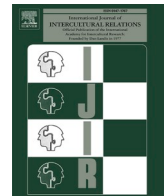




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# Promoting the attitudes of nursing students towards refugees via interventions based on the contact hypothesis: A randomized controlled trial<sup>☆</sup>

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## ABSTRACT

A randomized controlled study was implemented on 90 nursing students in Turkey. The sample was divided into two groups: intervention and control group. The intervention group received education on refugee health and participated in a practical internship with refugees. Three scales were administered to the two groups at baseline (pre-test) and the end of intervention (post-test): "Xenophobia", "Attitude Towards Refugees" and "Intercultural Sensitivity". The three scale post-test scores of the intervention statistically significantly differed from control group and showed a statistically significant interaction between the groups and time in the two-way analysis of variance. The three scale post-test scores significantly differed from the pre-test scores in the intervention group, showing more relevant effects on xenophobia scale, two subscales of attitude towards refugees and intercultural sensitivity scale. The interventions based on the contact hypothesis improved nursing students' attitudes towards refugees.

## Introduction

Migration is one of the oldest phenomena faced by human beings and it is an important issue in contemporary societies with the ethnic and racial diversity it creates. People wanted to migrate with new hopes at every stage of history and escape poverty, conflicts, and wars (Castles, De Haas, & Miller, 2013). Refugees are exposed to sudden environmental changes that affect them socially, culturally and physically (Tuzcu & Bademli, 2014). With migration, individuals with different cultures in terms of language, religion, tradition, culture, etc., are forced to interact or even live in the same environment (Aksoy, 2012). Refugees face different degrees of hostile attitudes and even maltreatment and discriminatory behaviors depending on their refugee status. For example, in some European countries, refugees are considered to be the cause of decreasing education levels, increased crime rates and high unemployment rates, and systematic discrimination against refugees is becoming widespread (Crush & Ramachandran, 2009). Such experiences of refugees lead to mental and physical health problems, making them a vulnerable group. Being unprepared for a new country's conditions, the attitudes they face in the new country, poor living conditions, lack of employment, and changing social support increase

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this vulnerability even further (Bhugra et al., 2011). To prevent this vulnerability, it is believed that refugees should live in a culturally sensitive environment and be supported socially and spiritually with an individual-centered and holistic approach, which can be create positive results (Asilar & Yildirim, 2018).

Creating a supportive environment, which is an important step in health promotion, is also important for refugees. Nurses are expected to contribute to healthy adaptation of refugees (Sohng, Sohng, & Yeom, 2002). It is an ethical responsibility that nurses' services to refugees are culture-specific and qualified (Eliason, 1993). Appropriate care for refugees occurs when nurses are aware of cultural differences and similarities and act responsibly. In order to fulfill this responsibility, cultural competence should be gained to nurses during their education. (Bulduk, Tosun, & Ardic, 2011).

Cultural competence, communication and problem-solving skills are also crucial in nursing education as well as empathy, which contributes to improving the capacity to respond to the special healthcare needs of refugees, providing them appropriate and respectful support (Dumit & Honein-AbouHaidar, 2019; Ferri et al., 2017; Keyes & Kane, 2004). The social contact hypothesis, which is used to regulate relations positively, is a theory developed to solve intergroup problems (Kucukkomurler & Sakalli Ugurlu, 2017). The hypothesis's main idea is that if prejudice feeds non-interaction and separation between people, establishing interaction with these groups can eliminate hostile stereotypes and individuals can begin to be recognized as "human" again (Pettigrew, 1998).

