

# The Predictor of Attitudes Towards Brain Drain Among Nursing Students in Türkiye: Violence in Healthcare

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## Abstract

It is known that the rates of brain drain among qualified healthcare professionals in our country are increasing. Additionally, it has been reported that violence against healthcare workers has rapidly risen in recent years, and this increase has affected the attitudes of professionals towards brain drain. Therefore, examining the relationship between nursing students' attitudes toward brain drain and their perceptions of safety against violence in healthcare is considered a valuable research topic. The aim of our study is to investigate the relationship between nursing students' attitudes toward brain drain and their perceptions of security and safety against violence in healthcare. To examine the relationship between the two scales, our descriptive study employs a correlational research design. The study population consists of nursing students with Turkish citizenship studying in Türkiye. Based on the known population sampling calculation, the study was planned to include at least 382 students. Data were collected from 400 nursing students through a Google survey between February and June 2023. The Student Information Form, the Nursing Students' Attitudes Toward Brain Drain Scale, and the Safety and Security Scale for Healthcare Workers Against Violence were utilized in the data collection process. According to the findings, 68.8% of the students expressed dissatisfaction with the healthcare policies implemented in our country, while 90.8% reported concerns about their professional lives due to violence against healthcare personnel. Additionally, it was determined that the students' attitudes toward migration were largely influenced by external factors, and those dissatisfied with healthcare policies had higher levels of these attitudes. It was found that the average scores of students who were dissatisfied with healthcare policies and worried about the violence applied were lower. Moreover, no significant relationship was identified between students' attitudes toward brain drain and their perceptions of safety. In light of these results, it is recommended that the factors influencing nursing students' attitudes toward brain drain be investigated further, and studies addressing these factors be planned.

**Keywords:** Brain drain, perception of trust, perception of safety, nursing, student, violence in healthcare.

## Türkiye'de Hemşirelik Öğrencilerinin Beyin Göçüne Yönelik Tutumlarının Yordayıcısı: Sağlıkta Şiddet

### Öz

Ülkemizde nitelikli sağlık profesyonelleri arasında beyin göçü oranlarının arttığı bilinmektedir. Aynı zamanda, ülkemizde sağlık çalışanlarına uygulanan şiddetin son yıllarda hızla arttığı ve bu artışın çalışanların beyin göçüne yönelik tutumlarını etkilediği de bildirilmektedir. Dolayısıyla geleceğin sağlık alanında nitelikli iş gücü içerisinde önemli bir konumda olacak hemşirelik öğrencilerinin, beyin göçüne yönelik tutumlarının ve sağlıkta şiddete karşı güven algıları ile ilişkisinin incelenmesinin değerli olacağı düşünülmüştür. Bu doğrultuda araştırmamızın amacı, hemşirelik öğrencilerinin beyin göçüne yönelik tutumları ile sağlıkta şiddete karşı güvenlik ve güven algıları arasındaki ilişkinin incelenmesidir. İki ölçek arasındaki ilişkiyi incelemek üzere korelasyonel araştırma desenine sahip tanımlayıcı tipteki araştırmamızın evrenini Türkiye'de eğitim gören TC uyruklu hemşirelik öğrencileri oluşturmuştur. Evren bilinen örneklem örneklem hesabına göre en az 382 öğrenci ile araştırmanın yapılması planlanmıştır. Araştırmamızda veriler, Şubat-Haziran 2023 tarihlerinde google anket aracılığıyla 400 hemşirelik öğrencisi ile toplanmıştır. Verilerin toplanmasında, Öğrenci Bilgi Formu, Hemşirelik Öğrencilerinin Beyin Göçüne Yönelik Tutum Ölçeği ve Sağlık Çalışanlarının Şiddete Karşı Güvenlik ve Güven Ölçeği kullanılmıştır. Öğrencilerin %68,8'i ülkemizde uygulanan sağlık politikalarından memnun olmadığını, %90,8'i sağlık personeline uygulanan şiddet nedeniyle meslek yaşamlarına dair endişe duyduklarını bildirmiştir. Öğrencilerin göç etmeye yönelik tutumlarının çoğunlukla dış faktörlerden etkilendiği ve sağlık politikalarından memnun olmayanların tutumlarının daha yüksek olduğu belirlenmiştir. Sağlık politikalarından memnun olmayan ve uygulanan şiddetten kaygı duyan öğrencilerin ise sağlıkta şiddete karşı güvenlik ve güven algıları puan ortalamalarının daha düşük olduğu tespit edilmiştir. Öğrencilerin beyin göçüne yönelik tutumları ile güven algıları arasında anlamlı bir ilişki saptanmamıştır. Bu sonuçlar doğrultusunda, hemşirelik öğrencilerinin beyin göçüne yönelik tutumlarını etkileyen faktörlerin araştırılması ve bu faktörlere yönelik çalışmaların planlanması önerilmektedir.

