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Original research article

Improving nursing student self-confidence and competence through integrated public health care training

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Abstract

Background: Nurses are on the frontline in all health practice settings, including public health. It is important to prepare nursing students with public health care training to give them the confidence to practice in a public health center. This study aimed to examine the effects of integrated public health care training on the self-confidence and competence of nursing students.

Methods: A quasi-experimental study was applied using a pre-test and post-test control group design. To collect data, simple random sampling was taken, involving 114 respondents (intervention group: $n = 76$; control group: $n = 38$). The data were compared between the two groups using independent t-test. The outcomes measured were self-confidence and competence.

Results: The results revealed that integrated public health care training can effectively improve self-confidence and competence among nursing students. Following the intervention, the intervention group had a significantly higher self-confidence and competence score than the control group ($p < 0.001$).

Conclusions: Integrated public health care training can effectively improve self-confidence and competence among nursing students.

Keywords: Control groups; Health care; Outcome assessment; Public health; Self-concept

Introduction

Public health nurses (PHNs) are responsible for promoting and enhancing the health of individuals, families, groups, and communities (Health Department of Indonesia, 2006; WHO, 2017; Yoshioka-Maeda et al., 2018). In Indonesia, 39.39% of nurses work as PHNs at public health centers (Indonesian Health Ministry, 2019). Since 2004, the Health Department of Indonesia has launched many public health care programs as developmental health efforts in public health centers. These programs aim to improve communities' independence to cope with community health problems. Therefore, based on these programs, PHNs at public health centers are required to be competent to provide effective nursing care for individuals, families, groups, and communities. In addition to direct care, PHNs should be competent in infection prevention, health education, case finding, maximizing community partnerships, among other competencies (Health Department of Indonesia, 2006).

However, previous studies have shown that PHNs do not conduct public health care programs; most of them focus on curative care. Therefore, their experience in public health care programs is limited. According to most PHNs, this could be attributed to the lack of knowledge, ability, competence, self-confidence, and regular training in such programs (Sovia et al., 2019; Susanto et al., 2019). The two key aspects to implement in public health care programs are self-confidence and competence.

Self-confidence is an "individual's ability to think optimistically, persevere through difficulties, and ultimately, complete activities" (Lundberg, 2008). In addition, it is an important aspect of professional care between nurses, nursing students, and their patients (Alamrani et al., 2018; Grundy, 1993; Perry, 2011; Roach, 2002). Lack of confidence in nursing students can affect their ability to gain new knowledge and hinder their ability to cope with difficult situations (Lundberg, 2008). Moreover, there are limited transition to practice programs available for new graduates in community settings (Larsen et al., 2018). Therefore, it is imperative that self-confidence is developed early as nursing students.

Competency is "an expected level of performance that integrates knowledge, skills, abilities, and judgment" (Blum et al., 2010; Roach, 2002). Nursing student competency is a crucial element to prepare future nurses for practice in the community or target population (Joyce et al., 2018). In the United States, competency consists of eight domains: analytical/assessment skills; policy development/program planning skills; communication skills; cultural competency skills; community dimensions of practice skills; public health sciences skills;

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financial planning and management skills; and leadership and systems thinking skills (Quad Council Coalition Competency Review Task Force, 2018).

PHNs in Indonesia work at public health centers where it is essential to implement competency in the centers' programs. One necessary competency is the implementation of public health care programs. However, due to nurses' lack of competency in performing these programs, they have not been implemented to the fullest. A previous study has reported that there is a significant relationship between competency and the implementation of public health care programs. Reportedly, PHNs with acceptable competence (89.64% of the workforce) optimally carry out public health care programs (Tafwidhah et al., 2012).

In China, community nurses do not have systematic training, and the nursing education curriculum mainly relies on clinical nursing. Most nurses work in hospitals, yet nearly all community nurses have limited knowledge of public health nursing. Therefore, nursing students who are close to graduating should achieve public health nursing competence way before graduation (Wang et al., 2019). Education and training are imperative to improve the competence level of public health nursing students (Issel et al., 2006).

To close the gap between education and practice in public health nursing, training is essential. One way to prepare final year nursing students for clinical practice is through integrated public health care training. In this context, integrated public health care training is the integration of public health care training with the Healthy Indonesia Program through the family approach (Indonesian Community Health Nurses Association, 2018). Final year nursing students should be prepared to improve their self-confidence and competence, for example, through training using multiple methods such as simulation (Alamrani et al., 2018). To the best of our knowledge, there are no studies concerning integrated public health care training among nursing students in Indonesia. Therefore, our study aimed to examine the effects of integrated public health care training on the self-confidence and competence of nursing students.

