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Investigation of the Attitudes of Faculties of Medicine, Dentistry, and Pharmacy Students Towards Brain Drain in Terms of Future Anxiety and Satisfaction with Life Levels

Berra Keçeci¹

Istanbul Health and Technology University

Zehra Betül Gül²

Istanbul Health and Technology University

Ayşe Ekin Özekinci³

Istanbul Health and Technology University

Abstract

The aim of this study is to examine the attitudes of medical, dentistry and pharmacy faculty students towards brain drain in terms of future anxiety and life satisfaction levels. 308 university students enrolled in a foundation university in Istanbul were included in the study. Descriptive statistics, correlation, multiple regression, one-way ANOVA and independent sample t-test analysis were used in the analysis of the data. The regression analysis results showed that hopelessness about the future, future anxiety and life satisfaction were significant predictors of attitudes towards brain drain. According to the independent samples t-test analysis results, it was found that the tendency towards brain drain was higher in male students and students in the clinical education process, while the tendency towards brain drain was lower in dentistry students than in medical and pharmacy students. The study results provide important data for the development of policies to reduce brain drain in the health sector in Türkiye.

Key Words

Brain drain • Dentistry, medicine and pharmacy students • Future anxiety • Satisfaction with life

¹ **Correspondance to:** Istanbul Health and Technology University, Istanbul, Türkiye. E-mail: berra.kececi@istun.edu.tr **ORCID:** 0000-0001-5146-0152

² Istanbul Health and Technology University, Istanbul, Türkiye. E-mail: zehrabetulg0@gmail.com **ORCID:** 0009-0003-4420-6721

³ Istanbul Health and Technology University, Istanbul, Türkiye. E-mail: a.ekinozekinci@gmail.com **ORCID:** 0009-0002-8300-3428

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Introduction

Migration is a phenomenon that has been going on since the beginning of humanity, necessary for the growth and development of societies since their first existence and dependent on the characteristics of the geography in which people live (Şahin, 2020). Historically, the reasons for migration have varied: the earliest migrations were motivated by the search for more sustainable living conditions, while later migrations focused on better economic and political opportunities. Therefore, migration can be said to reflect the characteristics of the period in which it occurs (Şahin, 2020). Once living conditions became more humane, migration began to take place to places that were better in economic and political terms. Therefore, it can be said that migration is related to the characteristics of the period in which it takes place (Şahin, 2020). Since today's century is now called the "Information Age", brain drain has also been added to the types of migration in this period. In brain drain, individuals tend to migrate to places with richer education content than where they live. In other words, brain drain can be considered as the loss of brain power (Öncü et al., 2018).

The reasons for brain drain are that experts in their fields want better working conditions and want to work for higher wages (Docquier et al., 2006). To create these opportunities, developed countries need to allocate a large portion of their budgets to young people and their education (Docquier, 2014). When we look at the occupational groups that are experiencing brain drain, we see that most of them are healthcare professionals (World Health Organization [WHO], 2006; ILO, 2014). The occurrence of brain drain is facilitated by the need for qualified labor in developed countries. The concept of brain drain can be examined under two main headings: driving reasons and attractive reasons. The driving reasons include the country being underdeveloped, the unemployment rate increasing day by day, qualified workers being employed at low wages, lack of merit in promotions, not providing opportunities to young people, and R&D activities being underdeveloped or not supported, while the attractive reasons include the economically more prosperous environment, better quality of life, and social life opportunities; these factors especially attract young population to foreign countries. When all these reasons are examined, it is seen that migrations occur due to social and economic changes (Gezgin, 1994).

Qualified individuals' tendency to brain drain, especially among professional groups such as medicine, dentistry, and pharmacy, arises from various factors, including personal and professional dissatisfaction, unfavorable economic conditions, and future uncertainties (Docquier et al., 2006; World Health Organization [WHO], 2006). Individuals who engage in brain drain generally seek to improve their life satisfaction and overall well-being, driven by the pursuit of better living and working environments abroad (Çoban & Şahin, 2023; Filiz et al., 2022). Satisfaction with life, which is emphasized as the cognitive side of psychological well-being, which is the basic concept in positive psychology, has been included in the literature for many years (Diener, 2009a). Satisfaction with life is affected by positive and negative emotional experiences of psychological well-being, but it has a more permanent structure that is shaped by the criteria the individual determines for his or her life (Andrews & Withey, 1976; Pavot & Diener, 2009; Veenhoven, 1984). Therefore, evaluating an individual's satisfaction with life is of great importance as it reflects a general perspective on the individual's life rather than momentary emotional fluctuations. According to Telman & Ünsal (2004), life satisfaction reflects a person's general contentment with their overall life circumstances.

