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RESEARCH / ARAŞTIRMA

The Effect of Preclinical Empowerment Education in Pediatric Nursing on Clinical Comfort, Competency of the Course, and Self-Confidence and Anxiety in Clinical Decision-Making

Pediyatri Hemşireliğinde Klinik Öncesi Güçlendirme Eğitiminin Klinik Konfor, Dersin Yeterliliği ve Klinik Karar Vermede Öz-Güven Anksiyeteye Etkisi

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Abstract

Objective: This study was conducted to evaluate the effect of pre-clinical structured empowerment education of intern nursing students on self-confidence and anxiety in clinical decision-making, pediatric clinical comfort and perceived anxiety, and perceived pediatric nursing competency.

Material and Methods: A quasi-experimental study design was used. A total of 64 nursing students (experimental group = 32; comparison group = 32) participated in the study. Before the clinical practice, a program that consisted of six scenarios, whose learning goals were structured, and in which pediatric skills were supported, was applied to the intern students in the experimental group for two days. The data were collected using a Student Descriptive Information Form, the Nursing Anxiety and Self-Confidence with Clinical Decision-Making Scale, the Pediatric Nursing Competency Scale, and the Pediatric Nursing Student Clinical Comfort and Worry Assessment Tool, which were applied as a pretest and posttest. The mean pre-test and post-test scores of both groups were compared.

Results: There was a difference in favor of the intervention group in the worry sub-dimension of the Pediatric Nursing Student Clinical Comfort and Worry Assessment Tool (p<0.05). There was no significant difference between the mean scores of experimental and control groups on the Pediatric Nursing Student Clinical Comfort and Worry Assessment Tool and the Nursing Anxiety and Self-Confidence with Clinical Decision-Making Scale (p>0.05). There was a significant difference between the mean scores of the experimental and control groups on the Pediatric Nursing Competency Scale in favor of the intervention group (p<0.05).

Conclusion: Preclinical structured empowerment training; It was observed that it increased the pediatric nursing proficiency levels of the students, decreased the clinical anxiety of the students, and did not affect the self-confidence anxiety levels in clinical decision making.

Keywords: Clinical decision-making, competency-based education, pediatric nursing.

Öz

Amaç: Bu araştırmada hemşirelik eğitimi alan intörn öğrencilerin klinik uygulama öncesi yapılandırılmış güçlendirme eğitiminin, klinik karar vermede öz-güven ve anksiyete, pediyatrik klinik rahatlık ve algılanan endişe, algılanan çocuk hemşireliği yeterliliğine etkisini değerlendirmek amaçlanmıştır.

Gereç ve Yöntem: Yarı deneysel çalışma tasarımı kullanıldı. Toplam 64 hemşirelik öğrencisi (deney grubu = 32; kontrol grubu = 32) katıldı. Deney grubundaki intörn öğrencilere klinik uygulama öncesinde iki gün boyunca altı senaryodan oluşan, öğrenme hedefleri yapılandırılmış ve pediyatrik becerilerin desteklendiği bir program uygulandı. Kontrol grubuna intörn programı kapsamında standart teorik oturumlar uygulanmıştır. Veriler ön test ve son test olmak üzere Öğrenci Tanıtıcı Bilgi Formu, pediyatrik alanda Klinik Karar Vermede Öz güven ve Anksiyete Ölçeği, Çocuk Hemşireliği Yeterlilik Ölçeği, Pediyatri Hemşireliği Öğrencileri için Klinik Rahatlık ve Endişe Değerlendirme ölçeği kullanıldı. Her iki grubun ön test ve son test puan ortalamaları karşılaştırıldı.

Bulgular: Pediyatri hemşireliği öğrencilerinin klinik rahatlık ve endişe ölçeğinin endişe alt boyutunda girişim grubunun puanı anlamlı şekilde yüksek bulunmuştur (p<0.050). Deney ve kontrol grubu klinik rahatlık, klinik karar vermede öz güven ve anksiyete ölçeği puan ortalamaları arasında anlamlı bir fark saptanmamıştır (p>0.050). Deney ve kontrol grubunun pediyatri hemşireliği yeterlilik ölçeği puan ortalamaları arasında girişim grubu lehine anlamlı fark saptanmıştır (p<0.050).

