



The Attitudes of Nurses in the Hospital toward Vulnerable People

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Abstract

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BACKGROUND: Vulnerable people are often experiencing discrimination in health services. Nurses are the largest number of health personnel and the most frequent in delivering care for these patients. Therefore, the attitude of the nurses may affect the quality of health care.

AIM: The objective of the study was to identify nurses' attitudes toward vulnerable people and its related factors.

METHODS: This is a cross-sectional study comprising 386 nurses in a main public hospital in Yogyakarta. Data were collected using Google Form utilizing consecutive sampling technique from January 2021 to February 2021. Questionnaires being used were demographic data, knowledge (Self-Administered Questionnaire about Knowledge, Dementia Knowledge Assessment Scale, and HIV-Knowledge Questionnaire-18), and attitudes (Attitude Toward Disabled Person Scale Form O, Dementia Attitude Scale, and AIDS Attitude Scale). Data were analyzed using Spearman rank, Mann-Whitney, and Kruskal-Wallis tests.

RESULTS: The median of the nurses' attitudes scores toward people with disabilities (PwDs) was 54 (29–87), toward people with dementia (PWD) was 102 (60–136), and toward people living with HIV/AIDS (PLWHA) = –0.65 (–1.90–1.20). Knowledge, history of interaction, and experience in caring have a significant effect on nurses' attitudes toward vulnerable people ($p < 0.05$). The education level only affects the attitudes of nurses toward PwDs ($p = 0.042$). Family history only affects nurses' attitudes to PWD ($p = 0.013$). Age and special education/training only affect the attitudes of nurses on PWD and PLWHA ($p < 0.05$).

CONCLUSIONS: Nurses tend to have positive attitudes toward PWD, but rather negative attitudes against persons with PwDs and PLWHA. Knowledge, caring experience, and interaction are confirmed to have an effect on nurses' attitudes.

Introduction

Vulnerable people are at higher risk for poor health as a result of the barriers that prevent access to the resources of social, economic, political, and environmental support, as well as limitations due to an illness or disability condition [1]. The increasing number of vulnerable people can have long-term effects for themselves, their families, the environment, and health care workers [2]. Several groups have some vulnerabilities particularly people with disabilities (PwDs), people with dementia (PWD), and people living with HIV/AIDS (PLWHA). As many as 1 billion people live with disabilities [3], while as many as 50 million people in the world are PWD [4], and 37.9 million people have HIV/AIDS [5].

Discrimination against people who are vulnerable in health services often occurs due to lack of knowledge, experience, and the presence of stigma [6]. Nurses are the largest group of health workers and regularly meet with patients [7]. Nurses

must be competent in terms of knowledge and skills when providing healthcare [8]. The satisfaction and comfort of patients in healthcare will determine whether a patient will do the treatment again or not [9].

Earlier studies on attitudes toward vulnerable people have revealed different results. Nurses tend to display negative attitudes on PwDs [7], [10], [11]. The majority of Indian nurses hold a positive attitude toward PWD because of the perception that caring for dementia patients is beneficial [12]. The discriminatory attitudes of nurses against PLWHA are inspired by religion, community stigma, low levels of knowledge, fear of contagion, as well as the lack of experience, and training in caring for patients with HIV/AIDS [13].

Nurses' attitudes are able to influence the quality of health care. Lack of knowledge contributes to the negative attitudes and discriminatory performance by nurses [14]. Hence, a study that measures nurses' attitudes toward vulnerable people is very relevant.

Research Methods

This quantitative study used a cross-sectional design which aimed to identify the attitudes of nurses in the hospital and the factors that influence it. This study was conducted in January-February 2021 with 386 people selected using the consecutive sampling technique. The inclusion criteria were: Nurses who are still actively working in Dr. Sardjito Hospital for at least one year, a permanent employee, with a minimal 3-year diploma (D3). The exclusion criteria were: An internship nurse. Researchers want to examine the attitude of nurses in Sardjito Hospital. Internship nurses were excluded since they are not permanently working at Sardjito Hospital. This research gained ethical approval from the Medical and Health Research Ethics Committee of the Medical Faculty Universitas Gadjah Mada number KE/FK/0352/EC/2020 and permission from Dr. Sardjito Hospital.