**Anahtar kelimeler:** Beyin göçü, güven algısı, güvenlik algısı, hemşirelik, öğrenci, sağlıkta şiddet.

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## INTRODUCTION

Brain drain refers simply to the international transfer of labor. Typically, the migration of educated and skilled individuals occurs from developing countries to developed countries (Thapa & Shrestha, 2017). Individuals with higher education and expertise in their fields prefer to settle in countries where they can work under better conditions and enjoy a higher standard of living. Today, developed countries allocate a significant portion of their resources to attract highly educated and skilled individuals into their educational sectors. Consequently, international brain drain movements have gained substantial momentum in recent years (Yılmaz, 2019).

Considering the existing research findings, the factors contributing to brain drain can be viewed as push factors, including disparities in earnings between countries, adverse living conditions in the destination countries, economic challenges, security and political reasons, wars, extremely limited job opportunities, and deficiencies in health policies (Kirigia et al., 2006; Nguyen et al., 2008; Thapa & Shrestha, 2017). The pull factors include high quality of life in developed countries, demand for skilled labor, and opportunities for education and employment (Kirigia et al., 2006; Nguyen et al., 2008; Thapa & Shrestha, 2017).

When examining recent data, there appears to be a growing trend toward brain drain among nurses. Nurses make up the majority of qualified health professionals within the healthcare system, and the demand for skilled labor is increasing every day (Bimal & Kaur, 2016). While only 5% of nurses were reported to be working in rural areas in the 1970s, a 2014 report from the Organisation for Economic Co-operation and Development noted a 60% increase in migration rates among doctors and nurses (ILO, 2014). The migration of highly educated healthcare workers adds to the workload of other healthcare staff. This situation restricts access to quality healthcare for other segments of society, leading to inequalities within the healthcare system (Sell & Williams, 2020; WHO Health Reports, 2006). A study reported that 11% of nurses working in the United States are foreign nationals, with 80% of them migrating from developing countries (Thapa & Shrestha, 2017). In Ghana, 24% of nurses work abroad (Abuosi & Abor, 2015). The international literature indicates that countries experiencing brain drain often do so due to the adverse effects of health policies on healthcare workers (Bimal & Kaur, 2016). Although studies examining nurses' attitudes toward brain drain in Türkiye are limited, existing research suggests that nurses generally hold a favorable attitude toward it (Gökbayrak, 2008; Mollahaliloğlu et al., 2014). Thus, the potential increase in brain drain rates in the coming years has become an issue warranting consideration. Investigating the factors that specifically influence attitudes toward brain drain is of significant importance.

