



The investigation of the impact of education on sexual health/reproductive health knowledge levels of nurses and midwives in extraordinary situations – evidence from Turkey

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ABSTRACT

Introduction and aim. In extraordinary situations, sexual/reproductive health services are very important for the health of the whole society, especially women and children. The aim of this study is to assess the impact of training provided on sexual health/reproductive health during extraordinary situations on the knowledge levels of nurses and midwives.

Material and methods. The research was conducted using a single-group pre-test-post-test follow-up test measurement quasi-experimental design. It was completed between November 2021–June 2022 with 140 participants working in a province in Turkey. The data were collected with the “Descriptive Information Form” and the “Sexual Health and Reproductive Health Knowledge Assessment Form for Extraordinary Situations”. Training was given with the Sexual Health/Reproductive Health Training Booklet for Extraordinary Situations.

Results. It was found that the participants scored 20.82 ± 4.47 on the Sexual Health and Reproductive Health Knowledge Assessment Form for Extraordinary Situations in the pre-test, 27.63 ± 2.67 in the post-test, and 27.07 ± 3.46 in the follow-up test. As a result of the training, it was determined that the difference between the scores they got from the Sexual Health and Reproductive Health Knowledge Assessment Form for Extraordinary Situations was due to the pre-test ($p < 0.05$).

Conclusion. In the study, the participants scored above the average in the pre-test, while they achieved significantly higher scores in the post-test and follow-up test. This shows that the training given to nurses and midwives is effective.

Keywords. education, extraordinary, midwife, nurse, reproductive health, sexual health

Introduction

Extraordinary situations are defined as “the serious disruption of public health and order due to natural disasters, dangerous pandemics, severe economic crises, or widespread violent events”.¹ Given the ongoing trends of population growth, heavy migration to urban centers, illegal and unregulated construction, unplanned urbanization, and industrialization, the likelihood of facing greater damages and losses in the face of potential natural events continues to increase every day. Turkey frequently encounters natural disasters due to its geographical and climatic conditions.² Following disasters, there is a need to address the health needs of survivors.³

In this context, in addition to meeting basic needs such as nutrition, shelter, and security, Sexual Health/Reproductive Health (SH/RH) services are also a critically important and prioritized issue.⁴ Reproductive health has historically received low priority in the hierarchy of humanitarian interventions. Awareness of reproductive health needs in emergencies began in the mid-1990s and led to the establishment of the Inter-Agency Working Group (IAWG) for reproductive health. Subsequently, a set of guidelines known as the Minimum Initial Services Package (MISP) was developed to ensure the provision of reproductive health services in crisis situations.⁵ Ensuring comprehensive access to SH/RH services for the

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entire population affected by an extraordinary situation is one of the key objectives of the healthcare sector.⁶

MISP was designed by the IAWG in 1996 as a coordinated reproductive health service aimed at addressing the needs of the affected population, particularly women and girls in vulnerable groups, at the onset of extraordinary situations, ideally within the first 48 hours.^{7,8} Despite being often overlooked in the aftermath of emergencies, MISP serves essential and lifesaving objectives. The key goals of MISP for reproductive health services in extraordinary situations include reducing maternal and neonatal mortality and morbidity, reducing/preventing sexually transmitted infections (STIs) and HIV transmission, preventing gender-based violence, and preventing unwanted pregnancies.^{5,6,9} In addition, the 2030 Sustainable Development Goals target healthy and quality living, reducing maternal and neonatal mortality and morbidity, reducing HIV and STIs, and achieving gender equality, peace, and justice.¹⁰ In this context, it is emphasized that urgent and significant steps are required to achieve the Sustainable Development Goals and leave no one behind.¹¹