Sonuç: Klinik öncesi yapılandırılmış güçlendirme eğitimi; öğrencilerin pediyatri hemşireliği yeterlilik düzeylerini arttırdığı, öğrencilerin klinik endişelerini azalttığı, klinik karar vermede öz güven anksiyete düzeylerini etkilemediği gözlenmiştir.

Anahtar Kelimeler: Klinik karar verme, yeterliliğe dayalı eğitim, pediyatri hemşireliği.

1. Introduction

Clinical practice is the most important part of nursing education. Students experience the nursing practices of the theoretical knowledge they have learned about nursing in the clinical environment. (1). For this reason, clinical practices are carried out in clinical rotations with different patient groups to increase students' professional competency (2). Meanwhile, nursing students try to adapt to this process. Due to the lack of enough experience, fear of making mistakes, and age groups, they are more concerned about harming the patient in pediatric clinics (3-5). Pediatric clinics are difficult areas to manage for students due to communication difficulties with sick children and their families, overreactions of children to painful interventions, and differences in calculating drug doses (4-6). In addition, many nursing skills are related to adult care, and students are expected to integrate these skills into pediatric patient care, as well. However, the fact that nursing students experience more anxiety in pediatric clinics than in other clinics affects their comfort in the clinical field (7,8). Adverse situations in the clinical environment affect students' comfort negatively and make learning difficult. All these are important barriers to becoming proficient in a course for students. This prevents the development of clinical decision-making, which provides a systematic approach to planning patient care and solving problems (9). The increased self-confidence (SC) of students with correct clinical decision-making (CDM) skills also helps to control and to reduce their anxiety (10).

In pediatric nursing education, students need the support of academic staff much more often to accurately determine the needs of children and their families and to provide safe care. Some studies in the literature have shown that web support, simulation, and scenario-based training increase students' preclinical competencies and decision-making skills for pediatric nursing (6,11). This situation increases students' comfort in the clinic, reduces their anxiety, and makes them more willing to learn (2). All of these make structured and practical education methods that arouse curiosity in students superior to the classical education model (12-17). While knowledge and skills are emphasized in the first years of nursing education, it is aimed to educate students who can meet patients' needs and have more advanced problem-solving and CDM skills during the last years of school. Preclinical support for pediatric students is important to achieve these goals. In the literature, there are some studies on the investigation of the effectiveness of simulation, web-supported education, case-based education, and distance education within the scope of the pediatric nursing course (11,13,15,18) This study was conducted to strengthen the clinical process with pre-clinical structured education for intern nurses and to examine how students' SC and anxiety were affected in CDM.

2. Materials and Methods

2.1. Aim

This study was conducted to investigate the effect of the structured pre-clinical pediatric scenario-based education given to the senior students, who were scheduled to do an internship in the Department of Pediatric Nursing within the scope of the Nursing Care Management course, on their SC and anxiety in CDM, pediatric clinical comfort and perceived anxiety, and pediatric nursing competency.

2.2. Setting and Time of the Research

The study was carried out with students who were taking an internship in the Department of Pediatric Nursing in the Fall-Spring semesters of the 2021-2022 academic year within the scope of the 4th-year Nursing Care Management course in a Faculty of Nursing located in the western region of Türkiye.

2.3. Population and Sample

The sample included 64 students who would be interns in the Fall/Spring semester of the 2021-2022 academic year. The sample size required for the two groups was calculated as 61 subjects on the GPower Statistics software, based on a medium effect size, p= 0.05, and 80% power. There were two groups, namely experimental group (EG) and control group (CG), in the study. In order to avoid contamination and not to affect the intervention group, spring semester students were included in the control group and spring semester students were included in the intervention group.

2.4. Data Collection Tools and Data Collection

2.4.1. Descriptive Information Form

This form consists of gender, age, whether they worked as a nurse, economic status, and their perceived level of success.

