

Evaluation of the Attitudes of Students Studying in Surgical Branches Towards Brain Drain: The Case of a Vocational School of Health Services

Cerrahi Branşlarda Eğitim Gören Öğrencilerin Beyin Göçüne Yönelik Tutumlarının Değerlendirilmesi:
Bir Sağlık Hizmetleri Meslek Yüksek Okulu Örneği

Ayşegül DOĞAN, Arzum ÇELİK BEKLEVİÇ

ABSTRACT

By the increase in the number of health professionals available in the health sector in Türkiye, the effects of brain drain and the need for prevention are becoming more important. This study aimed to examine the attitudes of health technicians towards brain drain and to evaluate the opinions of health vocational school students, especially in surgical branches, on this issue. The study is of descriptive type. The data were collected from the students studying at a university's Vocational School of Health Services, Department of Medical Services and Techniques, Department of Surgical Branches between January and March 2024. The study was not selected as a sample and completed with 207 students who agreed to participate. Personal information forms including socio-demographic data and Scale of Attitudes Towards Brain Drain in Nursing Students (ASBD) were used as data collection tools. The data were collected by face-to-face survey method and analyzed with statistical package programs. The mean age of the participants was 20.36 ± 3.402 years. 83.1% of the participants were women. The majority of the participants were female (93.1%). Germany (32.85%), Italy (10.14%), and Switzerland (7.24%) were the countries that the students wanted to migrate to the most. The total score of the participants in the ASBD was high (55.61 ± 11.439). The results of the study can guide understanding of the attitudes of vocational school of health students towards brain drain and creating policies for planning human resources in the health sector; It is thought that it may also be useful in terms of human resources planning in the health sector.

Keywords: Brain drain, Health policy, Migration, Health workforce

ÖZ

Türkiye’de sağlık sektöründe mevcut sağlık personeli sayısının artmasıyla birlikte beyin göçünün etkileri ve önlenmesi ihtiyacı daha önemli hale gelmektedir. Bu çalışma, sağlık teknikerlerinin beyin göçüne yönelik tutumlarını incelemeyi ve özellikle cerrahi branşlardaki sağlık

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Ayşegül DOĞAN (✉)

ORCID ID: 0000-0002-5814-6710

Zonguldak Bülent Ecevit University, Department of Dentistry Services, Zonguldak, Türkiye
Zonguldak Bülent Ecevit Üniversitesi, Diş Hekimliği Hizmetleri Bölümü, Zonguldak, Türkiye
dt_aysegul_dogan@hotmail.com

Arzum ÇELİK BEKLEVİÇ

ORCID ID: 0000-0002-9989-8599

Zonguldak Bülent Ecevit University Department of Medical Services and Techniques, Zonguldak, Türkiye
Zonguldak Bülent Ecevit Üniversitesi Tıbbi Hizmetler ve Teknikler Bölümü, Zonguldak, Türkiye

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meslek yüksekokulu öğrencilerinin bu konudaki görüşlerini değerlendirmeyi amaçlamıştır. Araştırma tanımlayıcı özelliktedir. Veriler, Ocak-Mart 2024 tarihinde toplanmıştır. Çalışma gönüllü 207 öğrenci ile tamamlanmıştır. Veri toplama aracı olarak sosyo-demografik verileri içeren kişisel bilgi formları ve Beyin Göçüne Yönelik Tutum Ölçeği (BGYTÖ) kullanılmıştır. Veriler yüz yüze anket yöntemi ile toplanmış ve istatistik paket programları ile analiz edilmiştir. Katılımcıların yaş ortalaması 20.36 ± 3.402 ' dir. Katılımcıların çoğunluğu %83.1'i kadındır. Öğrencilerin en çok göç etmek istedikleri ülkeler Almanya (%32,85), İtalya (%10,14) ve İsviçre (%7,24) olarak bulunmuştur. Katılımcıların Beyin Göçüne Yönelik Tutum Ölçeği toplam puanı yüksektir ($55,61 \pm 11,439$). Çalışma sonuçlarının, sağlık meslek yüksekokulu öğrencilerinin beyin göçüne yönelik tutumlarının anlaşılmasına ve sağlık sektöründe insan kaynaklarının planlanması için politikalar oluşturulmasına rehberlik edebileceği; sağlık sektöründe insan kaynakları planlaması açısından da yararlı olabileceği düşünülmektedir.