Broadly speaking, it encompasses the emotional responses individuals develop in relation to various domains such as employment, recreational activities, and daily routines ([Hong Sung-Mook & Giannakopoulos, 1994](#)). Another approach argues that satisfaction with life represents the evaluations of subjective well-being and quality of life that an individual reaches based on the events in his or her life. The factors affecting individuals' satisfaction with life can be listed as follows ([Dikmen, 1995](#)):

- Enjoying daily life,
- Feeling that life is meaningful,
- Being in harmony regarding achieving goals,
- Developing a positive individual identity,
- Feeling physically good,
- Being financially secure, and
- Having healthy social relationships.

Under the influence of the modern age, the science of psychology focuses on strengthening people by identifying their common problems and weaknesses. Although the therapeutic methods developed within the framework of this approach provide significant benefits, it is observed that more emphasis is placed on the negative aspects of the individual over time. It is stated that focusing on negative reactions such as depression and anxiety does not adequately reflect human well-being, and therefore it is argued that satisfaction with and positive emotions should also be examined. The approach investigating why good lives are successful has brought a new perspective to psychology and accelerated efforts to improve well-being. With this approach, positive psychology has become a fundamental discipline emphasizing the power and potential of human development ([Kobau et al., 2011](#)).

In satisfaction with life, the criteria on which a person evaluates his or her life are of great importance, and these criteria vary from individual to individual. In studies aimed at determining the general satisfaction levels of individuals in their lives, the extent to which individuals find their lives compatible with their ideals, the adequacy of their living conditions, and their general satisfaction levels are frequently addressed. In this context, individuals' satisfaction with their past experiences and their expectations for the future are among the important factors affecting their satisfaction with life. The way individuals subjectively assess their lives is a key determinant of their overall well-being ([Diener et al., 1985](#)). It is not possible to consider the concept of satisfaction with life separately from work life. Because work life, which occupies a large place in an individual's general life, is one of the main factors affecting satisfaction with life ([Dubin, 1956](#); [Diener, 2009a](#); [Telman & Ünsal, 2004](#)). In this context, it is widely acknowledged that satisfaction with one's professional life and overall life satisfaction are interrelated and influence one another.

An individual's satisfaction with life is directly related to his/her satisfaction with work life. The fact that work plays a “central role” ([Dubin, 1956](#)) in life reinforces this strong link between satisfaction with work and satisfaction with life. However, the sustainability of satisfaction is closely related to the individual's concerns about future work

and living conditions. Especially young people aiming to advance in their careers, experience future anxiety due to factors such as economic uncertainty, reduced job security, and lack of occupational satisfaction.

Future anxiety arises from an individual's concerns about his or her future quality of life and occupational conditions. Increasing competition in the business world, limited career opportunities, and difficulties in improving living standards increase this concern (Cazes et al., 2016; Clark, 2015). When satisfaction with life is low, individuals become anxious because they worry that they will not have better conditions in the future (Diener, 2009a; Tuzcu, 2018). This can increase individuals' stress levels in their work and private lives, further negatively affecting their satisfaction with life. Unemployment and an insecure job are thought to be sources of stress (Cazes et al., 2016; Clark, 2015). Higher education students complete their education under very difficult conditions and have future anxiety as they graduate (Tuzcu, 2018). A wide range of factors such as the city in which students pursue their studies, their socioeconomic background, social interactions within the university setting, and housing conditions contribute to the levels of anxiety experienced during their academic journey (Dursun & Aytaç, 2009). Career decision-making, intentions to assume adult roles, interpersonal relationships, concerns about unemployment, and a range of personal responsibilities are among the key contributors to individual anxiety (Çakmak & Hevedanlı, 2004).

