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The effect of student professional responsibilities training in the process of clinical education in nursing students

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Abstract

Background Clarifying the role and professional responsibilities of students, followed by conducting educational programs, is a strategy for developing professional behavior that enhances student performance, ensuring the provision of quality and safe education and care. This study aimed to determine the impact of education on the professional responsibilities of nursing students in the clinical education process.

Method This quasi-experimental study was conducted with 80 nursing students. A critical-oriented educational program introducing the professional responsibilities of nursing students in clinical education was implemented for the experimental group. The control group received conventional training. A questionnaire measuring accountability in nursing students was used. The data was analyzed using SPSS software version 20.

Result Based on the findings, the average overall accountability score among undergraduate nursing students after the intervention was (152.74 ± 11.99) in the intervention group and (133.57 ± 14.46) in the control group, showing a significant difference between the average scores of the two groups, as determined by an independent t-test. Additionally, the average satisfaction score of undergraduate nursing students regarding their understanding of professional responsibilities was (8.7 ± 1.2) in the intervention group and (5.1 ± 1.3) in the control group, indicating a significant difference.

Conclusion Implementing a critical-oriented curriculum that introduces the professional responsibilities of nursing students in clinical education enhances students' understanding of these responsibilities. It is recommended that this curriculum be implemented before students enter clinical training.

Clinical trial number Not applicable.

Keywords Responsibility, Professional, Clinical education, Student, Nursing

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Introduction

Professional commitment is recognized as one of the essential requirements and competencies emphasized for nursing students. This issue, which can play a significant role in successfully providing safe services, is responsibility [1]. The concept of "responsibility" is a core value in medical education and one of the main characteristics expected of healthcare professionals [2, 3], especially as medical professions face numerous challenges in the new period [4]. Despite societal changes and evolving educational and learning methods, nursing undoubtedly remains anchored in key values and beliefs, with responsibility being one of the most important of these values. Responsibility is an essential part of professional values and core competencies for undergraduate nursing students; this concept facilitates the learning and education process, ensures the nursing profession's longevity, and enhances the health level of patients and the community. Moreover, irresponsible behaviors are a serious and common problem for nursing students and have a negative impact on learning processes [5].

Clinical training is an essential and vital component in designing educational programs for clinical performance-based medical sciences [6]. Nursing is one of the key fields in the healthcare team, playing many roles across various areas. Nursing education encompasses both theoretical and clinical aspects. The clinical aspect of nursing education prepares learners for caregiving, educational, rehabilitative roles, and more, thanks to real conditions and settings [7]. Clinical practice is a fundamental part of the undergraduate nursing program. This knowledge, skills, and attitudes necessary for future nursing roles are provided to nursing students [8]. Globally, there is a search for strategies to better prepare nursing students to deliver healthcare services in an ever-evolving landscape [9]. Particularly, the increasing acceptance of more nursing students has posed greater challenges for clinical education [10]. Additionally, the responsibilities in nursing have a broad scope and essentially guarantee health indicators and the improvement of nursing service quality. The concept of responsibility in nursing is a complex process that is defined by accountability, commitment, altruism, and work ethic [11]. There is a need for guiding principles regarding professional responsibilities.

Students need a high level of accountability to ensure they meet professional commitments for optimal patient care as they enter the workforce. If we want to train staff with the necessary competencies, students must clearly understand their roles and responsibilities. However, evidence in our country has not found clear guidelines regarding the roles and responsibilities of nursing students with clinical training [5]. Therefore, this study aimed to determine the impact of education on the professional responsibilities of nursing students in the clinical education process.

Method

This study was conducted as a quasi-experimental design with intervention and control groups, using pretest and prost test. The participants of the study consisted of fourth-year nursing students from the Shahid Sadoughi University of Medical Sciences in Yazd.

The inclusion criteria for the study included enrollment in a bachelor's degree program in nursing and consent to participate in the research. Exclusion criteria included students on academic or medical leave, international students, and students with a nursing assistant degree. Exclusion criteria included students on academic or medical leave, international students, and students with a nursing assistant degree. The sample size, based on The Krejcie and Morgan's table, was determined to be 80 out of a research population of 100 individuals. The Krejcie and Morgan sampling table, which is set at a 5% error level, is equivalent to the Cochran formula. When the population size is known, the Krejcie-Morgan table can be used to estimate the minimum sample size required, and a confidence level of 95% or 99% is usually chosen. In the College of Nursing and Midwifery, where the study was conducted, there are two classes for each year; in the first stage, one class was randomly selected to be in the intervention group, and the other class was placed in the control group. Then, a list of students was obtained from the college administration, and eligible students were selected based on include and exclude criteria and invited to participate in the study. If a student is unwilling to participate, another student who meets the criteria would be invited.