Some studies report that incidents of violence in healthcare impact healthcare workers' attitudes toward brain drain (Khan et al., 2021; Şahin & Yıldırım, 2020). One study indicated that the primary reason for healthcare students and professionals considering brain drain is the rising occurrence of violence in healthcare services (Ünlü & Daşlı, 2024). A study found that from 2017 to 2021, incidents of violence in healthcare increased 5.2 times compared to previous years, with the highest number of cases occurring in the Marmara region, particularly in state hospitals and internal medicine departments (Hoşgör & Türkmen, 2021). Violence in healthcare institutions is one of the primary components negatively affecting employee safety and causing disruptions in healthcare delivery. This situation adversely impacts patient health, employee safety, and leads healthcare personnel to feel unsafe in their work environment (Khan et al., 2021; Şahin & Yıldırım, 2020). Employees develop perceptions of safety based on their life experiences and, similarly, have expectations of safety when experiencing violent situations. If these expectations are positively fulfilled, the threshold of trust increases, leading to the development of a perception of safety (Moloney, 2005; Yılmaz, 2019). Employee safety is one of the fundamental principles required for individuals to sustain their working lives. Studies conducted in our country indicate that the safety perceptions of healthcare workers are generally at low to medium levels (Şengül et al., 2019; Özmen & Koyuncu, 2022; Yural et al., 2024). The lack of a perception of safety among healthcare workers in their institutions increases their tendency to leave these institutions and even to seek employment in other countries. With the increasing migration rates and the potential for further increases, the definition and assessment of migration have become critically important in healthcare workforce planning (Solak, 2014; Şenay, 2008; WHO Health Reports, 2006). Therefore, it is essential to examine migration trends among nurses, who constitute a vital part of the healthcare system. According to the research findings of Hoşgör and Türkmen, the higher incidence of violence in certain geographic regions and institutions suggests that healthcare workers' tendency toward brain drain may vary depending on the regions in which they work (Hoşgör & Türkmen, 2021). Therefore, it is evident that the impact of demographic differences on attitudes toward brain drain also needs to be investigated. Furthermore, investigating the attitudes of nursing students—who will become the future healthcare workforce—toward migration

and the factors that may influence this is crucial for making more appropriate investments in skilled labor and healthcare education.

Studies emphasize that violence against healthcare workers has rapidly increased in recent years in our country, particularly in certain regions and institutions (Özmen & Koyuncu, 2022; Şengül et al., 2019; Ünlü & Daşlı, 2024; Yural et al., 2024). Consequently, it is believed that studies examining the relationship between nursing students' attitudes toward brain drain and their perceptions of safety against violence in healthcare will be valuable, given that they will hold significant positions in the future skilled healthcare workforce.

Therefore, our research aims to investigate the relationship between the attitudes of nursing students studying in Türkiye toward brain drain and their perceptions of safety and security against violence in healthcare. To this end, we seek to answer the following research questions:

- What are the attitudes of student nurses towards brain drain?
- What are student nurses' perceptions of safety and trust against violence in healthcare?
- Is there a significant relationship between student nurses' attitudes towards brain drain and their perception of trust against violence in healthcare?
- Do student nurses' attitudes towards brain drain differ according to socio-demographic characteristics?
- Do student nurses' perceptions of trust against violence in healthcare differ according to socio-demographic characteristics?

## METHOD

### Research Design and Sample

Descriptive correlational research is a type of research design that seeks to explain the relationship between two or more variables without making any claims about cause-and-effect relationships (Büyüköztürk et al., 2018). Therefore, our study was planned as a descriptive correlational research to investigate the relationship between nursing students' attitudes towards brain drain and their perceptions of trust and safety against violence in healthcare. The population of this study consists of all students enrolled in undergraduate nursing programs. The accessible population, however, includes students studying in undergraduate nursing programs in Türkiye. According to the 2022 updated data from the Council of Higher Education, the accessible population comprises 55,417 students who are enrolled in undergraduate nursing programs and hold Turkish citizenship (<https://istatistik.yok.gov.tr/>). According to the calculation of the known sample size of the population, the number of samples is 382 (95% confidence interval, it was determined as (with a margin of error of .05) (Büyüköztürk et al., 2018). Due to the online nature of our research, the criteria for including participants were determined as follows: they must have no issues with reading and writing skills, must voluntarily participate in the study in accordance with ethical principles, and it was considered that international students' desire to work abroad could be influenced by various factors, as they might not be sufficiently aware of the health conditions in our country. Therefore, only students who are citizens of the Republic of Türkiye were included in our research. In this regard, our research was completed with 400 students.