Researchers sent a Google Form link for nurses to fill out voluntarily through a hospital chat group. Furthermore, the researcher sent reminders once a week for 1 month. Researchers provided pulses gifts for 100 respondents randomly. Participants' names and telephone numbers were used only for shuffling participant that got the rewards.

Data were analyzed using SPSS for univariate analysis utilizing frequency, percentage, median, mean, standard deviation (SD), and minimum-maximum (min-max) values. Bivariate analysis was conducted using the Spearman Rank Test, Mann-Whitney Test, and Kruskal-Wallis Test. The result is significant if $p < 0.050$. Researchers used a demographic questionnaire, as well as nurses' knowledge and attitudes toward vulnerable people (PwDs, PLWD, and PLWHA). The researcher carried out anonymization by omitting the names and telephone numbers of participants during data processing, and not including them in the results of the study.

The attitudes of nurses toward PwDs were measured using Attitude Toward Disabled Person Scale Form O (ATDP-O) questionnaire. The ATDP-O questionnaire was developed by Yaker *et al.*, 1970 [15]. This questionnaire consists of 19 items. This questionnaire has been translated into Indonesian language. ATDP-O in Indonesian language has a good reliability with Cronbach's alpha = 0.645 [16]. The ATDP-O questionnaires used the 6 Likert Scale (-3 to +3) with minimum score 0 and maximum score 117 with Constanta of 60.

The attitudes of nurses toward PWD were measured using the Dementia Attitude Scale (DAS) questionnaire. The DAS questionnaire was developed by O'Connor and McFadden in 2010 [17]. This questionnaire consists of 20 items. This questionnaire has been translated into Indonesian language. DAS in Indonesian language have a good reliability with

Cronbach's alpha = 0.754 [18]. The DAS questionnaires used the 7 Likert Scale (1-7) with minimum score 0 and maximum score 140.

The attitudes of nurses toward PLWHA were measured using the AIDS Attitude Scale (AAS) questionnaire. The AAS questionnaire was developed by Froman and Owen in 1997 [19]. This questionnaire consists of 20 items. This questionnaire has been translated into Indonesian language. AAS in Indonesian language has a good reliability with Cronbach's alpha = 0.726 [20]. The AAS questionnaires used the 6 Likert Scale (1-6) with minimum score -5 and maximum score +5.

The knowledge of nurses towards PwDs was measured using the Self-Administered Questionnaire about Knowledge (SAQ-K) (Knowledge of Healthcare Professionals about Person with Disabilities). The SAQ-K questionnaire was developed by Iftikhar *et al.*, in 2019 [21]. This questionnaire consists of 23 items. This questionnaire has been translated into Indonesian language. SAQ-K in Indonesian language has a good reliability with KR-20 = 0.693. The SAQ-K questionnaires used the Guttman scale (yes, no, and do not know) with minimum score 0 and maximum score 23.

The knowledge of nurses towards PWD was measured using the Dementia Knowledge Assessment Scale (DKAS) questionnaire. The DKAS questionnaire was developed by Annear *et al.*, in 2014 [22]. This questionnaire consists of 25 items. This questionnaire has been translated into Indonesian language. DKAS in Indonesian language has a good reliability with Cronbach's alpha = 0.674 [18]. The DKAS questionnaires used the 5 Likert Scale (1-5) with minimum score 0 and maximum score 50.

The knowledge of nurses toward PLWHA was measured using HIV-Knowledge Questionnaire-18 (HIV-KQ-18). The HIV-KQ-18 questionnaire was developed by Carey and Schroder in 2002 [23]. This questionnaire consists of 18 items. This questionnaire has been translated into Indonesian language. HIV-KQ-18 in Indonesian language has a good reliability with Cronbach's alpha = 0.665 [20]. The HIV-KQ-18 questionnaires used the Guttman scale (yes, no, and do not know) with minimum score 0 and maximum score 18.