The word anxiety corresponds to the meanings of worry, concern, sadness in the Turkish Language Association dictionary. Anxiety is the emotion felt in the face of a possibility of danger or a situation that is considered dangerous by the person (Çakmak & Hevedanlı, 2004 as cited from Işık, 1996). Anxiety is divided into two sub-dimensions according to the types of occurrences in individuals; state anxiety and trait anxiety. People may experience anxiety in momentary events as long as the impact of that event continues. Sometimes, they may experience anxiety due to a constant internal arousal throughout their lives (Saraç & Turan, 2016). State anxiety is defined as the subjective fear felt by a person due to a situation he/she experiences, while trait anxiety is defined as the person's tendency to feel anxious and to perceive and interpret the situations he/she experiences as stressors (Öner & Le Compte, 1985).

Because humans are social beings, the impact of the environment they live in on them is important (Saraç & Turan, 2016). Family structure is at the forefront of this environment and is a more powerful variable in helping students develop healthy relationships compared to other environments. Families' expectations, attitudes, lifestyles, and professions can be listed as some of the factors causing anxiety in students (Saraç & Turan, 2016).

The gender of the students, the socioeconomic status of the family, the occupation of the parents, the place of residence, and the student's peer environment are seen as anxiety-creating factors (Çakmak & Hevedanlı, 2004). Throughout university life, many factors such as the city where the student studies, his or her relationships in the social environment at school, socioeconomic level, and place of residence affect his or her anxiety levels (Dursun & Aytaç, 2009). Since the last year of university education is the phase in which a person's student life ends and he/she transitions to working life, the job selection process, the thought of not being able to find a job, and new responsibilities can be listed as some of the factors causing anxiety in the person (Çakmak & Hevedanlı, 2004).

The current status and conditions of the profession chosen by university students throughout their university education preparing them for professional life, occupational and other uncertainties and adverse situations regarding the future, and accordingly, their satisfaction with life levels emerge as important factors in career planning.

Negative factors such as anxiety and dissatisfaction experienced by students of departments such as medicine, dentistry, and pharmacy, which are considered among the qualified professions and faculties in Türkiye, can become reasons that may lead them to continue their careers abroad. Consequently, identifying the attitudes of these university students toward brain drain and the underlying psychological factors influencing them gains significant importance. Although brain drain among healthcare students has been widely discussed, the psychological factors influencing this phenomenon have been relatively overlooked in the literature. Previous studies have mainly focused on economic or political aspects, leaving a gap regarding psychological dimensions such as future anxiety and life satisfaction. This study aims to fill this gap by examining the psychological predictors of brain drain tendencies among medical, dentistry, and pharmacy students, offering a more comprehensive understanding of migration motivations. The findings are expected to contribute to the literature by incorporating concepts from positive psychology into the brain drain discussion and by providing practical insights for policymakers aiming to reduce brain drain in Türkiye's healthcare sector.

This research aimed to examine the effects of medical, dentistry, and pharmacy students' future anxiety and satisfaction with life on the idea of brain drain based on some sociodemographic variables that are thought to be related. The answers sought in the research are as follows:

1. Is there a statistically significant relationship between future anxiety, life satisfaction, and attitudes toward brain drain among university students in the faculties of dentistry, medicine and pharmacy?
2. Are attitudes of faculties of dentistry, medicine and pharmacy students towards brain drain predicted by their future anxiety and satisfaction with life levels?
3. Do attitudes toward brain drain among university students in the faculties of dentistry, medicine and pharmacy significantly differ based on gender, academic department, and grade level?

Method

Study Model

Because the aim of the research was to examine the attitudes of faculties of medicine, dentistry, and pharmacy students towards brain drain in case of their future anxiety and satisfaction with life levels, the correlational survey design was used. The correlational survey design is the examination of the existence of a relationship between two or more variables and, if present, its direction ([Karasar, 2012](#)).

Study Group

This study involved 308 university students from the faculties of medicine, dentistry, and pharmacy at a private university in Istanbul during the fall semester of the 2024–2025 academic year. Of the participants, 167 (54.2%) were female and 141 (45.8%) were male, with ages ranging between 17 and 40 years. The average age of the students was 21.99 years, reflecting the typical demographic of young adults navigating their academic and career paths.

Students from these specific faculties were chosen deliberately, as they are part of professional fields that are heavily impacted by the phenomenon of brain drain. Healthcare professionals are among the groups most sought after by other countries, and students in medicine, dentistry, and pharmacy represent the highly qualified talent pools that are often at the center of these migration trends. Therefore, their perspectives are crucial to understanding the dynamics of brain drain more deeply.

