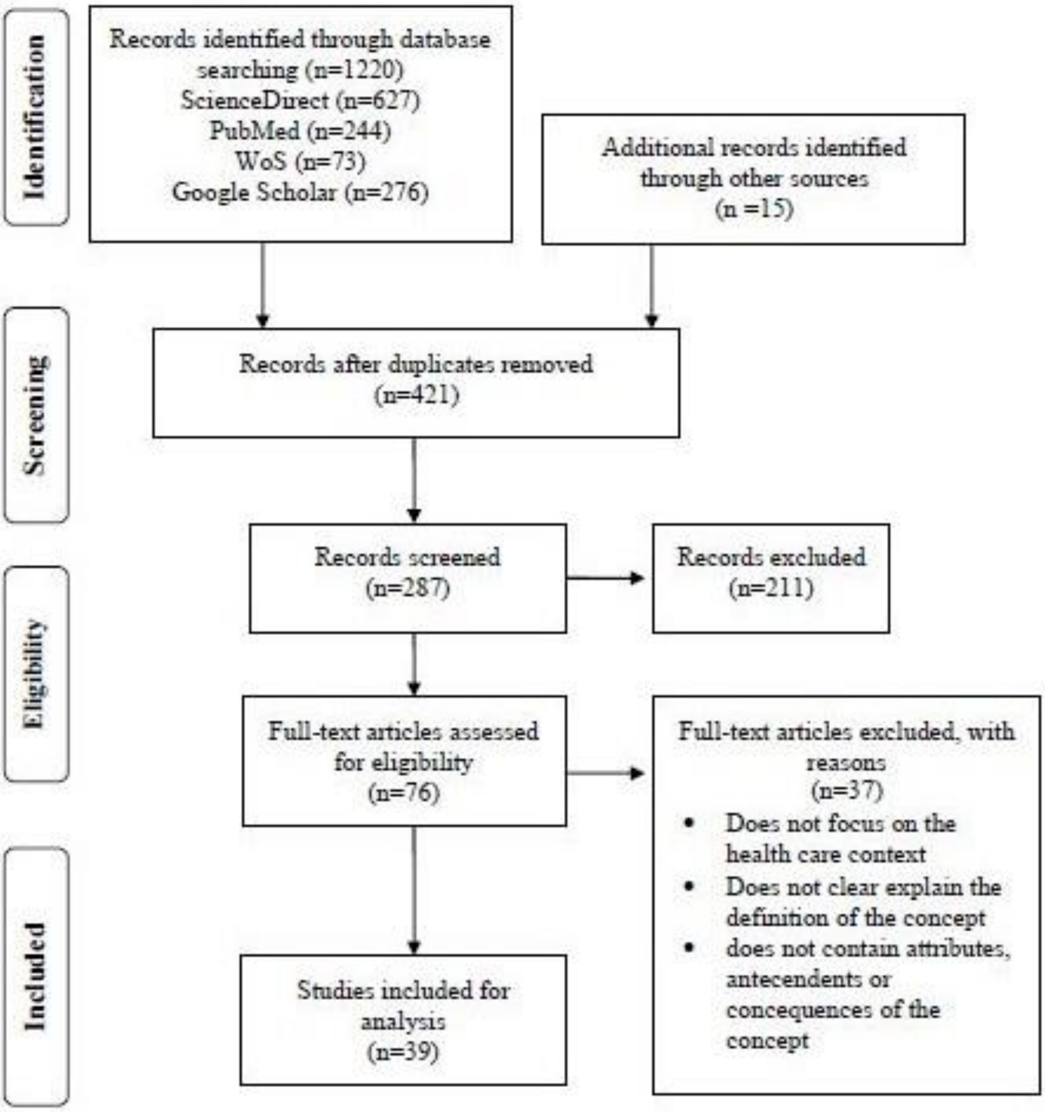

Figure 1. Flow diagram for screening of articles in literature review process

Data analysis

Rodgers and Knafl (2000) suggests using codes in the data analysis process. Codes were utilized for classifying articles in the antecedents, attributes, consequences, surrogate terms, contextual basis, and theoretical definitions of the concept of volunteering. Furthermore, the coding procedure used Rodgers' evolutionary approach. First, the authors searched the initial impression in each article. To ensure coding validity, the authors also conducted a review once again. In the next step, the thematic analysis was performed in determining the themes. Microsoft Excel was utilized to assist in the themes classification into the antecedents, attributes, and consequences (see Table 1).

In surrogate terms, the analysis process used no further reduction in analyzing and synthesizing articles. Moreover, this procedure is more flexible than in the antecedents, attributes, and consequences analysis. A cross-disciplinary comparison is also performed to see the existing surrogate terms related to volunteering. In the exemplar of the concept, the authors illustrated the existing themes in the antecedents, attributes, and consequences of volunteering in a particular case to ease the reader from understanding the volunteering concept. The authors then analyzed the concept's implication based on existing theory or framework after finding surrogate terms and themes in antecedents, attributes, and consequences of volunteering.

RESULTS

Surrogate terms and the related concept

The use of the concept of volunteering and volunteerism is sometimes interchangeable. However, some literature explains that volunteerism is a behavior, whereas volunteering is real activism (Hustinx et al., 2010). The things that become essential terms in volunteering and volunteerism are the free acts without coercion and no explicit reward (Stukas et al., 2016). Also, volunteering development is related to helping each other in a formal context, and it is a proactive rather than reactive activity (Wilson, 2000).

Volunteering is related to many concepts, such as social activism, altruism, philanthropic behavior, and helping behavior (Stukas et al., 2016; Wilson, 2000). Those concepts have similarities, but they have different attributes. Moreover, social support is also related to volunteering. Social support is a foundation concept and related to volunteering (Kumar, Calvo, Avendano, Sivaramakrishnan, & Berkman, 2012). Social support refers to the availability of helping relationships and the quality of those relationships. However, social support has a broad meaning and has a multidimensional meaning and needs to analyze in a specific context (Hether, Murphy, & Valente, 2014; Pedro, Rocha, & Nascimento, 2008).

Volunteering in the health care context can be implemented in a home-based, community-based, and hospital-based settings (Read, 2014; Siabani, Driscoll, Davidson, & Leeder, 2016; Singh et al., 2016). Most of the article explains that volunteering in community settings is more feasible in the implementation (Jenkinson et al., 2013; Tulloch et al., 2015; Yansaneh et al., 2014).

Volunteering activities in the health care context can be applied in patients with cancer, palliative, dementia, HIV/AIDS, and disabilities condition (Cherven et al., 2020; Estopinal et al., 2012; Jack, Kirton, Birakurataki, & Merriman, 2011; Pesut, Hooper, Lehbauer, & Dalhuisen, 2014; Pilayon & Nuntaboot, 2017; Siabani et al., 2016). Also, it can apply to people with mental health and older adults (Dowling, 2019; Held & Lee, 2020). Furthermore, in disaster management, volunteering is also used for increasing the quality of health care services (Fothergill, Palumbo, Rambur, Reinier, & McIntosh, 2005; Whittaker, McLennan, & Handmer, 2015).

Attributes, antecedents, and consequences of the concept

Attributes

Volunteering has many definitions and dimensions and depends on the setting of the volunteering activity. In the health care context, there are five definitions related to the attributes of volunteering.

Volunteering is giving help freely

Volunteering is a form of unpaid social activity (Kobayashi, Sugihara, Fukaya, & Liang, 2019). However, it is not a form of slavery. High motivation from individuals in providing help to others makes volunteers do not need remuneration (South, Purcell, Branney, Gamsu, & White, 2014). Given freely can also be interpreted that someone only wants to help without a will. Thus, volunteering does not depend on a particular religion, age, social status, or ethnicity.

Volunteering is long term planned

Volunteering is a systematic process of providing help to others. This needs long term planning and commitment from volunteering members (Söderhamn, Landmark, Aasgaard, Eide, & Söderhamn, 2012). Volunteering is not a spontaneous or active activity, but volunteering is a reactive activity that starts from a plan (Alias & Ismail, 2015). In the health care context, volunteering must have a plan of action in providing health services.

Volunteering is giving a benefit to another individual, group, or organization

Volunteers have to give a benefit to individuals, groups, or organizations (Wilson, 2000). In other words, volunteering must be a positive benefit for people. Volunteering is not an activity that violates law or crime. However, volunteering is sometimes related to political movements but focuses on people. If volunteering conduct in a political or economic movement, it is referred to as the definition of activism (Gonella et al., 2019). In the health care context, the benefit of volunteering is correlated to health status and health system.

Volunteering is working in a formal organization

Some articles illustrate that volunteering must be under formal organizations (Alfes et al., 2017; Shen & Khosla, 2016). Formal organization refers to a non-government organization or government organization. Developed countries, such as the United States and the United Kingdom, have many non-governmental organizations (NGOs) managing volunteering in the health system. However, other countries such as Thailand, Myanmar and Taiwan, volunteering can be organized by the government or volunteer groups (NGOs) (Gau, Buettnerr, Usher, & Stewart, 2013; Pilayon & Nuntaboot, 2017; Watt et al., 2016).

Volunteering is a prolonged life activity

Volunteering is different from employment. Volunteering is a prolonged life activity (Nothwehr & Rohlman, 2019). People can be involved in volunteering activities without time and age restrictions. It makes volunteering a social movement for all groups. In the health care context, everyone can become a volunteer. However, they have to go through some training for volunteering in several advanced illness conditions such as cancer, stroke, or diabetes mellitus.

Table 1. Coding of literature related antecedents, attributes, and consequences in the concept of volunteering in health care

Themes	References
Attributes	
Volunteering is given freely	(Kobayashi et al., 2019); (Papa et al., 2019); (Söderhamn et al., 2012)
Volunteering is a long-term planned	(Söderhamn et al., 2012); (Studer, 2016)
Volunteering is gives a benefit to another individual, group, or organization	(Gonella et al., 2019)
Volunteering is working in formal organization	(Alfes, Antunes, & Shantz, 2017); (Jenkinson et al., 2013); (Söderhamn et al., 2012)
Volunteering is a prolonged life activity	(Nothwehr & Rohlman, 2019)
Antecedents	
Motivation: internal and external motivation	(Gonella et al., 2019); (Hurs, Coyne, Kellettt, & Needham, 2019); (Ormel et al., 2019); (Singh et al., 2016); (Söderhamn et al., 2012); (Stukas, et al., 2016)
Social-demography status: gender, age, occupancy, cultural background, religion	(Aranda, Zappala, &Topa, 2019); (Jack et al., 2011); (Komp, Van Tilburg, & Van Groenou, 2012); (McDougle, Handy, Konrath, & Walk, 2014); (Ørtenblad, Vaeggemose, Gissel, & Nissen, 2019); (Vähäkangas, 2014);
Philanthropic behavior	(Alias & Ismail, 2015)
Consequences	
Consequences for volunteers: change self-perception, increase life satisfaction, decrease stress and depression, prevent poor self-rated health	(Fegan & Cook, 2012); (Hsiao et al., 2020); (Papa et al., 2019); (Pérez-Corrales et al., 2019); (Poulin, 2014); (Ramos et al., 2016); (Shen & Khosla, 2016); (Showa et al., 2016);
Consequences for the patient: gain the cognitive abilities, be a support system, decrease loneliness. Increase self-care management	(Dowling, 2019); (Kim & Konrath, 2017); (Siabani et al., 2016); (Van Zon et al., 2016)
Consequences for health care services/system: facing an increasing demand for informal care in addition to professional health care, helping nurses to maintain professional boundaries, increasing access to essential health services, reduced treatment burden, increasing hospital quality	(Cherven et al., 2020); (Leon et al., 2015); (Pesut et al., 2014); (Steunenberg, van der Mast, Strijbos, Inouye, & Schuurmans, 2016); (Tulloch et al., 2015); (Yansaneh et al., 2014);

Antecedents

Antecedents are all things that appear before the concept. Antecedents in volunteering distinguish into three, namely motivation, social demographic status, and philanthropic behavior.

Motivation

Motivation is a process that can drive a person to do something (Islam, Haque, & Haque, 2014). Motivation is divided into two dimensions, namely, internal and external motivation. The internal motivation to help someone is essential in improving volunteering activity (Gonella et al., 2019; Stukas et al., 2016). Also, self-growth is an internal motivation in volunteering activity (Hurst et al., 2019). External motivation is still debatable in the concept of volunteering. Volunteering emphasizes free paid, but some literature states that paid altruism is needed for volunteering in improving the quality of service (Ormel et al., 2019). On the other hand, South et al. (2014) explained that payment in altruistic behavior or volunteering would lead to financial conflicts.

Social demography status

Social demography status influences volunteering activities. Some social demographics that influence volunteering are gender, age, occupancy, cultural background, and religion. Gender is a factor that influences volunteering. The results showed that women have higher motivation and altruistic behavior than men (Afari-Asiedu et al., 2018; Stukas, et al., 2016). Gender not only encourages volunteering but also how they work. Gender will affect the caring process in patients (Wilson, 2000).

Age also influences someone to do volunteer activities. Volunteering usually tends during the transition from adolescence to young adulthood (Wilson, 2000). However, older people also make it possible to become a volunteer. Older people desire to help others and always want to be useful to others (Komp et al., 2012).

Religion influences someone to do volunteering activities. Some religions believe that by helping others, someone will get something useful from their God (Vähäkangas, 2014). Volunteering activities are also sometimes carried out by religious organizations (McDougle et al., 2014). Besides religion, the cultural background also influences a person to do volunteer. Some cultures give positive impulses to help others (Jack et al., 2011).

Philanthropic behavior

Philanthropic behavior is the antecedent of volunteering. In philanthropic behavior, there are two concepts, namely donation, and volunteering. Individuals who have philanthropic behavior make these individuals active as volunteers (Alias & Ismail, 2015).

Consequences

Consequences are everything that happens after the concept exists. Volunteering in the health context has three dimensions of Consequences, namely, consequences for volunteers, Consequences for patients, Consequences for health care services/systems.

Consequences for volunteers

Volunteering can improve the health status of individuals who carry out volunteering activities. Literature review results obtained by volunteering, volunteers can change self-perception, increase life satisfaction, decrease stress and depression, prevent poor self-rated health (Fegan & Cook, 2012; Hsiao et al., 2020; Papa et al., 2019; Pérez-Corrales et al., 2019; Poulin, 2014; Ramos et al., 2016; Shen & Khosla, 2016; Showa, Kitazawa, Takeuchi, & Mori, 2016)

Consequences for patients

Volunteering in the health care context is involved in one group of patients and various types of patients. A literature review found that volunteering could apply in patients with cancer, dementia, schizophrenia, or patients with stroke. In particular, volunteering can gain cognitive abilities, support patients, decrease loneliness, and increase self-care management (Dowling, 2019; Siabani et al., 2016; Van Zon, Kirby, & Anderson, 2016).

Consequences for health care services/systems

Volunteering can increase demand for informal care in addition to professional health care, help nurses to maintain professional boundaries, increasing access to essential health services, reduced treatment burden, increasing hospital quality (Cherven et al., 2020; Leon et al., 2015; Steunenberg et al., 2016; Tulloch et al., 2015; Yansaneh et al., 2014).