Research Results

Characteristics of research respondents

Respondents in this study amounted to 386 nurses. Characteristics of respondents in this study, including age, gender, educational background, family, interaction, and experience history as well as previous education or training in disability, dementia,

and HIV/AIDS. The level of education of nurses in Indonesia is divided into diploma (D3 and D4), Bachelor (S1), master (S2), and doctorate (Table 1). Knowledge of dementia was presented using mean, since the data were normally distributed, meanwhile knowledge of disability and HIV/AIDS were presented using median because the data were not normally distributed.

Table 1: Characteristics of nurses (n = 386)

Characteristic	Frequency (n)	Percentage	Mean (SD) or Median	Min-Max
Knowledge				
Disability			19	5–23
Dementia			23.52 (7.93)	0–46
HIV/AIDS			13	0–18
Age			39.560 (8.76)	23.00–58.00
Gender				
Male	81	21.00		
Female	305	79.00		
Education Background				
D3	240	62.20		
D4	12	3.10		
S1	128	33.20		
S2	6	1.60		
History of Family				
Disability	9	2.30		
Dementia	23	6.00		
History of Interacting				
Disability	115	29.80		
Dementia	123	31.90		
HIV/AIDS	204	52.80		
Caring Experience				
Disability	114	29.50		
Dementia	141	36.50		
HIV/AIDS	264	68.40		
Education or Training				
Disability	6	1.60		
Dementia	12	3.10		
HIV/AIDS	59	15.30		

Min-Max: Minimum-Maximum, SD: Standard Deviation.

Attitude of nurses towards vulnerable people

The attitude data of nurses toward vulnerable people were not normally distributed after the Kolmogorov–Smirnov test was used. The result showed that p of ATDP-O = 0.000, p of DAS = 0.041, and p of AAS = 0.00. Data were normally distributed if p > 0.050 (Table 2). Therefore, bivariate statistical analysis was processed with non-parametric methods, namely, the Spearman Rank, Mann–Whitney, and Kruskal–Wallis tests (Table 3).

Table 2: Score of attitudes towards vulnerable people with characteristics of nurses (n = 386)

Variable	Median	Min-Max
Attitudes toward PwDs	54	29–87
Attitudes toward PWD	102	60–136
Attitudes toward PLWHA	-0.65	-1.90–1.20

PwDs: People with disabilities, PWD: People with dementia, PLWHA: People living with HIV/AIDS (PLWHA).

Factors related to nurse’s attitude on vulnerable people

Nurses’ attitude toward vulnerable people were analyzed based on their demographic characteristic factors using non-parametric statistics for PwDs (Table 3), PWD (Tables 4 and 5), and PLWHA (Table 6). The results for PwDs showed that knowledge was statistically significant in affecting

attitude towards- disabilities (p = 0.033). Furthermore, education background, history of interaction, and caring experience were also significant in affecting nurses’ attitude on vulnerable people (p = 0.042, p = 0.000, p = .001) (Table 3).

Table 3: Bivariate analysis of score of attitudes toward PwDs with the characteristics of nurses (n = 386)

Characteristics	Attitude towards PwDs				
	Median (Min-Max)	Statistic test	Score	df	p-value
Knowledge of PwDs		rs test	0.11	–	0.033*
Age		rs test	-0.02	–	0.730
Gender		U-test	11736.00	–	0.490
Man	54 (29–80)				
Woman	54 (30–87)				
Education Background		H-test	8.22	3	0.042*
D3	53 (29–87)				
D4	50.50 (39–74)				
S1	56 (31–82)				
S2	64.50 (52–76)				
History of Family		H-test	1249.0	–	0.176
Yes	59 (46–74)				
No	54 (29–87)				
History of Interaction		U-test	11055.0	–	0.000*
Yes	58 (33–82)				
No	52 (29–87)				
Caring Experience		U-test	12323.50	–	0.001*
Yes	56.50 (32–82)				
No	52 (29–87)				
Education or Training		U-test	1085.50	–	0.841
Yes	52.50 (38–71)				
No	54 (29–87)				

*Significant if p-value < 0.050. Rs test: Spearman rank test, U-test: Mann–Whitney test, H-test: Kruskal–Wallis tests, PwDs: People with disabilities.