The contact hypothesis has been used in various studies for different races, people with different nationalities (Husnu & Lajunen, 2015), religions (Stathi, Crisp, & Hogg, 2011), disabilities, mental illnesses (Stathi, Tsantila, & Crisp, 2012), sexual orientations (Cirakoglu, 2006; Miller, Markman, Wagner, & Hunt, 2013) and refugee groups (Guler, 2019). These studies have shown that the

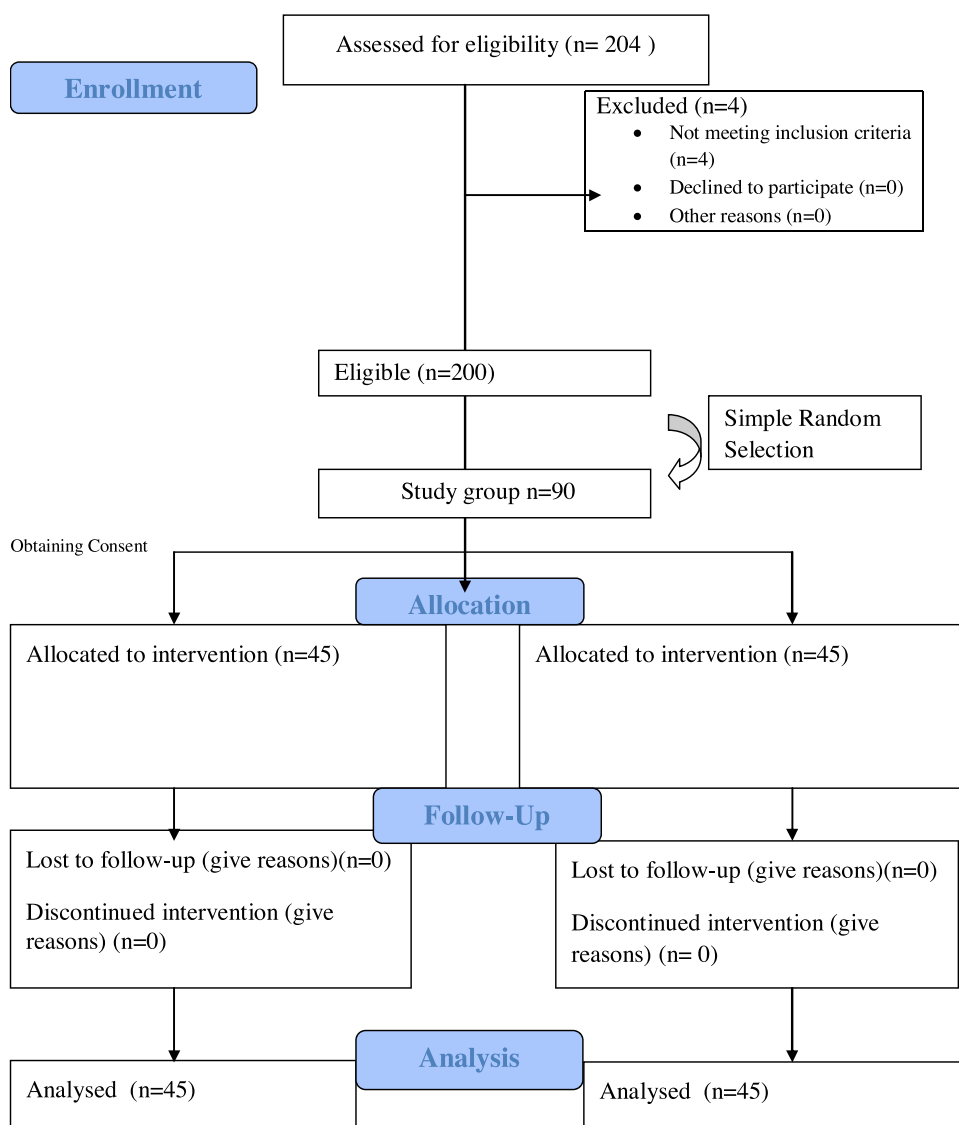


Fig. 1. Flow diagram of the participants of this study.

contact hypothesis positively affected intergroup relations.