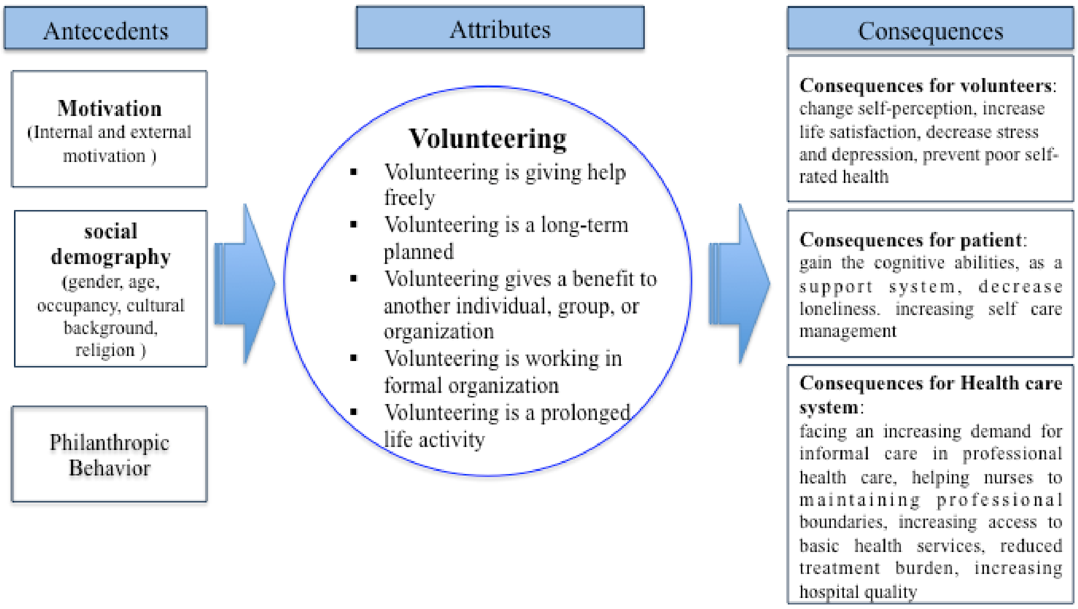

Figure 2. The conceptual framework of volunteering in the health care context

An exemplar of the concept

Peter (45), a private employee, wanted to give his time to help others. He chose to become a volunteer in hospice care. At first, Peter was confused about the activities and competencies required to become a volunteer. Finally, Peter asked one of the non-government organizations (NGOs) engaged in the humanitarian sector in his area. Eventually, he found it. Peter was asked to fill out forms and be interviewed regarding his experience and abilities. Peter was asked to participate in the training first and was given a volunteering program from hospice care. However, Peter was not in a contract and could resign at any time. In the team, Peter met many volunteers with various motivations, backgrounds, and ages. Peter met other volunteers who have behavior to help others and have much money to be donated for social activity. Another volunteer explained that he wanted to get a salary from the volunteering process, although it is only for daily needs.

Peter felt that his stress level was decreasing after working as a volunteer. Furthermore, Peter also made observations related to other volunteers after one year of work. Peter revealed that they felt more meaningful in facing life after working as volunteers. From the patients' perspectives, they said that they got a sufficient support system from volunteers in their treatment process. The patient did not feel loneliness anymore. The health care system in his area also changed to be more effective related to transition care of patients after NGOs and volunteers helped improve the quality of caring for patients in hospice care. However, there is no specific assessment for measuring volunteering activity and correlation with the health care system.

This exemplar describes the attributes, antecedents, and consequences of volunteering. From this exemplar, we can identify that volunteering in the healthcare context is an effort to help others freely, long-term planned, giving benefits, and working in a formal organization, namely NGOs. Peter also had the motivation to help people. This exemplar describes the antecedent of volunteering, namely, internal motivation. Other volunteers met Peter described that social demography, philanthropic behavior and external motivation also was antecedents of volunteering. After working for one year, Peter got experience and change of stress level, and other volunteers also feels more meaningful. Furthermore, patients also explained that not feeling lonely and got a support system during this volunteering program. This exemplar showed the consequence of volunteering, namely the consequences for volunteers and the patient. Becoming more effective in transitional care is the consequence of volunteering in a health care system.

DISCUSSION

This study aimed to describe the concept of volunteering more clearly and distinguish it from related concepts. The literature review revealed that volunteering has distinct attributes, antecedents, and consequences with other concepts. The researchers used Rodger's evolutionary concept analysis to see the concept of volunteering with the literature review approach so that the study results can explain details about the concept of volunteering. Practically, volunteering was illustrated in an exemplar of the concept and made it clear to explain the concept's component. Volunteering has specific antecedents that include motivational factors, social demographics, and philanthropic behavior. In attribute, volunteering has a uniqueness that distinguishes it from other concepts such as altruism, philanthropy, helping behavior or social activism. In the healthcare context, volunteering also has specific consequences for volunteers themselves, patients, and the health care system (see Figure 2).

We found five attribute concepts of volunteering from eight articles. However, several attributes are still debatable and need to be explored in further research. First, the claim that volunteering is giving freely is still debatable. According to Ormel et al. (2019), although it is biased, volunteering requires incentives to increase volunteers' motivation. The exemplar of the concept described that one of the volunteers want to get a salary from volunteering activity as his motivation. This phenomenon also appears in the concept of volunteering. Therefore, the relationship between motivation and incentives for volunteers needs to be explored with an interpretive approach, especially in the healthcare context. Second, volunteering is working in a formal organization that still needs to be discussed and explained in further research. According to Whittaker et al. (2015), in a review on informal volunteerism in emergencies and disasters, they explained that informal volunteers who are not supervised by a formal organization are included in volunteering activities. However, informal volunteering can only be used in specific settings, such as disaster and emergency conditions.

This attribute can also be the foundation for developing volunteering instruments specific to the health care context. Previous research only explained the burden of volunteering and not comprehensively about volunteering's attributes (Gau et al., 2014). This instrument's development helps health care providers, especially nurses, assess and evaluate the volunteers' readiness or perception in the process of volunteering activity. Nurses' role in this situation becomes essential because of the relationship between altruism and the nursing profession. Nurses can apply altruism or helping behavior in every caring activity (Alavi, Zargam-Boroujeni, Yousefy, & Bahrami, 2017). Furthermore, altruism is a core conceptual aspect of Watson's human caring theory (Watson, 2007). Therefore, nursing has a role in developing the instrument for assessing volunteer activity based on nursing theory.

Motivation, social demography status, and philanthropic behavior are the antecedents of volunteering. Those antecedents were explained in Ko et al. (2004), although not all attributes have been proven empirically. Ko et al. (2004) used a theory of planned behavior to predict volunteering in care for SARS patients in Taiwan. Self-efficacy, attitude, and working in the hospital are attributes of volunteering. Self-efficacy and attitude are a form of internal motivation from a volunteer in doing volunteering activities. Philanthropic behavior and social demographics as an antecedent may be able to be explained by social support theory. In Surrogate terms, social support theory becomes the theoretical underpinnings of volunteering, which can be influenced by social demographics and motivation (Aranda et al., 2019). Philanthropic behavior is a different concept from volunteering, although several papers mention those correlations. In social phenomena, several people who have behavior in donating their money for helping others sometimes want to be volunteers. Those conditions could be classified as philanthropic behavior (Hyánek & Hladká, 2013). It was illustrated in the exemplar of the concept. Therefore, the relationship between these two concepts still requires exploring comprehensively.

The consequences of volunteering are divided into three: the consequences for volunteers, patients, and the healthcare system. Consequences in volunteers and patients are clearly described in several papers, and the impacts of volunteering have been empirically proven. Furthermore, an exemplar of the concept explained the consequence in volunteers and patients clearly. However, the consequences of volunteering in the health care system are still rarely described in a particular nursing care context. An exemplar of concept provided an example that volunteering can mediate the continuity care process for patients from the hospital to hospice care. This exemplar can be the foundation for further research development. Simultaneously, volunteering in health care systems becomes a solution to solve accessibility care in rural areas (Yansaneh et al., 2014). Volunteers become pivotal in improving the quality of health services at either in the macro-level or micro-level healthcare system through community participation.

Community participation is part of community involvement in the health care system (Meleis, 1992; Sawyer, 1995). Community participation is needed in improving the quality of health systems, especially in rural areas (Meleis, 1992). Community health nurses have a responsibility to increase community participation (Melo & Alves, 2019). Moreover, community participation is one of the nursing care models that can be applied at the community level (Chalmers & Knstajanson, 1989). One of the strategies in community participation is volunteering activity (Attah & Anam, 2017). Thus, the synergy between nurses and volunteers may become a key strategy in improving nursing care quality in the health care system. Nurses play a role as a leader in volunteering regarding community participation in nursing care models. In a further study, nurses may explore the consequences of volunteering in either macro-level or micro-level healthcare systems related to community participation strategy in the nursing context.

CONCLUSION

Volunteering is a complex concept, and many surrogate concepts have similar definitions. Volunteering defines giving help freely, as long-term planned, as giving a benefit to another individual, group, or organization, working at a formal organization, as a prolonged life activity. However, this attribute is still debatable and needs to be explored. Also, the consequences of volunteering are still rarely discussed regarding consequences in the health care system related nursing care context. The pivotal role of nurses in the concept of volunteering is to develop volunteering measurement based on nursing theory and as a leader of volunteering activities.

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CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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Critical Care Nurses' Experiences of End-of-Life Care: A Qualitative Study

Reni Sulung Utami[1], Ahmat Pujianto[2], Dody Setyawan[1], Elsa Naviati[1], Nana Rochana[1]

[1]Department of Nursing, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia,
[2]Department of Nursing, Faculty of Health Sciences, Universitas Borneo Tarakan, Indonesia
Corresponding Author: Reni Sulung Utami (reni.sulung@fk.undip.ac.id)

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ABSTRACT

Background: Patients admitted to the intensive care unit (ICU) may face terminal illness situations, which may lead to death. In this case, the role of critical care nurses shifts from life-sustaining to end-of-life care (EOLC). Nurses' involvement in EOLC varies between countries, even in one country due to differences in religion, culture, organization, laws, cases and patient quality. In Indonesia, research on EOLC in ICU has not been carried out.

Purpose: This study aimed to explore the experiences of critical care nurses in providing EOLC.

Methods: A qualitative study with a phenomenological approach was conducted. Ten critical care nurses having the experiences of caring for dying patients were recruited through a purposive sampling technique for in-depth interviews. Manual content analysis was used to identify themes.

Results: The results of the study found five themes, including the challenge of communication with the family, support for the family, support for the patient, discussion and decision making, and nurses' emotions.

Conclusion: Most of EOLC provided by critical care nurses was focused on the family. They had some challenges in communication and decision making. Nurses need to get training and education about how to care for patients towards the end of life.

Keywords: Critical care nurse; end of life care; experience; intensive care unit

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BACKGROUND

Death is a common occurrence in the intensive care unit (ICU) due to the patient's poor condition. Traditionally, the mortality rate of critically ill patients in the ICU is the highest compared to the mortality rate in any other wards of a hospital. A study showed the average ICU mortality rates worldwide were 16.2% (Vincent et al., 2014). These deaths occur either anticipated and unexpected. In this situation, the role of critical care nurse shifts from providing actions to maintain life to end-of-life care (EOLC) (Espinosa, Young, Symes, Haile, & Walsh, 2010). Thus, knowledge of end-of-life care is highly recommended for health care providers in ICU.

According to World Health Organization (WHO), EOLC aims to improve the quality of life of patients and families by helping them to overcome various physical, psychological, social and spiritual problems. Implementation of quality EOLC in the intensive care unit (ICU) can be very challenging considering the focus of service in the ICU is to maintain life (Griffiths, 2019). The other studies also address some challenges in implementing EOLC in the ICU, such as inadequate experience and knowledge to provide EOLC, situational conflict to determine the best treatment of EOLC (Kim et al., 2019), difficulties in communication and decision making, and unrealistic family expectation (Brooks, Manias, & Nicholson, 2017).

The practice of EOLC in the ICU varies significantly between countries. Variability is also found within countries and between intensivists within hospitals. Differences in religion, law, culture, organization, severity of illness, and complexity of cases, as well as the patient's prognosis and quality of life, are believed to play a role in creating this variability (DeCato et al., 2013; Muni, Engelberg, Treece, Dotolo, & Randall, 2011; Ranse, Yates, & Coyer, 2016a). It is supported by Kim et al. (2019)'s study claiming that hospital policy and environmental constraints have become some hindrances in the practice of EOLC in Korea. Meanwhile, Brooks et al. (2017) point out that culture, collaboration, and communication are important to yield safe and high quality EOLC in Australia. The latter researchers also recommend to develop EOL care leader and patient support coordinators with nursing and/or medical background.

Nurses have an important position in providing quality EOLC (Zomorodi & Lynn, 2010). Nurses can be a resource and support for patients and families. Nurses provide guidance for them confronting difficult decisions and adapting to painful realities. King and Thomas (2013) state that nurses accept the reality of death and show a strong commitment to making death as comfortable as possible, more peaceful and dignified. However, providing the best care at the end-of-life is a challenge for them (Coombs, Addington-Hall, & Long-Sutehall, 2012; Griffiths, 2019). EOLC processes expose nurses to human suffering and miserable situations, thus creating anxiety and uncertainty (Peters et al., 2013) as well as physical and emotional exhaustion (Ozga, Woźniak, & Gurowiec, 2020; Ryan & Seymour, 2013).

Nurses' education and experiences related to EOLC will have an impact on the application of end-of-life practices. A study mentioned the importance of nurses' experiences in gaining knowledge to handle end-of-life situations (Ranse, Yates, & Coyer, 2016b). This knowledge helps them in professional activities for handling difficult situations when caring for dying patients. However, lacking of experience and knowledge of nurses in dealing with EOLC results in negative expressed feelings like sorrow, guilt, regret, and even numbness (Kim et al., 2019).

Research on EOLC has been carried out in many countries and has been identified as a research priority in an international Delphi study (Blackwood, Albarran, & Latour, 2011). However, up to now, this topic is still rarely carried out in Indonesia. Several studies have been done (Fitriyani, Juniarto, & Utami, 2018; Rochmawati, Wiechula, & Cameron, 2018; Wessner, 2018), yet the focus is more on the family and religion in palliative care. Only one study was found to explore nurse's experience in carrying out EOLC in West Java (Safitri, Trisyani, & Iskandar, 2017) though its results remain inadequate to describe Indonesian critical nurses' experiences providing EOLC within broad literature. Enriching literature to get comprehensive understanding of Indonesian critical nurses' experience related to EOLC is necessarily needed by conducting more studies in this area. Therefore, studies on different cultures within Indonesian context should be done.

PURPOSE

This study aimed to explore the experiences of critical care nurses in providing EOLC.

METHODS

Research design and setting

The present research was a qualitative study with a phenomenological descriptive design. Phenomenology was considered ideal for this study because it enables researchers to understand the lived experiences of the human being in the context of their world (Polit & Beck, 2017). The phenomenon explored in this study was the critical nurses' lived experience in performing EOLC. This research was carried out in the ICU and Pediatric Intensive Care Unit (PICU) of two public hospitals in the province of Central Java, Indonesia, at the end of 2018. In order to uncover the phenomenon, after the research design was conveyed and the research setting was described, the researchers then conducted some systematic steps, such as participant recruitment, data collection and their storage, data analysis, and ensuring trustworthiness (Polit & Beck, 2017).