Anahtar Sözcükler: Beyin göçü, Sağlık politikası, Göç, Sağlık iş gücü

INTRODUCTION

Brain drain is the international transfer of qualified human capital when individuals who are qualified or have the potential to become qualified labor force cannot find the desired living conditions in their country of residence and settle in countries with higher incomes (Mackey and Liang, 2013). Brain drain may have various reasons such as the desire of individuals specialized in their careers to live in better conditions, earn more, and achieve professional satisfaction. High-income countries create motivation for brain drain as they have "attractive" factors for many different occupational groups. However, this situation causes significant problems for underdeveloped and developing countries (Naicker et al., 2009).

It is known that health professionals are among the occupational groups with the highest brain drain (Aluttis et al. 2014). International migration of highly skilled health professionals emerged as an important public health problem for the first time in the 1940s when many European health professionals migrated to the United Kingdom and the United States (Misau et al, 2010). Studies reveal that the main reason behind the tendency of healthcare workers to migrate to developed countries is the desire to work for higher wages (Aluttis et al. 2014; Tessema, 2010). In addition, reasons such as further education opportunities, high education standards, traveling opportunities, and the desire for a better quality of life are among the attractive factors (Cavlak and Kuru, 2015). In addition, other factors such as inadequate physical infrastructure facilities of health institutions, insufficient funds allocated to support scientific studies, and political and economic instability in existing countries also pave the way for brain drain (Ogaboh et al, 2010).

The impact rate of brain drain is related to the level of development of a country. Due to the unbalanced distribution that occurs with the migration of health professionals to high-income countries, problems of shortage of health personnel and inequality in access to health services arise in low and middle-income countries (Amorha et al. 2022, Ebeye & Lee, 2023). The decrease in the number of healthcare personnel affects healthcare institutions especially in rural areas, this leads to inequalities in access to health care services. (Mukhtarov et al, 2022). Studies have shown that the lack of qualified health

workforce prevents the development of maternal and child health and limits the fight against HIV/acquired immunodeficiency syndrome, malaria and tuberculosis (Karatuzla, 2024). The fact that health personnel are trained at the end of a long and costly education process leads to the loss of these resources when they are lost due to brain drain. However, even more important is the negative impact on health systems. The increase in some diseases in society is one of the most important results of this (Aydan, 2023). Looking at the world in general, it is seen that there is a migration of health workers from African countries to developed countries such as the United Kingdom and the United States of America (Adeyemi et al., 2018; Mills et al., 2011). There are measures that need to be taken to prevent brain drain. The attractive factors that make developed countries attractive for brain drain should also be created by other countries. (Nadeem et al.,). First of all, the economic situation of the countries should be improved. Because economic reasons are the leading causes of brain drain. Unemployment rates should be reduced and it should be easier for the working population to find a job in their own country. It is also thought that brain drain can be prevented by developing various social policies (Mukhtarov et al., 2022). Countries that suffer brain drain are more backward than others in every sense.

Türkiye is one of the developing countries that has begun to be affected by brain drain. In the 100-day action plan implemented by the Turkish Government, some initiatives were launched in 2018 to encourage qualified researchers, especially Turkish scientists, to come to Türkiye from abroad. The Scientific and Technological Research Council of Türkiye (TÜBİTAK) has launched the International Leading Researchers Program and the International Young Researchers Program to encourage qualified researchers with experience working abroad to come to Türkiye (TUBİTAK, 2022).

There have been radical changes in the Turkish Health System as a result of the "Health Transformation Programme" implemented in 2003. Health institutions affiliated with the Ministry of Health have improved in terms of quantity and quality, and the number of health personnel per population has also increased (Republic of Türkiye Ministry of Health, 2012). In 2002, the total number of health personnel in Türkiye was 378,551, while this number reached 1,251,922 in 2021. According to 2021 data, the total number of physicians in Türkiye

ye is 183,569, the total number of dentists is 39,851, the total number of nurses is 232,442, the total number of pharmacists is 37,211, the total number of midwives is 57,908 and the total number of other health personnel is 219,630 (Health Statistics of Turkish Republic, 2021). The majority of the studies on brain drain of health professionals focus on physicians (Adovor et al., 2021; Uğur, 2022; Erdoğan Kaya et al., 2023). However, it is seen that all professionals who function within the health system share the burden of the system and are quantitatively more than the number of physicians. Therefore, it is thought that the migration of not only physicians but also other health professionals will directly affect the functioning of the health system. The most important example of this is health technicians. Health technicians, who graduated from Vocational Schools of Health Services to meet the manpower needs of the health system, are indispensable members of the health sector in Türkiye (Taştan, 2017).