Educational intervention

The learning objective of the intervention was the improvement of the perception of students about the roles and responsibilities of nurses.

Educational content: focused on carrying out educational tasks, holistic patient care, communication, interaction, information exchange, gaining professional competencies, enhancing personal capabilities, and adhering to professional ethics were presented to selected nursing students. These topics were based on the results of the authors' previous study on professional responsibility [6, 12].

Teaching and learning methods: The educational program was conducted over a 6-hour training session that utilized scenario-based learning (SBL) [13]. The steps involved in scenario-based learning can be outlined as follows:

1. Introduction of the Scenario: Present learners with a realistic and relevant case or situation that aligns with the learning objectives. In the steps, the cases about the roles of nursing in clinical education was discussed.
2. Small Group Discussion: Divide learners into small groups to analyze the scenario, exchange ideas, and discuss potential solutions or approaches. The students formed the groups included 5 members.
3. Problem Analysis: Encourage learners to identify challenges, key issues, or opportunities within the scenario. In the step, challenging scenarios related to nursing roles in clinical education were examined as educational cases within small group settings. The students were asked to find the problems of cases.
4. Solution Development: Guide learners to collaboratively develop strategies or solutions to address the identified challenges. In the steps the students could use the literature and educational material to find the best solutions.
5. Presentation to Larger Group: each small group present their analysis and proposed solutions to a larger group for broader discussion.
6. Feedback and Reflection: Facilitate feedback from peers and instructors on the proposed solutions, encouraging critical reflection.
7. Summary and Feedback: The facilitator provides a summary of the discussion, highlights key learning points, and offers constructive feedback to reinforce learning outcomes.
8. Application and Integration: Encourage learners to apply the insights gained from the scenario to real-world contexts or future practice.

These steps ensure a structured and interactive learning process that promotes critical thinking, collaboration, and practical problem-solving skills.

The control group was taught using traditional lecture instruction. Students in this group attended lectures that focused on the roles and responsibilities of nursing students in clinical education. This method primarily involved passive learning through instructor-led presentations.

Study measure

The study tools included demographic information such as age, gender, marital status, and overall GPA. The responsibility measurement questionnaire for nursing undergraduate students developed and validated by Ghasemi et al. (2020). This section consists of 45 questions that determine the responsibility of nursing undergraduate students. The questions in this scale are positive and rated based on a 5-point Likert scale (Always = 4, Most of the time = 3, Sometimes = 2, Rarely = 1, and Never = 0). This questionnaire includes five sub-scales: appropriate managerial behaviors (items 1–8; score: 0–32), situational self-mandatory (items 9–18; score: 0–40); appropriate communicational behaviors (items 19–25; score: 0–28), task-orientation behaviors (items 26–40; score: 0–60), positive professional attitude (items 41–45; score: 0–20). The total score on this scale ranges was from 0 to 180. A higher score indicates higher level of responsibility of students. The score of 0–45 indicating a low level of professional responsibility (poor), 46–90 indicating a medium level of professional responsibility (average), 91–135 indicating a good level of professional responsibility, and 136–180 indicating a very high level of professional responsibility (excellent). All items had a content validity index (CVI) was 0.9 and a content validity ratio (CVR) was 0.9. The Cronbach's alpha and intraclass correlation coefficient (ICC) of the scale were reported as 0.95 and 0.97, respectively [5]. The Cronbach's alpha was calculated as 0.91 in this study. (Supplementary material: Professional Responsibility among Bachelor Degree Nursing Students questionnaire).

Student satisfaction with the teaching method assessed using a visual numeric scale of 0 to 10, with zero "not at all satisfied" and 10 "completely satisfied". A higher score indicates a higher level of satisfaction with the teaching method. This questionnaire has been used in several studies and its validity and reliability have been confirmed [14, 15].

The participants were provided with paper-and-pen questionnaires, which they completed as self-reports before and after the intervention, or at the end of the course. The average time required to fill out the questionnaires was 15 to 20 min, and the response rate was 100%.