### Data Collection Tools

Research data were collected using the "Student Information Form," the "Attitude Scale Towards Brain Drain in Nursing Students," and the "Health Professionals' Safety and Confidence Against Violence Scale." Prior to their use, permission to utilize the scales was obtained from the authors who conducted the validity and reliability assessments in Turkish.

#### *Student Information Form*

This is the form that includes questions about the students' age, the region where the university they study at, the name of the university they study at, their class, and the economic situation of their family.

#### *Attitude Scale Towards Brain Drain in Nursing Students*

The scale developed by Öncü et al. in 2018 aims at students' attitudes towards brain drain and consists of a total of 16 items. The scale items are of 5-point Likert type and the lowest score is 16 points and the highest score is 80 points. An increase in the score obtained from the scale indicates that the individual's attitudes towards migration have increased. The scale has two sub-dimensions: 'pull factors' and 'push factors'. The total Cronbach alpha value of the scale is 0.91, and the values for the sub-dimensions are 0.88 and 0.86.15 In our research, the total Cronbach alpha coefficient of the scale was determined as 0.91.

### ***Health Professionals' Safety and Trust Against Violence Scale***

The health professionals' safety and trust against violence scale was developed by Kowalenko et al. in 2012. The validity and reliability of the Turkish form of the scale was checked by Şengül et al. in 2019. The sub-dimension and overall score of the safety and trust against violence scale are calculated by taking the arithmetic average of the items. A minimum of 1 point and a maximum of 10 points are taken from the general and sub-dimensions of the scale. An increase in the score obtained from the scale indicates that security, trust and management of violence against violence have increased. The scale has the first sub-dimension, which is security and violence management, and items 2 and 3 in the security sub-dimension are reverse scored. The total Cronbach alpha value of the scale, which has seven items, is 0.84 (Şengül et al., 2019). In our research, the total Cronbach alpha value of the scale was found to be 0.76.

#### **Collection of Data**

Data were collected between February and June 2023 through a Google survey prepared with Microsoft Forms. The statements in the survey were designed to be simple and understandable for the students. To test the comprehensibility of the survey, a pilot test was conducted with five students. After confirming that there were no issues with the clarity or technical aspects of the survey, it was administered. At the beginning of the survey, participants were asked to confirm their voluntary participation. Additionally, to prevent the same students from filling out the survey multiple times, it was set up so that each email address could only submit the survey once. However, adjustments were made in the settings to ensure that participants' identities remained anonymous despite the requirement to log in with their email addresses. It was estimated that each student would spend approximately 10-15 minutes completing the survey.

#### **Evaluation of Data**

Data were analyzed in IBM SPSS 24.0 program. In the analysis of descriptive data, frequency (n), percentage (%), mean, standard deviation (SD), skewness (multiply) and kurtosis (bas) values were used. It was observed that the skewness and kurtosis values were within the range of  $\pm 1.5$ . According to this finding, it was determined that the measurement scores were suitable for univariate normal distribution. For the measurement scores of the variables suitable for normal distribution, independent samples t-test was used for comparison tests of two independent groups, One-way ANOVA test, Bonferroni Test was used for comparison tests of more than two independent groups, and Pearson correlation test was applied to examine the direction and strength of the relationships between two numerical measurements. To evaluate the statistical analysis findings, the margin of error was taken as 5% and  $p < 0.05$  values were considered statistically significant.

#### **Research Ethics**

Before starting the research, approval was obtained from the Social and Humanities Ethics Committee of a university (2022-SBB-0618, 02.02.2023) and permission for use was received via e-mail from the authors who carried out the validity and reliability of the scale. Before administering the survey, students were informed that the data would be used for scientific purposes within the scope of the research and that their information would be kept confidential, and they were asked to give consent during the survey that they participated voluntarily.