Research indicates that in the aftermath of extraordinary situations, there is an increase in complications related to childbirth and the postpartum period, and the likelihood of women and girls encountering violence, harassment, and abuse also rises.^{8,12} Interventions for Sexual and Reproductive Health (SRH) for populations affected by extraordinary situations require specialized knowledge and skills. Therefore, the effectiveness of SRH service coordination in such situations relies on the strength of existing emergency preparedness mechanisms developed before extraordinary events.⁶ The management of extraordinary situations is based on disaster management.¹³ The concept of disaster management includes measures taken before disasters, preparedness, education, the phase of preventing the development of disasters, emergency assistance after disasters, recovery, and rehabilitation phases. The most crucial aspect of disaster management is ensuring preparedness before disasters occur and reducing/preventing the damage caused by disasters. Taking measures, providing education to individuals, and facilitating technological advancements to navigate extraordinary situations with minimal harm are fundamental principles in disaster prevention.^{2,10,14,15}

Starting with Florence Nightingale's work during the Crimean War, nurses have actively played a role in the care of the sick and wounded in all extraordinary situations throughout history.¹⁶ In our country, nurses and midwives primarily work alongside other healthcare professionals to meet the needs of women, children, and infants, who are the groups most affected by extraordinary situations. The fact that nursing and midwifery are patient-centered professions and that they possess knowledge and skills in epidemiology, psychol-

ogy, communication, collaboration, and problem-solving processes enhances their effectiveness in disaster management.¹⁷⁻¹⁹ The roles of nurses and midwives extend beyond saving lives during the immediate phase of a disaster and preserving the health of disaster survivors. Nurses and midwives have significant roles and responsibilities in all stages of disaster management, including the preparation of disaster plans before disasters occur and the implementation, evaluation, and updating of these plans.^{18,20,21} In the pre-disaster phase, nurses and midwives should provide routine or needs-based education to individuals in the community and to those involved in disaster response efforts, aiming to minimize damage and reduce potential adverse outcomes.^{17,21,22}

To date, limited research has been conducted in the literature assessing the implementation and delivery of the MISP within the context of various extraordinary situations. It has been emphasized that there is a need to increase research related to MISP.⁸ Research conducted thus far has indicated that there is still a lack of knowledge and awareness among healthcare workers regarding MISP, and deficiencies have been reported in staffing, logistics, and coordination during the delivery of MISP services.^{4,5,8,23} As a follow-up to the United Nations Population Fund's 2010 Global Planning Meeting recommendation on "Improving humanitarian response and emergency preparedness systems," a decision was made to expand the implementation of MISP in Eastern and Central Europe as well as in Asia. As part of this initiative, seven countries, including Turkey, were selected for the first round of MISP implementation. A total of 27 participants attended the MISP regional trainer training held in Istanbul from March 28 to April 1, 2011, representing these seven countries.¹² In Turkey, there is a lack of ongoing training on MISP, and it is believed that the educational needs of healthcare workers at all levels in this regard are not adequately met. No research has been found on this topic in our country, making this study the first research endeavor representing our nation. Through this research, we aim to fill the existing gaps in both the international literature and in Turkey, providing evidence and guiding future research by focusing on priority areas to improve the scope, quality, and accessibility of Sexual and Reproductive Health (SRH) services.

Aim

The aim of this study is to assess the impact of training provided on sexual health/reproductive health during extraordinary situations on the knowledge levels of nurses and midwives.

Research hypotheses

H0 – The training on sexual health/reproductive health during extraordinary situations has no effect on the knowledge levels of nurses and midwives.

H1 – The training on sexual health/reproductive health during extraordinary situations increases the knowledge levels of nurses and midwives.

Material and methods

Design

The research was conducted using a single-group pre-test-post-test follow-up test measurement quasi-experimental design.

Population, sample, and data collection

Nursing and midwifery are internationally recognized professions with distinct education, practice, and legal regulations. However, in Turkey, both nurses and midwives have duties, authority, and responsibilities in identifying and meeting the healthcare needs of women of reproductive age, infants, and children aged 0–6, despite their different education, practice, and legal frameworks.¹⁹ Therefore, nurses and midwives constitute the population of this research. According to the data from the Bartın Provincial Health Directorate, a total of 170 nurses and midwives are working in the city center of Bartın, a city in the northwest of Turkey. A power analysis was conducted to determine the sample size for the research. The power of the test was calculated using the G*Power 3.1 program. The effect size was set at 0.15, which is considered moderate according to multiple regression analysis by Cohen (1988).²⁴ To achieve a power of more than 95%, it was determined that 107 participants would be required at a 5% significance level and with an effect size of 0.15 (df=2; F=3.086). The study was completed with 140 participants who met the inclusion criteria.