In order to reach the participants easily and to accommodate their busy academic schedules, data were collected through an online survey form. This method provided students with the flexibility to complete the survey at their convenience, without adding to their existing workload. Moreover, the online format ensured that participation remained anonymous, helping students to share their true opinions and feelings more comfortably and sincerely.

Data Collection Tools

The Demographic Information Form prepared by researchers, The Satisfaction with Life Scale, The Brain Drain Attitude Scale in Nursing Students, and The Future Anxiety of the University Students Scale were used in the study.

The Satisfaction with Life Scale: The scale was developed by [Diener et al. \(1985\)](#) to determine life satisfaction levels of individuals and adapted to Turkish by [Yetim \(1993\)](#). The scale, was prepared in 7-point Likert type, consisting of 5 items, and scoring was done accordingly. The Likert options are listed as “Strongly Disagree (1)”, “Disagree (2)”, “Partially Disagree (3)”, “Undecided (4)”, “Partially Agree (5)”, “Agree (6)”, and “Strongly Agree (7)”. The highest score that can be obtained from the scale is 35. The Cronbach Alpha internal consistency coefficient calculated using the data collected in this research was found to be 0.85.

The Future Anxiety of the University Students Scale: In this study, “The University Students Future Anxiety Scale” developed by [Kula and Saraç \(2016\)](#) was used to determine future anxiety levels of university students. The scale, structured to measure students' concerns about the future, consists of 19 items and two sub-dimensions. One of the sub-dimensions is called “Occupational Future Anxiety” and the other is called “General Future Anxiety”. When the internal consistency coefficient (Cronbach's Alpha) of the scale was evaluated, it was calculated as .93 for the general scale and .93 and .87 for the sub-dimensions, respectively. These results show that the scale is highly psychometrically reliable. The data obtained from the scale were analyzed using the statistical methods such as frequency analysis, percentage distribution, t-test, analysis of variance (ANOVA), and Bonferroni test. The internal consistency coefficients of the sub-dimensions were calculated as .93 and .87, respectively.

The Brain Drain Attitude Scale in Nursing Students: The scale prepared by Öncü et al. in 2018 to measure students' attitudes towards brain drain consists of 16 items. The scale has a one-dimensional two-component structure and is intended to measure attractive (1,2,3,4,5,6,8,10,12,14,15,16) and driving (7,9,11,13) components. The reliability of the scale was evaluated by Cronbach's Alpha coefficient and item-total correlation. The items in the scale are scored as “strongly disagree (1)”, “disagree”, “neither agree nor disagree”, “agree”, and “strongly agree (5)”. Items 3 and 15 are included in the scoring by reverse coding. The lowest score that can be obtained from the entire scale is 16 and the highest score is 80 points. An increase in the score indicates an increase in the tendency to migrate. The internal consistency coefficient of the scale was calculated as .96.

Statistical Analysis

Before analyzing the data, possible incorrect and incomplete coding was reviewed, and the analysis was executed with the SPSS 26 package program. Descriptive statistics, ANOVA, independent groups t-test, and correlation coefficients as well as multiple regression analysis were used to test the predictive value of satisfaction with life, hopelessness about the future, and future anxiety.

Findings

Table 1.

Frequency and percentage values of gender, grade level, and age variables

		Frequency	Percentage%
Gender	Female	167	54.2
	Male	141	45.8
	Total	308	100
Grade level	1	136	44.2
	2	172	55.8
	Total		

As shown as Table 1 presents the distribution of participating university students by gender, grade level, and age. Of the total 308 students, 167 (54.2%) were female and 141 (45.8%) were male. The majority fell within the 22 to 23 age range, with 52 students (16.9%) aged 22 and 70 students (22.7%) aged 23. Regarding academic standing, 136 students (44.2%) were in pre-clinical years (1st to 3rd grade), while 172 students (55.8%) were in clinical years (4th to 6th grade). Overall, participants' ages ranged from 17 to 40.

Table 2.

Descriptive statistics on study variables

Variables	N	\bar{X}	ss	Min	Max
Brain Drain	308	63.98	15.07947	18	80
Satisfaction with Life	308	13.66	3.84860	5	25
Future Anxiety	308	64.68	9.20201	21	95

Considering the data presented in Table 2, the average score for the students on the brain drain attitude scale was found to be (\bar{X} =63.98, SD=15.07947). Regarding the satisfaction with life scale, the mean score was (\bar{X} =13.66, SD=3.84860), while the average score for the future anxiety scale was (\bar{X} =64.68, SD=9.20201).