Ethical consideration

The Ethics Committee of the Virtual Medical Sciences University, under code IR.VUMS.REC.1401.013, approved this study. Informed consent was also obtained from the participants. The data analysis performed by using SPSS version20 and descriptive statistics, mean, standard deviation, frequency, and percentage. Considering that, the normal distribution of the data was confirmed by the Kolmogorov-Smirnov test, both independent t-tests and paired t-tests were employed for data analysis. The independent samples t-test was used to compare the means of the intervention and control groups, while the paired sample t-test was utilized to compare the means within the intervention or control groups before and after the study. The significance level of 0.05 considered for results.

Table 1 Demographic information of students

Variables		Intervention group		Control group		*p*-value
		M	SD	M	SD	
Age		22.75	1.16	22.09	1.18	0.53
GPA		16.64	1.41	16.49	1.26	0.64
Variables		N	%	N	%	p-value
Gender	Male	18	54.0%	16	40.0%	0.75
	Female	22	55.0%	24	60.0%	
Marital Status	Single	38	95.0%	38	95.0%	1
	Married	2	5.0%	2	50.0%	

Results

Based on the findings from the independent t-test, there were no significant differences between the average age and GPA of the test and control groups. Additionally, using the chi-square test and Fisher's exact test, there were no significant differences were reported between the intervention and control groups regarding gender and marital status. The demographic information of the students is presented in Table 1.

Based on other findings, the average total score of professional responsibility for undergraduate nursing students before the intervention in the test group was (130.37 ± 15.93) and in the control group was (129.5 ± 16.01), with no significant difference was found in the two groups using an independent t-test. Additionally, the score of professional responsibility for undergraduate nursing students after the intervention was (152.74 ± 11.99) in the test group and (133.57 ± 14.46) in the control group, with a significant difference found in the two groups using an independent t-test (Table 2).

Based on other findings, the average score of professional responsibility for undergraduate nursing students in the test group before the intervention was (130.37 ± 15.93) and after the intervention (152.74 ± 11.99), which showed significant difference using an independent t-test between of the two groups. Additionally, score of professional responsibility for nursing students in the control group before the study was (129.52 ± 16.01) and after the study (133.57 ± 14.46), which showed no significant difference between the two groups (Table 3).

According to other findings, a significant difference found between the mean satisfaction scores of undergraduate nursing students regarding their familiarity with professional responsibilities in the intervention group (8.7 ± 1.2) and the control group (5.1 ± 1.3) (Table 4).

Discussion

The findings showed that the level of responsibility in undergraduate nursing students at the beginning of the study was good in both the control and test groups, and no significant difference was found. In explaining these findings, it can be argued that the students under study were in the beginning of their eighth semester and had completed a significant portion of their clinical training. Therefore, it seems they were likely already familiar with their professional responsibilities, either overtly or through the hidden curriculum. In other studies, Jia et al., (2023) showed that nursing students demonstrated a moderate level of sense of responsibility and indicated opportunity for improving this characteristic [16]. Ordu and Cİhan Erdoğan (2024) found that nursing students in Türkiye had above-average individual responsibility [17]. Abad et al. (2021) reported that the level of responsibility among nursing students at the Islamic Azad University was average [18]. Ghasemi et al., in a cross-sectional study examining the responsibility of nursing students from several faculties at Iranian universities from the second to the eighth semester, reported a high level of responsibility among the students [5]. Jamieson

Table 2 Comparison of the mean responsibility scores in undergraduate nursing students before and after the intervention between the intervention and control groups

Time	Items	Min-max score	Intervention group		Control group		Independent T-test
			M	SD	M	SD	
Pre-test	Appropriate managerial behavior (Items 1–8)	0–32	22.15	3.64	22.55	3.02	0.59
	Situational self-mandatory (Items 9–18)	0–40	31.33	4.12	30.24	4.14	0.5
	Appropriate communicational behaviors (Items 19–25)	0–28	20.04	0.94	19.14	0.36	0.09
	Task-Oriented Behaviors (Items 26–40)	0–60	43.00	6.28	43.52	6.50	0.09
	Positive Professional Attitude (Items 41–45)	0–20	14.85	2.94	15.07	3.45	0.08
	Total score of professional responsibility in Undergraduate Nursing Students	0-180	130.37	15.93	129.52	16.01	0.08
Post-test	Appropriate managerial behavior (Items 1–8)	0–32	25.19	4.472	22.54	3.47	0.04
	Situational self-mandatory (Items 9–18)	0–40	35.59	0.247	32.46	2.98	0.05
	Appropriate communicational behaviors (Items 19–25)	0–28	20.67	0.472	20.75	0.62	0.94
	Task-Oriented Behaviors (Items 26–40)	0–60	54.15	5.642	44.14	6.57	0.04
	Positive Professional Attitude (Items 41–45)	0–20	18.15	2.08	15.68	3.53	0.03
	Total score of professional responsibility in Undergraduate Nursing Students	0-180	152.74	11.99	133.57	14.46	0.04