Inclusion criteria

The participants included in the study were nurses or midwives who were employed in healthcare institutions within the city center of Bartın during the period from November 2021 to June 2022 and who willingly consented to take part in the research.

Instruments

To collect data, the researchers used the 'Descriptive Information Form' and a 'Sexual Health and Reproductive Health Knowledge Assessment Form' developed based on the literature.

Descriptive information form

This form was prepared by the researchers based on the literature and comprises a total of 18 questions aimed at revealing the socio-demographic characteristics of the participants (such as age, gender, educational background, workplace, years of experience, etc.) and their levels of knowledge and competence in sexual health/reproductive health (including whether they have received training on sexual health/reproductive health, how confident they feel

in their knowledge and skills in sexual health/reproductive health in extraordinary situations, etc.).²⁵⁻²⁷

Sexual health and reproductive health knowledge assessment form for extraordinary situations (SHRHKAFES)

The form was developed in accordance with the content of the Sexual Health/Reproductive Health Education Booklet for Extraordinary Situations. Initially, research objectives related to knowledge were defined by the researchers. Subsequently, a 31-item Sexual Health and Reproductive Health Knowledge Assessment Form for Extraordinary Situations was created.^{4-9,28,29} Each item in the form were evaluated with the options 'correct,' 'incorrect,' and 'I don't know.' Scoring was done based on the number of correct answers for each item. 1 point was awarded for correctly answered questions, and 0 points for incorrect or 'I don't know' responses. Accordingly, the minimum score that could be obtained from the questionnaire was 0, while the maximum score was set at 31. Expert opinions were sought from five faculty members who have specialized in the field for the Sexual Health and Reproductive Health Knowledge Assessment Form for Extraordinary Situations, and necessary revisions were made to finalize the form. Subsequently, a pilot study was conducted with 10 participants.

Sexual health/reproductive health training booklet for extraordinary situations

In order to provide training to nurses and midwives on sexual health and reproductive health in extraordinary situations, the researchers prepared the 'Sexual Health/Reproductive Health Training Booklet for Extraordinary Situations' in accordance with the literature. The preparation of the booklet was based on data from the Inter-Agency Working Group and relevant literature sources.^{4-9,28,29} The topics covered in the booklet were aligned with the fundamental information and objectives of the MISP for Sexual and Reproductive Health services in extraordinary situations (IAWG, 2018), including basic information about MISP, prevention and management of sexual violence and abuse, reduction/prevention of HIV and STI transmission, prevention of maternal and neonatal mortality and morbidity, and prevention of unwanted pregnancies, as well as the supply of materials for implementing MISP. Prior to the research, expert opinions were obtained from five faculty members who specialize in the field to ensure the appropriateness of the educational content, and necessary adjustments were made.

Data collection process

The training on sexual health/reproductive health in extraordinary situations was provided to nurses and midwives in groups of 5-8 in two sessions, each lasting 45 minutes to 1 hour, on weekdays during office hours, at times convenient for the nurses and midwives.

Throughout the training process, an environment was created for nurses and midwives to ask questions and share their experiences. The participants were asked to fill out the Descriptive Information Form and the Sexual Health and Reproductive Health Knowledge Assessment Form for Extraordinary Situations before the training (pre-test). After providing the training on sexual health and reproductive health in extraordinary situations (post-test), the participants were asked to complete the Sexual Health and Reproductive Health Knowledge Assessment Form for Extraordinary Situations again (follow-up test) (Figure 1). It took approximately 10 minutes to complete the data collection form.