Table 3.

Correlation coefficient results to determine the relationship between the study variables

Variables	Brain Drain	Future Anxiety	Hopelessness about the Future	Satisfaction with Life
Brain Drain	1.000	.566*	.567*	-.509*
Future Anxiety	.566*	1.000	.699*	-.506*
Hopelessness about the Future	.567*	.699*	1.000	-.610*

* $p < .001$

The analysis of the study variables, as shown in Table 3, indicates a moderately strong positive relationship between brain drain and future anxiety ($r = 0.566$, $p < .001$), as well as between brain drain and hopelessness about the future ($r = 0.567$, $p < .001$). In contrast, a moderately strong negative correlation was observed between brain drain and satisfaction with life ($r = -0.509$, $p < .001$). At the same time, a strong positive correlation was found between future anxiety and hopelessness about the future ($r = 0.699$, $p < .001$), while a moderately strong negative relationship was identified between future anxiety and satisfaction with life ($r = -0.506$, $p < .001$). Finally, a strong negative correlation was observed between hopelessness about the future and satisfaction with life ($r = -0.610$, $p < .001$).

These results suggest that as feelings of hopelessness about the future and future anxiety increase, the likelihood of brain drain also increases. Furthermore, a decline in life satisfaction is linked to a greater tendency toward brain drain. Additionally, increased hopelessness about the future is associated with higher future anxiety, and elevated future anxiety correlates with lower life satisfaction.

Before examining the predictive effects of future anxiety, hopelessness about the future, and satisfaction with life on students' tendency toward brain drain, the potential issue of multicollinearity among the predictor variables was investigated. The analysis showed that multicollinearity was not a problem, as the variance inflation factor (VIF) was under 10 and the tolerance value was above 0.10. The results of the stepwise multiple regression analysis can be found in Table 4.

Table 4.

Multiple regression analysis of predictors of attitudes towards brain drain

Model	Predictor Variables	R	ΔR^2	B	SH	β	t	F
1.	Hopelessness about the Future	.57	.32	1.87	.16	.57	12.03*	144.77*
2.	Hopelessness about the Future			1.10	.21	.33*	5.29*	
	Future Anxiety			.54	.10	.33*	5.27*	
	Constant	.62	.38	18.60	3.50		5.25*	92.68*
3.	Hopelessness about the Future			.73	.22	.22*	3.29*	
	Future Anxiety			.48	.10	.30*	4.79*	
	Satisfaction with Life			-.86	.22	-.22*	-3.93*	
	Constant	.64	.41	39.70	6.38		6.22*	69.88*

* $p < .001$

As shown in Table 4, a stepwise multiple regression analysis was conducted to determine which variables predict participants' brain drain scores. In the first step, hopelessness about the future was included in the model, followed by future anxiety in the second step, and satisfaction with life in the third step. The findings reveal that all three models significantly predicted brain drain. Specifically, hopelessness about the future explained 32.1% of the variance in brain drain scores ($\beta = .567$, $p < .001$). When hopelessness about the future was controlled for, future anxiety accounted for an additional 6% of the variance ($\beta = .33$, $p < .001$). Finally, after controlling for both hopelessness about the future and future anxiety, satisfaction with life explained an additional 3% of the variance ($\beta = -.22$, $p < .001$).

The analysis, which was carried out in three stages, emphasizes that hopelessness about the future was the most significant predictor of brain drain scores among the students. When examining the total variance explained, the combined effects of hopelessness about the future, future anxiety, and satisfaction with life accounted for 41% of the total variance in brain drain scores. These results suggest that changes in these psychological factors notably influence and predict shifts in students' inclination toward brain drain.

Table 5.

Analysis of attitudes towards brain drain according to gender variable

Score	Groups	N	\bar{X}	SS	Sh $_{\bar{X}}$	t Test		
						t	Sd	p
Brain Drain Attitude	Female	167	58.71	14.97	1.16	-7.31*	306	< .001*
	Male	141	70.22	12.66	1.07			

As presented in Table 5, the analysis revealed a significant difference in the attitudes towards brain drain among university students based on gender ($t = -7.31$; $p < .001$). Specifically, male students had a higher mean score ($\bar{X} =$

70.22) on the brain drain attitude scale compared to female students ($\bar{X} = 58.71$). This suggests that male students in the study held a more favorable view of brain drain than their female counterparts.