Participants and sampling

A purposive sampling technique was used to recruit ten nurses from ICU/ PICU who met the inclusion and exclusion criteria. Criteria for inclusion of participants in this study were nurses working in ICU/PICU for at least one year, permanent employees and had experiences in caring for patients with end-of-life conditions. The recruitment of participants was done after ethical clearance and research permits from two hospitals were obtained. The researchers approached and delivered information to the head nurses at the research location about the objectives and the research procedures. The researchers asked them for help to obtain data on nurses in their units to identify potential participants. Together with the head nurses, the researchers identified potential nurses as participants based on established inclusion and exclusion criteria. Involving the head nurses was done as they in nature had a good view and consideration about the duty and working experience of their nurses according to the inclusion and exclusion criteria. After obtaining the names of the potential participants and their contact numbers, only ten participants from the list were approached and contacted for further interviews. This process did not involve the head nurses to maintain participants' privacy.

Data collection

In-depth interviews using semi-structured question sheets were used as data collection methods in this study. The interview questions were developed from the literature review and consulted with clinical experts. Participants were invited to take part in interviews by phone. After they agreed to participate in the interview, both parties made a contract on where and when the interviews were carried out at the participant's convenience. This semi-structured interview was conducted for approximately 40-50 minutes in a quiet, comfortable, and closed room and was recorded using a digital recorder. Each participant was interviewed more than once. The interview began with the introduction, signing informed consents, and some general questions. Some open-ended questions were then asked to gain their experiences, like *"Could you tell me your experience in looking after the end-of-life patients and their families in this unit?*" and *"What do you feel when you deal with the patients in their end-of-life and their families?".* Some probing questions were asked to clarify or to seek more information about participants' responses, such as *"What do you mean by difficulty here?"* and *"Could you tell me more about this emotion?".* Observational field notes/ memos were written throughout the interview process. After all questions were asked, the researchers thanked the participants and asked for their oral consent for a follow-up interview. Each interview record was then labeled in the form of a participant identification number, interview time, and sequence of interviews and field notes during the interview. Furthermore, the recording was transferred to three duplicate audio files stored on a computer, external hard disk (flash disk) and CD before being transcribed verbatim. The stored files on the computer and flash disk were locked for confidentiality and security and only the reseachers knew the password. The interview and participant recruitment were stopped after 10 interviews to the point of data saturation.

Data analysis

Data collected in this study were analyzed using manual content analysis which was divided into four stages (Polit & Beck, 2017). The first stage was the process of verbatim recording transcripts and the elimination of the participant's self-identity. The second stage was the process of reading transcripts accompanied by listening to recordings repeatedly to get general conclusions. This process was important to get holistic sense (the gestalt) and overall understanding of the participant's information. The third stage was the process of identifying keywords to produce categories before combining them into sub-themes and themes and looking for relationships between data using maps and diagrams. The fourth stage was the process of integration and interpretation of themes and sub-themes into meaningful descriptions of the phenomena under study.

Data quality

Ensuring validity and trustworthiness was maintained throughout this study. Validity in term of maintaining the objectivity of the researchers was done through bracketing from the literature review process to the data analysis. Bracketing prevented the researchers' personal views and preconceptions from interfering the unique descriptions of the phenomenon. It also prevented the researchers' interpretation during data analysis. Prior knowledge and interpretation were bracketed and written down on memos. Furthermore, the trustworthiness of this study was ensured by conducting triangulation with the theory and secondary data (documents, field notes), member checking, peer debriefing, and audit trail. Member checking was carried out by having follow-up interviews for clarification and further discussion. However, only four out of ten participants had done the member checking due to time constraints. Peer debriefing was done through researcher team's meetings to review and discuss the transcripts, keywords, categories, and themes while audit trail was conducted by collecting and documenting the data systematically so that the data could be reviewed externally.

Ethical consideration

This research had obtained an ethical clearance prior to the data collection from the Health Research Ethics Committee (KEPK) of the Faculty of Medicine, Universitas Diponegoro (No. 250/EC/FK_RSDK/IV/2018), and permissions from two hospitals where this study was taken place. A statement letter explaining the research and an informed consent letter as a participant was given to participants before interviews to respect the dignity and the freedom of the participants and to avoid being coerced into participating in this research. Participants who agreed to be involved in the study were asked to sign an informed consent form. Privacy and confidentiality of participants were also maintained in this study. The use of pseudonyms to identify the participants was done to keep the confidentiality.

RESULTS

Characteristics of participants

As presented in Table 1, this study involved ten nurses working in the ICU/PICU. A majority of them were females, aged 41 to 50 years old, graduated from bachelor and nursing professional degree and had working experiences of two to ten years.

Table 1 Characteristics of participants

Characteristics	*f(%)*
Gender	
Male	2 (20)
Female	8 (80)
Age (years)	
21-30	1 (10)
31-40	3 (30)
41-50	6 (60)
ICU experience (years)	
2-10	6 (60)
11-20	2 (20)
>20	2 (20)
Level of education	
DIII	4 (40)
DIV	1 (10)
S1 + Ners	5 (50)

The results of the thematic analysis of nurses' experiences in providing EOLC to patients in the ICU revealed five main themes namely the challenges of communication with family, support for the family, support for the patients, discussion and decision making, and nurses' emotions. Each of these themes is presented and illustrated using verbatim quotes from interviews.

Theme 1: The challenges of communication with the family

Participants stated that communicating with families with end-of-life conditions has its own challenges and difficulties. The communication difficulties faced by nurses primarily are communicating with families who have high expectations, families are still in the denial stage, and smart-assed families. Higher and lower education does not always guarantee the ease of communication. The participants' statements are quoted below:

> "The challenge is the family, ... sometimes the family has been informed, but the family has not been able to accept the patient's condition ..." (P7)
> "I thought that communicating with the family with higher education will be easy; but it is not; they even need more details... For family who had low education…, giving knowledge is also difficult. It turns out that education also determines the standpoint of the other side... So, the family's response must be meticulous too. It was also difficult to provide education to people who work in health field as similar with us…" (P6)
> "... The family still hopes that the patient is be able to return; it is difficult to tell the family that this is hopeless, and they also have difficulty in understanding the medical terms..." (P9)
> "It's difficult to handle family who acts know it all...; family with a high-income and higher education... They can understand when they are given explanation, but there are also some families who are pretentious to understand... They did not fully understand... However, there are also some families that are highly educated but it is difficult to talk to them. It's just difficult to explain to them…" (P2)

One participant said that nurses' ability to communicate significantly determines the relationship of nurses, both with colleagues and family. Level of education of family affects the communication techniques that nurses applied.

> "...Our ability to communicate determines both partners and family... The level of education of family varies, so the language we choose determines whether or not he can accept it. We have to adjust to their level of education so that they can understand if we use a common imagery. Maybe our techniques for conveying need different ways…" (P10)

The existence of a case conference that decides an agreement between the health team regarding what the family will convey is perceived to be very helpful for the participants in communicating with the family. This was stated by the participants as below:

> "So, nurses and physicians convey their feelings and voices related to patient care in the case conference and then a decision will be made... We talk to the family based on the script that we agreed upon, for example A to A or B to B. This conference is very helpful for us…" (P2)

Theme 2: Support for families

This theme emphasizes the form of support provided by nurses to families of patients with end of life care plans. This support included giving encouragement, trying to always be there for the family, and inviting families to chat and pray together. This was stated by the participants as below:

> "So, we can only give encouragement to his family..., and providing understanding to his family in order to accept the reality... The most important thing for me to support him is being close to him, accompanying him, and inviting him to discuss about his son problems so he can accept any circumstances related to his son... Basically, communication is the key to being close with him... Do not leave him alone...; invite him to prayer together as well..." (P8)
>
> "...we give understanding that the patient cannot be helped and we have tried to help patient optimally..., but the patient did not want to be helped anymore... We explain it to both parents even though it was in sad situation... At least, we encourage them to talk to reduce their grief rather than only said to them that their child is dead and we are busy taking care the deceased... It looks like we left them alone... If we ask them to talk, they will not feel sad alone." (P9)

Another form of support provided by nurses is to provide opportunities for families to always be close to patients. Families are allowed to be near the patient even outside the visiting hours, but this applies only to the nuclear family, for example the patient's parents.

> "… two family members are allowed to wait in the bedside of a dying patient… We gave them the opportunity even though it was out of visiting hours…" (P3)
>
> "...those conditions sometimes trigger our social spirit. We allow the caregiver sit near the patient's bed even though it was not the visiting hours. All curtains were closed. We also often accompany them so that patients can be accompanied continuously." (P5)
>
> "He was allowed to pray together with his family's member or his religious leader... He is permitted to approach his child to pray until his child death." (P8)

Theme 3: Support to patients

Support is given to patients as an effort to raise comfort to patients such as avoiding actions that cause pain, providing pain medication and providing personal hygiene care. Almost all participants gave spiritual support to patients, either directly or indirectly, for example, listening to spiritual texts (e.g., the Holy Quran recitation), guiding prayers, and facilitating spiritual guidance by calling religious leader as needed.

> "…Improve the quality of life of patients by providing a sense of comfort, for example by reducing pain ..." (P7)
>
> "... if it has been stated end-of-life, we are more focus on patient comfort, for example, performing personal hygiene, positioning, and persuading the physician to avoid taking unnecessary blood samples... That's the focus of nursing care..." (P9)
>
> "...we give analgesic to make the patient feel comfortable, perform maximal wound care, nutrition is also maximized. We support family in order to continue in providing support for patient" (P6)

> "For Moslem patients, usually while bathing, they recite *Al Fatihah* or healing prayers. If the patients are still conscious, we encourage them to recite *Al Fatihah*... When I give injection, I ask them to pray... Hopefully later, through this drug, the God can give the cure" (P2)
> "For spiritual care, it's rather difficult if the patient is not fully conscious...; at least by playing Al Quran recitation." (P6)
> "...for patients and families... so we offer it to the family ... do they need spiritual support/guidance?... in our hospital there are Islamic and Christian spiritual facilities ... if necessary we will facilitate ..." (P1)

Theme 4: Discussion and decision making
Majority of participants stated that decisions related to care provided to patients were made based on the results of the discussion between family and the multidisciplinary team; yet the role of physicians is dominant compared to that of nurses. Nurses tend to follow the doctor's instructions.

> "...for cases of long-stay patient, we usually have discussions with family and team such as anesthetist, neurologist, pulmonologist, and others. We sit and discuss together then we made a decision..." (P5)
> "...if patients stay for more than 10 days or more than 2 weeks... We always carry out case conferences... the result will be informed to the family for further follow-up... for long stay patients or patients with complicated diagnosis." (P2)
> "The nurse is the first one who knows for sure... We share it first to the doctor... later the doctor will educate the family... Even though we can do it, but we always share with the doctor... We didn't make decisions... It is because in the informed consent, the doctor is the one who gives the signature... but the doctor knew the issue from the nurse..." (P2)
> "If the patient has been declared dying, we will wait until the time is up... then what the advice of the doctor? If for example, he has bradycardia/ asystole...., there is no hope anymore and then the doctor says it is finished... Yeah it means finished." (P8)

However, there were some participants who have a courage to argue with doctors regarding patient care. That happen if they had a strong justification.

> "...actually, I disagree, but this is a team... So I give help too... We had an argument... our last strategy was calling the family..." (P9)
> "... actually, it doesn't make any difference, even though it is end of life... We still support the respiration, their nutrition and others..., but these supports depend on the physician... but we can propose, for example giving analgesia... We can propose it to the doctor because it's his area, not ours. But still we can propose it with a note if there is a reason." (P10)

Theme 5: Nurses' emotions
Participants said that caring patients of end-of-life reminded them of death. Participants conveyed sympathy and empathy to both patients and families. Participants could feel the sorrow of the family who lost their member and even cried.

> “... if saw the patient is still productive and the disease is not too complicated, there is such a pity feeling... Why not helping up to the maximum first... Once there was a family that is given up; it might be because of the cost or something. We always explain that this patient can be improved... why did not withhold?... But, if the patient is on end stage…for example cancer stage 4, elderly with stroke..., we just remember about dies; we will also experience death someday….” (P2)
> “The most imprint is when they have a son...; to have a son is already difficult or has many times but miscarriage, and this is the only child he has... It continues to imprint in our heart...feel a pity... extraordinary empathy... Because we are also a human and a woman can feel how she has a difficulty in having child but God does not grant it” (P8)
> “... sometimes, when the family has been told that their child is dying... I am emotionally crying too...” (P10)

One participant said the death rate in her ward was quite high and this caused fears on her that it will reduce her empathy due to seeing patients die so often.

> “… I am afraid that my heart will harden… I am afraid that I am less sensitive to people’s sadness because I often see people die… When the patient dies, the family cries and we can still laugh…” (P4)

DISCUSSION

This study aimed to explore the nurses’ experiences in providing EOLC in the ICU. The findings showed that nurses had several challenges in providing the care. Moreover, most of EOLC provided by nurses was focused on family. Some studies state that EOLC in the ICU is challenging (Kisorio & Langley, 2016; Ozga et al., 2020). Ozga et al (2020) identified three categories of potential barriers in providing EOLC, namely (1) barriers attributable to the hospital, (2) barriers related to the patient’s family, and (3) barriers related to the ICU personnel providing direct EOLC.

In this study, participants reported some challenges and difficulties when communicating with the family of dying patients. These results are consistent with the results of previous studies (Aslakson et al., 2012; Crump, Schaffer, & Schulte, 2010; Muni et al., 2011; Ozga et al., 2020). There are several factors that can create challenges and have an impact on the quality and quantity of communication between doctors, patients, and families at the end-of-life in the ICU. These factors include communication skills of doctors and nurses, lack of time of doctors/nurses, the ability of families to understand the information delivered, cultural disparities and the emotional condition of the family (Aslakson et al., 2012; Jin, 2013; Levin, Moreno, Silvester, & Kissane, 2010). All these factors were stated by participants in this study. Nurses in this study convey difficulties when communicating with families who are still in the denial phase. Denial is a common coping mechanism for those facing a terminal illness. In this stage, families start to deny bad news that is given. They believed that the information is wrong and there must have been a mistake. In dealing with this situation, nurses must respect the family’s essentially protective nature of it. Nurses need to seek first to understand and validate before attempting to change anything. This will produce far more therapeutic benefits than trying to change or override such defenses. Encouraging positive aspects of the family and building them as strengths may be more beneficial than confrontation and criticism. Nurses need to master these skills.

The complexity of information, family’s lack of capacity in understanding information, and the uncertainty of critical patient conditions can make family members feel depressed and frustrated (Carlson, Spain, Muhtadie, McDade-Montez, & Macia, 2015). This emotional disturbance can interfere with cognitive processes and affect the ability of families to understand, remember, and search for complex information about the condition and prognosis of their loved ones (Morgado & Cerqueira, 2018; Sandi, 2013). In 2015, Mathew, Azariah, George, and Grewal reported that 71% of families have a poor understanding of the diagnosis, treatment, and prognosis of patients. Family’s understanding will get worse when the family only interacts with the healthcare staff for less than 10 minutes.