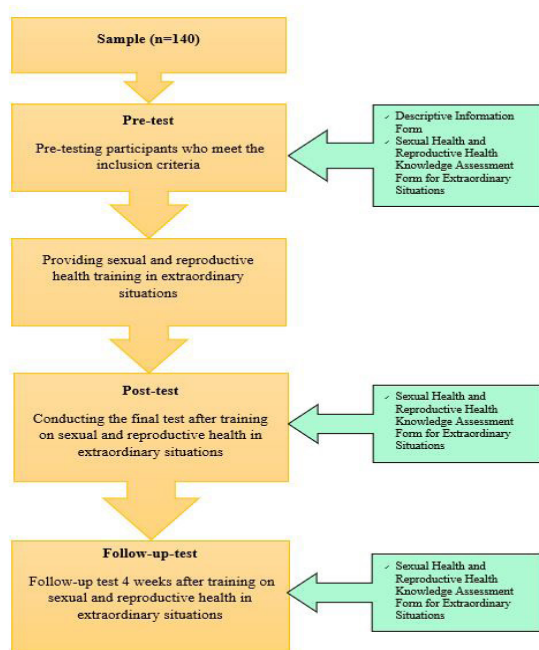


Fig. 1. Research flow chart

Statistical analysis

The Statistical Package for the Social Sciences version 25.0 package program (IBM Corp.; Armonk, NY, USA) was used to evaluate the data. Descriptive statistical methods (number, percentage, mean, standard deviation, minimum, median, and maximum) were employed for data analysis. The normal distribution of the data was tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests. For measurements that did not follow a normal distribution, non-parametric tests were performed. The Mann-Whitney U test was used to compare the differences between the two groups for quantitative data when the measurements did not conform to a normal distribution. The reliability of the sexual health and reproductive health knowledge assessment form for extraordinary situations used in the study was determined through Cronbach’s Alpha reliability analysis. The level of statistical significance was set at 0.05.

Ethical considerations

In order to collect the data, the researchers obtained institutional approval from the Ethics Committee of their affiliated institution (Date: 14/09/2021, Decision No: 2021-SBB-0332) and from the Bartın Provincial Health Directorate (Date: 13/10/2021, Reference No: E-12240456-600). The participants were informed about the purpose of the research, the scientific use of the data, and the voluntary nature of their participation, and their consent was obtained. The research was conducted in accordance with the principles of the Helsinki Declaration.

Results

Descriptive characteristics of the participants

The distribution of participants according to their demographic characteristics is presented in Table 1. The mean age of the participants was 34±8.25. 90.7% of the participants were female, and 77.9% had a bachelor’s degree. 82.1% received education on sexual health and reproductive health, 52.1% received training on extraordinary situations, 89.3% did not hear about the MISP concept before, and 62.9% stated that they did not receive training on sexual health/reproductive health in extraordinary situations (Table 1).

Table 1. Characteristics of the participants^a

Variables	n	%	
Gender	Female	127	90.7
	Male	13	9.3
Educational status	High school	6	4.3
	Associate degree	22	15.7
	Licence	109	77.9
	Master’s/PhD	3	2.1
Working status	I only work during the day	50	35.7
	I only work at night	0	0
	I work both day and night	90	64.3
Receiving education on sexual and reproductive health	Yes	115	82.1
	No	25	17.9
Source of education on sexual and reproductive health*	Mother and father	19	7.1
	Partner	8	3.0
	Friends, neighbors and relatives	10	3.8
	Health personnel (nurse, midwife, doctor)	49	18.4
	Press and broadcast media (television, radio, newspaper, etc.)	15	5.6
	Written resources such as books, magazines	29	10.9
	Internet	19	7.1
	Course	18	6.8
	In the lessons I took during my education	86	32.3
	Social media	13	4.9
Level of competence in sexual and reproductive health	Very enough	29	20.7
	Sufficient	83	59.3
	I’m undecided	24	17.1
	I’m not quite enough	4	2.9
	I’m not enough at all	0	0