2.4.2. The Nursing Anxiety and Self-Confidence with Clinical Decision-Making Scale (NASC-CDM)

This scale was developed by Krista A. White in 2011 to evaluate nursing students' anxiety and SC in CDM. It is a six-point Likert-type scale. Separate scores are obtained for SC and anxiety from the scale (10). It has three sub-dimensions for both sections: "using resources to collect information and listening carefully (13 items)," "using the available information to determine the problem (7 items)," and "knowing and acting (7 items)." The scale does not have a cut-off point; as the score increases, self-confidence and anxiety increase, as well. The lowest score that can be obtained from the SC and anxiety sections is 27, and the highest is 162. The SC dimension of the scale was found to explain 69.51% of the total variance, while the anxiety scale explained 63.39%. In addition, the Cronbach alpha of the scale was 0.97 and 0.96 for the SC and anxiety subscales, respectively (10). The Turkish adaptation of the scale was carried out by Bektaş, Yardimci, and Bektas (19). The SC section of the scale had a total Cronbach's alpha of 0.973, and the alpha value of the anxiety section was 0.969. Factor loads ranged between .65 and .84 for the SC section and between .43 and .86 for the anxiety section (19). In this study, Cronbach's alpha values of the scale for self-confidence and anxiety were found to be 0.95 and 0.97.

2.4.3. The Pediatric Nursing Student Clinical Comfort and Worry Assessment Tool

Al-Qaaydeh and Lassche Macintosh developed this scale in 2012 to determine the areas in which nursing students, who started their pediatrics clinical practice for the first time, felt anxious or comfortable in the clinical environment (20). This scale was first translated into Turkish, and its language validity was achieved. The content validity of the instrument was evaluated with the Davis technique, and the mean score on the total scale was found as 0.97 with this method. The explained variance ratio of the two-dimensional model obtained by doing MINRES factor

analysis was 54.69%. The first dimension (anxiety) of the two-factor model consisted of 5 items, and the second dimension (comfort) consisted of 6 items. The proposed model was found to be significant. This measurement tool has a 4-point Likert-type scale with the following scoring options: "strongly agree", "agree", "disagree", and "strongly disagree". The 3rd and 5th items on the comfort dimension of the scale are reversed (21). The Cronbach's alpha coefficient of the comfort dimension of the scale was.68 and the worry dimension was.89. In this study, Croncah alpha was found to be 0.77 for worry and 0.71 for comfort. The alpha value for the total scale was determined as 0.70.

2.4.4. The Pediatric Nursing Competency Scale

This scale was developed by Bektaş et al. in 2018. As a result of exploratory factor analysis (EFA), the scale was found to have eight sub-dimensions. It has a total of 39 items and a 5-point Likert-type scale. There are no reverse-scored items. Scores on the scale range between 39 and 195. The scale explained 66.4% of the total variance. The sub-dimensions and the ratio of total variance they explained were as follows: content (9 items), 38.4%; physical examination (6 items), 7.0%; nutrition (4 items), 4.9%; drug and fluid administration (6 items), 4.1%; complex care (3 items), 3.4%; interaction with child/family (4 items), 3.1%; growth/development (4 items), 2.8%; pain/fever management (3 items), 2.7% (22). Cronbach's alpha was 0.96 for the original scale and for this study Cronbach's alpha was 0.94.

2.5. Study Procedures

The EG and CG in the study received training within the scope of the Nursing Care Management/internship program at a faculty of nursing a university located in the western part of Turkey. Students had 4 hours of theoretical (face-to-face) lectures and 36 hours of clinical practice a week. The study was carried out with students in The EG and CG in two different education periods. Those in the EG were included in a two-day structured education program before their clinical practice. Within the scope of this education, 6 scenarios were created by the instructors. Students were given the printed form of each scenario, and the content and objectives were shared. Four hours were allocated for each scenario (preparation, collecting information, and planning initiatives). The students, who were divided into three groups with three instructors, applied the nursing interventions (newborn examination, approach during, before, and after a seizure, preoperative preparation, pain assessment, and application of pharmacological and non-pharmacological interventions) on simulators. The simulators were low-fidelity models of newborns, 1-year-olds, and 5-year-olds. The intervention steps that students applied were checked using the "application guidelines". Incomplete and incorrect interventions (psychomotor skills) were repeated.