Nurses spent the most amount of their time with patients and families compared to other health care professionals; thus, it gave nurses a great opportunity to build trust and give comfort care. Nevertheless, they still feel they are not sufficiently prepared to care for dying patients and their families (Espinosa et al., 2010). Nurses who are inexperienced and not ready to provide care can experience doubts about what should be done and, in the end, do nothing (Kisorio & Langley, 2016). In this study, the inexperienced nurses sought for help from their senior experienced nurses.

Families feel the presence of nurses as comforting hugs that sustain them before, during and after the death of the patient (Williams, Lewis, Burgio, & Goode, 2012). In this study, some participants provide time for families to accompany them and listen to their feelings and thoughts even though it was not always possible. Being present allow nurses to experience the families’ lives, sensing their milieu and their situation. As a result, it could enhance their empathy and compassionate behavior to others. Indeed, for some nurses, this practice is not easy task for them because they do not feel confident from their lack of knowledge and experience. In Indonesia, training and nursing curriculum related to end of life care is likely to be inadequate. This issue also found in other settings (Cavaye & Watts, 2010).

To ensure patient comfort in the dying process, nurses provide spiritual care and basic nursing care. In this study, nurses encouraged and guided patients and their families to pray and facilitated them in inviting a religious leader. Nurses also allowed them to bring their own spiritual leader. Spiritual care plays a vital role in preparing for a peaceful death and is an important aspect of holistic nursing care (Witt Sherman & Free, 2015). Spiritual care is not only important for family, but also for family member and medical staff. The positive effects of spiritual care have been reported (Chen, Lin, Yan, Wu, & Hu, 2018; Willemse et al., 2020; Zhang, Nilsson, & Prigerson, 2013). A recent ethnographic study in Indonesia found that spirituality/religiosity is very important in the daily lives of patients, family members and healthcare staff (Rochmawati et al., 2018). Even though spiritual care is viewed as an important dimension of end-of-life care, its implementation is still inadequate (Balboni et al., 2013). This phenomenon may be caused by the lack of training and education.

End-of-life decision making is a growing need in the ICU, covering a continuum of treatment possibilities. It has been perceived as complex, difficult and stressful (Pereira, Fradique, & Hernandez-Marrero, 2018). This study reveals that families are involved in the decision-making process. In Indonesian culture context, the role of family is strong and important in patient care. Moreover, discussion involving family is essential because patient in high vulnerability condition and generally unconscious.

In line with previous research (Flannery, Peters, & Ramjan, 2020; Griffiths, 2019; Kisorio & Langley, 2016), the role of nurses in making decisions regarding the end-of-life in this study is still lacking. They still have a tendency to follow doctor's instructions. This could happen because end-of-life decision is a medical decision and becomes the responsibility of physicians. On the other hand, nurses often feel inadequately prepared (Griffiths, 2019). Interprofessional education and collaboration between physician and nurse can improve future decision-making processes (Flannery et al., 2020).

Nurses are frequently exposed to the care of death and dying patients. This experience made them aware of their own death (Peters et al., 2013). This is as stated by participants in this study. Peters et al (2013) reveals that exposure to death often causes anxiety in nurses. Senior nurses with more experiences tended to have more positive attitudes toward death and caring for dying patients, whereas nurses without this experiences had more negative attitudes (Abu Hasheesh, Abozeid, El-Said, & Alhujaili, 2013). Hinderer (2012) stated that understanding nurses' emotions to patient death can help to improve the quality of care they provided to dying patients and to meet the needs of the nurses who care for them.

The reactions of participants in this study conveyed sympathy and empathy to both patient and family. Sympathy was described as a superficial acknowledgment of suffering, generating a compassionate response that fails to adequately acknowledge the person who is suffering. In contrast, empathy is an affective response that recognizes and tries to understand individual suffering through emotional resonance (Sinclair et al., 2017). Empathy has a positive meaning and more welcomed and valued by patient and families.

This study reveals that caring for the dying patients was challenging emotionally and psychologically for nurses. These challenges must be addressed. Nurses need to enhance their communication skills and more actively involved in facilitating the end-of-life decision making process. Education and training about EOLC are imperative for providing the best quality of EOLC. In addition, a course in palliative care is suggested to be mandatory in nursing education.

A few limitations of this study should be acknowledged. Some participants were interviewed at the ICU because they could not leave the ward and refused to meet after working hours. As a result, the interview process is sometimes interrupted by the activities of other nurses in the room. Member checking was not carried out to all participants due to time constraints resulting in possible researchers' bias though bracketing and peer debriefing had been done.

CONCLUSION

This study showed five themes, namely the challenges of communication with family, support to the family, support to the patients, discussion and decision making, and nurses' emotions. Nurses had several challenges and difficulties in communicating with the family of dying patients. Moreover, EOLC provided by nurses was more focused on family involvement. Nurses were still not optimal in providing care for patients in end-of- life condition. Nurses need to get training and education about how to care for patients towards the end-of-life. Further research needs to be carried out to explore nurses' communication experiences related to EOLC.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interests

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Quality of Nursing Care in Saudi Arabia: Are Empathy, Advocacy, and Caring Important Attributes for Nurses?

Abdulaziz M. Alsufyani[1,2], Abdulaziz A. Aldawsari[3], Sayer M. Aljuaid[2], Khalid E. Almalki[4], Yasir M. Alsufyani[5]

[1]College of Nursing, King Saud University, Saudi Arabia
[2]Taif Comprehensive Rehabilitation Center, Ministry of Human Resources and Social Development, Riyadh, Saudi Arabia
[3]Medical Services Administration, Ministry of Human Resources and Social Development, Riyadh, Saudi Arabia
[4]Primary Health Care Center, Ministry of Health, Riyadh, Saudi Arabia
[5]College of Nursing, King Khaled University, Abha, Saudi Arabia
Corresponding Author: Abdulaziz M. Alsufyani (a.aziz987@hotmail.com)

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ABSTRACT

Background: The examination of the literature indicates that practicing nurses are barely engaged in developing enhancement programs for quality nursing care. There are numerous studies on the value of nursing care, but none offers ways of assessing the value of care provided by nurses. Identifying the essence of quality nursing care can facilitate effective enhancement approaches. It was prudent to explore the relationship between advocacy, caring, and empathy in delivering quality nursing care.
Purpose: This study aimed to comprehend the views of Saudi Arabian nurses on how empathy, advocacy, and caring act as measurements of quality of nursing care.
Methods: A qualitative investigative, descriptive design was used to explore the advocacy, empathy, and caring from the viewpoints of practicing nurses. Twenty-one general and specialized medical care nurses from King Saud Medical City in Saudi Arabia were recruited through purposive sampling. The researchers conducted semi-structured interviews that were recorded, written out, and subjected to thematic analysis.
Results: The findings have led to the establishment of quality Saudi nursing care with the identification of core themes: empathy, advocacy, and caring. The findings of this study elevate the understanding of the quality of nursing care in the Saudi context.
Conclusion: The participants aver that patient advocacy, empathy, and care are parts of the characteristics of nursing profession. These characteristics aid in listening and comprehending patients' perspectives. Following the findings, it is suggested to provide training to the nurses to overcome the challenges faced by nurses in reflecting empathy.

Keywords: Advocacy, caring, empathy, quality nursing care, Saudi Arabia

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BACKGROUND

In the domain of clinical practice, a significant rise has been observed in the moral factors involved in quality patient care. As healthcare organizations are becoming very competitive and quality care improvement is dominant, healthcare providers and policymakers are increasingly recognizing the importance of exploring the indicators of quality care for the improvements in the healthcare processes. The central interest has been regarded in following the patient-centered approach, where patients' perspectives and preferences are highly respected (Austin, 2000).

Nurses serve as a critical part of the overall healthcare system, as they offer care to individuals, families, and communities. Nsiah, Siakwa, and Ninnoni (2019) noted that nurses could empower patients, reduce unnecessary treatment, ease patients' discomforts, and may serve as a shield against inadequate care. Evidence related to optimal nursing care indicates that advocacy, empathy, and caring are essential components of nursing practice. Ratka (2018) outlined empathy as the most important human characteristic that is valuable in every aspect of life. Patient-centered care is initiated by various empathic healthcare practitioners. A significant correlation between physicians' empathy towards patients improved patients' adherence to medication, increased satisfaction, and positive treatment outcomes have been well developed (Hannan et al., 2019). Duarte, Pinto-Gouveia and Cruz (2016) defined empathy as "the ability of an individual to consider others' feelings" (p.2).

A positive correlation between physicians' empathy and other domains of affective care has been observed (Heidke, Howie & Ferdous, 2018). Ratka (2018) added that students that are empathetic possess stronger affective skills and are capable to develop, acquire, display and reinforce strong behaviors, attitudes, and abilities that are highly required for effective patient care. The study further suggested that the level of empathy is further effective and is generally influenced by educational interventions that are being taught during the educational process. The usefulness of the educational methods can be further enhanced through activities that help students in enhancing their affective skills, followed by the increase in empathetic skills. Kim (2018) stated that empathy provides a better clinical environment and promotes patient engagement and treatment compliance. It also helps to reduce the occurrence of medical errors and enables nurses to devise a more accurate nursing care plan based on the actual needs of their patients.

Duarte et al. (2016) conducted a study to examine the relationship between self-compassion and empathy and professional quality of life (compassion fatigue, satisfaction, and nurses' burnout). The findings of the study outlined the influence of empathy and self-compassion on three different domains of the quality of life. A positive association between empathetic concern and compassion fatigue and compassion satisfaction was observed. These effects were observed through the negative components of self-compassion and self-kindness, and common humanity, which also acted as the significant moderators. A similar association was detected between compassion fatigue and personal distress. Through the study findings, it was suggested that increased affective empathy might serve as a risk factor for compassion fatigue. Kuipers, Cramm and Nieboer (2019), in their study, provided a strong emphasis on the usefulness of patient-centered care and morbidity and highlighted that the factors are important for improved healthcare outcomes. It further examined the relationship between patient-centered care, physical well-being, co-creation of care, social well-being, and patients' satisfaction. Findings of the study indicated a positive association between patient-centered care and co-creation of care with patients' satisfaction with care along with their social and physical well-being.

Advocacy, on the other hand, can be defined as nurses' act or way of working, which includes considerations on the best interest of their patients. It can be understood through different perspectives of providing patient support, which in many cases may be in the form of protection of patients' rights, while the protection and comfort of patients for ethical dialogues between patients. Patient advocacy has received greater attention in several dimensions within healthcare organizations. Davoodvand, Abbaszadeh, and Ahmadi (2016) stated that patient advocacy is a vital feature in the nursing practice as it relies on several factors such as human engagement, moral distress, and social relationships. For instance, Aupia, Lee, Liu, Wu, and Mills (2018) have stated that safeguarding patients against illegal and unethical acts was considered an element of patient advocacy. Likewise, Abbasinia, Ahmadi, and Kazemnejad (2020) have claimed that patient advocacy issues cannot be resolved by only supporting the patient, but should address the administrative and systematic care matters. However, it has been emphasized that nurse character traits have a bearing on the efficiency of patient advocacy. In addition, Dadzie, Aziato, and Aikins (2017) claims that nurses' advocacy might be directed towards patients perceived as vulnerable, intimated, complaining, uninformed, or disinterested in their care. Abbasinia et al. (2020) conducted a literature review to provide a clear definition of patient advocacy. Through a detailed review of literature, different attributes of patient advocacy have been identified, which includes: providing information to patients regarding their diagnosis, prognosis, treatment outcomes, and providing alternatives regarding patients' healthcare treatment, followed by the discharge program. It further includes providing value to the management of self-control, maintaining humanity and individuality, providing patients the choice regarding their preferred treatment, managing individuality, patient privacy, humanity and acting on patients' beliefs, culture, values, and preferences preferring the cultural values among healthcare team members, acting as patients' voice. It also further contributes to the promotion of social justice, which includes the implementation of policies and rules while confronting the inappropriate aspects in them (Abbasinia et al., 2020).

For James and Mill (2018), caring reflects the core component of nursing profession. While there is no consensus on how to define the concept of caring, most nursing researchers tended to define "caring behaviors" instead of defining "caring". Therefore, the current study acknowledges the caring behaviors described by Salimi and Azimpour (2013) and indicated that "caring behaviors are actions concerned with the well-being of a patient, such as sensitivity, comforting, attentive listening, honesty, and nonjudgmental acceptance" (p.269). In that essence, caring behaviors are expected from the professional nurses in order to maximize the quality of the delivered care.

Considering the findings of previous studies, it is evident that empathy, advocacy, and caring behaviors are essential indicators of the quality of nursing care. In addition, nurses are aware of the contribution of quality nursing caring to the patients, the institution, laws, and professional standards, as well as how it improves the patients' experience (Karaca & Durna, 2019). Although nurses' meanings of empathy, advocacy, and caring behaviors are useful to explore how the quality of nursing care is, previous studies failed to support the meaning of these indicators among nurses (Abbasinia et al., 2020; Elewa, ElAlim, & Etway, 2016; Moudatsou, Stavropoulou, Philalithis, & Koukouli, 2020). It is worth mentioning that if current literature on quality criteria failed to illustrate the meaning of quality nursing care for nurses, this might be contributing to the inhibits the process of improvement in the quality of nursing care. Yet, there is a gap in the literature about indicators of the quality of nursing care globally, and particularly in Saudi Arabia.

PURPOSE

This study aimed to uncover the meaning of empathy, advocacy, and caring among Saudi nurses as attributes of quality nursing care.

METHODS

Study design

This study utilized a qualitative phenomenological approach. A descriptive design was followed to discover the nursing traits that have a bearing on patient advocacy, empathy, and care from the insights of working nurses. This design focuses on gathering an explicit understanding of human behavior and causes that hold such action from the participants' feedback. It also depends on narratives from participants to address the issues.

Setting

The study was carried out at the biggest medical city in Saudi Arabia, King Saud Medical City (KSMC) in Riyadh, Saudi Arabia, that provides general and specialist medical care with the capacity of 1,400 beds. The participants in this study were selected from the Med/Surg, OB/GYN, Oncology, and Cardiology wards of the hospital.

Ethical consideration

Before the commencement of the meeting with the participants, the researchers sought and gained approval from the King Saud University's Institutional Review Board with Ref. No. KSU-HE-19558. The study did not invade the integrity of the participants. All the participants were issued verbal and written information concerning the objectives of the research and their specific roles. Participants were given anonymous names to safeguard their privacy and ensure that the results were not traced back to them. None of the respondents was pressured into participating in this study.

Sampling and procedures of data collection

Meetings were organized for potential participants at the selected wards in the hospital to explain the study's objective and what the participants would be asked to do. They were given information sheets containing the researcher's contact and additional information for further inquiry if required. They were permitted to make their own choices about their involvement. A purposive sampling method was used to recruit participants, following the inclusion criteria. According to developed criteria, only professional nurses and midwives employed as qualified nurses since these are the ones that majorly interact with patients, nurses with more than two years of experience, along with those with a diploma as the minimum qualification level, were regarded as the study population. Participants with insufficient experience with patient advocacy, empathy, and care were excluded from the research. The nurses worked in diverse settings hence created an opportunity to comprehend and compare their divergent perspectives.