For nurses, the social contact hypothesis is a critical approach. Because nurses are firmly committed to their code of ethics of performing their practices without discriminating between individuals. (ICN, 2012). Nursing students must adopt ethical codes and gain professionalism before graduation. Nursing students' contact with refugees can be increased, thus contributing to preventing the students' negative attitudes and behaviors towards refugees (Hjerm, Johansson Sevä, & Werner, 2018; Steinke, Riner, & Shieh, 2015). In many countries, particularly in Turkey, unexpected refugee mobility has recently been experienced, and prejudices have emerged at social level (Sen & Keskin, 2019). Thus, there is a suitable environment for testing the social contact hypothesis and evaluating the results.

## Purpose

This study aimed to evaluate the effect of interventions based on the contact hypothesis, the training and practice with refugees, in reducing xenophobia and improving attitudes towards refugees and intercultural sensitivity among nursing students.

The null hypothesis of the study ( $H_0$ ) is that the "xenophobia", "attitude towards refugees" and "intercultural sensitivity" levels of the students in the intervention group are similar to those of the students in the control group. The alternative hypothesis ( $H_1$ ) is that the "xenophobia", "attitude towards refugees" and "intercultural sensitivity" levels of the students in the intervention and control groups are different.

## Method

### Study design

In a randomized controlled parallel-group study, the effectiveness of the program developing attitudes towards refugees based on the contact hypothesis was evaluated using pre and post-tests.

### Participants, setting and randomization

The participants were the senior nursing students studying at a national university in Turkey, which offers four-year undergraduate education. The faculty has 36 faculty members and 204 students in the fourth grade. The Gpower 3.1.9.2. program was used to calculate the sample size. Accepting the effect size as large (0.80), the alpha value as 0.05, and the power as 0.95, the sample size was found as 42 for each group. Assuming a 5% dropout rate, the required sample size was 45 students in each group and 90 students in total. The exclusion criterion was being a refugee or a refugee student. Four students were excluded from the study because they had foreign nationalities. Randomization was performed through random selection and random assignment. All the students agreed to participate in the study. 90 students were selected randomly among 200 students using the simple random numbers table by student affairs. 90 students were randomly assigned to intervention and control groups. These students were assigned to the intervention and

**Table 1**

Content of the program based on the contact hypothesis.

<p>1. Training on Migration</p> <p>In the first three weeks, the researchers held the seminars seven times in a classroom setting, 45 min each. Finally, a film with a migration theme was shown.</p>	<p>Seminar Topics</p> <ol style="list-style-type: none"> <li>1. Globalization, Migration, Causes of Migration, demographic situation in the world and Turkey</li> <li>2. The Effects of Migration on Children, Women and Elderly Health</li> <li>3. Social and Mental Effects of Migration, Needs of Refugees</li> <li>4. Nursing Care for Refugee Families with the Risk Approach</li> <li>5. The Difficulties of Refugees in the Adaptation Process and the Attitude of Local People toward Refugees</li> <li>6. Discussion on examples from refugees' work lives</li> <li>7. Migration Stories of Refugees and Case Presentations</li> <li>8. Watching a movie on migration</li> </ol>
<p>2. Practices for Refugee Health</p> <p>The students contacted refugees in three different centers for three weeks each. They contacted the refugees in a total of nine weeks and two days a week (16 h a week).</p>	<ol style="list-style-type: none"> <li>1 School Health: [In schools where refugees are present in large numbers; getting to know and observing refugee children, Data collection, Health Screening, Counseling and advocacy for the existing health services/ rights for refugees, Teaching and playing children's games in Turkish culture (together with Turkish students-inclusion), Family visits and Health education]</li> <li>2 Migrant Health Center: (getting to know and observing immigrants, Counseling and advocacy for the existing health services/rights for refugees, Counseling on NGOs for individuals in need, Family visits and Health education)</li> <li>3 Civil Society Organization (CSO): (Interventions similar to those at the Immigrant Health Center were carried out.)</li> </ol>

control groups by a statistician using the simple randomization method (randomizer.org.tr). Researchers were not involved in this process. (Fig. 1).