Table 3 Comparison of mean responsibility scores for undergraduate nursing students before and after the intervention in the intervention and control groups

Time	Items	Min-Max score	before		after		paired t-test
			M	SD	M	SD	
Intervention group	Appropriate managerial behavior (Items 1–8)	0–32	22.15	3.64	25.19	4.47	0.04
	Situational self-mandatory (Items 9–18)	0–40	31.33	4.12	35.59	0.24	0.03
	Appropriate communicational behaviors (Items 19–25)	0–28	20.04	0.94	20.67	0.47	0.094
	Task-Oriented Behaviors (Items 26–40)	0–60	43.00	6.28	54.15	5.64	0.02
	Positive Professional Attitude (Items 41–45)	0–20	14.85	2.94	18.15	2.08	0.03
	Total score of professional responsibility in Undergraduate Nursing Students	0-180	130.37	15.93	152.74	11.99	0.008
Control group	Appropriate managerial behavior (Items 1–8)	0–32	22.55	3.02	22.54	3.47	0.97
	Situational self-mandatory (Items 9–18)	0–40	30.24	4.14	32.46	2.98	0.63
	Appropriate communicational behaviors (Items 19–25)	0–28	19.14	0.36	20.75	0.62	0.63
	Task-Oriented Behaviors (Items 26–40)	0–60	43.52	6.50	44.14	6.57	0.63
	Positive Professional Attitude (Items 41–45)	0–20	15.07	3.45	15.68	3.53	0.74
	Total score of professional responsibility in Undergraduate Nursing Students	0-180	129.52	16.01	133.57	14.46	0.82

Table 4 Comparison of the mean satisfaction scores of undergraduate nursing students in the control and intervention groups

Variable	*n*	Min-max score	Intervention group		Control group		Independent t-test
			M	SD	M	SD	
Satisfaction	40	0–10	8.7	1.2	5.1	1.3	0.03

et al. (2019) stated that most European-NZ female nursing students aged 30 or younger felt confident in their professional responsibilities and believed they were well prepared for the profession [19]. Although similar to the findings of the current study, it should be noted that the questionnaires used and academic semesters were different. Kim et al. (2018) mentioned that it is necessary to develop strategies to promote various nursing curricula that strengthen social responsibility in nursing students [20]. Ghasemi et al. (2020) stated that reforming the curriculum and professional regulations, transformative educational strategies, collaboration, and capacity building are the most effective solutions for addressing the challenges of nursing education related to student responsibility [21]. Järvinen et al. (2018) identified two main factors related to nursing students' readiness to enter the workforce: educational factors and personal factors. Educational factors include receiving training to achieve professional competence and clinical performance, while personal factors encompass the background and feelings of nursing students [22].

Based on the other finding, after implementing the professional responsibility-training course based on scenarios, the students in the test group scored at a high level, and a significant difference was found. However, a significant difference was not observed in the sub-domain of appropriate communication behaviors, which suggests that improving communication behaviors requires more time and implementing another programs. In addition, the control group still scored at a good level, but no significant difference was found. It seems that this training course can familiarize students with their professional responsibilities. Saeed (2019) mentioned that problem-solving training influences the dimensions of stress coping strategies (both problem-focused and emotion-focused) and students' responsibility [23]. Tayari et al. (2022) found in their study on the impact of problem-solving training on the quality of life and responsibility of medical science students that the intervention raised the scores for quality of life and responsibility in post-tests [24]. Furthermore, Zirn et al. (2016) reported that students starting their studies in nursing and medicine (first and second semesters) and first-year physiotherapy students who participated in a seminar on inter-professional collaboration received positive ratings not only for their immediate reactions but also for their attitudes, knowledge, and skills according to Kirkpatrick's framework [25]. Therefore, based on this study and others, it is necessary to implement programs to familiarize students with their professional responsibilities. However, it should be noted that the test group still had a gap from the highest score. Therefore, there is a need to continue these programs and use other educational methods, such as clinical supervision.