Table 6.

Analysis of attitudes towards brain drain according to grade level variable

Score	Groups	N	\bar{X}	SS	Sh \bar{x}	t Test		
						t	Sd	p
Brain Drain Attitude	Theoretical	136	55.86	15.03	1.29	-9.28*	250	<.001*
	Clinical	172	70.40	11.67	.89			

As shown in Table 6, there was a significant difference in the attitudes towards brain drain among university students based on their grade level ($t = -9.28$; $p < .001$). Specifically, students in the clinical group had higher mean scores ($\bar{X} = 70.40$, $SD = 11.67$) on the brain drain attitude scale compared to students in the theoretical group ($\bar{X} = 55.86$, $SD = 15.03$). This finding indicates that students receiving clinical training had a more favorable perspective on brain drain than those in the theoretical field.

Table 7.

One-way ANOVA results for examining differences in brain drain attitude scale scores based on the department variable

Score	Values				ANOVA Results				
	Group	N	\bar{X}	SS	Var. K.	KT	Sd	KO	F
Brain Drain Attitude	Medicine	119	66.03	14.11	Inter group	9156.028	2	4578.014	23.02*
	Dentistry	110	56.42	14.55					
	Pharmacy	89	69.73	13.57					
	Total	308	63.98	15.08	Within groups Total	60652.812	305	198.862	.001*
					Total	69808.841	307		

As presented in Table 7, the results of a one-way analysis of variance (ANOVA) conducted to examine whether there was a significant difference in the brain drain attitude scale scores based on the department variable revealed a statistically significant difference between the group means ($F = 23.021$; $p < .05$). Following this, post-hoc analysis techniques were employed to identify which specific groups contributed to the observed significant difference.

The results of the LSD (Least Significant Difference) test conducted after the ANOVA, which aimed to determine the differences in brain drain scores between departments, a significant difference was found in favor of the medicine department when comparing the medicine and dentistry departments ($p < .05$). A difference approaching significance was observed between the medicine and pharmacy departments (3.70513; $p < .05$), but this difference was not statistically significant. However, a significant difference was found between the dentistry and pharmacy departments, with pharmacy students showing higher scores (13.31034, $p < .05$). According to the analysis results obtained, it was observed that the attitudes of medical students towards brain drain were significantly higher among medicine and dentistry students; no significant difference was observed between medical and pharmacy

students; however, pharmacy students displayed significantly higher brain drain tendencies compared to their counterparts in dentistry.

Conclusion and Discussion

This study explored the extent to which students from the faculties of medicine, dentistry, and pharmacy differed in their attitudes toward brain drain based on their levels of future anxiety and life satisfaction. The findings revealed that attitudes toward brain drain were positively correlated with future anxiety and hopelessness about the future, while a negative correlation was observed with life satisfaction. Regression analysis demonstrated that hopelessness about the future was the strongest predictor of brain drain attitudes, followed respectively by future anxiety and life satisfaction. Male students exhibited higher tendencies toward brain drain compared to female students. Students in the clinical training stage had higher brain drain attitudes than those in the theoretical training stage. Additionally, significant departmental differences were identified, with medical and pharmacy students exhibiting stronger migration tendencies compared to dentistry students.

These findings mirror those previously reported in the literature. Prior studies demonstrated that when individuals experience heightened future anxiety and career uncertainty, they are more likely to pursue career opportunities in countries offering better economic and working conditions, particularly in the healthcare sector (Docquier & Rapoport, 2006; WHO, 2006). According to the regression analysis conducted, hopelessness about the future emerged as the most potent predictor of brain drain attitudes. As students' hopelessness increased, so did their migration tendencies. This finding emphasizes the emotional burden of career-related uncertainties and illustrates how deteriorating expectations about future living standards push individuals toward seeking opportunities abroad.

Similarly, future anxiety significantly influenced brain drain attitudes. Students who perceived instability and uncertainty regarding their career opportunities exhibited a stronger desire to seek stability through international migration. These results align with earlier studies conducted with healthcare students in Türkiye (Çoban & Şahin, 2023; Kula & Saraç, 2016). Conversely, life satisfaction showed a negative relationship with brain drain attitudes: as satisfaction with life increased, students became less inclined to migrate. This is consistent with previous findings that suggest individuals with low life satisfaction are more prone to seek fulfillment abroad, driven by professional and economic dissatisfaction (Dikmen, 1995; Diener, 2009).