2.6. Data Collection Process

The data collection tools in the research were applied face-to-face in the classroom environment before and after the education intervention. After students were given information about the research, their verbal and written consents were obtained, and data collection tools were applied.

2.7. Data Analysis

The Kolmogorov-Smirnov test was used to determine the normality of the data, and descriptive data were presented with numbers and percentages. The pretest-posttest scores of The EG and CG were evaluated with the independent t-test, the intragroup comparison of pre-posttest scores of the groups was evaluated with the dependent samples t-test, and the data with non-normal distribution were evaluated with the Mann-Whitney U test. The relationship between education and SC and anxiety in CDM, clinical comfort, and the adequacy of the course was analyzed with Spearman correlation analysis. The ratio of education to predict the variance in the level of SC and anxiety in CDM, clinical comfort, and the adequacy of the course was evaluated with linear regression analysis. Tolerance and variance inflammation values (VIF) were used to decide whether there was multicollinearity between education and SC and anxiety in CDM, clinical comfort, and the adequacy of the course. The tolerance value must be greater than 0.2 and the VIF value must be less than 10 to perform a regression analysis. The significance level was accepted as 0.05. The power and effect size of the study were calculated according to regression analyses, and the power was found to be 88% and the effect size was moderate.

2.8. Ethical Disclosure

3. Results

The mean age of the students was 22.09+0.89 in the EG and 21.84+0.85 in the CG. There was no difference between the EG and CG students in terms of gender (p>0.05). Of the students, 25% (n=8) of the CG and 15.6% (n=5) of the EG had received education on pediatric nursing. There was no difference between the two groups in terms of having received this education (p>0.05). No difference was found between the EG and CG in terms of anxiety about pediatric nursing practice (p>0.05). There was no difference between the EG and CG in terms of willingness to be a pediatric nursing intern (p>0.05). There was no difference between the groups in terms of pediatric nursing practice self-efficacy (p>0.05) (Table 1).

The mean pretest scores of the EG and CG on the comfort scale were 13.15+2.84 and 15.28+2.77, respectively. The mean posttest scores of the EG and CG on the comfort scale were 16.90+2.16 and 18.00+2.40, respectively. No statistical difference was found between the mean pretest and posttest scores of the EG and CG (p>0.05).

The mean pretest scores of the EG and CG on the worry subscale were 13.81+2.33 and 12.87+3.32, respectively. There was no statistical difference between the mean pretest scores of the groups (p>0.05). The mean posttest scores of the EG and CG on the worry subscale were 11.18+3.07 and 9.37+3.29, respectively (p>0.05). A statistically significant difference was found between the pretest and posttest mean scores of the EG (p<0.05). Also, there was a statistically significant difference between the mean pretest-posttest scores of the CG (p<0.05) (Table 2).

The mean pretest scores of the EG and CG on the SC subscale were 90.46+19.15 and 104.00+20.94, respectively. The mean posttest scores of the groups on the same scale

were 115.81+19.38 and 121.28+19.14, respectively. No statistical difference was found between the mean pretest and posttest scores of the EG and CG (p>0.05) (Table 3).

Table 1. Students Characteristics of the Experimental and Control Groups

Variables		Experimental		Control		t/X²	P
Age		22.09+0.89		21.84+0.85		1.149	0.255
Gender	Female	23	%71.9	18	%56.3		0.297*
	Male	9	%28.1	14	%43.8		
Receiving extra education	Yes	5	%15.6	8	%25.0	0.869	0.351
	No	27	%84.4	24	%75.0		
Anxiety	Little	3	%9.4	6	%18.8	3.077	0.380
	Moderate	20	%62.5	20	%62.5		
	Much	7	%21.9	6	%18.8		
	Extreme	2	%6.3	-			
Willingness to take an internship	Little	1	%1.6	-		1.501	0.682
	Moderate	12	%37.5	11	%34.4		
	Much	16	%50.0	19	%59.4		
	Extreme	3	%9.5	2	%6.2		
Feeling self-sufficient	None	1	%3.1	1	%3.1	3.000	0.392
	Little	21	%65.6	15	%46.9		
	Moderate	10	%31.3	15	%46.9		
	Much	-		1	%3.1		