Materials and methods

This study used a quasi-experimental study design. Pre-tests were conducted on the intervention and control groups prior to the training. After the pre-tests, a 6-day training was given to the intervention group only. After the training, post-tests were conducted for both groups. The data were collected from September 2019 to April 2020.

Software G*Power 3.1.9.4. with two-sample t-tests was used to calculate statistical power (80% of statistical power and alpha value of 0.05) (Faul et al., 2007). Overall, there were 138 respondents. Simple random sampling was used to collect data from 114 respondents (intervention group, n = 76: 34 males and 42 females; control group, n = 38: 13 males and 25 females). Those included in this study met the following criteria: (1) able to read and write in "Indonesian" (primary Indonesian language); (2) willing to take part in the study and sign the consent form; (3) passed family and community nursing practice; (4) never attended integrated public health care training. In this study, there were no dropouts because all of the respondents committed to the entire training process. The intervention group consisted of nursing students from the College of Health Sciences Maranatha Kupang, and the control group consisted of nursing students from Citra Bangsa University. Both institutions are located in Kupang city, East Nusa Tenggara Province, Indonesia. All of the study respondents were second-semester nursing students (in Indonesia, after graduating from a bachelor of nursing program, students must undertake two semesters of clinical practice).

Integrated public health care training was conducted for 48 hours (8 hours daily for 6 days). The training was led by five trainers certified in public health care training from the Indonesian National Nurses Association and the Indonesian Community Health Nurse Association. The training material consisted of three parts. (1) Basic material provided for 6 hours: (a) Healthy Indonesia Program – through a family approach integrated with public health care; (b) supporting policy for public health care and family nursing care; and (c) ethical and legal aspects in community health nursing. (2) Core materials provided for 36 hours: (a) nursing care for family members with tuberculosis, diabetes mellitus, hypertension, and HIV/AIDS; (b) communication in family and community nursing practices; (c) health education in community and family health care; (d) control of infection at home; (e) modality and complementary therapy in nursing care; and (f) recording and reporting of family nursing care. (3) Supporting material is provided for 6 hours: (a) building learning commitment; (b) anti-corruption; and (c) action plan. The material in this training is organized into training modules and curricula created by the Indonesian Community Health Nurse Association (2018). All respondents were given 12 modules consisting of all materials.

A five-item confidence scale (C-scale) developed by Grundy (1993) was used to measure a student's confidence level related to a specific skill performance, and permission to use the C-scale was obtained. The C-scale contains five statements that can be answered on a Likert-type scale. According to the instructions, the response to each statement is made by circling a number on the 1-to-5 scale, with 5 indicating a higher score on the item pertaining to confidence. Respondents were asked to rate their perceived confidence in each item. An individual's score can range from 5 (low confidence) to 25 (high confidence) (Chuang et al., 2018; Grundy, 1993). Reliability calculated using Cronbach's alpha was 0.943. Competence was measured using an instrument consisting of two items: knowledge items and skill items. Knowledge items consisted of 10 multiple choice questions (with a total minimum score of 0 and a maximum score of 20) (Indonesian Community Health Nurses Association, 2018). The skill items consisted of seven skills procedures: (1) determine a healthy family index based on 12 indicators; (2) perform six steps of hand washing; (3) perform an effective cough; (4) perform compression; (5) perform progressive relaxation; (6) determine the level of family independence; and (7) fill out the Healthy Indonesia Program form. The total minimum score for the skill items was 7 and the maximum score was 21. The total minimum score for both competency instruments was 7 and the maximum score was 41. Reliability calculated using Cronbach's alpha was 0.664. The data from the pilot study were not used in the final analysis.

An independent t-test was used to compare the differences in self-confidence and competence between the groups. Statistical significance was defined as $p < 0.05$.

The study was approved by the Institutional Review Board of the Buleleng College of Health Sciences (009/EC-KEPK-SB/II/2020), and in accordance with the 1964 Declaration of Helsinki and its later amendments. All respondents' rights were protected, and their written consent obtained. All respondents were informed that their participation was voluntary and that

they were free to withdraw at any time without this affecting their studies.