Beyond these individual psychological variables, the study also highlighted important differences among academic departments. Medical and pharmacy students exhibited stronger brain drain tendencies compared to dentistry students. This observation can be attributed to the more challenging working conditions faced by medical and pharmacy professionals. Long working hours, exposure to workplace violence, low wages, and heavy bureaucratic demands push healthcare workers, especially physicians and pharmacists, to consider migration more seriously (Filiz et al., 2022; TSE, 2023; WHO, 2006). Meanwhile, dentistry students may feel less compelled to migrate due to greater entrepreneurial opportunities within Türkiye, such as establishing private clinics. This autonomy and financial independence reduce their migration motivations.

Furthermore, the tendency toward brain drain was more pronounced among students in the clinical education phase than among those in the theoretical phase. Clinical experience confronts students with the realities of the healthcare system—systemic challenges that theoretical training often obscures. Direct exposure to demanding working conditions, job insecurity, and professional burnout during clinical education intensifies the feeling that professional fulfillment may be more attainable abroad (Ünlü & Daşlı, 2024).

Gender differences also emerged as significant, with male students demonstrating a stronger inclination toward brain drain compared to female students. This finding is supported by previous research (Karaca Dedeoğlu et al., 2024), and could be linked to social expectations that encourage men to seek ambitious career goals, take greater risks, and aspire for economic advancement even if it entails migration. Additionally, cultural norms placing men as primary providers might further explain this gender disparity.

When considered holistically, these findings suggest that brain drain is not merely an economic phenomenon but a complex psychological, emotional, and sociocultural process. Migration decisions among young healthcare professionals are fueled not only by material needs but also by the search for professional dignity, personal well-being, and emotional security. Hopelessness about the future, feelings of dissatisfaction, and perceived instability are not just abstract concepts—they directly shape life-altering decisions such as leaving one's homeland.

Based on these results, several structural and social policy recommendations are proposed to mitigate brain drain among students in health-related departments in Türkiye:

First, expanding psychological support and career counseling services within universities is critical. The findings indicate that many students experience significant levels of future anxiety and hopelessness. Offering accessible mental health services and individualized career guidance programs can help students manage their professional expectations and reduce migration pressures.

Second, fostering international collaborations and educational mobility opportunities could be a strategic tool. While preventing brain drain entirely may not be feasible, promoting "brain circulation"—where students gain experience abroad but are encouraged to return—could be beneficial. Creating incentive programs that provide advantageous working conditions for healthcare professionals returning from abroad may strengthen national healthcare capacity.

Lastly, comprehensive economic and social improvements are necessary. Increasing salaries, reducing working hours, ensuring job security, and enhancing social rights are fundamental steps. Healthcare professionals' quality of life must be improved to foster loyalty and discourage the pursuit of careers abroad. Without addressing these systemic issues, policies aimed at curbing brain drain will remain insufficient.

Nevertheless, it is important to recognize the study's limitations. The sample was confined to dentistry, medicine, and pharmacy students at a private university in Istanbul, which restricts the generalizability of the findings. Attitudes of students from different cities, different types of universities (e.g., public vs. private), and other health-related or non-health disciplines were not explored. Furthermore, although psychological variables such as future anxiety and life satisfaction were examined, other influential factors—such as family expectations, cultural attitudes,

and macroeconomic changes—were not comprehensively assessed. Future research should incorporate more diverse samples and broader variable sets to better understand the multidimensional nature of migration intentions among young professionals.

Ultimately, tackling the brain drain of healthcare students demands an integrated approach that addresses not only economic incentives but also psychological well-being and societal belonging. Creating environments where young talents feel valued, secure, and optimistic about their future is essential to ensuring a robust, resilient healthcare system for Türkiye.

Ethic

For this study, ethical permission was obtained from Istanbul Health and Technology University Scientific Research and Ethics Committee dated 30/10/2023 and numbered 2023/5. Informed consent was obtained from all individual participants included in the study.

The first version of this study was oral presented at the International Hevsel Scientific Studies Congress on 21-23 February 2025.

Author Contributions

This article was written with the joint contributions of three authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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