Receive training on emergencies	Yes	73	52.1
	No	67	47.9
Source of education on emergencies*	Family members	3	2.5
	Health personnel (nurse, midwife, doctor)	26	21.3
	Press and broadcast media (television, radio, newspaper, etc.)	10	8.2
	Written resources such as books, magazines	12	9.8
	Internet	10	8.2
	Course	11	9.0
Perceived importance of sexual and reproductive health	In the lessons I took during my education	47	38.5
	Social media	3	2.5
	Very important	53	37.9
	Important	81	57.9
Earlier hearing about sexual/reproductive health in emergency situations	I'm undecided	3	2.1
	low importance	2	1.4
	Does not matter	1	0.7
Perceived importance of sexual/reproductive health in emergency situations	Yes	62	44.3
	No	78	55.7
The state of hearing the concept of MISp	Very important	36	25.7
	Important	73	52.1
	I'm undecided	24	17.1
	low importance	5	3.6
Obtaining information on sexual/reproductive health in extraordinary situations	Does not matter	2	1.4
	Yes	15	10.7
Resource of sexual/reproductive education in emergencies*	No	125	89.3
	Yes	52	37.1
Perceived proficiency in sexual/reproductive health in emergency situations	No	88	62.9
	Health personnel (nurse, midwife, doctor)	23	27.1
	Press and broadcast media (television, radio, newspaper, etc.)	7	8.2
	Written resources such as books, magazines	10	11.8
	Internet	11	12.9
	Course	11	12.9
Age	In the lessons I took during my education	23	27.1
	Very enough	19	13.6
	Sufficient	39	27.9
	I'm undecided	55	39.3
Perceived proficiency in sexual/reproductive health in emergency situations	I'm not quite enough	24	17.1
	I'm not enough at all	3	2.1
	X±SD	34±8.25	

^a X – mean; SD – standard deviation; * – participants selected more than one option

Pre-test, post-test, and follow-up test evaluations for the SHRHKAFES

The Cronbach's Alpha reliability coefficient was calculated to reveal the internal consistency of the SHRHKAFES. It was calculated as 0.736 in the pre-test, 0.771 in the post-test, and 0.800 in the follow-up test (Table 2).

It was found that the participants scored 20.82±4.47 on the SHRHKAFES in the pre-test, 27.63±2.67 in the post-test, and 27.07±3.46 in the follow-up test (Table 3). A statistically significant difference was observed in the scores obtained by the participants from the SHRHKAFES in the pre-test, post-test, and follow-up test

($p < 0.05$). According to the Bonferroni analysis conducted to determine between which two groups the difference existed, it was found that the difference stemmed from the scores obtained in the pre-test, and the scores obtained in the pre-test were lower than the scores obtained in the post-test and follow-up test (Table 4).

Table 2. SHRHKAFES reliability analysis

SHRHKAFES	Cronbach's Alpha
Pretest	0.736
Posttest	0.771
Follow-up test	0.800

Table 3. Descriptive statistics of the scores obtained during the pre-test, post-test and follow-up of the SHRHKAFES^a

SHRHKAFES	n	Min	Max	X±SD
Pretest	140	8	27	20.82±4.47
Posttest	100	20	31	27.63±2.67
Follow-up test	99	15	31	27.07±3.46

^a X – mean; SD – standard deviation

Table 4. Time comparison analysis results of SHRHKAFES^a

SHRHKAFES	n	Min	Max	X±SD	Test statistic	p	Bonferroni	p
Pretest (1)	140	8.00	27.00	20.82±4.47	$\chi^2 = 88.813$	$< 0.001^*$	1<3;	$< 0.001^*$
Post test (2)	100	20.00	31.00	27.63±2.67				
Follow-up test (3)	99	15.00	31.00	27.07±3.46				

^a X – mean; SD – standard deviation; * – $p < 0.05$, χ^2 – Friedman test statistic

Participants' descriptive characteristics and pre-test, post-test, and follow-up test evaluations for SHRHKAFES

The analysis of participants' descriptive characteristics and the scores obtained in the SHRHKAFES at the pre-test revealed a statistically significant difference in scores based on education level, work schedule, and having received training on SHRH ($p < 0.05$). Specifically, participants with a high school or associate degree education level had higher scores on the SHRHKAFES compared to those with a bachelor's, master's, or doctoral degree. Additionally, participants who only worked during the day had lower scores on the SHRHKAFES compared to those who worked both day and night. The participants who received training on SHRH had higher scores on the SHRHKAFES compared to those who did not receive such training (Table 5). However, no statistically significant difference was found in the scores obtained at the post-test (Table 6) and follow-up test (Table 7) based on participants' descriptive characteristics ($p > 0.05$).