## **FINDINGS**

### **Analysis of Data Related to Nursing Students**

Descriptive information about nursing students is included in Table 1. The average age of the participants was  $20.95 \pm 1.93$  and the majority (31.5%) were first-year students. Students mostly participated from the Black Sea Region (46.5%) and least from the Central Anatolia Region (6.8%). 68.8% of the students reported that they were not satisfied with the health policies implemented in our country, and 90.8% reported that they were worried about their future professional lives due to the violence against healthcare personnel.

Table 1. Descriptive Information about Nursing Students

| Variables   | n  | %   |      |
|---|--|-----|------|
| Geographical region where he/she studied  | Eastern anatolia                         | 40  | 10.0 |
|   | Southeastern anatolia                    | 31  | 7.8  |
|   | The mediterranean                        | 30  | 7.5  |
|   | Aegean                                   | 45  | 11.3 |
|   | Marmara                                  | 41  | 10.3 |
|   | Black sea                                | 186 | 46.5 |
|   | Central anatolia                         | 27  | 6.8  |
| The class he/she studied  | 1 <sup>st</sup> grade                    | 126 | 31.5 |
|   | 2 <sup>nd</sup> grade                    | 86  | 21.5 |
|   | 3 <sup>rd</sup> grade                    | 88  | 22.0 |
|   | 4 <sup>th</sup> grade                    | 100 | 25.0 |
| Satisfaction with health policies   | Yes                                      | 125 | 31.3 |
|   | No                                       | 275 | 68.8 |
| Concern about their professional lives due to violence against healthcare personnel | Yes                                      | 363 | 90.8 |
|   | No                                       | 37  | 9.3  |
| Age   | Min: 17.00 Max:35.00 Mean±SD: 20.95±1.93 |     |      |

\* %: Percent; Min: Minimum; Max: Maximum; SD: Standard Deviation

### Examination of the Average Scale Scores of Nursing Students

Table 2 shows the results of the scale total and subscale total scores that students were asked to fill in. Health Professionals' Security and Trust Against Violence Scale Safety Sub-Dimension mean score is 14.97±5.11, Trust Sub-dimension mean score is 13.47±3.36, and the scale total score mean is 37.71±8.88. Attitude Scale Towards Brain Drain in Nursing Students Attitude Scale Pull Factors sub-dimension mean score is 25.23±9.10, Nursing Students Attitude Scale Towards Brain Drain Push Factors sub-dimension mean score is 25.23±9.10, and the scale total score mean is 57.11. It is ±13.10.

Table 2. Nursing Students' Attitude Scale Towards Brain Drain and Health Professionals' Safety and Confidence Against Violence Scale Total and Sub-Dimension Mean Scores

| Variables  | Dimensions             | Mean±SD     | Min-Max | Q25-Q75  |
|--|------------------------|-------------|---------|----------|
| Attitude Scale Towards Brain Drain in Nursing Students             | Attractive Factors     | 25.23±9.10  | 12-51   | 18-35    |
|  | Push Factors           | 13.80±3.21  | 4-20    | 12-16    |
|  | Total score            | 57.11±13.10 | 16-80   | 50-66    |
| Health Professionals' Safety and Confidence Scale Against Violence | Security Sub-Dimension | 14.97±5.11  | 3-29    | 11.25-18 |
|  | Trust Sub-Dimension    | 13.47±3.36  | 4-20    | 12-16    |
|  | Total score            | 37.71±8.88  | 7-65    | 33-43    |

\* Min: Minimum; Max: Maximum; SD: Standard Deviation; Q25-Q75: First and Third Quartiles

### Investigation of the Relationship Between the Average Scale Scores of Nursing Students

Table 3 shows the relationship between the Attitude Scale Towards Brain Drain in Nursing Students and some data variables of the students. Accordingly, a highly significant relationship was detected between students' satisfaction with health policies and their attitudes towards brain drain ( $p < 0.001$ ). It was determined that the attitudes of students (59.17±12.31) who were dissatisfied with health policies towards brain drain were more positive. However, no significant relationship was found between other variables of the students and their attitudes towards brain drain ( $p > 0.05$ ).