Since the education background groups were signed to attitude toward disabilities; therefore, *post hoc* analysis was conducted using Mann–Whitney test to find out which group of education have differences between groups (Table 4).

Table 4: Post hoc analysis of score of attitudes toward PwDs with education level of nurses (n = 386)

Score of attitudes of nurses toward PwDs	Education Background	N	Mean Rank	p value
	D3	240	126.83	0.745
	D4	12	119.83	
	D3	240	176.48	0.048*
	S1	128	199.54	
	D3	240	121.96	0.032*
	S2	6	185.08	
	D4	12	57.46	0.244
	S1	128	71.72	
	D4	12	7.670	0.039*
	S2	6	13.17	
	S1	128	66.42	0.137
	S2	6	90.50	

*Significant if p-value < 0.050, D3, D4=Diploma, S1=Bachelor, S2=Master, PwDs: People with disabilities.

Based on the results of Table 4, it can be interpreted that there are differences in attitudes toward PwDs between education background groups of D3 and S1 (p = 0.048), between D3 and S2 (p = 0.032), and between D4 and S2 (p = 0.039).

The results of PWD showed that knowledge were statistically significant in affecting attitude toward dementia (p = 0.000). Furthermore, age, history of interaction, history of the family, caring experience, and education/training were also significant in affecting nurses attitude on PWD (p = 0.005, p = 0.013, p = 0.000, p = 0.000, and p = 0.000) (Table 5).

In addition, nurses’ attitude toward PLWHA revealed that knowledge were statistically significant in affecting attitude towards HIV/AIDS (p = 0.000). Furthermore, age, history of interaction, caring experience, and education/training were also

Table 5: Bivariate analysis of score of attitudes toward PWD with the characteristics of nurses (n = 386)

Characteristics	Attitude toward PWD		Statistic test	Score	df	p-value
	Median (Min-Max)					
Knowledge of PWD			rs test	0.567	–	0.000*
Age			rs test	0.141	–	0.005*
Gender						
Man	99 (60–136)		U-test	11289.50	–	0.234
Woman	102 (71–132)					
Education Background						
D3	101.50 (71–136)		H-test	5.99	3	0.112
D4	102.50 (60–116)					
S1	101.50 (73–131)					
S2	115 (103–131)					
History of Family						
Yes	108 (79–130)		H-test	2888.50	–	0.013*
No	101 (60–136)					
History of Interaction						
Yes	108 (78–136)		U-test	11441.00	–	0.000*
No	99 (60–131)					
Caring Experience						
Yes	108 (78–136)		U-test	11794.00	–	0.000*
No	98 (60–136)					
Education or Training						
Yes	116 (103–130)		U-test	788.50	–	0.000*
No	101 (60–136)					

*Significant if p-value < 0.050. Rs test: Spearman rank test, U-test: Mann-Whitney test, H-test: Kruskal-Wallis tests, PWD: People with dementia.

significant in affecting nurses attitude on vulnerable people ($p = 0.007$, $p = 0.003$, $p = 0.050$, and $p = 0.011$) (Table 6).

Table 6: Bivariate analysis of score of attitudes toward PLWHA with the characteristics of nurses (n = 386)

Characteristics	Attitude towards PLWHA		Statistic test	Score	df	p-value
	Median (Min-Max)					
Knowledge of PLWHA			rs test	0.34	–	0.000*
Age			rs test	0.14	–	0.007*
Gender						
Man	–0.65 (–1.90–1.20)		U-test	11684.50	–	0.454
Woman	–0.70 (–1.65–1.15)					
Education Background						
D3	–0.68 (–1.90–1.20)		H-test	6.82	3	0.078
D4	–0.58 (–0.95–0.25)					
S1	–0.65 (–1.35–1.15)					
S2	–0.15 (–0.70–0.35)					
History of Interaction						
Yes	–0.60 (–1.40–1.10)		U-test	15261.50	–	0.003*
No	–0.70 (–1.90–1.20)					
Caring Experience						
Yes	–0.65 (–1.55–1.15)		U-test	14109.50	–	0.050*
No	–0.70 (–1.90–1.20)					
Education or Training						
Yes	–0.55 (–1.30–1.15)		U-test	7638.00	–	0.011*
No	–0.70 (–1.90–1.20)					

*Significant if p-value < 0.050. Rs test: Spearman rank test, U-test: Mann-Whitney test, H-test: Kruskal-Wallis tests, PLWHA: People with HIV/AIDS.