It is thought that especially those working in surgical branches are more prone to brain drain (Hagander et al., 2013; Lantz et al., 2020). In this study, health technicians were taken as a subject and it was aimed to evaluate the attitudes of health vocational school students studying in surgical branches towards brain drain. There is no previous study on this subject in the national literature. Therefore, it is thought that the results of this study will make valuable contributions to the planning of human resources in health and the determination of workforce strategies.

METHOD

Study aim: This study aimed to examine the attitudes of health technicians towards brain drain and to evaluate the opinions of health vocational school students, especially in surgical branches, on this issue.

Study desing: The population of the study consisted of 2nd-year students (n=350) who were actively studying in the Department of Medical Services and Techniques of a vocational school, Department of Medical Services and Techniques, and Department of Surgical Branches. Data were collected by face-to-face survey method between January and March 2024.

Population and sample of the study; The study was completed with (n=207) students who agreed to participate. The "Personal Information Form", which was created by the researchers by reviewing the literature, and the "Scale of Attitudes Towards Brain Drain in Nursing Students" (ASBD) developed by Öncü et al. were used to collect the data. In the "Personal Information Form", data such as age, gender (male-female), income status, desire to migrate abroad and the countries to which migration is desired were included.

Scale related information; The ASBD consists of two components: 12 questions are attractive and 4 questions are repulsive and 16 items with a 5-grade structure. Each item consists of "Strongly agree", "Agree", "Neither agree nor disagree", "Disagree" and "Strongly disagree" options. 2 items on the scale

score in the opposite direction. The lowest score that can be obtained from the scale is 16 and the highest score is 80. A high score is interpreted as a tendency to migrate. Oncu et al. (2018) found the Cronbach Alpha reliability of the scale to be 0.91 for the whole, 0.88 for the attractive component and 0.86 for the repulsive component. In this study, Cronbach alpha was found to be 0.85

Inclusion criteria; Volunteering to participate in the study, Being an active 2nd year student, Studying in surgical branches

Exclusion criteria; Not being a Turkish citizen

Ethical approval was obtained from the Zonguldak Bülent Ecevit University Human Research Ethics Committee (date: 26.01.2024, no: 473) after obtaining permission from the authors who developed the scales via e-mail. The study was conducted by the principles defined in the Declaration of Helsinki. Informed consent was obtained from the investigators for their participation in the survey.

Statistical method; SPSS Statistics 22 (SPSS Inc., Chicago, IL, USA) was used for data analysis. The conformity of the total scores of the ASBD to normal distribution was determined by the skewness coefficient and histogram graph. Cronbach's Alpha coefficient of the scale was found to be 0.850. Data related to sociodemographic characteristics were evaluated as standard deviation, number, and percentage. Sociodemographic data and scale total scores were analyzed by non-parametric tests (X²- Kruskal Wallis, U- Mann Whitney U) in subjects with non-normal distribution and by parametric tests (t- Independent T-test) in subjects with normal distribution.

RESULTS

The mean age of the participants was 20.36±3.402, 83.1% were female and almost all of them were single. The income of 68.6% of the students was equal to their expenses. 96.6% of the participants had not participated in any international exchange program, 72.5% did not know a foreign language and 64.7% wanted to work abroad after graduation (Table 1).

Among the reasons why students wanted to migrate abroad were the incidents of violence in health (78.7%), the thought that living standards were better (97%), the thought of higher earnings (95.8%), and the desire to see new places (93.4%). 83.7% of the participants had the thought of returning if they migrated (Table 2).

Among the participants, 81.8% considered the difficulty of learning a foreign language, 93.8% considered examination and travel fees, 84.1% considered the process of obtaining a visa, and 83% considered separation from family/loved ones as obstacles to overseas migration (Table 2).