### *The intervention*

The study was carried out in the spring semester of the 2018–2019 academic year. The interventions were performed in two stages: training on migration issues and student practice regarding refugee health (contact with refugees). The interventions lasted for 12 weeks [3 weeks for theory (seven seminars, 45 min each) and 9 weeks for practice (16 h a week)]. Both theoretical and practical trainings aimed to encounter refugees in real life (Table 1). The training was given by two faculty members (an associate professor and an assistant professor) in Public Health Nursing at the university where the study was conducted.

The control group continued the routine public health nursing internship program (family health-based practices in the institutions giving primary health care). In addition to these routine practices, the intervention group completed an additional program including the interventions listed above. The study was reported following the CONSORT 2017 principles (Boutron, Altman, Moher, Schulz, & Ravaud, 2017).

### *Outcome measures*

The effect of the interventions based on the contact hypothesis was evaluated through the administration of three scales: "Xenophobia", "Attitude towards refugees" and "Intercultural sensitivity".

*The Xenophobia Scale:* The scale was developed by Van Der Veer, Yakushko, Ommundsen, and Higler (2011) and is evaluated as a psychometric scale. It was adapted to Turkish by Ozmete, Yildirim, and Duru (2018). The scale consists of 11 items and has a single factor structure. The lowest score that can be obtained from the Likert type scale (6 options) is 14 and the highest score is 84. A high score indicates a high risk of xenophobia.

*The Attitude towards Refugees Scale:* The scale was developed by Cimen and Quadir (2018) and the validity-reliability study was conducted. The scale is a five-point Likert-type scale. The five sub-dimensions of the scale are "Having a negative opinion about refugees", "Generating radical solutions about refugees", "Generating moderate solutions about refugees", "Defending the rights of refugees" and "Helping refugees". There are 28 items on the scale, and the scoring of 14 of them is done in reverse. Except for "the having a negative opinion about refugees", "Generating radical solutions about refugees" sub-dimension, higher scores show positive belief

*The Intercultural Sensitivity Scale:* The scale was developed by Chen and Starosta (2000) and was adapted to Turkish by Bulduk et al. (2011). The validity and reliability study was conducted. The five-point Likert type scale consists of 24 items. The lowest total score that can be obtained from the scale is 24 and the highest total score is 120. A high total score indicates that the level of cultural sensitivity increased.

In addition, demographic data of all students who participated in the study were collected: age, gender, marital status, place of residence for the longest period of time, economic status, and family type.

### *Data collection procedures and blinding*

At baseline (pre-test), all participants completed a questionnaire containing demographic information and the three scale scores indicated above. One week after the interventions were completed (post-test), the students were asked to complete the three scale scores again.

The data collection and the statistical processes were blinded. Three people collected the data (public health nursing master's and doctorate students) who did not know the groups. For the blinding of statistical reporting, the research data were transferred to the electronic environment by coding without specifying the intervention and control groups. The groups were explained when the analyses were completed.

### *Data analysis*

The SPSS 22 program was used for data analysis. The Chi-square analysis was performed to compare the demographic characteristics of the intervention and control groups. In dependent groups, *t*-test was used to reveal the intra-group changes in the intervention and control groups' scale scores. In independent groups, *t*-test was used to compare pre-test and post-test results of the intervention and control groups. Time and group interactions of the intervention group and control group score changes were examined using two-way analysis of variance in repeated measures. The effect of the interventions based on the contact hypothesis was evaluated using the partial eta-squared ( $\eta^2$ ) value. This value is accepted as small if it is 0.01, while the value was considered as moderate if it is 0.06 and large if it is 0.14. 95 % confidence interval values of the effect size were calculated. Since pre-tests may be a source of bias in attitude studies, this effect was evaluated using the covariance analysis.  $p < 0.05$  was considered to be significant. The Intention to treat (ITT) analyses were not performed since there was no data loss during the study.