Based on other findings, the test group started the study at a good level and moved up to an excellent level after the study, and this difference was significant. Meanwhile, the control group remained at a good level both before and after the study, with no significant differences found. Doherty et al. (2016) state that by implementing a communication competency training program for 61 nursing students, paired t-tests indicated a statistically significant difference before and after the intervention, highlighting the importance of communication competency training for nursing students' ability to advocate for themselves and their patients [26]. Ersoy

and Ayaz-Alkaya (2024) declared nursing students who engaged in clinical practice and participated in case discussions had higher levels of personal responsibility [27]. Accordingly, the implementation of a curriculum introducing professional responsibilities has improved students' understanding of their professional duties.

In the findings, the sub-dimension of appropriate communication behaviors was not significant after the intervention. Several possible explanations could account for this. First, the duration of the intervention may have been too short to facilitate meaningful changes in communication behaviors. Additionally, variability in individual student characteristics, such as personality traits, may influence communication. Moreover, the clinical environment—including factors such as stress, workload, and team dynamics—can also affect communication behaviors. All of these reasons may contribute to the lack of significant change in communication practices following the educational intervention.

Based on other findings, the satisfaction of nursing undergraduate students with their awareness of professional responsibilities in clinical education significantly increased after attending the course compared to that of the control group, and this difference was meaningful. Therefore, holding a training course on familiarization with professional responsibilities using a scenario-based approach has enhanced satisfaction among nursing students.

The practical implications for clinical nursing education drawn from this study highlight the necessity for integrating structured training programs that focus on professional responsibilities into the nursing curriculum. Given that students demonstrated significant improvement in their understanding of professional responsibilities after participating in a scenario-based training course, nursing educators should prioritize the development and implementation of similar programs across various nursing schools. Based on the findings of this study, it is recommended that nursing education incorporate modules on professional responsibility into existing curricula. This can be achieved through case studies, simulations, and reflective exercises focused on ethical decision-making. Mentorship programs that pair experienced nurses with students can enhance the understanding of professional roles. Additionally, using assessment tools to evaluate students' comprehension of professional responsibility will help identify areas for improvement. The curriculum should be adaptable to different skill levels, with advanced students engaging in capstone projects within clinical settings. Expanding the curriculum to include interprofessional education will facilitate collaboration among students from various healthcare fields, promoting discussions on shared responsibilities and ethical dilemmas.

One of the limitations of the study was that the evaluation phase conducted with nursing students in their eighth semester who were undergoing their practical training. Given that seventh-semester students had already spent time in the field, they were somewhat familiar with their professional responsibilities hidden in the curriculum. However, the reason for selecting them was to ensure they understood their responsibilities and took the opportunity to cover everything before graduation. Thus, it is recommended that this program be offered to early-year students, and it may be necessary to repeat it before they begin practical training, as this could lead to different results. Another limitation of the study was the relatively small sample size and conducted in only one school, which limits the generalizability of the results. It is recommended that future studies be conducted with larger sample sizes and in other schools of nursing. In addition, although the level of responsibility increased in the intervention group at posttest, the sustained impact of the intervention should be examined through long-term measurements.

Conclusion

The training course on professional responsibilities in clinical education can enhance nursing students' awareness of their professional duties. Therefore, it is essential for students undergoing clinical training, such as nursing students, to be familiar with their professional responsibilities in clinical education before entering the clinical training setting. At the end of the course, it should be ensured that the trainee, trainers and educational authorities understand these responsibilities. Integrating, findings from this study on clinical education policies can prompt educational institutions to revise or create policies that emphasize professional responsibility education. These insights can shape curricula by making professional responsibility a core component of clinical training. Institutions can assess the effectiveness of this education, provide faculty training, and foster collaborative learning environments that promote peer feedback. Establishing mentorship programs with experienced nurses can further enhance this initiative. Regular assessments of the impact on clinical outcomes will refine educational strategies.

Supplementary Information

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Supplementary Material 1

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Author contributions
FK & KHN conceptualized and designed the study. KHN collected the data. FK & KHN analyzed the data. All authors have met criteria for authorship and had a role in preparing the manuscript. Also all authors approved the final manuscript.

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Data availability
The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
This study was carried out in accordance with the Declaration of Helsinki. This study was approved by the Committee of Ethics in Human Research at Smart university of Medical Sciences in Tehran IR.VUMS.REC.1401.013. In addition, informed written consent forms were obtained from all participants.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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