Table 3. The Relationship Between the Attitude Scale Towards Brain Drain in Nursing Students and Some Variables

| Variables  |     | Mean±SD     | Statistics value | p <sup>a</sup> | %95 min-max   |
|--|-----|-------------|------------------|----------------|---------------|
| Satisfaction with health policies                                      | Yes | 50.61±13.80 | t=-6.199         | 0.000          | -11.27- -5.84 |
|  | No  | 59.17±12.31 |                  |                |               |
| Violence against healthcare personnel concerns their professional life | Yes | 56.56±13.11 | t=0.303          | 0.762          | -3.84- 5.24   |
|  | No  | 55.86±16.00 |                  |                |               |

a: independent test

### Investigation of the Relationship Between the Average Scale Scores of Nursing Students and Their Demographic Data

Table 4 shows the relationship between the Health Professionals' Safety and Confidence Against Violence Scale and some data variables of the students. Accordingly, a significant relationship was detected between the

students' satisfaction with health policies, whether violence against healthcare personnel made them worry about their professional lives, the geographical region in which they were educated, and the Health Professionals' Security and Trust Against Violence Scale score average ( $p < 0.05$ ). Students who are not satisfied with health policies ( $35.08 \pm 9.17$ ), who say that violence against healthcare personnel worries their professional life ( $37.12 \pm 8.36$ ) and who study in the Mediterranean Region ( $30.96 \pm 9.30$ ) have lower perceptions of safety and trust against violence in healthcare. was detected ( $p < 0.05$ ). According to the results of the Bonferroni test, which was conducted to determine the group that created the difference according to the region in which the students studied, a significant difference was detected between the students studying in the Mediterranean Region and all other regions ( $p > 0.05$ ).

Table 4. The Relationship Between the Health Professionals' Safety and Confidence Against Violence Scale and Some Variables

| Variables  |                           | Mean±SD     | Statistical value | p                  | %95 Min-max  | Statistical value <sup>c</sup> |
|--|---------------------------|-------------|-------------------|--------------------|--------------|--------------------------------|
| Satisfaction with health policies                                      | Yes                       | 38.83±8.70  | t=4.302           | 0.000 <sup>a</sup> | 2.19-5.87    |                                |
|  | No                        | 35.08±9.17  |                   |                    |              |                                |
| Violence against healthcare personnel concerns their professional life | Yes                       | 37.12±8.36  | t=-4.23           | 0.000 <sup>a</sup> | -9.31- -3.40 |                                |
|  | No                        | 43.48±11.50 |                   |                    |              |                                |
| Geographical region where he/she studied                               | Black Sea (1)             | 38.37±8.75  | F=3.871           | 0.001 <sup>b</sup> | 37.10-39.63  | 6<1-2-3-4-5-7                  |
|  | Mediterranean (2)         | 30.96±9.30  |                   |                    | 27.49-34.44  |                                |
|  | Eastern Anatolia (3)      | 38.12±9.25  |                   |                    | 35.16-41.08  |                                |
|  | Central Anatolia (4)      | 36.77±7.83  |                   |                    | 33.67-39.87  |                                |
|  | Aegean (5)                | 38.57±10.79 |                   |                    | 35.33-41.82  |                                |
|  | Marmara (6)               | 39.90±5.90  |                   |                    | 38.03-41.76  |                                |
|  | Southeastern Anatolia (7) | 36.45±7.21  |                   |                    | 33.80-39.09  |                                |

a: independent test; b: ANOVA test; c: Bonferroni test

### Comparison of Scale Mean Scores

According to the results of the correlation analysis between the average age of the students and the scale score averages and between the two scale score averages, no statistically significant relationship was detected. Analysis results are shown in Table 5.