*Fisher chi-square test

Table 2. Comparison of the Mean Scores of the Experimental and Control Groups on the Comfort-Worry Scale

Group	Comfort sub-dimension score			F*	p
	N	Pretest M+SD	Posttest M+SD		
Experimental	32	13.15+2.84	16.90+2.16	0.381	0.539
Control	32	15.28+2.77	18.00+2.40		
Group	Worry sub-dimension score			t	p
	n	Pretest M+SD	Posttest M+SD		
Experimental	32	13.81+2.33	11.18+3.07	4.527	0.000
Control	32	12.87+3.32	9.37+3.29	6.231	0.000
t		1.304	1.805		
p		0.197	0.076		

*Ancova

The mean pretest scores of the EG and CG on the anxiety subscale were 80.81+22.35 and 66.71+22.39, respectively. The mean posttest scores of the groups on the same scale were 57.40+16.53 and 56.03+18.96, respectively. No statistical difference was found between the mean pretest-posttest scores of the EG and CG (p>0.05) (Table 3).

Table 3. Comparison of the Mean Scores of the Experimental and Control Groups on the Nursing Anxiety and Self-Confidence with Clinical Decision-Making Scale

Group	Self-confidence			F*	p
	n	Pretest M+SD	Posttest M+SD		
Experimental	32	90.46+19.15	115.81+19.38	0.036	0.850
Control	32	104.00+20.94	121.28+19.14		

Group	Anxiety			F*	p
	n	Pretest M+SD	Posttest M+SD		
Experimental	32	80.81+22.35	57.40+16.53	0.530	0.469
Control	32	66.71+22.39	56.03+18.96		

*Ancova

The mean pretest scores of the EG and CG on the Pediatric Nursing Competency scale were 116.68+17.92 and 138.43+20.06, respectively. The mean posttest scores of the groups on this scale were 167.15+17.04 and 163.75+18.65, respectively. When the pre-tests were examined, a statistical difference was found between the mean posttest scores of the EG and CG in favor of the experimental group (p<0.05) (Table 4).

As a result of the regression analysis, it was determined that the intervention explained 4% of the change in students' self-confidence scores in clinical decision-making, 7.8% of the change in anxiety, and 14% of the change in pediatric competence scale scores.

Table 4. Comparison of the Mean Scores of the Experimental and Control Groups on the Pediatric Nursing Competency Scale

Group	Pediatric Nursing Competency Scale			F*	p
	n	Pretest M+SD	Postttest M+SD		
Experimental	32	116.68+17.92	167.15+17.04	5.883	0.018
Control	32	138.43+20.06	163.75+18.65		

*Ancova

4. Discussion

Pediatric clinics are stressful learning environments for nursing students. Students have difficulties putting their theoretical knowledge and skills into practice due to the attitudes of pediatric patients and families (4). This situation negatively affects students' comfort in pediatric clinics. As a result of the preclinical empowering education applied to the students in our research, there was no statistical difference between the mean posttest scores of the EG and CG on the clinical comfort sub-dimension. However, the mean scores of both groups on the worry sub-dimension of the scale decreased significantly. The clinical comfort and worry of pediatric nursing students developed in parallel to the development of knowledge and skills, adaptation to the clinic, and communication with children and families during the internship process. It is thought that the ineffectiveness of education before the clinical practice may be due to the adaptation of the students to the pediatric clinics and their individual characteristics. For this reason, students who had difficulty communicating with and providing care for children before and controlling their negative emotions may have coped more easily after they adapted to the clinic (23). Working with a guide nurse during the internship process contributed positively to the knowledge and skills development of both groups. The clinical practice carried out within the scope of the internship program in nursing reduced the anxiety of students in both groups about pediatric patients and their families and helped them feel more comfortable in the clinic (24).