Discussion

Characteristics of respondents research overview

The average age of nurses is at the young adult age who are mainly in the workforce [24]. The trend of having more female nurses is in line with previous studies [25], as well as in other countries. The minimum education level of health workers in this study is D3 or Diploma in Nursing [26]. There are four levels of nursing education in Indonesia, ranging from diploma, bachelor, and master to the doctorate degree. Diploma education (D3 and D4) is a nursing education which focusing more to prepare basic nursing skills, while Bachelor (S1) involving not only nursing skills but also

in developing and managing nursing plan for patients. Master's degree in nursing (S2) may or may have specialist phase focuses in advance nursing practice, while the doctorate degree focuses on developing certain science studies [27].

Attitude of nurses toward PwDs

This study obtained the median score of nurses' attitudes as measured by the 19 items ATDP-Form O was 54 (min-max = 29–87). The attitude score in this study was lower than in some earlier studies [11], [21]. The lower the score means that the respondents think PwDs are different in a negative sense. If the respondent is a non-disabled person and perceives people with a different disability, it means that it is prejudice. If the respondent is a PwDs, then the PwDs perceives themselves as different from non-disabled people. The negative attitudes of nurses are in line with the existence of stigma, discrimination, and differences in the treatment of PwDs in Indonesia [28], [29], [30], [31]. Stigma arises from negative attitudes and wrong assumptions about disabilities; stigma is an attribute that considers someone unwanted or discredits a group [32].

The median score of nurses' knowledge as measured by the SAQ-K 23 items was 19 (min-max = 5–23). Nurses' knowledge score in this study was slightly higher than other published results [21]. While there are 2 items that are arguable in this instrument, namely, item 13 and 14, we can conclude that the knowledge of the nurses in this study relatively higher than the average. These two items related to how people with mild and moderate intellectual disabilities need support in planning and managing life as well as managing finances [33]. Due to various conditions of disability, people with severe disabilities or Profound and Intellectual Multiple Disabilities depend on other people [34].

This study also found that there is a positive correlation between attitude and knowledge ($p = 0.033$). Knowledge of disabilities has a positive impact on attitudes [35], [36], [37], creates awareness about disabilities [36], [37], and prevents discriminatory behavior [35]. In this study, based on the range of the questionnaire scores, the nurses' attitude score toward PwDs tended to be low. This may be because there are other factors that contribute more than nurses' knowledge and the SAQ-K instrument needs further development.

The age variable did not have a significant difference in attitude scores ($p = 0.730$). These results are compatible with previous studies [21], [38] which not found the correlation between age and attitudes of PwDs. However, age was found to be negatively correlated with the attitudes of health-care providers [39] and students [36] in other studies. This might due to shifts in perspectives and how PwDs are increasingly

accepted culturally [39], as well as the influence of experience, training, and perceptions of PwDs [36].

Gender did not have a significant correlation with attitude scores in the study ($p = 0.490$). This result is similar to the prior studies [21], [38], [40], [41] that did not show the significant difference of attitudes toward PwDs based on their gender. There were similarities in the median knowledge score between male and female nurses in this recent study. However, the results of a study in Nepal showed that female respondents had lower attitude scores [39]. Perhaps, there may be other potential factors that may contribute to attitude scores, such as frequency of contact as showed by previous research that a higher average attitude on the participants could be occurred due to having a higher frequency of contact with PwDs [41].