The lowest score that could be obtained from the scale was 16 and the highest score was 80. The mean total score of the participants from the ASBD was 55.61 ± 11.439. It was found that the participants had a high score on the ASBD (Table 3).

Table 1: Sociodemographic Data of the Participants

	X±SS	
Age	20,36±3,402	
	n	%
Gender		
Female	172	83.1
Male	35	16.9
Marital status		
Single	205	99.0
Married	2	1.0
Family income status		
Income less than expenditure	41	19.8
Income is equal to expenditure	142	68.6
Income more than expenditure	24	11.6
Have you participated in any international student exchange program?		
Yes	3	1.4
No	204	98.6
Do you have any relatives/friends living abroad with whom you still keep in touch?		
Yes	88	42.5
No	119	57.5
Do you speak a foreign language?		
Yes	57	27.5
No	150	72.5
Do you want to migrate and work abroad after graduation?		
Yes	134	64.7
No	73	35.3
Would you consider returning to Türkiye after emigrating?		
Yes	125	60.4
No	18	8.7
I don't know	62	30

Table 2: Students' Thoughts on Migration

The primary reason why you want to migrate? You can tick more than one option.	n	%
Incidents of violence in health		
Yes	59	78.7
No	16	21.3
Working conditions		
Yes	117	93.6
No	8	6.4
Health policy		
Yes	60	84.5
No	11	15.5
I do not think that living standards are better abroad		
Yes	128	97.0
No	4	3.0

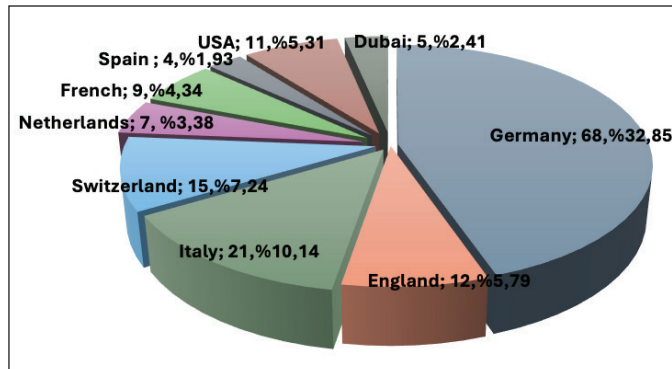
Table 2: Cont.

The primary reason why you want to migrate? You can tick more than one option.	n	%
I do not think that there are higher earnings abroad		
Yes	115	95.8
No	5	4.2
I think that the training for my profession is better abroad		
Yes	63	73.3
No	23	26.7
Providing greater support for scientific studies abroad		
Yes	59	84.3
No	11	15.7
Obtaining foreign citizenship		
Yes	67	84.8
No	12	15.2
Meeting new people		
Yes	68	82.9
No	14	17.1
Seeing new places		
Yes	99	93.4
No	7	6.6
Afterward, to return to my country and serve as a better-equipped person		
Yes	82	83.7
No	16	16.3
What do you think are the obstacles to migration abroad?	n	%
There are no obstacles		
Yes	19	33.9
No	37	66.1
Difficulty of learning a foreign language		
Yes	90	81.8
No	20	18.2
Failure to dare		
Yes	94	81.7
No	21	18.3
Expenses (exams, traveling...)		
Yes	122	93.8
No	8	6.2
Visa obtaining process		
Yes	69	84.1
No	13	15.9
Separation from family/loved ones		
Yes	73	83.0
No	15	17.0
The attitude of the country of immigration towards foreigners		
Yes	30	54.5
No	25	45.5

Table 3: Total Scale Score and SD

	Min-Max	Mean \pm SD	Cronbach's Alpha
ASBD	24-73	55.61 \pm 11.439	0.850

Germany (32.85 percent), Italy (10.14 percent), and Switzerland (7.24 percent) were the most preferred countries to migrate to among the participants (Figure 1).

**Figure 1:** Distribution of countries where participants want to immigrate**

**The most preferred countries among the countries stated by the participants are listed.

When analyzed according to gender, the total score of males was higher than females and there was a statistically significant relationship ($p=0.004$). When analyzed according to relatives living abroad, those who had relatives living abroad had higher scores on the ASBD and there was a statistically significant difference ($p=0.026$). The scores of the participants who wanted to emigrate and work abroad after graduation were higher and there was a statistical relationship ($p=0.000$). Those who did not plan to return to Türkiye after emigration had higher scores on the scale and there was a statistically significant relationship ($p=0.000$) (Table 4).