Table 5. Correlation Analysis Results of Nursing Students' Attitude Scale Towards Brain Drain and Health Professionals' Safety and Confidence Against Violence Scale

| Variables   | Attitude Scale Towards Brain Drain in Nursing Students<br>(Mean±SD: 56.50±13.38) | Health Professionals' Safety and Confidence Scale Against Violence<br>(Mean±SD: 37.71±8.88) |
|---|--|---|
| Age<br>(Mean±SD: 20.95±1.93)  | r= 0.002<br>p= 0.964   | r= 0.026<br>p= 0.598  |
| Health Professionals' Safety and Confidence Scale Against Violence<br>(Mean±SD: 37.71±8.88) | r= -0.081<br>p= 0.1105   | -   |

## DISCUSSION & CONCLUSION

According to our research findings, the average score on the Attitude Scale Toward Brain Drain is  $57.11 \pm 13.10$ , indicating that students' attitudes are above average (the lowest possible score is 16, and the highest is 80). In a previous study, the average score for nursing students' attitudes toward brain drain was reported as  $42.98 \pm 9.91$ . Another study found that the average score for fourth-year nursing students was  $51.15 \pm 11.31$ , which is similar to our findings (Demiray et al., 2020; Turan, 2021). Research indicating a high tendency for migration among nursing students suggests that the issue of nurse migration may become a growing concern in the future (Demiray et al., 2020; Turan, 2021).

Our research results indicate that the average score on the Health Professionals' Safety and Confidence Against Violence Scale is at a medium level, with a score of  $37.71 \pm 8.88$  (the lowest possible is 7, and the highest is 70). Students who expressed dissatisfaction with health policies and indicated that violence against healthcare personnel raised concerns about their professional lives had statistically significantly lower scale scores ( $p < 0.05$ ). Filiz et al. (2022) observed a high number of medical students who believed that the healthcare system in Türkiye

was severely inadequate and that societal perceptions of physicians were negative. Tansel and Güngör (2004) reported that students who went abroad for education cited economic and political instability as reasons for their migration. These data align with our findings, indicating that violence against healthcare personnel, professional concerns, and health policies are common reasons driving students abroad. Additionally, it is believed that students' perceptions of safety against violence are not at the desired level and that health policies, along with news of violence against healthcare personnel, negatively affect their sense of security.

According to Yılmaz (2019), the factors driving brain drain from Türkiye to other countries include economic reasons, the inadequacy of scientific and academic conditions, and the superior scientific and technological conditions in the destination countries. Attractive factors leading healthcare professionals to migrate include higher income, better working conditions, political stability, career opportunities, and a brighter future, whereas push factors include low wages, adverse working conditions, limited career opportunities, political difficulties, violence, and persecution. Consequently, these factors also influence attitudes and perceptions toward brain drain. In our study, the subscale score averages revealed that students' tendencies to migrate are primarily influenced by external factors (pull factors sub-dimension=25.23±9.10; push factors sub-dimension=13.80±3.21). Furthermore, it was reported that 68.8% of the students participating in our research expressed dissatisfaction with the health policies of our country, and 90.8% reported concerns about their future professional lives due to violence against healthcare personnel. Additionally, those dissatisfied with health policies exhibited statistically significantly higher tendencies toward brain drain. According to these findings, dissatisfaction with health policies is one of the factors influencing students' attitudes toward migration. Health policies can be a significant determinant in shaping perceptions of safety against violence in healthcare. Therefore, dissatisfaction with health policies is considered a factor that affects perceptions of safety against violence and attitudes toward migration. However, the absence of probing questions regarding pull factors constitutes a limitation of our research. Nonetheless, it is evident that the attitudes of the students participating in the study are influenced by both internal and external factors.

In our study, the average scale scores of students studying in the Mediterranean Region were statistically significantly lower ( $p < 0.05$ ). The significantly lower perception of security among students in this region suggests that they may have witnessed more incidents of violence. However, it should be noted that making definitive comments on this issue is challenging. Although comparisons have been made in the literature regarding students' attitudes and predictors of brain drain based on their grade levels and regions, the lack of existing research that allows comparisons based on the specific areas of study complicates the interpretation of these reasons. There is a clear need for further research in this area.