### *Ethics*

The ethics committee of the XXX university approved the study (Approval no: 2019/101). Written informed consent was obtained

from all the participants. The students in the study were not given extra academic credit or grade. In the public health nursing internship program at the university where the research was conducted, primary healthcare services are offered to the risk groups such as pregnant, children, women and the elderly to improve their health. The intervention group worked with these risk groups, including refugees. It was clearly explained to students that only their attitudes towards refugees will be evaluated

## Result

The mean age of the students in the intervention group was  $21.71 \pm 0.72$ . 88.9 % of them are women, and 68.9 % of them have lived in the city center. 93.3 % of the students perceived their economic situation as moderate, and most of them had nuclear families. The control group is similar to the intervention group in terms of these characteristics (Table 2).

### The Xenophobia Scale

The pre-test score of the intervention group and that of the control group were similar ( $p > 0.05$ ). The intervention group's post-test score was significantly higher than its pre-test score and the post-test score of the control group ( $p < 0.001$ ). In two-way analysis of variance in repeated measures, there was a significant main effect of the type of groups. The time per groups interaction was statistically significant ( $p = 0.000$ ), indicating the score change between the two groups in the post-test. The estimated effect size ( $\eta^2 = 0.404$ ) was found to be large (Table 3). The effect of the pre-test on the results was evaluated with the covariance analysis. Pre-test score was found to be associated with the xenophobia score. When the effect of the pre-test was taken under control, the intervention based on the social contact hypothesis had a significant impact on xenophobia ( $F(1,87) = 79,850$   $p < 0,001$  Adj  $R^2 = 0,513$ ) (Table 4).

### Attitude towards Refugees Scale

Except from the "helping refugees" sub-dimension, the post-test score of the intervention group was found to be different from both its own pre-test score and the control group's post-test score ( $p < 0.05$ ). This difference was in the form of negative attitudes towards refugees, a decrease in the score for producing radical solutions, and an increase in the score for defending refugees' rights and generating a moderate solution. The two-way ANOVA results in repeated measures showed that group-time interaction was significant in scale sub-dimensions except for the "helping refugees" sub-dimension. When the interaction effect was evaluated, it was found out that the score change over time was significant in the intervention group compared to the control group. The estimated effect size was found to be large in the sub-dimensions of negative opinion ( $\eta^2 = 0.144$ ) and generating a radical solution ( $\eta^2 = 0.271$ ), whereas it was moderate in generating a moderate solution ( $\eta^2 = 0.078$ ) and defending the rights of refugees ( $\eta^2 = 0.094$ ) and small in helping the refugees ( $\eta^2 = 0.016$ ) (Table 3). In the covariance analysis, it was further revealed that pre-test was related to the five dimensions of the scale. When this relationship was taken under control, it was found that receiving an intervention based on the social contact hypothesis had a significant effect on the sub-dimensions of "negative opinion" (Adj  $R^2 = 0,383$ ), "generating a radical solution" (Adj  $R^2 = 0,523$ ), "generating a moderate solution" (Adj  $R^2 = 0,143$ ) and "defending the rights of refugees" (Adj  $R^2 = 0,285$ ). However, it was found that the intervention did not have any effect on the sub-dimension of helping refugees ( $p > 0.05$ ) (Table 4).

**Table 2**

Baseline characteristics in the intervention group and the control group.

	Intervention Group N (%)	Control Group N (%)	$\chi^2$	p-value
<b>Gender</b>				
Female	40 (88,9)	40 (88,9)	0,000	1,000
Male	5 (11,5)	5 (11,5)		
<b>Marital status</b>				
Single	45 (100,0)	45 (100,0)		
Married	0 (0,00)	0 (0,00)		
<b>Place of residence for the longest period</b>				
Village	5 (11,1)	7 (15,6)	0,949	0,622
District	9 (20,0)	6 (13,3)		
Province	31 (68,9)	32 (71,1)		
<b>Economic Status</b>				
Good	3 (6,7)	7 (15,6)	1,013	0,314
Moderate	42 (93,3)	38 (84,4)		
<b>Family Type</b>				
Nuclear family	40 (88,9)	43 (95,6)	1,394	0,238
Extended family	5 (11,1)	2 (4,4)		
<b>Age</b>	$\bar{x} \pm \text{sd}$	$\bar{x} \pm \text{sd}$	<b>t test</b>	<b>p-value</b>
	21,71 $\pm$ 0,72	22,0 $\pm$ 1,43	1,208	0,231

Abbreviations:  $\chi^2$ , Chi-square test.