The education level variable had a statistically significant disparity in scores ($p = 0.042$). Statistically, there are differences in attitudes toward PwDs between groups D3 and S1 ($p = 0.048$), between groups D3 and S2 ($p = 0.032$), also groups D4 and S2 ($p = 0.039$). Individuals with higher levels of education have more positive attitudes toward PwDs [42], [43], [44] and tend to understand that disability does not necessarily mean completely disabled [42]. The higher education of the nurses, the more awareness of PwDs that they learn during their degree. The improvement of knowledge and awareness toward this population could positively affect their attitudes toward PwDs [45].

The variable of family history of PwDs did not have a significant difference in attitude scores ($p = 0.176$). These results are similar to previous research on student attitudes [16]. Other studies have shown that individuals with families with disabilities tend to have positive attitudes [46], [47], [48]. However, in Bhutan, negative attitudes are shown to individuals with friends/relatives of PwDs due to the lack of social support for PwDs [49]. Family relationships are influenced by culture and values [16].

In Indonesia, many families of someone with disabilities still hide family members with disabilities [50]. Indonesian society tends to have a negative perception of PwDs [51], especially people with psychosocial disabilities [52]. The majority of PwDs are unable to develop themselves and their abilities due to the lack of social support from the community and available social rehabilitation [53]. In fact, the government has made regulations regarding PwDs in Law No. 8 of 2016 as a form of the government's seriousness on the issue of disability in Indonesia [54]. This law contains rules for the obligations and rights obtained by PwDs in their scope of life. However, there are still shortcomings and limitations in the implementation of the law.

The history of interaction with PwDs has significant differences in attitude's scores statistically ($p = 0.000$). In this study, the majority of nurses have never interacted with PwDs (70.2%). In fact, the quality

of contact with PwDs is the dominant factor in influencing the attitude scores [10]. Nevertheless, a more positive attitude does not guarantee a better interaction with PwDs [35]. In addition, other studies also showed that contact with PwDs does not have a significant impact on nurses' attitudes [40].

There is also a statistical difference in the caring experience for PwDs with the attitude scores ($p = 0.001$). Only 29.5% of the participants have ever cared for PwDs. These results are analogous with the previous studies [36]. In general, having experience in caring for PwDs is related to having a positive attitude about PwDs [55].

Finally, even though educational training on disabilities is important to develop more positive attitudes [7], [11], [40], [56], participants who had a previous education/special training did not have a statistically significant difference in their attitude scores in this study ($p = 0.841$). These results are consistent with previous studies [39]. However, this may be because only a very few respondents in this study who had participated in the education/training in disabilities.

Attitudes of nurses toward PWD

In general, nurses' attitudes score as measured using the DAS questionnaire was 102 (Min–Max = 60–136). In line with the previous study, this attitude score is relatively high indicating that nurses have a good attitude towards PWD [18]. The statistical analysis showed that there was a positive correlation between knowledge and attitudes of nurses toward PWD ($p = 0.000$). Nurses with a higher knowledge score showed a better attitude toward PWD [57]. The previous study also showed that the older group of nurses tends to have a better knowledge of PWD [58]. In addition, this study showed that age has a positive correlation with attitude scores ($p = 0.005$). Individuals with older age tend to reflect a realistic attitude toward PWD since they are more aware of persistent depressive disorder (dysthymia) associated with dementia [58].

The family history with members diagnosed with dementia had a significant difference in attitude scores ($p = 0.013$). Having a family member with dementia predicts a more positive attitude toward dementia and a fair to moderate understanding of dementia based on participants' own judgment [59]. Individuals with a family history of PWD are less likely to exhibit stigmas such as fear and avoidance; instead they can show empathy for PWD [60].

In this study, the experience of interacting with PWD had a significant difference in attitude scores ($p = 0.000$) which is in line with previous [61]. The experience in caring for PWD has a significant difference in attitude score ($p = 0.000$). Taking care of PWD can reduce the stigma against PWD [12]. Moreover, experience of hospital staffs' (doctors,

nurses, health-care attendants, allied professionals, and general support staff personnel) in caring for PWD contributes to a more positive attitude [59].