Our research did not find any statistically significant relationships between the average ages of students and other variables or their scale score averages. Additionally, correlation analyses between the mean scores of the two scales revealed no statistically significant relationships. It appears that students' attitudes toward brain drain are predominantly influenced by attractive, or external, factors, but also by internal factors, as students unmistakably express dissatisfaction with health policies (90.8%). This percentage is indeed noteworthy. Moreover, the desire to migrate was statistically significantly higher among those dissatisfied with health policies (50.61±13.80 vs. 59.17±12.31,  $p < 0.001$ ). Simultaneously, students who expressed dissatisfaction with health policies and indicated that news of violence concerned their professional lives had statistically significantly lower perceptions of security. It is evident that students' dissatisfaction with health policies affects the average scores of both scales, reduces their perception of security, and increases their desire to migrate. However, the absence of a direct relationship between brain drain and perception of security was an unexpected result. Many studies have reported that violence in healthcare increases the migration desire among various student groups and healthcare workers (Demiray et al., 2020; Tansel & Güngör, 2004; Yıldırım & Dündar, 2017; Yücel, 2022). These studies also indicate that the presence of violence in healthcare negatively affects nurses' motivation and job satisfaction. Constant exposure to violence can elevate nurses' professional stress levels and lead to psychological exhaustion. Consequently, nurses often seek to protect themselves from such violent incidents by relocating to countries that offer safer working environments. Therefore, further studies examining the tendencies toward violence and migration while considering different predictors can be planned. Investigating the migration trends and related factors of undergraduate nursing students—who are particularly close to entering the nursing profession—will be beneficial in developing more appropriate educational strategies and health policies.

The migration of professional nurses who have graduated from our undergraduate programs may lead to a decline in the quality of healthcare services. Our research findings indicate that nursing students exhibit a strong desire to migrate, and those dissatisfied with health policies experience diminished perceptions of security.

Simultaneously, incidents of violence in healthcare raise concerns about their professional futures. These results are indeed thought-provoking. They suggest that health policymakers need to develop new strategies concerning future healthcare workforce planning. Additionally, further studies are required to understand the predictors of nursing students' migration desires to contribute to these strategies. Therefore, our recommendation to researchers is to plan by considering the internal and external factors that may influence students' migration desires and to analyze the relationships among these factors comprehensively. The underlying causes should be examined thoroughly. Initiatives should be taken to improve nurses' working conditions, enhance their living standards, and expand their career opportunities. In this context, planning corrective actions such as regulating working hours, improving conditions for long working hours, increasing the emphasis on in-service training to meet international care standards, encouraging participation in programs such as conferences, courses, and seminars to support career development, and providing a safer working environment will be a significant investment in building healthy societies for the future.

### Limitations

Our strengths include including students from different regions and institutions to cover all of Türkiye in our research, determining the sample size using the sample population known as the universe based on the total number of nursing students according to Higher Education Institution data, and reaching the determined sample number. However, in our research, a comparison was made on a single scale (Health Professionals' Safety and Confidence Against Violence Scale), which will push students to brain drain, and the data we collected included questions that point to more push factors. These constitute the limitations of our research. Therefore, detailed consideration of all the factors that push brain drain and planning of research will eliminate these limitations. In addition, developing comprehensive scales that examine the factors influencing the reasons for brain drain and attitudes towards it will be beneficial in preventing imbalanced brain drain movements.

### Statements of Publication Ethics

In our study, the publication process was followed in accordance with ethical principles.

### Researchers' Contribution Rate

| Authors | Literature review                   | Method                              | Data Collection                     | Data Analysis                       | Results                             | Conclusion                          |
|---------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| SA      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| YÖ      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| EY      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| İM      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| MK      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

### Conflict of Interest

There are no conflicts of interest in this study.

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