A semi-structured guide was used to accumulate information from the participants. The interview guide was developed based on the purpose of the study and the literature gap. Open-ended questions were asked to allow participants to express their thoughts and to probe the participants' responses. The timing and place of the interviews were decided based on the convenience of the potential participants. Face-to-face interviews were conducted, and the participants were given anonymous names to safeguard their confidentiality. The interviews were performed in Arabic and audiotaped. The responses were transcribed, and an Arabic interpreter was consulted to translate the appropriate words into the English language. Data were collected from 25 February 2020 to 20 March 2020.

Data analysis

The principles of thematic analysis were applied to examine the data. Two expert researchers independently reviewed the transcripts to have them coded, categorized, and organized before creating a consensus upon the extracted meaning and significance of the analyzed data. The researchers relied on the MaxQDA software for coding and arrangement of the data. The themes of the research were extracted by organizing and structuring the transcribed data. Fragments of the interviews were compared to each other to derive the common factors.

Trustworthiness

To ensure the trustworthiness of this study, various strategies were adopted, including the use of a prior developed interview guide with one well-trained interviewer for conducting all interviews. A detailed description of the research background, its method, and sample background were provided to allow for findings' transferability in similar contexts. In-depth interviews facilitate full exploration of the nurses' traits that affect patient advocacy (Merriam & Tisdell, 2015). Also, Kalu and Bwalya (2017) emphasized the benefits of documenting common themes, as it helps to identify recurring patterns and themes and ensure that participants' perspectives are fully understood during data analysis. In congruence with these recommendations, we transcribed the discussion, read the document carefully, and then identified and coded the emerging themes. In addition, the final analysis was presented back to the respondents to assess and make relevant comments. This method was used to maintain the collected data's credibility and trustworthiness of results by ensuring that the researchers had comprehended and correctly interpreted the study findings.

RESULTS

According to developed criteria of inclusion and exclusion for the current study, twenty-one midwives and professional nurses were sampled purposively from a population of

761 nurses. Fourteen of participants were female, and males were represented by seven participants. Nurses from Med/Surg wards were nine nurses; and five nurses were recruited from OB/GYN. Cardiology and Oncology wards were represented by four and three nurses, respectively.

The transcribed information was structured and organized in various categories and used to extract the themes. Furthermore, the respondents formulated these elements, which they considered significant in offering eminent nursing care to their patients. The elements/themes are expounded below.

Empathy

Initially, it was considered beneficial to obtain insight into the interviewees' acuities on empathy for developing a clear explanation of this study's findings. They were asked to provide their definitions of kindness. The answers were likewise common to many interviews:

> "Well, in my opinion, empathy is the type of feelings that can be shared or appear to the other person as an expression of coherence with what they pleased or suffered. It is usually presented in the form of expressions of happiness, reassurance, or fondling." (P 01).
>
> "It is how much someone understands others' situation and tries to feel what they are feeling and see things from others' perspective.' (P 04).
>
> "An empathetic relation is friendly, close and cordial, which allows to understand patients from a closer view resulting in the increased possibility of understanding patient's perspective." (P 10).

Openness to the patient was considered as an essential aspect and viewed as an attitude and communication skill. To be precise, honesty is the individual capacity to have dignity for the feelings and thoughts of a patient:

> "As a nurse, empathy can be conveyed through good communication and showing sincere curiosity. Requesting others to share their opinions, moods, insights, and practices is one of the most effective and unswerving ways to convey compassion and comprehension. We, as nurses must also spend some time with our patients and make them involved in each part of care and showing their right to refuse what is seen as contrary by them to their preferences or beliefs. I believe building a good therapeutic relationship with a patient is relying on the empathic skill of the nurse." (P 03).
>
> "Someone can convey empathy to another through a positive attitude, positive listening, sharing joys, and sorrows. As a nurse, we can convey empathy by building a good relationship with the patient, meeting his or her needs, and respecting his or her values and beliefs. We can also help a patient to relax by spending time with him, listening and addressing his or her concerns, answering all of his questions, explaining each nursing procedure to the patient, and clarifying its benefits to his health. Similarly, I will ensure to defend the patient's discretion as a top priority." (P 06).

> "For me, my relationship with the patient is good when I try to be more communicative and interactive with the family, regarding patients improved developments, treatment preferences, and doubts. This further help me in removing all doubts from the patients' mind. It makes patients and their families more confident regarding the provided treatment." (P 12).

The insight of nurses was more inclined towards empathy as compared to sympathy. They explained sympathy as a more emotionally interacted procedure, where nurses make efforts to accustom to the patients' emotions by acknowledging their pain. Nurses experienced this as a gentle and warm endeavor for comprehending patients' emotional state:

> "Of course, the nurse practicing empathy will act in harmony with the patient. In addition, they would build a good therapeutic relationship. This relationship is built on trust and respect and meeting the patient's needs. Therefore, it clearly affects patient satisfaction positively." (P 02).
>
> "The nurse can convey empathy in different ways. There is no definite algorithm for showing empathy. Depending on the patient's situation, the nurse can show empathy by listening, committing to sit whenever the patient is in need to talk, expressing needs, emotions, or emotional status even in joyous moments, encouraging the patient, acknowledging their pain, and supporting whenever the need arises." (P 05).

The majority of the respondents consider non-verbal communication as an essential emphatic skill. They thought it was maintaining eye contact, leaning forward or backward to emphasize listening, and showcasing an interesting facial expression. Some participants identified physical contact's significance, such as offering a handkerchief, a hand on the shoulder, or an embrace when the patient is crying.

> "Nursing care is not measured by words, but there are actions that reflect empathy. Nursing actions lead to the development of positive results on the client's health. The patient's satisfaction is affected positively and negatively by the nurse's reaction, If the nurse portrays great empathy and administers good nursing care that meets all the patient's psychological and physical needs within a professional framework, this may lead to high patient satisfaction. It should be noted that the empathy of the nurse is also affected by a combination of factors such as the work environment, the culture of the institution, and nurse's job satisfaction." (P 07).

Nurses also indicated that different verbal skills were used in patients' emphatic care, such as summarizing and reflecting on the feelings and thoughts of patients, clarifying the question, displaying pauses and relaxed tone of voice, and exciting listening. Attention to cues and reference to previous events or consults in the patient's life was the specifically mentioned skills.

> "In certain cases, conflicts take place when I am unable to communicate them things regarding treatment and patient's condition effectively. This further effect

> my relationship with the patient, making him/her more doubtful regarding the diagnosis and treatment outcomes. For me, communication is the key to balance the relationship." (P15).
>
> "Constant communication with patient is a part of providing quality care to patients. Poor communication takes place, when there lies a weak relationship between nurse and patient which further affect overall treatment outcomes." (P 14).

A critical and differentiating aspect of empathy was the closeness of the patient concerning the patient's suffering. Empathy needed the nurse to approach a patient's suffering in a susceptible approach compared to sympathy, which entailed patients' emotionally distancing themselves from suffering through an overly misguided or demonstrative reaction or avoidance. Nurses have also mentioned the positive effects of empathy. Most nurses were convinced that empathy positively contributes to a better explanation of complaints and enhanced diagnostics, therapy adherence, and receiving detailed and useful information. This act allowed nurses to deal efficiently with the patient's concerns and achieve successful treatment.

> "Yes, of course, the goal of empathy is to make the quality of our patients better. So, by practicing this competence in our daily practice, we definitely will enhance patient satisfaction. Since we meet the needs of our patients according to their values and preferences and we also build a good relationship with them." (P 03).
>
> "The nursing profession is based on empathy. To be a nurse you must be an empathic person. From my viewpoint, I found it is connected to the patient's gratification and health outcomes. If a nurse is more empathic, her patient will be more satisfied with the quality of care he receives and vice versa." (P 06).

Advocacy

Advocacy from the perspective of nurses includes being nurturing, assertive, persistent, and empathetic. The participants were convinced that they have the traits that enable them to advocate for the patients effectively as they are compassionate towards their suffering. They also spent additional time nurturing their patients, thus recognized their needs. They observed themselves as very accessible and approachable to patients, which facilitated them to confide in them. Besides, nurses helped patients and educated them on finding their ways via the health system. They usually became alternate mothers to infants, resolved misunderstandings, and comforted angry patients.

Nurses also expressed that they saw patients' advocacy as an ethical duty and encouraged patient engagement. They also respected the patients' rights and assured them confidentiality in their advocacy. Most of the nurses (20 out of 21) held that they were more conversant with the problems affecting the patients and were better positioned to advocate for them as they spend more time with patients while offering health care.

> "We are in the department all the time with the patients. We interact with them, hand over patients, and write reports on them so we are aware of whatever is

> wrong with them. I think we [nurses] are the best to stand in for the patients." (P 11).

Nurses were also convinced that they were accessible and approachable to the patients rather than other health professionals to advocate for the patients effectively.

> "Nurses are the leading people at the hospital and patients approach us whenever they need to talk. They feel shy approaching other health care officers and do not comfortably ask questions." (P 13).

It was also observed that nurses offered health education and counseled mothers as part of their nurturing trait.

> "We educate them on the dos and don'ts, exercise, diet, and drugs." (P 17).
> "Sometimes we had to convince mothers to get treatment despite the pressure of her family. We explain the pros and cons of being treated and the confidence is built through this compassion." (P 18).

One of the nurses has expressed that sometimes they [nurses] play mothers' roles and take care of the patient's children in their absence.

> "We let the child stay in the department and the nurses would take care of the child. If we identify that there are other children at home and no one is available to take care of them, we can come and stay with the child in the department. This kindness will help the mother to go and return in the morning" (P 21).

Some of the male nurses have resolved misunderstandings and comforted anguished patients.

> "Sometimes, we have to deal with the situation where patients have misunderstandings related to bills and we have to mediate and explain things to their satisfaction" (P 19).
> "Usually, the patients are insulted by some staff members on the premises. We [nurses] resolve the dispute and calm the patients, and then talk to the staff to deal with the patients with professionalism" (P 16).

Caring

It was observed that the compassion and understanding of the patients' problems were the core aspects of nursing care. Sometimes, they had to become patients' voices and argue with the hospital management to fulfill patients' needs and consequently offered patients financial and material assistance. They also enabled their care, allowed them access to their caregivers whenever possible, and updated anxious relatives on the patient's condition. It was observed that most nurses realized and understood the feelings and challenges of patients and, therefore, communicated their needs and appealed on their behalf.

> "Patients are served meals in the morning and afternoon sessions. We [nurses] also propose management to serve meals to patients three times a day, and the meals should be served before they take their medications." (P 11).

The viewpoints of nurses indicated that quality care is the preferable approach to providing patient care (Gröndahl, Muurinen, Katajisto, Suhonen, & Leino-Kilpi, 2019). This care is delivered safely based on appropriate nursing standards regardless of discriminatory behaviors throughout the caring process.

> "We usually abide by the standards, whenever we are adopting a particular format. The rules cannot be omitted. I have made efforts to make them flexible for the provision of standard quality care." (P 13).

One of the participants expressed about the importance of excellent care for patient satisfaction, as follows:

> "I provide the best care to my patients as I always put the satisfaction of my patient first. My behavior toward the patient will not be changed if my patient is illiterate or poor. The importance is towards offering excellent care." (P 09).

The adherence to safety was also regarded as another measurement of providing eminent care:

> "You cannot omit medication of patients or mistakenly provide their medication twice. We have to remain conscious and precise in all of these duties and concerns." (P 20).

Nurses have expressed that they attempt to offer adequate care to eliminate patient pain and enhance their condition for attaining preferable caring outcomes. In this instance, a nurse revealed:

> "I certainly do my best by assuring that my patients feel less pain so that my care is effective for them. I also help my patients who are about to pass away, so that they are comfortable and, in less pain." (P 08).

DISCUSSION

This study was conducted by interviewing twenty-one Saudi nurses working in different hospital settings at the King Saud Medical City in Riyadh, Saudi Arabia, to ascertain their perspectives on how empathy, advocacy, and caring can be used to measure quality nursing care. The respondents averred that nurses should incorporate these elements into daily nursing practice to increase positive patient feedback and quality nursing care. This study reveals that empathy, advocacy, and caring are significant components of quality nursing care.

Empathy

By evaluating the collected data, it became apparent that nurses frequently apply empathic skills during their regular day-to-day work. According to the respondents, verbal and non-verbal communication was vital in the provision of quality nursing care. Nurses should continuously interact with their patients to comprehend their thoughts, pain, and reactions to the medicine. However, nurses should avoid being emotionally attached to patients. Nurse-patient communication is essential for understanding the needs of patients and providing critical care for the patients. For durable interaction, empathy is necessary between patients and nurses (Usta, Demir, & Yagmuroglu, 2012). Enhancement in empathic skills offers practical communication skills for nurses (Vaccaro et al., 2019). This study's findings indicated that there might be deleterious effects of being overly sensitive to others' pain and suffering, even though empathy is a fundamental aspect of nurse-patient interaction. This effect is specifically observed when nurses lack self-compassionate abilities. These findings are parallel to the finding proposed in the study of Duarte et al. (2016); according to the study, nurses who are empathetic must reflect increased self-compassion for a better quality of life. Nurses who are highly empathetic result in developing compassion fatigue and increased nurse burnout resulting in negatively affecting the quality of life of nurses. In addition, studies suggested that self-compassion in various healthcare professionals is beneficial for the clinician's well-being. It is further important to enhance the clinician's potential of showing compassionate care for patients (Boellinghaus, Jones & Hutton, 2014; Raab, 2014; Mills & Chapman, 2016).

Training might be significant for avoiding compassion fatigue as well as for promoting compassion satisfaction in self-compassion. This training can also encourage empathetic care, which has been indicated to significantly influence patients' health outcomes and professionals' well-being, considering the close interaction between empathy for patients and self-compassion. Previous studies have shown mindfulness-based interventions to be an influential approach to developing self-compassion and compassion for patients (Birnie, Speca, & Carlson, 2010; Tirch, 2010; Wallmark, Safarzadeh, Daukantaitė, & Maddux, 2013). According to Moudatsou et al. (2020), nurses can create an effective therapeutic nursing care plan tailor-made for the patient's needs through an empathetic relationship with their patients, thus promoting and delivering quality health care. Previous studies have also indicated that nurses' burnout can be reduced by different interventions, such as mindfulness-based interventions. We found that empathy can be used as a factor in gauging the value of nursing care. Other nurses suggested communication as the key to developing an effective relationship with patients since an incomplete or miscommunication between participants may lead to poor satisfaction of patients with the treatment (Molina-Mula, & Gallo-Estrada, 2020). Respondents further suggested that nurses should be more open towards their patients; this help in eliminating the doubts regarding the treatment from patients' mind.

Caring

The comprehension of quality nursing care explained in this study recalls previous literature identifying caring as a notion interactive to nursing and considered its essence. The meaning of quality nursing care comprises the contemporary practicing nurses specified in this study based on outcomes, focus, and consequences that add knowledge for the nursing discipline. Modern practicing nurses may drive improvements in nursing quality care by additionally defining the profession. The quality of care rendered to the patient is highly reliant on the nurse-patient relationship. A good nurse-patient relationship improves the nurses' quality of care, improves patient satisfaction, and reduces hospital stays (Molina-Mula & Gallo-Estrada, 2020). Positive caring behaviors influence the patients' physical and psychological aspects positively (A'la, Setioputro, & Kurniawan, 2018). According to World Health Organization (2019), care provided to the patients is of high quality when the following factors are considered, which includes delivering healthcare that is safe and involves minimum to zero risks for patients along with the least possibility of medical errors. Next, care provided to patients must be effective and should be based on scientific knowledge and proven guidelines. It must also be timely, that is without any delays in the overall process. Other characteristics include the efficiency of the involved human and technological resources, following similar patterns of patient care, without any gender, race, ethnic, and geographical considerations (World Health Organization, 2020).