Discussion

The research aimed to determine the impact of the training on sexual health/reproductive health in emergency situations on the knowledge levels of nurses and

Table 5. Comparison of the characteristics of the participants and the scores they got from the pre-test of SHRHKAFES^a

Variables		n	Min	Max	X±SD	Z	p
Gender	Female	127	8	27	20.72±4.58	-0.588	0.556
	Male	13	15	26	21.85±3.08		
Educational status	High School-Associate Degree	28	16	27	22.46±3.29	-2.084	0.037*
	Bachelor-Master/PhD	112	8	27	20.41±4.64		
Working status	daytime only	50	8	27	19.36±5.70	-2.022	0.043*
	Both night and day	90	11	27	21.63±3.38		
Status of receiving education on SRH	Yes	115	8	27	21.19±4.32	-2.215	0.027*
	No	25	8	27	19.12±4.82		
Status of receiving training on emergency situations	Yes	73	8	27	21.07±4.31	-0.614	0.539
	No	67	8	27	20.55±4.65		
Prior hearing about sexual/reproductive health in extraordinary situations	Yes	62	8	27	20.82±4.69	-0.221	0.825
	No	78	8	27	20.82±4.32		
The state of hearing the concept of MISIP	Yes	15	17	27	22.27±3.24	-1.263	0.207
	No	125	8	27	20.65±4.57		
Receiving information on sexual/reproductive health in extraordinary situations	Yes	52	13	27	21.69±3.11	-1.082	0.279
	No	88	8	27	20.31±5.05		

^a Z – Mann Whitney U test statistic; * – p<0.05

Table 6. Comparison of the characteristics of the participants and the scores they got from the posttest of SHRHKAFES^a

Variables		n	Min	Max	X±SD	Z	p
Gender	Female	91	20	31	27.76±2.57	-1.031	0.303
	Male	9	23	30	26.33±3.39		
Educational status	High School-Associate Degree	17	23	31	28.12±2.06	-0.421	0.674
	Bachelor-Master/PhD	83	20	31	27.53±2.77		
Working status	daytime only	33	23	30	27.82±2.54	-0.523	0.601
	Both night and day	67	20	31	27.54±2.74		
Status of receiving education on SRH	Yes	82	20	31	27.60±2.64	-0.462	0.644
	No	18	23	31	27.78±2.86		
Status of receiving training on emergency situations	Yes	55	23	31	27.84±2.33	-0.490	0.682
	No	45	20	31	27.38±3.03		
Prior hearing about sexual/reproductive health in extraordinary situations	Yes	44	20	31	27.73±2.57	-0.11	0.992
	No	56	21	31	27.55±2.76		
The state of hearing the concept of MISIP	Yes	12	23	31	27.83±2.33	-0.016	0.987
	No	88	20	31	27.60±2.72		
Receiving information on sexual/reproductive health in extraordinary situations	Yes	40	23	31	28.05±2.32	-1.018	0.309
	No	60	20	31	27.35±2.86		

^a Z – Mann Whitney U test statistic; * – p<0.05

Table 7. Comparison of the characteristics of the participants and the scores they got from the follow-up test of SHRHKAFES^a

Variables		n	Min	Max	X±SD	Z	p
Gender	Female	90	15	31	27.18±3.47	-1.346	0.178
	Male	9	20	30	26.00±3.32		
Educational status	High School-Associate Degree	19	19	31	27.53±3.64	-1.050	0.294
	Bachelor-Master/PhD	80	15	31	26.96±3.43		
Working status	daytime only	35	17	31	27.34±3.76	-1.355	0.175
	Both night and day	64	15	31	26.92±3.30		
Status of receiving education on SRH	Yes	81	15	31	27.28±3.52	-1.937	0.053
	No	18	19	30	26.11±3.08		
Status of receiving training on emergency situations	Yes	54	15	31	27.13±3.35	-0.096	0.923
	No	45	17	31	27.00±3.62		
Prior hearing about sexual/reproductive health in extraordinary situations	Yes	43	20	31	27.28±2.86	-0.197	0.844
	No	56	15	31	26.91±3.87		
The state of hearing the concept of MISIP	Yes	10	20	31	28.00±3.80	-1.390	0.165
	No	89	15	31	26.97±3.43		
Receiving information on sexual/reproductive health in extraordinary situations	Yes	39	20	31	27.10±3.03	-0.418	0.676
	No	60	15	31	27.05±3.73		