The prior participation in education/training about dementia had a significant difference in attitude scores ($p = 0.000$). This willingness to receive dementia education/training is a significant predictor of the DAS score in the previous study [62]. Nurses who attended special dementia training had a more positive attitude ($p = 0.040$) and an improved satisfaction in caring for PWD [63]. However, special training about dementia for nurses in Indonesia was still very scarce [64].

Attitudes of nurses toward PLWHA

The median score of the attitude in this study was -0.65 indicated that nurses tend to have negative or non-therapeutic attitudes toward PLWHA. Using the same instrument, the score for the attitude of nurses in this study was higher compared to research in the United States with a mean value of -3.18 [19]. However, it is lower when compared to the attitude score of nurses in China (mean value 0.47) [65]. Nurses have a negative attitude since they are afraid of contracting HIV/AIDS and there is a social stigma against PLWHA [66]. Fear might decrease the care for PLWHA, so that nurses feel apathetic and tend to avoid PLWHA [67].

There is a positive correlation between attitudes and knowledge scores in this recent study ($p = 0.000$). This positive correlation was supported by other studies that showed nurses who have good knowledge tend to have good attitudes [65], [68], [69].

The results of the analysis exemplify that there was a positive correlation between the attitude score and age ($p = 0.007$). Older nurses tend to have better attitudes towards PLWHA than younger nurses [70]. Older nurses might more experience in taking care of PWLHA throughout their careers which allows them to have a better attitude towards PWLHA [69]. In contrast, other studies have shown that young people have a more positive attitude [71]. Older nurses have more negative attitudes due to lack of actual information, lack of professional promotion, and fear of infection while caring for patients [71].

There was no significant difference among gender in attitude scores ($p = 0.454$). Still, the different results indicate that male nurses tended to have a more positive attitude than female nurses [69]. Furthermore, there was no statistically significant difference between the level of education and the attitudes of nurses ($p = 0.078$). These results are consistent with research in China [65].

The interaction with PLWHA had a significant difference in attitude scores ($p = 0.003$). Previous interaction with PLWHA may influence nurses' attitudes toward PLWHA [64]. Interactions can include sitting with PLWHA, communicating and having direct physical

contact [72]. Nurses who have a rather negative attitude feel that contact with PLWHA should be avoided [66]. This might because nurses feel they can get HIV if they are maintaining a close contact with them [66].

This study showed that experience in caring for PLWH had significant differences in attitude scores ($p = 0.050$). Nurses who have experienced caring for PLWHA have better attitudes [66], [71]. Nurses who have provided care for PLWHA for a long time show a more positive attitude toward PLWHA due to gaining more experience and knowledge [69].

The special education/training about HIV/AIDS had a significant difference in attitude scores ($p = 0.011$). Nurses who have attended special HIV/AIDS training have better attitudes [69], [70]. HIV/AIDS special education/training can improve nurses' attitudes and reduce nurses' fear of caring for PLWHA [73]. Special training/education on HIV/AIDS prevention can create a positive attitude for nurses [74]. Nurses can be given workshops on actual information on HIV/AIDS, and skills in interacting with PLWHA [75].

Research limitations

There were some changes in this research due to COVID-19 pandemic. The data collection manner moved to online which prolong the research ethical clearance and permits process in the hospital. Furthermore, online version might affect the appearance of the instrument on different devices. However, these changes were relatively minor that may not affect the overall result of the study.

Conclusions

In this study, the score of nurses' attitudes toward PwDs, PWD, and PLWHA tends to be lower than similar studies. Knowledge, interaction history, and experience of caring have a significant effect on nurses' attitudes toward vulnerable people. The level of education generally only affects the attitudes of nurses towards PwDs. Family history overall only affects nurses' attitudes toward PWD. Remarkably, the age and special education/training only affect the attitudes of nurses toward PWD and PLWHA.

Suggestions

This study can serve as an evaluation for health services to initiate programs to increase the knowledge and experience of nurses in caring for

vulnerable people. This needs to be done in order to improve the quality of nursing services. Future study can conduct further qualitative research related to nurses' experiences in caring for vulnerable people in terms of difficulties, feelings, and psychosocial skills to further understand nurses' attitudes and avoid stigma against vulnerable people.

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