**Table 3**  
The Xenophobia, The Attitude towards Refugees and The Intercultural Sensitivity by group over time.

	Intervention Group		Control Group		Group	Time	Group x Time	
	Pre-test	Post- test	Pre-test	Post- test				
The Xenophobia Scale Score	45,7 ± 8,00	33,1 ± 8,9	45,5 ± 6,9	46,5 ± 6,4	F-value	24,124	43,307	59,595
					p	0,000	0,00	0,000
					η2	0,215	0,330	0,404
					CI*	(0,08-0,354)	(0,177-0,462)	(0,249-0,527)
<i>The Attitude towards Refugees Scale Score</i>								
Negative opinion	22,2 ± 6,4	20,5 ± 5,2	22,4 ± 5,7	27,8 ± 6,9	F-value	26,560	4,014	14,816
					p	0,000	0,048	0,000
					η2	0,232	0,044	0,144
					CI	(0,093-0,371)	(0,001-0,151)	<b>(0,035-0,279)</b>
Generating a radical solution	13,6 ± 2,9	7,1 ± 2,4	12,2 ± 3,0	11,7 ± 3,1	F-value	24,203	42,945	32,639
					p	0,000	0,000	0,000
					η2	0,216	0,328	0,271
					CI	(0,081-0,355)	(0,175-0,461)	<b>(0,124-0,408)</b>
Generating a moderate solution	13,0 ± 3,0	16,0 ± 3,1	13,0 ± 2,9	13,7 ± 3,1	F-value	5,197	21,070	7,405
					p	0,025	0,000	0,008
					η2	0,056	0,193	0,078
					CI	(0,00-0,169)	(0,065-0,332)	<b>(0,05-0,199)</b>
Defending the rights of refugees	19,5 ± 2,8	21,3 ± 2,1	18,7 ± 2,6	18,4 ± 3,1	F-value	15,907	4,755	9,162
					p	0,000	0,032	0,003
					η2	0,153	0,051	0,094
					CI	/0,040-0,289)	(0,00-0,162)	<b>(0,01-0,221)</b>
Helping Refugees	6,2 ± 1,8	5,7 ± 2,0	6,2 ± 1,8	6,4 ± 1,9	F-value	1,395	0,094	1,391
					p	0,241	0,760	0,241
					η2	0,016	0,001	0,016
					CI	(0,00-0,100)	(0,00-0,043)	<b>(0,01-0,099)</b>
The Intercultural Sensitivity Scale Score	89,2 ± 6,7	94,3 ± 7,7	88,8 ± 9,4	87,1 ± 11,3	F-value	6,188	4,757	15,988
					p	0,015	0,032	0,000
					η2	0,066	0,051	0,154
					CI	(0,002-0,183)	(0,001-0,162)	<b>(0,040-0,290)</b>

Abbreviations: CI\*: 95 % confidence interval of partial η2.

*Intercultural Sensitivity Scale*

The pre-test scores of the students in the intervention and control groups were similar ( $p > 0.05$ ) and the post-test score of the intervention group was found to be higher than that of the control group ( $p < 0.001$ ). According to two-way ANOVA in repeated measures, the interaction between the groups and time was significant. The interaction effect results showed that the change over time in the post-test scores of the intervention and control groups was significant. The estimated effect size ( $\eta^2 = 0.154$ ) was large (Table 3). It was found that the covariance pre-test result was related to the post-test scores of the scale; however, when the effect of the pre-test was controlled, it was revealed that the intervention based on social contact hypothesis still had a significant effect on the intercultural sensitivity score ( $F(1,87) = 18,562$   $p < 0,001$   $Adj R^2 = 0,378$ ) (Table 4).