Similarly, CDM is also related to SC and anxiety, continuity of nursing education, maturation, and readiness for the profession. The effectiveness of different education models in the development of CDM skills of nursing students

has been shown in the literature. It was determined that simulation-based learning significantly increased students' SC in CDM (8). In addition, clinical improvement courses increased the SC scores of nursing students and provided the desired improvement in their SC levels (25). Ross and Carney found that structured scenarios significantly increased the clinical SC level of students (26). Cobbett and Snelgrove-Clarke compared face-to-face scenario education and virtual scenario education and found that the two education models had a similar effect on increasing students' SC, and there was no significant difference between the posttest SC scores of the two groups (15). In a review study by Thompson and Stapley, it was emphasized that the effect of education methods on improving students' clinical SC levels could not be clearly demonstrated and that different results were obtained in different types of studies (27). As a result of our research, no statistically significant difference was found between the SC and anxiety levels of the students in the EG and CG in terms of CDM. This was because the education method was scenario-based and the models used in the education were of low fidelity, which limited the opportunity to create a real-like practice environment.

In our research, the pediatric nursing competencies of the students for the course were evaluated based on self-report. The mean posttest score of the EG on the pediatric nursing competency scale was found to be significantly higher than that of the CG. When the pretests were examined, it was found that there was a statistical difference between the mean posttest scores of the EG and CG in favor of the EG. These results showed that students found themselves more competent thanks to the preclinical education given (28). In nursing education, each clinic is a major source of stress, as well as being a different learning environment for students. Much of what students learn in theoretical courses is different in practice, and this increases this stress even more. The variability of care needs of children according to age periods in the clinical environment makes it difficult for students to adapt to the clinic. This situation causes students to feel incompetent in the pediatric field. Some studies have emphasized that the quality of the clinical practice of the pediatrics course should be at a level that will improve students' competencies (29). The transferability of the theoretical course content to practice and the use of active learning methods are of great significance in improving students' pediatric knowledge and skills. Some studies have emphasized that the concepts of communication with the patient and family, communication with the team, cooperation, and safe and effective care should be transferred to specialized practice areas to develop students' competency (30). In nursing education, students are allowed to practice limited skills in pediatric clinics. In terms of psychomotor skills, they can perform non-invasive interventions, such as physical examination, measurement of vital signs, and meeting the educational needs of the child and family. This restricts students from practicing skills that require experience for patient safety such as administering medication to a real child patient. Simulation is one of the effective methods to create a real-like clinical environment in nursing education (31). Simulation-based education provides important opportunities for skills that cannot be experienced in real patients (21). In addition, preclinical education for the field of practice, discussion on real scenarios, and planning of nursing care and interventions are effective and practical in preparing students for the field of practice.

5. Conclusion and Recommendation

In conclusion, scenario-based preclinical empowerment education in pediatric nursing internship education did not improve students' clinical comfort and worry levels and their SC and anxiety levels in CDM as desired, and therefore, the interventions had limited effect. However, the perceived competency of the students in the intervention group regarding pediatric nursing was found to be statistically significant. The results of our research have a guiding nature for future interventions in pediatric nursing.

6. Contribution to the Field

The structured education, which was created within the scope of our research, to determine the care needs of pediatric patients and their families in different age groups, which can be encountered frequently in the clinic, increased students' competency. Scenario-based interventions on how to use the information and how to deal with problematic situations when providing care for pediatric patients and their families with the guidance of instructors seem to be effective. The results of our research were found to be consistent with the literature.

Conflict of Interest

There is no conflict of interest regarding any person and/or institution.

Authorship Contribution

Concept: İB, MB; **Design:** İB, MB; **Supervision:** GÖG, DA, AAK; **Funding:** SS, YS; **Materials:** İB, MB; **Data Collection/Processing:** İB, EZÖ, İÇ; **Analysis/Interpretation:** MB; **Literature Review:** İB; **Manuscript Writing:** İB, GÖG, DA; **Critical Review:** AAK, YS, SS.

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