Results

The typical respondent was 24.30 (0.84) years old in the intervention group, and 24.45 (0.40) in the control group. The largest percentage of participants were female (55.26%) for the intervention group, and (65.79%) for the control group. There were no significant differences in age and gender between the two groups (Table 1).

At baseline, there were no significant differences in self-confidence scores between the two groups (p = 0.163). After training, the self-confidence score of the intervention group was significantly higher than that of the control group (p < 0.001). Meanwhile, the total self-confidence score had increased from 17.67 (SD = 4.27) to 21.36 (SD = 3.28) in the intervention group (Table 2).

At baseline, there were no significant differences in competence scores between the two groups (p = 0.443). After training, the competence score of the intervention group was significantly higher than that of the control group (p < 0.001). The total competence score had increased from 24.43 (SD = 4.34) to 34.43 (SD = 3.05) in the intervention group (Table 3).

Table 1. Baseline characteristics of the respondents

Characteristics	Intervention group (n = 76)	Control group (n = 38)	p-value
Age (years): mean (SD*)	24.30 (0.84)	24.45 (0.40)	0.357
Gender (female): n (%)	42 (55.26)	25 (65.79)	0.282

* SD (standard deviation).

Table 2. Differences in mean scores for self-confidence before and after training for the intervention and control groups

Self-confidence	Group of respondents	Mean ± SD*	95% CI	p-value
Baseline	Intervention	17.67 ± 4.27	16.69–18.65	0.163**
	Control	16.71 ± 2.94	15.74–17.68	
Post-intervention	Intervention	21.36 ± 3.28	20.61–22.10	<0.001**
	Control	16.74 ± 3.04	15.74–17.76	

* SD: standard deviation; ** Independent t-test.

Table 3. Differences in mean scores for competence after training for the intervention and control groups

Competencies	Group of respondents	Mean	SD*	95% CI	p-value
Baseline	Intervention	24.43	4.34	23.44–25.43	0.443**
	Control	23.79	3.95	22.49–25.09	
Post-intervention	Intervention	34.43	3.05	33.74–35.13	<0.001**
	Control	24.66	4.26	23.56–26.06	

* SD: standard deviation; ** Independent t-test.

Discussion

This study showed that integrated public health care training can improve the knowledge and skills performance of nursing students, which improves their self-confidence. This was indicated by the increase in the self-confidence score after a comparison between the groups was made. These findings were also consistent with the WHO, which found that education and training can improve the competence and quality of community care services (WHO, 2017).

The findings of this study were also consistent with the previous studies (Babenko-Mould et al., 2015; Bremner et al., 2020; Lubbers and Rossman, 2017). For instance, evidence-based training in community health nursing has been shown to improve students' confidence and ability to perform their tasks (Bremner et al., 2020) Simulated learning and actual nursing practice improved the self-confidence of baccalaureate nursing students enrolled in the third year (Babenko-Mould et al., 2015). Moreover, these trainings are effective not only for final year students, but also for early nursing students. Another study showed that community-based pediatric simulations can improve self-confidence among novice nursing students with community experiences (Lubbers and Rossman, 2017). Overall, these findings suggest that training can improve the self-confidence of nursing students at all levels.

Furthermore, this study found that, as a result of the training, nursing students were more confident that their performance was accurate. They could perform the tasks without hesitation and felt more competent, well-informed, and satisfied with their overall performance. Previous studies have shown that the self-confidence of PHNs increased in planning health services, and that some educational programs have been conducted (Li et al., 2012; Yoshioka-Maeda et al., 2018). Another study found no significant association between self-confidence and the performance of PHNs (Sovia et al., 2019). Neverthe-

less, training is imperative to improve nursing performance in public health centers and community settings (Haron et al., 2019; Oltra-Rodríguez et al., 2017; Sovia et al., 2019; Susanto et al., 2019). One of the factors associated with professional confidence in PHNs is continuing education, such as training (Ogawa and Nakatani, 2020).

Nursing students must have public health nursing competencies so they can perform their tasks effectively (WHO, 2010). Research in 12 countries showed that 70% of community health nurses had formal post-basic training. The majority performed diverse roles at health facilities, of which 40% performed tasks they were not trained for (Nkowane et al., 2016).