**Discussion**

The findings of this study, aimed at evaluating the interventions based on the contact hypothesis in nursing students, suggest that attitudes towards refugees were improved after the application of these intervention. In particular, the students of intervention group presented a significant reduction of xenophobia in the post-test compared to their own pre-test and the control group post-test results. A study conducted in France revealed that xenophobia decreases in regions with large refugee groups through the contact hypothesis, this situation was interpreted as promising for policies (Jolly & DiGiusto, 2014). A study conducted in Sweden showed that students receiving education on multiculturalism and critical thinking had lower anti-immigration attitudes (Hjerm et al., 2018). Furthermore, a study conducted with adolescents highlights that the positive tolerance of adolescents’ friends towards refugees decreases xenophobia in adolescents as a peer effect (Van Zalk, Kerr, Van Zalk, & Stattin, 2013). This shows that the people with whom an individual has close relations significantly affect that individual’s attitude and opinions towards foreigners. Our study assumes that students’ active participation in refugee health services together with their classmates has some positive effects on their attitudes towards refugees.

**Table 4**  
One-way ANCOVA analysis for pre-test effect.

	The Xenophobia Scale Score				The Intercultural Sensitivity Scale Score			
	SS	df	MS	F	SS	df	MS	F
Source	4914,03	2	2457,02	47,932*	3826,432 <sup>a</sup>	2	1913,216	28,095*
Pre-Test	4079,29	1	4079,29	79,580*	1264,017	1	1264,017	18,562*
Grup	4459,63	87	51,26		5924,468	87	68,097	
Error	152495,00	90			755587,000	90		
	Adjusted R Squared = 0,513				(Adjusted R Squared =, 378)			

One-way ANCOVA analysis for pre-test effect												
	Negative Opinion				Generating a radical solution				Generating a moderate solution			
	SS	df	MS	F	SS	df	MS	F	SS	df	MS	F
Source	1299,639 <sup>a</sup>	2	649,819	28,646*	631,813 <sup>a</sup>	2	315,907	49,737*	163,475 <sup>a</sup>	2	81,737	8,447*
Pre-Test	1192,941	1	1192,941	52,589*	325,415	1	325,415	51,234*	113,923	1	113,923	11,774*
Grup	1973,517	87	22,684		552,587	87	6,352		841,814	87	9,676	
Error	55884,000	90			9250,000	90			21016,000	90		
	Adjusted R Squared = 0,383				Adjusted R Squared = 0,523				Adjusted R Squared = 0,143			
	Defending the rights of refugees				Helping Refugees							
	SS	df	MS	F	SS	df	MS	F				
Source	253,806 <sup>a</sup>	2	126,903	18,718*	32,468 <sup>a</sup>	2	16,234	4,414*				
Pre-Test	154,981	1	154,981	22,859*	9,990	1	9,990	2,716				
Grup	589,849	87	6,780		319,988	87	3,678					
Error	36405,000	90			3677,000	90						
	Adjusted R Squared = 0,285				Adjusted R Squared = 0,071							

\* p < 0,01.

In the globalized world, one country’s problem can turn into a problem of another country in a short time (Bekar, 2018). At the social level, definitions such as “we and foreigners” have the potential to increase xenophobia (Unal, 2014). Foreigners can create a fear that they will change the community’s culture they moved to and alienate their own people (De Master & Le Roy, 2000). A study conducted by Yavuz (2013) revealed that xenophobia and prejudices in the local population increase in parallel with refugees’ time in the country they migrated. In this period when international immigration is rapidly increasing, efforts should be made to prevent xenophobia from turning into a social problem (Bekar, 2018) Research conducted based on the assumption that direct contact with the target group may reduce the deep-rooted prejudices (Thornicroft, 2014) seem to be effective. As the nursing students in our study had the opportunity to get to know the refugees and contact many refugees many times, they had lower levels of prejudices.