DISCUSSION

International health worker migration, which refers to the global mobility of qualified health workers, has recently become an important issue in health policies (Karatuzla, 2024). The intention of fresh graduates to work or study abroad is a part of the initiation of the brain drain (Vakili and Mobini, 2023). It is thought that especially those working in surgical branches are more prone to brain drain (Hagander et al., 2013; Lantz et al., 2020). In this study, the attitudes of students studying in the surgical branches of the vocational school of health services towards brain drain were evaluated. When the national and international literature is examined, it is seen that the studies on the brain drain of healthcare professionals are mostly conducted on medical and nursing faculty students (Amorha et al., 2022; Showers, 2023; Tariq et al., 2023). Health technicians play an important role in reducing the burden of the health sector. For this reason, it is very genimportant for the sector to

Table 4: ASBD according to Socio-Demographic Data

	ASBD Mean SS \pm SS
Gender	
Female	54.58 \pm 11.721
Male	60.66 \pm 8.384
t	-2.916
p	0.004
Marital Status	
Single	55.74 \pm 11.408
Married	42.50 \pm 7.778
U	65.500
p	0.091
Family income status	
Income less than expenditure	54.61 \pm 9.162
Income is equal to expenditure	55.66 \pm 11.299
Income more than expenditure	57.00 \pm 15.475
χ^2	1.101
p	0.577
Have you participated in any international student exchange program?	
Yes	56.33 \pm 8.505
No	55.60 \pm 11.492
U	305.500
p	0.996
Do you have any relatives/friends living abroad with whom you still keep in touch?	
Yes	57.66 \pm 12.458
No	54.09 \pm 10.419
t	2.239
p	0.026
Do you speak a foreign language?	
Yes	57.39 \pm 9.359
No	54.93 \pm 12.096
U	3737.500
p	0.162
Do you want to migrate and work abroad after graduation?	
Yes	59.60 \pm 9.665
No	48.29 \pm 10.857
t	7.698
p	0.000
Would you consider returning to Türkiye after emigrating?	
Yes	53.98 \pm 11.570
No	64.94 \pm 14.157
t	-3.652
p	0.000

* t - Independent T testi, * χ^2 - Kruskal Wallis, * U - Mann Whitney U

evaluate their attitudes towards brain drain and to plan initiatives for this. Because teamwork is vital in every field of health, especially in surgical branches (Anderson et al., 2021).

According to the findings obtained in this study, 64.7% of the students reported that they would like to live and work abroad after graduation. When the studies in the literature examining the attitudes of health students in underdeveloped and developing countries towards brain drain are evaluated, it is seen that the desire to migrate abroad is high. In a study conducted with medical students in Egypt, 89.4% of the students reported that they wanted to practice their profession abroad (Kabbash et al., 2021). In a study conducted on nursing students in Uganda, 70% of the participants (Nguyen et al., 2008); in a study conducted on medical students in Pakistan, 67.5% of the students (Tariq et al., 2023) reported that they wanted to live and work abroad. There is a similar situation in the national literature, and in a study conducted on medical students in Türkiye last year, 94% of the students reported that they would like to migrate abroad (Kaya et al, 2023). In another study, 74.8% of nursing students were reported to tend to migrate abroad (Gözüm et al., 2023). In this study, the mean total score of the participants on the BGYTÖ was found to be 55.61 ± 11.439 . In a study conducted with the same scale, the attitudes of medical faculty students towards brain drain were examined and the mean total score obtained from the scale was found to be 63.5 (Filiz et al, 2022). In the studies conducted using the BDIQ to evaluate nursing students' attitudes toward brain drain, it was found that the mean score obtained from the scale was 42.98 ± 9.91 (Demiray et al., 2020), 40.23 ± 11.51 (Gençbaş et al, 2024) and 51.15 ± 11.31 (Turan, 2021).

In the literature, the main reasons for the brain drain of healthcare workers include better living conditions, the desire to earn higher financial income, better working opportunities, and career and education plans (Adjei-Mensah, 2023). According to the study conducted by Kaya et al. (2023), the first reason that pushes students to study abroad is "high financial income abroad (44.6%)". Similarly, in this study, among the reasons why students want to go abroad, are the desire to see new places (93.4%), the thought that their living standards are better (97%) and that they will earn higher earnings (95.8%) are among the findings that support the literature. Brain drain can have many different causes, but concerns about employment opportunities and income is an important reason (Tessema, 2010; Vakili and Mobini, 2023).