The result of this study show a low baseline score for students' competencies. They confirmed that final year nursing students might not have adequate skills and knowledges to (1) determine a healthy family index based on 12 indicators; and (2) fill out the Healthy Indonesia Program form. This needs to be considered because the Healthy Indonesia Program with a family approach is a national priority in achieving a healthy Indonesia through family home visitations. This study suggests that integrated public health training leads to significant improvements in competencies (knowledge and skills) of final year nursing students to determine a healthy family index as a part of public health center programs. As a process of teaching appropriate skills, training is needed for PHNs and nursing students to improve their ability to implement public health center programs. One of the many ways PHNs can enhance their performance in public health centers is through intensive training (Sovia et al., 2019), such as via informative sessions, discussion groups, and practical sessions (Torrecilla-Abril et al., 2019).

According to PHNs, they could conduct public health care programs if properly trained. Therefore, untrained nurses tend not to lead such programs (Tafwidhah et al., 2012). Integrated public health care training not only increases self-confidence, but also the competence of nurses – enabling them to implement public health care programs. According to a previous study, training can improve students' attitudes toward community health nursing. Public health nursing training and its curriculum could lead nurses to understand public health nursing and help them become qualified PHNs (Wang et al., 2019).

According to the authors, preparing students through training prior to clinical practice is very important. Public health care programs, as a vital program of the public health centers in Indonesia, must be integrated into the nursing education curriculum. Public health care training is implemented through lectures, discussions, case studies, laboratory practices, simulation, and field practices, which are also in line with previous studies that include informative sessions, discussion groups, practical sessions, simulations, and field practices (Allen, 2012; Chuang et al., 2018; Ildarabadi et al., 2014; Torrecilla-Abril et al., 2019). Moreover, multiple learning methods were more effective than using a single method (Xia et al., 2020).

A limitation of this study is that it did not reflect the interaction of possible influencing variables, such as self-confidence and competence.

Conclusions

Integrated public health care training can effectively improve the self-confidence and competence of nursing students. This training program is crucial for enhancing nurses' ability to serve in community health care settings and in preparing them to deal with challenging clinical situations. In addition, the nursing education curriculum should necessarily include both public health care and nursing training programs.

Implication of this study: The results of this study can improve the self-confidence and competencies of prospective primary health center nurses. Good self-confidence, knowledge and skills related to the Healthy Indonesia program, can increase access to adequate services and better management in improving family access to comprehensive health services, including preventive services as well as standard curative and rehabilitative services, which results in increasing the coverage of a healthy family in Indonesia. Further, the results of this study can be used as evidence for nursing institutions to include integrated public health training as a part of nursing curriculum in Indonesia.

Ethical aspects and conflict of interests

The authors have no conflict of interests to declare.

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Zlepšení sebevědomí a kompetence studentů ošetřovatelství prostřednictvím integrovaného výcviku v oblasti veřejné zdravotní péče

Souhrn

Úvod: Sestry jsou v první linii ve všech zdravotnických zařízeních včetně veřejného zdraví. Je důležité připravit studenty ošetřovatelství školením v oblasti veřejného zdraví, aby získali sebevědomí pro praxi ve veřejném zdravotnickém středisku. Cílem této studie bylo prozkoumat účinky integrovaného výcviku v oblasti sebevědomí a kompetence studentů ošetřovatelství v kontextu veřejného zdraví.

Metody: Byla aplikována kvaziexperimentální studie s použitím pre-testu a post-testu kontrolní skupiny. Pro sběr dat byl proveden jednoduchý náhodný výběr, kterého se zúčastnilo 114 respondentů (intervenční skupina: $n = 76$; kontrolní skupina: $n = 38$). Data byla porovnána ve dvou skupinách pomocí nezávislého t-testu. Měřenými výsledky byly sebedůvěra a kompetence.

Výsledky: Výsledky ukázaly, že integrovaný výcvik ve veřejné zdravotní péči může účinně zlepšit sebevědomí a kompetence studentů ošetřovatelství. Po intervenci měla intervenční skupina významně vyšší skóre sebedůvěry a kompetence než kontrolní skupina ($p < 0{,}001$).

Závěr: Integrovaný výcvik ve veřejné zdravotní péči může účinně zvýšit sebevědomí a kompetence studentů ošetřovatelství.

Klíčová slova: hodnocení výsledku; kontrolní skupiny; sebepojetí; veřejné zdraví; zdravotní péče

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