It is seen that the trainings on refugee health and the social contact hypothesis-based practices had a positive effect on the cultural sensitivities of the students and their attitudes towards refugees even when the effect of the pre-test was controlled. When the studies in the literature were examined, it was found that training on cultural characteristics had positive effects on nurses’ cultural sensitivities, competencies, attitudes, communication, empathy and care practices (Berlin, Nilsson, & Törnkvist, 2010; Chang, Guo, & Lin, 2017; Lin, Chang, Wang, & Huang, 2015; Muir-Cochrane, O’Kane, McAllister, Levett-Jones, & Gerace, 2018; Noble, Nuszen, Rom, & Noble, 2014; Palmer, Samson, Triantis, & Mullan, 2011; Sequist et al., 2010; Steinke et al., 2015; Yildirim, 2019).

Developing culture-specific training and practices, which is one of the standards of cultural competence in nursing (Douglas et al., 2013), is believed to prevent the adversities that individuals with different cultures may experience in the health care system. Therefore, to increase the effectiveness of nurses in cultural care, it is essential to develop curricula that include cultural competencies and care (Calvillo et al., 2009). Systematic reviews emphasize that interventions on cultural competencies positively affect health professionals, although there is insufficient evidence regarding patient outcomes (Beach et al., 2005; Horvat, Horey, Romios, & Kis-Rigo, 2014; Lie, Lee-Rey, Gomez, Bereknyei, & Braddock, 2011; Renzaho, Romios, Crock, & Sønnderlund, 2013; Truong, Paradies, & Priest, 2014).

Our study showed that contact hypothesis-based interventions have a particular effect on generating radical solutions. Radical solutions suggest that refugees should be left alone with their fate. During the practices, the students visited refugee families, observed their home environment, and listened to their migration stories, which caused nursing students to consider radical solutions less. Students improved their ability to produce moderate solutions. Another striking finding of the study is the positive change in the “defending rights” sub-dimension. The advocacy role of nurses is important but less performed (Demirel & Akin, 2014). It is an important achievement that these practices led to a change in this role as well. Furthermore, the change in the score for the “helping refugees” sub-dimension was similar in the intervention and control groups, suggesting that offering help was the habitual social behaviour of our students, probably supported by their families and culture.

**Limitations**

There are some limitations of the study. Firstly, the study was implemented among the students of only one University in Turkey. Thus, the sample does not represent all University students and the findings of this study cannot be generalized. Secondly, the duration of the program was limited because the study was conducted while the courses were in progress. Even when the students actively took courses, reaching positive results indicates that the training program may be included in the nursing curriculum. In addition, the study

was not blind as the participants knew that they were in the intervention group and the researchers implemented the interventions. The data collection and statistical processes were blinded.

The study group was chosen randomly from among the last year students, which is important for generalization to other students. Completing the study without losses and full implementation of the interventions is important for the reliability of the study's effect.

### Conclusion and relevance for clinical practice

Refugees face negative attitudes from local people and even healthcare professionals. The 12-week training and practice program can reduce xenophobia and improve attitudes towards refugees and intercultural sensitivity among nursing students. Contact hypothesis contributes to nursing students' attitude towards refugees.

Our results highlight that interventions based on the social contact hypothesis can positively reduce xenophobia and improve attitudes towards refugees and intercultural sensitivity among nursing students. Training concerning refugees and practices such as family visits, school health screening, and health education within the social contact hypothesis's scope enabled students to develop positive attitudes towards refugees. For this reason, it is recommended that the nursing curriculum should include the topics of xenophobia and cultural sensitivity and nursing students should make some of their professional practices in areas where refugees are present.

### Author contributions

Study design: T.O, D.K.T, B.A.

Data collection: T.O

Data analysis: D.K.T

Manuscript writing and revisions: T.O, D.K.T, B.A.

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