^a Z – Mann Whitney U test statistic; * – p<0.05

midwives. To the best of our knowledge, no research has been conducted on this topic in Turkey. In addition to being the first study representing our country, this research is also significant in the international literature as it evaluates the effectiveness of the training on the subject. The participants in the study scored above average in the pre-test, while they obtained significantly high scores in the post-test and follow-up test conducted after the training. This indicates the effectiveness of the Sexual Health/Reproductive Health Training for Emergency Situations given to nurses and midwives. In this regard, the H1 hypothesis was accepted.

The majority of the participants (82.1%) reported having received education on sexual health and reproductive health, with school courses being the most common source of education (32.3%). More than half of the participants (57.9%) considered sexual health and reproductive health to be important, and the majority (59.3%) perceived themselves as competent in sexual health and reproductive health. However, various studies have indicated that nurses and midwives

do not have sufficient education in sexual health and do not consider themselves competent to provide education on sexual and reproductive health to individuals with specific needs, emphasizing the need for more attention to be given to this topic during their school education.³⁰⁻³² In the literature, it is recommended that nurses and midwives improve their knowledge and skills in sexual health and reproductive health.³³ Sexual health education provided during courses plays a crucial role in building students' fundamental knowledge. In addition, nurses and midwives should adopt a lifelong learning perspective, keeping up with current literature and refreshing their knowledge regularly.

In the study, more than half of the participants (52.1%) reported receiving training on emergencies, and over one-third (38.5%) acquired this knowledge during their coursework. Additionally, the majority of participants (62.9%) stated that they did not receive training on sexual health and reproductive health during emergencies, and among those who did receive training, over half (54.2%) obtained it from healthcare professionals such as nurses, midwives, or doctors, or during their educational courses. The literature contains studies both confirming that nurses receive education on disasters during their training²⁵ and indicating instances where they do not.^{34,35} Another study conducted in Turkey found that a majority of nursing students (65.3%) did not receive education on disasters and the vast majority (85.4%) expressed a desire to take disaster-related courses during their education.³⁴ Taskiran and Baykal did not list sexual health and reproductive health in emergencies as a topic that nurses desired to receive education on during the disaster preparedness phase.³⁶ In a study involving nursing and midwifery students, over half of the participants (59.9%) reported not receiving any training on emergencies.³⁷ While there is limited information on whether midwives receive education on emergencies in the literature, a study conducted in the United Kingdom found that the training given to midwives on the management of childbirth during emergencies was effective.²² This underscores the need to incorporate disaster-related courses into nursing and midwifery curricula.

More than one-third of the nurses and midwives in the study (39.3%) expressed uncertainty about feeling competent in sexual and reproductive health during emergencies, while over half of the participants (52.1%) emphasized the importance of sexual and reproductive health during emergencies. In line with these findings, a recent article highlights the significance of implementing MISP for nutrition, sanitation, access to healthcare services, sexual and reproductive health services, and protection from violence, harassment, and abuse for individuals affected by the Ukraine conflict.³⁸ Similarly, a study conducted after the Nepal

earthquake emphasizes the need to prioritize sexual and reproductive health issues in disaster preparedness and emergency plans and to provide healthcare workers with relevant training.³⁹ Offering training to nurses and midwives on sexual and reproductive health during emergencies, conducting awareness sessions, and enhancing their knowledge and skills will contribute to their competence development.