The application of caring nurse conducts includes the provision of safety and positive communication, as well as motivation to patients to adhere to care advice and treatment plans (Thomas, Newcomb, & Fusco, 2019; Hajinezhad & Azodi, 2014). In this study, the participants provided that patient satisfaction is of utmost importance hence the need to provide quality care to them.

Advocacy

Nursing advocacy is paramount in the delivery of excellent health care in health organizations. Most of the participants stated that the best way of promoting advocacy was through patient education on medical conditions, prescribed medications, and nursing interventions. They aver that they also offer maternal care and moral support to the family of the patients and arbitrating patient disputes. Kolawole and Adejumo (2020) avow that vulnerable patients are empowered and delivered from inept superfluous treatment through nursing advocacy. Nevertheless, several factors hinder nurses from exercising this significant role. They include a lack of nurse autonomy, poor relations between hospital management, caregivers, nurses, uncooperative patients, and ineffective communication between nurses and patients (Nsiah, Siakwa, & Ninnoni, 2020). Additionally, poor patient advocacy can cause unavoidable health complications and death. Abbasinia et al. (2020) identified different attributes of advocacy, which include providing information to patients regarding their diagnosis, preferred treatment, involved complexities, and expected treatment outcomes. It further includes respecting patient's privacy, providing the choice to patients regarding the preferred treatment, and acting on a patient's belief.

Previous studies concur with the findings of this research that empathy, advocacy, and care are essential elements of improving patient experience. However, none of them explicated how these fundamental factors can be used to measure the quality of nursing care. This new and vital knowledge can be used by practicing nurses, instructors, legislators, and scholars. These findings offer an introductory experience that the essence of superior nursing care is allocated to nurses. Besides, this shared information is reflected from the nursing art that might be surprising for practicing nurses as it contradicts the fundamental emphasis. Eminent nursing care skills were focused on these nursing engagements with patients and were identifiable in nursing practices and peers. The three vital themes of caring, compassion, and advocacy were authenticated as the meaning of excellent nursing in practicing nurses' experiences. Nursing care is defined as to professionally abide on the healthcare standards while prioritizing patient's satisfaction. Considering and valuing the patient's safety is another important characteristic of increased patient care.

Through the above findings, empathy can be defined by the following characteristics of nurses, which include; sharing or feeling the emotions of other people, being more open in communicating patients' feelings, mood, suffering, preferences, or beliefs, to develop a relationship with patients which is entirely based on trust and emotions, and using and implementing appropriate verbal skills to develop clarity in patients regarding the provided treatment. Advocacy, on the other hand, can be defined as an ethical duty towards patients, which is fulfilled by being more approachable and accessible towards patients, providing them the required information and knowledge via counseling, while showing kindness through increased care. These common meanings can be applied to enlighten the nursing practice and appraise the value of nursing care being offered. Therefore, nurse administrators can create plans for aiding nurses effectively in the realization and delivery of excellent nursing care contemplative to the meaning of caring, compassion, and advocacy. They can apply these themes to assess the value of nursing care by identifying nurses' communication and behaviors with patients. Most notably, the majority of the nurses have expressed quality nursing care comparative to end-of-life situations.

Additional studies are required to comprehend the essence of this finding and to further extend the information by collecting the information through quantitative analysis for more explicit dimensions of care, empathy, and advocacy, which act as a limitation of the present study.

CONCLUSION

In conclusion, patient advocacy, empathy, and caring are part and parcel of a nurse's characteristics. They are fundamental attributes in the assessment of the value of nursing care given to patients. Empathy and advocacy are critical skills that nurses should portray when caring for patients. They aid in listening to people and comprehending their views, particularly in the nursing practice. Empathy skills are essential while providing care to patients. Nurses caring for patients must be assessed for both education and empathy skills during employment. Even though education is a direct relationship between attitudes and empathy skills, it cannot explain patients' care.

Additional studies can be carried out to evaluate the relationship between attitudes and empathy skills towards patients. The healthcare system must stimulate nurses to think and act beyond their usual roles and engage in continuous learning to maximize healthcare system consequences concerning patient-perceived care quality and care outcomes. The findings and suggestions of this study might be utilized by senior nursing managers in programs that are devised for enhancing the quality of nursing care.

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CONFLICT OF INTEREST

The author affirms no opposing interest.

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Factors Associated with Nursing Students' Intention to Report Needlestick Injuries: Applying the Theory of Planned Behavior

Nelson A. Ditching[1], Angel Grace F. Furatero[1], Razilee Vania S. Iquiña[1], Aira Darlyn M. Sabulao[1], Jason M. Supremo[1], Ryan Michael F. Oducado[1]

[1]*College of Nursing, West Visayas State University, Philippines*
Corresponding Author: Ryan Michael F. Oducado (rmoducado@wvsu.edu.ph)

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ABSTRACT

Background: Nursing students, like other healthcare workers, are prone to needlestick injuries. Over the years, studies have been conducted regarding needlestick injuries. However, its prevalence among Filipino nursing students' is still not known. Also, nursing students' intention to report needlestick injuries in the Philippines has not been explored.

Purpose: The purpose of this research was to determine the factors associated with the intention to report needlestick injuries among nursing students applying the Theory of Planned Behavior.

Methods: This cross-sectional study used the Needlestick Injuries Reporting Intention Scale (NIRIS) and was distributed among 233 senior nursing students in Iloilo City, Philippines. Descriptive statistics and Pearson's correlation were utilized to analyze the data.

Results: The results of the study revealed that 15% of nursing students had experienced a needlestick injury. However, only less than half (45.71%) of those who sustained needlestick injury reported the incident. Nursing students exhibited a positive attitude (M=5.41; SD=0.63) toward reporting needlestick injuries. They perceived a high social pressure (M=4.65; SD=0.46), high behavioral control (M=4.19; SD=0.45), and high intention (M=8.99; SD=1.15) in reporting needlestick injuries. Attitude (p=0.000), subjective norm (p=0.000), and perceived behavioral control (p=0.000) were significantly correlated with the intention to report needlestick injuries.

Conclusion: This study supports the Theory of Planned Behavior in identifying factors influencing nursing students' intention to report needlestick injuries.

Keywords: Needlestick injuries; nursing students; prevalence; Theory of Planned Behavior

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BACKGROUND

Needlestick injuries commonly occur in healthcare settings and can be serious (King & Strony, 2020). According to World Health Organization, two million healthcare workers globally suffer from needlestick injuries yearly, causing the transmission of hepatitis B and C and Human Immunodeficiency Virus (HIV)/AIDS (Pavithran et al., 2015). The estimated global burden of diseases from occupational exposure to hepatitis B and C and HIV infections among healthcare workers reaches 39%, 37%, and 4.4%, respectively (AlDakhil, Yenugadhati, Al-Seraihi, & Al-Zoughool, 2019). Correspondingly, according to the Centers for Disease Control and Prevention report, the global estimates of needlestick injuries occurring each year is around 600,000 to one million (Tayaben, 2015). In the Philippines, available data on needlestick injuries in 2004 revealed a total of 4,004 healthcare workers reported to have acquired needlestick injuries (Padilla, Rogado, Tagalog, & America, 2006).

The transmission of blood-borne pathogens poses an occupational hazard to healthcare workers. Despite awareness and guidelines on universal precaution, needlestick injuries continue to occur, and many go unreported (King & Strony, 2020). Sharp injuries continue to be a primary concern among nurses (Tayaben, 2015). Unreported needlestick injuries also remain a concern among nursing students. This is because nursing students also perform procedures that involve needles and sharps during their clinical placements. A study reported that among healthcare groups, nursing students were the most vulnerable cohort for needlesticks injuries in a teaching hospital (Hada et al., 2018). Because of their not well-honed skills and limited clinical experiences, nursing students are less skillful when handling sharps thus are at greater risk of injury (Thomas, 2020). A review study demonstrated high rates of needlestick injuries among nursing students in low, middle, to even high-income countries (Handiyani, Kurniawidjaja, Irawaty, & Damayanti, 2018). Aside from the alarmingly high rates of needlestick injuries, there is also a disturbingly low level of reporting the injury (Thomas, 2020). A study also disclosed poor correct practice of prevention of needlestick and sharps injuries among students (Quynh & Einhellig, 2017).

Meanwhile, the Theory of Planned Behavior provides a theoretical backbone to study the correlates of nursing students' intention to report needlestick injuries. According to the Theory of Planned Behavior, intention to perform the behavior is determined by attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). Many studies regarding health-related behaviors have tested the Theory of Planned Behavior (e.g., Gabriel, Hoch, & Cramer, 2019; Hatefnia, Alizadeh, & Ghorbani, 2019). Among samples of nurses and nursing students, the Theory of Planned Behavior has been tested on the intention to report medication errors (Natan, Sharon, Mahajna, & Mahajna, 2017), child abuse (Atencion et al., 2019; Cho & Kim, 2016) and adverse events (Ekayani, Wardhani, & Rachmi, 2017).

Understanding the factors associated with reporting needlestick injuries is crucial in order to properly design interventions that foster the reporting of errors (Natan et al., 2017). The prevalence of needlestick injuries among Filipino nursing students is not known. There is an equal lack of research regarding nursing students' intention to report needlestick injuries in the Philippines setting. In addition, previous scholars have not examined whether constructs of the Theory of Planned Behavior are linked with reporting intention related to needlestick injuries. These were explored in this study.

PURPOSE

This study aimed to determine the factors associated with nursing students' intention to report needlestick injuries using the constructs of the Theory of Planned Behavior.

METHODS

Research design and participants

This study employed a descriptive-correlational, cross-sectional research design. The population of the study included all senior/fourth-year students (*n*=233) enrolled in the Bachelor of Science in Nursing program in one government and two private nursing schools in Iloilo City, Philippines. The entire population was taken as participants. Total sampling was used, and the response rate was 100%.

Research instrument and data collection

The Needlestick Injuries Reporting Intention Scale (NIRIS) was used to gather the data. The NIRIS is a self-administered questionnaire developed by the researchers to measure nursing students' attitude, subjective norms, perceived behavioral control, and intended reporting behaviors regarding needlestick injuries as well as demographic characteristics, prevalence, and past experiences of reporting needlestick injuries. The NIRIS was patterned after Feng and Levine's (2005) and Feng and Wu's (2005) Child Abuse Report Intention Scale that was utilized by Atencion et al. (2019) within the Philippine setting. Intention to report needlestick injuries was defined as the degree of likelihood of reporting needlestick injuries. Nursing students intended behavior of reporting needlestick injuries was assessed using ten vignettes of hypothetical situations. It was measured using a 10-point continuum from "1=almost certainly would not report" to "10=almost certainly would report". Attitude toward reporting needlestick injuries referred to the degree of positive or negative value placed on reporting needlestick injuries. It was measured using ten attitudinal statements with responses in a 6-point continuum of "1=strongly disagree" to "6=strongly agree". Subjective norm was defined as nursing students' perceptions of social pressure whether or not to report needlestick injuries. Students were asked to assess how likely it is that their classmates, clinical instructors, staff nurses, and hospital personnel would approve or disapprove their reporting behavior. It was determined using five items answerable in a 5-point Likert-type with responses ranging from "1=definitely no" to "5=definitely yes". Perceived behavioral control over reporting needlestick injuries was defined as the confidence, perceived ease, or difficulty of reporting needlestick injuries. Ten items were included that relate to nursing students' perception of the control they have in reporting needlestick injuries. Responses were on a 5-point Likert-type scale ranging from "1=definitely no" to "5=definitely yes". Higher scores suggest higher intention to report, a more positive attitude, subjective norms having a greater influence on nursing students, and greater control over reporting needlestick injuries.

The face and content validity of the NIRIS were evaluated by a panel of (5) five jurors: two clinical instructors/professors in the nursing field, two medical doctors, and one infection control nurse. Irrelevant and unclear items were removed during the validation process and were not included in the instrument's final form. The NIRIS was pilot tested with 30 nursing students in another nursing school not included in the actual survey. The Cronbach's alphas for the different parts of the scale ranged from 0.69 to 0.80, indicating an acceptable internal consistency or reliability of the instrument.

Data were collected in September 2018 after administrative clearances were secured from the Colleges of Nursing deans. There were three nursing schools in Iloilo City that gave consent for researchers to conduct the study. The researchers approached the participants during the scheduled time given by the school to conduct the study. The researchers personally distributed the paper survey tool to the participants after receiving the signed informed consent forms. Instructions were provided on how to complete the questionnaire. It took about 5 to 15 minutes to fully fill out the survey.

Statistical data analysis

The data were entered in Microsoft Excel and were computed by IBM SPSS version 23. Descriptive statistics used include frequency, percentage, mean (M), and standard deviation (SD). Pearson's correlation coefficient was utilized to test for significant relationships between variables after the normality test suggested a normal distribution of data. A p-value equal to or less than 0.05 was considered statistically significant.

Ethical considerations

The technical and ethical soundness of the study were reviewed by the thesis committee of the college before the actual investigation. A signed consent form was obtained from all participants. No personal identifiers were collected to protect the anonymity of the participants and the confidentiality of the data.

RESULTS

School and sex distribution of nursing students

Table 1 presents the distribution of 233 fourth-year nursing students according to school and sex. The majority of the nursing students included in this study were females (83.69%) and from a public or government-funded nursing school (68.67%).

Table 1. School and sex distribution of nursing students (n=233)

Characteristics	*f*	%
Nursing School		
A (Public)	160	68.67
B (Private)	54	23.18
C (Private)	19	8.15
Gender		
Female	195	83.69
Male	38	16.31

Prevalence and history of reporting needlestick injuries

Table 2 shows that out of 233 participants, 35 or 15% of nursing students had previously experienced a needlestick injury. Moreover, 19 of 35 (54.29%) nursing students who suffered a needlestick injury did not report the incident, while 16 or 45.71% reported the injury to authorities.

Table 2. Prevalence and history of reporting needlestick injuries

Prevalence of needlestick injuries (*n*=233)	*f*	%
Had experienced a needlestick injury	35	15
Had not experienced a needlestick injury	198	85
History of reporting needlestick injuries (*n*=35)		
Reported needlestick injury	16	45.71
Did not report needlestick injury	19	54.29

Nursing students' attitude, subjective norm, perceived behavioral control

As shown in Table 3, almost all (98.7%) of nursing students had a positive attitude (*M*=5.41; *SD*=0.63) toward reporting needlestick injuries. Nearly all (98.3%) reported high social pressure (*M*=4.65; *SD*=0.46) in reporting needlestick injuries, and almost all (98.3%) had high perceived behavioral control (*M*=4.19; *SD*=0.45) in reporting needlestick injuries.