In the study, it is an important finding that one of the factors that lead students to brain drain is "incidents of violence in health (78.7%)". Recent studies have mentioned the negative effects of violence in healthcare on health personnel in Türkiye (Ozcan and Yavuz, 2017; Akca et al, 2022) and it is thought that these events reflected in the media also negatively affect health professional students. Students see the difficulty of learning a foreign language, exam, and travel fees, the process of obtaining a visa, and separation from family/loved ones as obstacles to migrating abroad. Similarly, Ozdemir and İlhan (2021) reported that one of the biggest obstacles to students' desire to work abroad is foreign language. And again, it is note-

worthy that Çiçek (2024) reported that familial reasons are one of the biggest obstacles to the tendency to migrate abroad. Similarly, according to Vakili and Mobini (2023), familial reasons are an important factor in brain drain.

In this study, Germany, Italy, and Switzerland were the countries that students wanted to migrate to the most, respectively. According to studies, the brain drain observed in healthcare professionals is especially in developed European countries and the United States (Akinto, 2021; Anokye et al., 2019). According to a study conducted in Türkiye, Germany is one of the most desired countries to migrate to (Çiçek, 2024). In this study, it is noteworthy that students with relatives living abroad have a higher tendency to work and live abroad. This can also be considered as a situation that explains why Germany is preferred. In line with the findings of this study, Seven and Adadioğlu (2022) also reported that nursing students with relatives living abroad had a higher tendency to migrate.

When analyzed according to gender, although the majority of the participants were women, it was seen that the total score of men was higher than women. It was thought that the reason for this could be that men are more social, prone to taking risks and tend to act independently due to the culture of the society we live in. In addition, the fact that the population participating in the study was predominantly female can be considered a limitation for this study. It can be suggested that similar numbers of populations be targeted in different studies. Sancak et al. (2023) also pointed out that male students scored higher on the scale in their study on pharmacy students. Similarly, Mollaloğlu et al. (2014), Erdem et al. (2023), and Çiçek (2024) reported that brain drain tendency in males was higher than in females. Some studies differ in the literature (Makhabbat et al, 2018; Demiray et al., 2020).

In this study, the attitudes of health technician candidates studying in surgical branches toward brain drain were evaluated. Other studies in the national literature were conducted on health professionals and students other than health technicians. Therefore, other studies utilized in the discussion of the findings focus on nursing, medicine, and pharmacy students. Although post-graduation working conditions and foreign language skills are thought to be lower than the students in these branches, the tendency of health vocational school students towards brain drain was found to be high.

In the literature, no other study was found in which the attitudes of health technician candidates studying in surgical branches were evaluated toward brain drain. Although it is thought that foreign language knowledge is lower than the students in these branches, the tendencies of the students of the vocational school of health towards brain drain were similarly found to be high.

CONCLUSION

Brain drain of healthcare workers is a global problem that causes the loss of the country's trained and qualified human resources. Although Türkiye is not one of the countries with the highest brain drain, the increasing migration of health pro-

professionals poses a threat to the future of health services. In this study, the attitudes of health vocational school students studying in surgical branches toward brain drain were evaluated. Accordingly, it was found that students had a high tendency to migrate abroad after graduation. The tendency to migrate is higher in males than females, and the factors that encourage migration are thought to be better living standards, the thought that they will earn higher earnings, the desire to see new places, and the incidents of violence in health in Türkiye. The barriers to migration are economic reasons, the process of obtaining a visa, and separation from family/loved ones. The majority of the students reported that they did not want to return to Türkiye after migrating. Germany, Italy, and Switzerland are the most desired countries to migrate to. To reduce the brain drain tendency of health technicians, who have an important role in the provision of health services in Türkiye, it is recommended to create new career opportunities for students and to improve wages and working conditions.

Ethics Committee Approval: Ethical permissions for the research were obtained.

Author Contribution Declaration: All authors contributed equally throughout the study.

Conflict of Interest: The authors have no conflict of interest regarding this study.

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