It was found that almost all participants (89.3%) had never heard of the MISP concept before. In Indonesia, only half of healthcare workers were aware of the MISP concept and its implementation, and only one participant could correctly define MISP's objectives and priority activities.⁴⁰ Awareness of MISP among healthcare workers was found to be insufficient in Kenya, while it was found to be high in Haiti and Nepal.⁴⁵ Despite more than a decade since its establishment, it is emphasized that MISP is still unknown and not implemented by many government institutions and humanitarian health organizations worldwide.⁵ The current research raised awareness of MISP among the participants, which is a positive outcome.

A statistically significant difference was observed in the scores obtained from the SHRHKAFES in the pre-test, post-test, and follow-up test ($p < 0.05$). In the literature, a direct conclusion related to this finding cannot be reached, yet similar studies have shown parallel results to this outcome. In a study conducted in Chad, the Democratic Republic of the Congo, Mali, Djibouti, and Pakistan, aimed at improving the use of family planning services in humanitarian crisis settings, it was found that participants' knowledge and awareness of modern family planning methods increased between the pre-test and post-test.⁴¹ After a psycho-education intervention provided by female healthcare workers following the 2012 Haiti earthquake, an increase in practices related to HIV/STI prevention was identified.⁴² As in this study, positive results have been obtained in the literature in educational interventions aimed at improving the knowledge and skills that individuals want to acquire.

It was found that the scores obtained in the pre-test were significantly associated with some of the participants' demographic characteristics. In the literature, it has been noted that certain demographic variables of participants are related to their knowledge levels regarding emergencies.^{25,34,36}

Study limitations

This research is expected to serve as a valuable resource for researchers working in the field of sexual and reproductive health. However, there are some limitations to this study. One limitation is that it was conducted in a single province in the northwest region of Turkey. The researchers considered this limitation as a pilot study in a selected province. Another limitation is that since the

number of nurses and midwives in the sample was not evenly distributed, no comparisons could be made between nurses and midwives. In future research, it may be beneficial to present this difference more clearly. Another limitation is the lack of a valid and reliable measurement tool that nurses and midwives can use to assess their knowledge of sexual and reproductive health in emergencies. Therefore, the researchers created a questionnaire based on the literature. The validity analysis conducted at the end of the study confirmed that the questionnaire is a reliable measurement tool. Finally, the scarcity of studies on this topic limited the discussion of the findings.

Conclusion

In the study, the participants scored above the average in the pre-test, while they achieved significantly higher scores in the post-test and follow-up test. This indicates the effectiveness of the training on sexual health/reproductive health during extraordinary situations. As a result of the training, the participants may feel more competent in their professional roles, which can positively impact the quality of care and treatment.

The SHRHKAFES, developed by the researchers based on the literature, was found to have a good level of internal consistency. It is recommended that this form be administered to healthcare professionals working in different regions of the world, including Turkey as further research in this field can enrich the literature. Furthermore, it is suggested to incorporate disaster management courses into the undergraduate curriculum for nurses and midwives. In addition, nurses and midwives should adopt a lifelong learning perspective by keeping up with current literature and cultivating a habit of refreshing their knowledge.

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Declarations

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Author contributions

Conceptualization, E.C.E., T.K., E.E. and N.D.; Methodology, E.C.E.; Software, E.C.E.; Validation, E.C.E., T.K., E.E. and N.D.; Formal Analysis, E.C.E., T.K., E.E. and N.D.; Investigation, E.C.E., T.K., E.E. and N.D.; Resources, E.C.E., T.K., E.E. and N.D.; Data Curation, E.C.E., T.K., E.E. and N.D.; Writing – Original Draft Preparation, E.C.E., T.K., E.E. and N.D.; Writing – Re-

view & Editing, E.C.E., T.K., E.E. and N.D.; Visualization, E.C.E., T.K., E.E. and N.D.; Supervision, E.C.E.; Project Administration, E.C.E.; Funding Acquisition, E.C.E., T.K., E.E. and N.D.

Conflicts of interest

The authors declare that there is no conflict of interest regarding this article.

Data availability

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

Ethics approval

The protocol for the research project has been approved by Bartın University Social and Human Sciences Ethics Committee (Date: 14.09.2021, No: 2021-SBB-0332).

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