Table 3 *Attitude, subjective norm, perceived behavioral control*

Variables	*f*	%
Attitude (*M* =5.41; *SD*=0.63)		
Positive (3.51-6.00)	230	98.7
Negative (1.00-3.50)	3	1.3
Subjective Norm (*M*=4.65; *SD*=0.46)		
High (3.01-5.00)	229	98.3
Low (1.00-3.00)	4	1.7
Perceived Behavioral Control (*M*=4.19; *SD*=0.45)		
High (3.01-5.00)	229	98.3
Low (1.00-3.00)	4	1.7

Nursing students' intention to report needlestick injuries

It can be gleaned in Table 4 that generally, nursing students had a high intention (*M*=8.99; *SD*=1.15) to report needlestick injuries. Additionally, nursing students had the highest intention of reporting when pierced by a needle of an HIV positive patient (*M*=9.82; *SD*=0.77) and had the least intention of reporting when punctured with a lancet when checking the capillary blood glucose (*M*=7.87; *SD*=2.61).

Relationship of attitude, subjective norm, perceived behavioral control to intention

The result of statistical analysis using Pearson's correlation as displayed in Table 5 revealed that there was a significant positive relationship between attitude (*r*=0.347, *p*=0.000), subjective norm (*r*=0.230, *p*=0.000), perceived behavioral control (*r*=0.246, *p*=0.000), and intention to report needlestick injuries.

Table 4. Intention to report needlestick injuries

Intention to Report Needlestick Injuries	*M*	*SD*
Pierced by a needle accidentally while fixing the bedside table of a patient positive from HIV.	9.82	0.77
Injured by the stylet when about to dispose after the IV insertion of a patient with MRSA (Methicillin-resistant Staphylococcus aureus).	9.65	1.00
Wounded by the needle hidden underneath the linens of the patient who is diagnosed with syphilis.	9.63	1.12
Punctured while giving Streptomycin injection of a patient suffering from Pulmonary Tuberculosis.	9.34	1.43
Pricked by the needle after pulling out the side drip at the Y-port of a patient who has malaria.	9.26	1.70
Pierced by the tip of a needle of a pre-filled syringe while recapping.	8.93	1.66
Pricked by the needle of a syringe while inflating the balloon port of a newly inserted indwelling catheter.	8.69	2.09
Injured by the needle while preparing the patient's medications.	8.37	2.35
Pierced by the needle before administering insulin to a patient.	8.34	2.24
Punctured finger with a lancet when about to test the patient's capillary blood glucose (CBG).	7.87	2.61
Composite score	8.99	1.15

Table 5. Correlation of variables

Independent variables	*r*	*p*
Attitude	0.347	0.000
Subjective norm	0.230	0.000
Perceived behavioral control	0.246	0.000

DISCUSSION

This study explored the factors affecting the intention to report needlestick injuries among nursing students. It is noteworthy that nursing students in this study had high intention to report needlestick injuries. Moreover, the variables in the Theory of Planned Behavior: attitude, subjective norm, and perceived behavioral control were found to be significantly correlated with intention to report needlestick injuries. Nursing students are more likely to report cases of needlestick injuries if they are more affirmative on reporting the injury, they are confident that their classmates, clinical instructors, staff nurses, and hospital personnel support their reporting behavior, and they are fully in control in reporting needlestick injuries. The finding of this study affirms prior researches applying the Theory of Planned Behavior identifying factors associated with behavioral intentions of nursing students and nurses. The constructs of attitude, subjective norm, and perceived behavioral control influenced the behavioral intention of nursing students to report medication errors (Natan et al., 2017) and of nurses to report child abuse (Atencion et al., 2019; Feng & Wu, 2005). Other prior researches also partially supported the Theory of Planned Behavior. For instance, nurses' intention to report adverse events (Ekayani et al., 2017) and child abuse (Cho & Kim, 2016) were influenced by attitude and perceived behavioral control.

This study also demonstrated that while 85% of the participants had not experienced needlestick injury, 15% of the sampled nursing students had experienced needlestick injuries during their course. This result is comparable among Australian nursing students, wherein 13.9% reported a needlestick or sharps injury during the previous 12 months, and among nursing students in Hongkong, wherein the annual prevalence of needlestick injuries was 0.6 to 1.6 cases. However, much higher rates were reported with nursing students in India (91.85%) and Taiwan (56.00%) (Handiyani et al., 2018), China (60.3%) (Zhang et al., 2018), Turkey (33.0%) (Ozer & Bektas, 2012), and among Arab nursing students in Jordan, Egypt, Iraq and Saudi Arabia (40%) (Nawafleh et al., 2019). Nonetheless, regardless of the number of needlestick injuries, the incident requires attention because of the risk of exposure to blood-borne pathogens to students. A study in Hong Kong disclosed that 58.14% of needlestick injuries were from contaminated needles (Cheung, Ho, Ching, & Chang, 2010). Possessing adequate skills and competencies concerning procedures involving students to handle sharp devices is crucial for nursing students (Handiyani et al., 2018).

Furthermore, it is alarming to note that there seems to be an underreporting of needlestick injuries among nursing students in this current study. A low level of reporting of needlestick injuries was also noted among nursing students in the United States (Thomas, 2020) and China (Zhang et al., 2018). Similarly, there were many unreported cases of needlestick injuries among healthcare workers as per the report of the Centers for Disease Control and Prevention (Tayaben, 2015). Nursing students’ reasons for not reporting included the item was unused, fear of getting in trouble, fear that the incident would affect their grade, and concern about being perceived as lacking clinical skill (Smith & Leggat, 2005; Thomas, 2020).

It is also interesting to note that although the intention to report needlestick injuries was relatively high in all hypothetical situations, nursing students declared the highest intention to report needlestick injury from an HIV positive patient. It appears that students are more likely to report more severe cases of needlestick injury that involves patients with highly infectious diseases. This is particularly important because of the documented transmission of HIV through needlestick injuries (Higginson & Parry, 2013; Pavithran et al., 2015).

The results of this study present an important issue that needs to be addressed both effectively and urgently, and the outcomes of this study have important implications for nursing educators and other interested parties. Nursing faculties must be not only proactive in identifying underperforming students early in the class (Oducado, 2019) but also be proactive in promoting the safety of students. It is thereby necessary for nursing schools to develop effective needlestick prevention and monitoring program (Handiyani et al., 2018). In addition, there is a need to bridge communication gaps to enhance the reporting of needlestick injuries (Thomas, 2020) and build a culture that fosters safe reporting of cases. At the same time, it is necessary and desirable for nursing students to adopt safer behaviors when handling syringes and other sharps (Silowati, Handiyani, & Rachmi, 2019).

This study has limitations that warrant attention when interpreting and using the results. First, establishing a causal relationship between key variables may not be possible considering the cross-sectional research design of the study. Also, representativeness cannot be guaranteed, and results cannot be widely generalized as first, second, and third-year levels were not part of this study, and nursing students in other parts of the country or internationally were excluded from the study. Additionally, data obtained for this study used self-report scales; response bias may be present. Also, although the NIRIS was subjected to validation and reliability testing prior to use, the psychometric property of the research instrument has not been subjected to a larger scale. There may be other factors that may influence the intention to report needlestick injuries; however, only the constructs of the Theory of Planned Behavior were included in the study. Further studies may be conducted to validate the present investigation.

CONCLUSION

Understanding factors associated with the intention to report needlestick injuries is vital in planning interventions that foster and cultivate error reporting. The results of this study validate the usefulness of the Theory of Planned Behavior in analyzing factors that may influence nursing students' intention to report needlestick injuries. The constructs of attitude, subjective norm, and perceived behavioral control significantly influence nursing students' intention to report needlestick injuries. Additionally, there seems to be underreporting of needlestick injuries among nursing students. Teaching students to adopt safer behaviors, bridging communication gaps, fostering a culture of safe reporting and monitoring system, and establishing an effective prevention program for needlestick injuries among nursing schools is thereby necessary.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Children's Nurses' Knowledge and Attitudes on Paediatric Pain: A Descriptive Cross-Sectional Survey in a Developing Country

Evans Oduro[1], Abigail Kusi-Amponsah Diji[1], Grace Kusi[1], Albert Amagyei[1], Joana Kyei-Dompim[1], Alberta Lomotey[1], Edward Appiah Boateng[1], Hayford Isaac Budu[1]

[1]Department of Nursing, Faculty of Allied Health Sciences, Kwame Nkrumah University of Science and Technology, Ghana
Corresponding Author: Evans Oduro (kojoevans92@gmail.com)

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ABSTRACT

Background: Children's nurses' knowledge of pain affects their pain management practices. Even though poor knowledge and attitudes have been reported in several studies, most were carried out in developed settings. However, little has been reported on the management of paediatric pain by nurses in resource-limited settings such as in sub-Saharan Africa.
Purpose: This study sought to assess the knowledge and perceptions of children's nurses regarding paediatric pain in a Ghanaian context.
Methodology: A descriptive cross-sectional survey was carried out among 65 nurses at eight hospitals at various levels of healthcare in Ghana. Over three months, participants' demographic data and responses on the Pediatric Nurses Knowledge and Attitude Survey Regarding Pain (PNKAS) instrument were collected. Data were analyzed and presented using descriptive and inferential statistics.
Results: Participants' average (SD) knowledge and attitudes regarding paeditric pain was 36.7% (6.9%) and ranged from 21.4% to 57.1%. Pediatric pain knowledge and attitudes (PPKA) of the nurses differed based on working years in the children's unit and the hospital type they worked in ($p<0.05$). Nevertheless, the type of hospital facility was the only independent predictor of their PPKA ($R^2=0.181$, $p<0.001$).
Conclusion: Children nurses in this setting generally had insufficient knowledge and attitudes on paediatric pain. They should be motivated to undertake self-directed learning and regular continuing professional education to update their knowledge, attitude and skills on evidence-based pediatric pain assessment and management.

Keywords: Knowledge and attitudes; nurse; pediatric pain

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BACKGROUND

Globally, paediatric pain constitutes a major clinical challenge due to the complex interplay of developmental and psycho-social factors (Drendel, Kelly, & Ali, 2011; Jain, Yeluri, & Munshi, 2012; Taylor, Boyer, & Campbell, 2008). Unrelieved peadiatric pain persists despite years of research and cost-effective methods of treating it (Kozlowski et al., 2014; Mathews, 2011). Previous research studies report that the prevalence rate of pain (acute or chronic) among hospitalized children ranges between 15% to 88% (Groenewald, Rabbitts, Schroeder, & Harrison, 2012; Haraldstad, Sørum, Eide, Natvig, & Helseth, 2011; King et al., 2011; Linhares et al., 2012; Mathews, 2011). The percentage of undertreated pain might even be worse for children in developing countries due to poverty, conflict, the high illiteracy rate, among others. Research evidence has shown that untreated pain in the early stages of life can lead to devastating effects, which may be short or long term. These effects may be physiological, developmental, emotional, or behavioural and may persist into the later stages of life (Deere et al., 2012; Friedrichsdorf et al., 2015; Hasuo et al., 2017; King et al., 2011; Mathews, 2011). Untreated pediatric pain has been linked with functional disability, longer duration of hospitalization, poor life quality (Friedrichsdorf et al., 2015), and development of chronic pain (Sessle, 2011), which becomes burdensome to affected children, their families, and societies (Bushnell, Čeko, & Low, 2013; Dueñas, Ojeda, Salazar, Mico, & Failde, 2016).

Nurses form a considerable part of the health provider team and spend almost all their time on the ward with children in pain and their families during hospitalization (Abazari & Namnabati, 2017; Latchman, 2014). They are, therefore, well-positioned and contribute significantly to the assessment and treatment of pediatric pain during hospitalization (Kingsnorth, Joachimides, Krog, Davies, & Higuchi, 2015; Sweet, Shusterman, Nedeljkovic, & Solodiuk, 2018; Van Hulle Vincent, Wilkie, & Wang, 2011; Ziyaeifard et al., 2018). The nurse must possess adequate knowledge and fitting attitudes as these impact on their paediatric pain management capabilities.

However, current studies have reported that children’s nurses do not possess sufficient knowledge and also have poor attitudes regarding paediatric pain. Alotaibi, Higgins, and Chan (2019), in a survey among Saudi-Arabian nurses, reported that the nurses in that setting had poor knowledge and attitudes with a mean score of 45.2%. Similarly, Ekim and Ocakcı (2013) reported that low levels of knowledge and attitudes (Mean = 38.2%) among paediatric nurses in Turkey. Other studies have been conducted in various countries such as China (Hua et al., 2019), Mexico (Ortiz et al., 2015), Norway (Smeland, Twycross, Lundeberg, & Rustøen, 2018), and the United States of America (Stanley & Pollard, 2013). All these studies reported that paediatric nurses possessed sub-optimal levels of knowledge and attitudes on paediatric pain management.

Even though the brief review of earlier literature shows that these studies are widely distributed across the world, it also shows that there are a few of them carried out in developing countries, especially in Africa where most of the countries are still developing. Speculatively, a dynamic of factors such as poverty, conflict, the proliferation of diseases, and sub-optimal healthcare systems may lead to worse results than what has been recorded in studies in developed countries. Considering the sociopolitico-economic differences that exist between these developing countries and developed countries of the world, the limited attention given to nurses' paediatric pain knowledge and attitudes in these developing countries presents a worrying gap. In this regard, in a quest to bridge this gap and contribute to the pain management among hospitalized children in under-resourced settings, an evaluation of the knowledge and attitudes of children's nurses in Ghana on paediatric pain was carried out.

PURPOSE

The current study sought to evaluate the knowledge and attitudes of Ghanaian children's nurses on paediatric pain. Additionally, this study examined the independent socio-demographic predictors of nurses' paediatric pain knowledge and attitudes.

METHODS

Study design, setting, and participants

A descriptive cross-sectional survey was carried out at eight hospitals located in the Ashanti region of Ghana, West Africa. These hospitals were selected as they served as the primary point of healthcare for sick children and their families. Apart from the location of these hospitals in urban, peri-urban and rural areas, they were managed by government and private employees. Three of them were Specialist Children's Hospitals, whereas the remaining five were General Hospitals with children's department or directorate within their structure.

The in-patient units of the pediatric care settings were managed by nurses who worked during three (morning, afternoon and evening) shifts to assure a 24-hour continual healthcare service provision. At each shift, an average of two registered nurses was available to cater to 10-15 hospitalized children and their parents or guardians. Nursing activities within the units included patient and family initial and continuing assessment, planning of care, implementation of interventions, and evaluation of nursing care. The regular assessment and interventions for pain in admitted children are considered as an integral aspect of nursing care within the in-patient pediatric care settings.

Registered clinical nurses were considered to meet the eligibility for participation in this study if they were working in the pediatric units or wards of the included hospitals. Nurses who were on maternity, study or casual leave during the study period were excluded from participation. With the help of a sample size calculator by Select Statistical Consultants (2020) and assuming a 5% margin of error, a sample proportion of 60% and a 95% confidence level, 59 nurses were deemed as sufficient in powering the conclusions of the study with a high level of precision. During the recruitment period of the study, 70 registered nurses were working in the in-patient pediatric care settings of all eight hospitals. All 70 nurses in the eight hospitals were approached, out of which 65 agreed to partake in the current study, yielding a response rate of 93%.

Data collection procedure

After securing administrative sanctions from the respective hospitals and the ethics committee, the researchers contacted the nurses at their workplaces and explained the study's objective and procedures. Participants who willingly gave their informed consent completed the data collection tool within 20 to 30 minutes. Over a three-month study period from February 2019 to April 2019, participants' demographic data and responses on the Pediatric Nurses Knowledge and Attitude Survey Regarding Pain (PNKAS) instrument (Manworren, 2001) were collected.

Data collection instrument

The Pediatric Nurses Knowledge and Attitude Survey regarding pain (PNKAS) instrument consists of 40 items, which are presented as 42 individual questions. Twenty-two (22) of the items are binary statements (true or false responses), whiles sixteen (16) of the questions are multiple-choice questions (MCQs) followed by two case scenarios, which have been expanded into four questions.

A correctly answered question by the participant on the PNKAS instrument was scored a point, whereas an incorrectly answered ones were scored a zero. The least and highest attainable scores on the 42-question instrument are zero (0) and 42 respectively. To ensure standardization of the results, each participant's total correct score was changed into a percentage by multiplying by 100, the fraction of their total score out of 42. Participants who scored 80% and above were regarded as having an appropriate degree of knowledge and attitude regarding paediatric pain.

Reliability and validity of the PNKAS instrument have been established in Manworren's study (Manworren, 2001). Five pain management experts have assessed the content validity of the tool to be appropriate in measuring paediatric nurses' attitudes and knowledge about paediatric pain. A test-retest reliability coefficient of 0.67 has been recorded among 12 healthcare professionals, signifying an acceptable level of instrument stability. Data obtained from two independent groups of pediatric nurses revealed Cronbach's alpha values of 0.72 and 0.77, signifying an appreciable level of internal homogeneity. Prior to the use of the instrument in the current study, the tool's face validity was established by an eleven-member group consisting of children's clinical nurses, nurse-educators, and paediatricians in Ghana.

Statistical analysis

Utilizing the Statistical Package for Social Sciences (SPSS) software version 25, the data were analyzed and presented using descriptive and inferential statistics. Continuous variables were presented as means, standard deviations (SDs), medians and ranges. Categorical variables, on the other hand, were illustrated as frequencies and percentages. Differences in mean (SD) of the PNKAS scores between two groups were analyzed using the independent sample t-test analysis. Variations in the observations in three or more groups were evaluated using the analysis of variance (ANOVA) analysis.

Ethical considerations

Approvals from the eight hospitals that were considered for the study were acquired before the commencement of the study. Ethical approval with approval number CHRPE/AP/574/18 was acquired from the Committee on Human Research, Publications and Ethics (CHRPE). After explaining the study aim and procedures to the nurses, verbal consent of participation, and the completion and submission of the data collection tool was considered as evidence for their informed consent. Participants took part in the study out of their free will, and participants were assured of anonymity and confidentiality of their responses.

RESULTS

Participant's demographic characteristics

As illustrated in Table 1, a majority of the participants were between the ages of 23 and 30 years (63.1%). Many of them were females (81.5%) and had obtained a Diploma in Nursing as their highest educational qualification (64.6%). Over three-fifths of the participants had worked as nurses for up to five years (63.1%) and in the children's unit for up to three years (76.9%). In the period of this study, nearly two-thirds of the sampled nurses (66.2%) worked in general hospitals which had pediatric departments within them.

Table 1: Stratification of participants by PNKAS scores (n=65)

Variable	*f* (%)	% Mean *(SD)*	% Range	*p-value*
Age (years)				
23 – 30	41 (63.1)	35.8 (7.6)	21.4 – 57.1	0.164*
31 – 38	24 (36.9)	38.3 (5.2)	28.6 – 47.6	
Gender				
Male	12 (18.5)	37.5 (7.3)	23.8 – 47.6	0.674*
Female	53 (81.5)	36.6 (6.8)	21.4 – 57.1	
Educational level				
Certificate	13 (20.0)	35.7 (9.6)	21.4 – 57.1	0.798$^{\#}$
Diploma	42 (64.6)	36.8 (6.4)	23.8 – 50.0	
Degree	10 (15.4)	37.6 (4.9)	31.0 – 47.6	
Years in nursing				
Up to 5 years	41 (63.1)	37.0 (6.6)	28.6 – 57.1	0.638*
Above 5 years	24 (36.9)	36.2 (7.4)	21.4 – 50.0	
Years in children's unit				
Up to 3 years	50 (76.9)	37.8 (6.9)	23.8 – 57.1	0.021*
Above 3 years	15 (23.1)	33.2 (5.7)	21.4 – 45.2	
Hospital				
Specialist	22 (33.8)	32.7 (4.5)	21.4 – 40.5	<0.001*
General	43 (66.2)	38.8 (7.0)	23.8 – 57.1	
PNKAS scores (%)		36.7 (6.9)	21.4 – 57.1	

Note: PNKAS – Pediatric Nurses' Knowledge and Attitudes Regarding Pain; f – Frequency; % – Percentage; SD – Standard deviation; * - Independent samples t-test analysis; # - One-way analysis of variance (ANOVA) analysis

Nurses' knowledge and attitudes regarding pediatric pain

The mean percentage of correct scores on the PNKAS instrument for the participants was 36.7%; a range of 21.4% to 57.1% (Table 1). Tables 2 and 3 provides the top 10 correct and incorrectly answered questions that were provided by participants. Areas where participants showed good knowledge and attitudes were related to items that focused on the individualized essence of the pediatric pain experience and its management, non-pharmacological interventions, and pharmacological methods of managing pain as well as the influence of culture on paediatric pain (Table 2). The areas where unsatisfactory knowledge and attitudes were recorded centred on pharmacokinetics (drug, administration, distribution, metabolism and excretion), pain assessment and pain perception (Table 3).

Table 2. Most correctly answered areas (n=65)

Item contents (correct answer)	*f* (%) Correct
Combination of analgesics and non-drug therapies may result in a better level of analgesia with fewer side effects than in the case of a single analgesic agent	48 (73.8)
Following initial prescribed dose of opioid analgesic, the individual's response must be taken into consideration to make adjustments	47 (72.3)
To prevent anticipatory anxiety, children should be highest pain and anxiety treatment before the first procedure if the procedure is going to be repeated	45 (69.2)
Children/adolescents should not be made to endure pain too much pain before administering opioids.	43 (66.2)
Similar stimuli do not illicit the same level of pain intensity in different people.	41 (63.1)
Parents should be allowed to be present when painful procedures are carried out on their children.	40 (61.5)
Ibuprofen and other NSAIDS provide effective analgesia for pain in bone malignancies	39 (60.0)
Benzodiazepines are not effective in increasing the effect of opioids if the pain is not related to muscle spasms.	39 (60.0)
Children less than two years do not reduce pain sensitivity or limited pain memory because their nervous system is not developed.	38 (58.5)
Children should be individually assessed to ascertain the influence of culture on their pain experience	36 (55.4)

Relationship between socio-demographic characteristics and nurses' knowledge and attitudes on paediatric pain

An independent sample t-test and one-way analysis of variance (ANOVA) revealed that there were no statistically significant differences in the pediatric pain knowledge and attitudes (PPKA) scores based on participants' age (p=0.164), gender (p=0.674), educational level (p=0.798) and years worked in the nursing profession (p=0.638) (Table 1). Statistically significant differences were observed between the PPKA scores and nurses' working years in the children's unit as well as the hospital type they were presently working in (p<0.05). Nurses who had worked in the children's unit for up to three years (M=37.8%, SD=6.9%) had significantly higher scores compared to their counterparts who had worked for more than three years (M=33.2%, SD=5.7%); t(63)=2.38, p=0.021). Scores were significantly higher among nurses who worked in general hospitals (M=38.8%, SD=7.0%) than nurses who worked in specialist pediatric hospitals (M=32.7%, SD=4.5%); t(60)= -4.29, p<0.001.

Predictors of nurses' pediatric pain knowledge and attitudes

An analysis by multiple linear regression was conducted to ascertain if the number of working years in the children's unit and the type of hospital facility could independently predict nurses' pediatric pain knowledge and attitudes (PPKA). Results indicated that the number of working years in the children's unit was not a significant predictor, hence, a simple linear regression model was run with the type of hospital facility as the only independent variable. The analysis showed that the type of hospital facility (pediatric specialist or general) significantly explains 18.1% of the variability within the PPKA in the model with the following formula: Nurses' PPKA=26.553 + (6.131* type of hospital facility), R=0.426, R^2=0.181 (p<0.001).

Table 3. Top 10 areas least performed in by participants (n=65)

Item contents (correct answer)	*f* (%) Correct
Two hours after a child named Robert was given morphine 2 mg IV, he consistently rated his pain as moderate to severe and reported no untoward side effects. The physician's prescription for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." The best action to take at this time is to administer morphine 3 mg IV now.	0 (0.0)
The usual time before the best effects for traditional oral analgesics is 30 minutes	0 (0.0)
5 mg of IV Morphine would be the same in potency as 15 mg of oral morphine	0 (0.0)
Only 10% of patients over-report the intensity of their pain.	3 (4.6)
Assessment of the pain of a child who interacts and socializes with visitors but reports pain intensity of 8 will be recorded as pain intensity of 8.	5 (7.7)
If a child complains of moderate to severe pain two hours after initial administration of Morphine upon physician's order of "morphine IV 1-3 mg q1h PRN pain relief." the best course of action to take is to administer Morphine 3 mg IV immediately.	6 (9.2)
Postoperatively, initial analgesics for pain should be given constantly on fixed schedules.	6 (9.2)
Likelihood of an opioid addiction occurring due to pain treatment with opioid analgesics is <1%.	8 (12.3)
A 15-year-old Robert is lying quietly and grimaces on the bed on the first postoperative day. He self-reports his pain as 8 on a scale of 0 to 10 where 0 means no pain and 10 signifies worst pain. His pain be should be recorded as 8	10 (15.4)
Analgesia for chronic cancer pain should be given constantly.	10 (15.4)

Note: IV – Intravenous; mg – Milligram; q1h – Hourly; PRN – When necessary

DISCUSSION

The current study sought to assess nurses' knowledge and attitudes about paediatric pain at eight selected healthcare facilities in the Ashanti region of Ghana. Additionally, we were interested in examining the independent socio-demographic predictors of nurses' pediatric pain knowledge and attitudes (PPKA). It was revealed from our findings that the sampled nurses generally had insufficient knowledge and poor attitudes toward paediatric pain. This was shown in their average score of less than 40%. This is consistent with earlier findings in America (Ortiz et al., 2015; Stanley & Pollard, 2013), Europe (Smeland et al., 2018), Asia (Hua et al., 2019) and Middle East (Alotaibi et al., 2019; Ekim & Ocakcı, 2013) regions; reiterating the widespread nature of this problem. These findings may explain the persistence of untreated paediatric pain despite research advances and cost-effective treatment approaches (Kozlowski et al., 2014; Mathews, 2011). Nurses should be encouraged to be self-directed in their learning, especially in areas where they perceive care deficiencies. Continual professional education on paediatric pain assessment and management practices should be organized at regular intervals to update the knowledge, attitude and skills of practising nurses.

The nurses in this study had high pediatric pain knowledge and comparatively positive attitudes on items that assessed the individualized nature of the pediatric pain experience and its management, drug and non-drug pain management interventions as well as the influence of culture on paediatric pain. This suggests that participants had a good understanding of the subjective, complex and multi-dimensional nature of the pain experience (Peirce, Corkish, Lane, & Wilson, 2018) and its treatment modalities (Kahsay, 2017). They further reported good PPKA on drug and non-drug pain management interventions. The use of drug and non-drug pain management approaches has an added advantage of minimizing the amount of analgesic consumption and its associated side effect while providing maximal pain relief (Wren et al., 2019). Additionally, participants appreciated the influence of culture on pain perception and its management. For instance, among many cultures in developing countries including Ghana, exhibiting pain may be seen as a sign of weakness and hence children might be taught to concede their pain. This can, therefore, pose a challenge for nurses in effectively managing the pain experienced by children.

Participants had poor PPKA on items that centred on pharmacokinetics, pain assessment and pain perceptions. Pharmacokinetics has been recognised in previous studies as an area of deficiency for nurses (Meechan, Mason, & Catling, 2011; Ndosi & Newell, 2009; Ortiz et al., 2015) and reiterates the need for more intense education on this subject during and after nursing training. Pain assessment inadequacies and misconception on paediatric pain have been identified among nurses in previous studies (Ortiz et al., 2015; Smeland et al., 2018; Zisk-Rony, Lev, & Haviv, 2015). Educational strategies that have the potential to improve nurses' knowledge and attitudes should be employed to enhance pain care received by affected children and their family caregivers. Such educational strategies should also include pain management protocols to serve as guidelines for nurses in their assessment and management of pain in children. In line with findings from previous studies (Alotaibi et al., 2019; Hua et al., 2019; Ortiz et al., 2015; Smeland et al., 2018), a significant number of the items of poor PPKA centred on the two case studies which required application of participants' knowledge of pediatric pain assessment and management. Case studies should be used during educational offerings on this subject to assist nurses to critically apply the knowledge gained.

Our study findings also showed that pediatric pain attitudes and knowledge differed based on nurses' working years in the children's units and departments and the type of hospital facility (general or specialist) they worked in. Nevertheless, the type of hospital facility was the only independent predictor of their PPKA. This finding differs from those of previous research studies whereby they identified personal pain experience (Kiekkas et al., 2015) and the higher level of education (Kiekkas et al., 2015) as significant predictors of nurses' knowledge and attitudes regarding pain. Our current study finding can be attributed to the fact that the majority of the general hospitals with pediatric departments were government-owned and employed highly skilled nurses relative to the pediatric specialist hospital, which had majority being privately-owned. Due to the high cost of healthcare financing, privately-owned facilities are unable to hire high skilled professional nurses in their facilities as they lack the capacity to pay them. The government of Ghana should support privately-owned hospitals so that they can employ and pay a high calibre of healthcare professionals to deliver good quality universal healthcare access to the general populace including children and their family caregivers.

This study has strengths and limitations. The inclusion of nurses from eight different study sites contributes to the reliability of the findings. All nurses who qualified for inclusion in the present study were approached thereby reducing selection bias. We did not sample nurses who were working at referral hospitals and suggests this as an area for further research exploration. The sampled nursing participants were relatively younger than the nursing population that caters for children admitted in hospitals and their families; outcomes of the study should be interpreted cognizant of this fact. Despite these shortfalls, the current study provides insights into nurses' knowledge and attitudes regarding paediatric pain in Ghana.

CONCLUSION

Nurses in this context had insufficient knowledge and poor attitudes with regards to paediatric pain. Consideration should be given to sections of both high and substandard pediatric pain knowledge and attitudes when developing and implementing educational strategies on this subject. The type of hospital facility (pediatric specialist or general hospital with a pediatric department) could independently predict the pediatric pain attitudes and knowledge of the nurses. To enhance good quality universal access to healthcare, the Government of Ghana should support privately-owned healthcare facilities to hire and pay highly-skilled healthcare professionals including nurses to tackle the pain management needs of hospitalized children and their families. Nurses should be motivated to engage in self-directed learning to improve areas of deficiencies. Periodic educational programs should be organised to update them on evidence-based pediatric pain assessment and management techniques. Future studies should assess the attitudes and knowledge of nurses on pediatric pain working at referral hospitals.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interests

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