

Nurses' Brain Drain in Pakistan: The Determinants and Reasons Pertaining to Nurses Leaving Pakistan to Overseas Territories in Health System

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Abstract: *The study examines the brain drain phenomenon among Pakistani nurses, focusing on the factors influencing their migration to countries like Kuwait, Canada, and the USA. A quantitative, cross-sectional study design was employed with survey data from 100 respondents, analyzing data from migrating nurses using paired sample t-tests. Results indicate that push and pull factors account for 65.67% and 83.32% of nurse migration. The research identifies key push factors, such as low salaries, heavy workloads, and political instability, alongside pull factors, including higher remuneration, safer environments, and better career opportunities abroad. The findings reveal that migration is predominantly driven by experienced, well-educated female nurses in their early to mid-career stages. This exodus poses a critical challenge to Pakistan's healthcare system, exacerbating understaffing and compromising service delivery. The study emphasizes the need for systemic reforms, including improved working conditions, competitive salaries, and clear professional growth pathways, to retain nursing talent. Healthcare policymakers are required to consider various push and pull factors causing the brain drain of experienced nurses. However, future research agenda calls for more insightful qualitative design considering the local and foreign healthcare policies.*

Key Words: Healthcare Management, Nursing, Brain-drain, Healthcare Strategy, Political and Socio-Economic Factors, Healthcare Resources

Introduction

Research Background

The phrase "brain drain" was used by the British Royal Society to describe the outflow of scientists and technologies from the United Kingdom and Canada to the United States in the 1950s and 1960s. Brain drain refers to the emigration of scientists and other educated professionals from a low- or middle-income country to a high-income country for work (Ulupinar et al., 2024). It is defined as the international transfer of human capital, and primarily, brain drain has transformed into one of the most serious contemporary issues across the world (Li, 2012). It is a situation in which a country loses most of its talented and educated people to another country through migration (Ipinnimo et al., 2023; Li, 2012; Poku et al., 2023). Even in India, there is a shortage of 2.4 million nurses due to the brain drain of nurses (Jadhav & Roy, 2024). In developing countries like Pakistan, there is a shortage of skilled and qualified nurses; in this situation, every year, 15% of nurses move abroad, which may have a negative impact on our healthcare system and patient quality care (Hussain & Afzal, 2015). In Pakistan, 13132 nurses are annually produced in all four provinces, which means one nurse is responsible for providing care to 3175 people. The acute economic dis-stability and political turmoil appeared to be some of the responsible factors for the professional's brain drain from the country (Meo et al., 2024). This ratio indicates that nursing is still a neglected profession in Pakistan. More one healthcare system disparately needs nurses than ever before (Firdos et al., 2020). "Every year, western countries hire 33% of nurses for their healthcare units only from the Aga

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Khan University Nursing School Karachi, Pakistan. Developing countries like Pakistan are not in a situation that can bear the loss of qualified, competent, skilled nurses because this can lead to great barriers to economic progress (Firdos et al., 2020). In recent years, 2020–2021, many Pakistani nurses moving Middle Eastern countries like Kuwait for a better environment. Mainly moved due to the high salary packages in these developed countries encouraging nurses migration to fulfil their needs. Research done in Turki indicated that there are various push and pull factors responsible for the nurse's brain drain (Özaydin et al., 2024).

Significance of Problem

Nurse's brain drain is a global concern. Skilled and trained nurses are moved from developed nations to developing nations to improve their living standards. Many of the factors are responsible for nurses' brain drain. Factor encourages nurses to leave (home) country. It includes economic factors, social factors, political factors, professional growth, work-related environment, and lack of managerial support. Pull factors are the conditions in which recipient countries attract nurses towards those countries for higher salaries, better employment opportunities and better standard of living. Several studies on health worker migration have been undertaken in Asia and Africa (Dimaya et al., 2012). Internationally, there is a scarcity of literature on the drivers and factors influencing nurse brain drain. In Pakistan, there is previous research that occurred on nurses' brain drain but only done on the way to manage nurses' brain drain from Pakistan and not on finding out the root cause behind it and not exploring the factors behind it. There is a gap in our knowledge, and we identify from one of the research articles that nursing image and personal ambition are the reasons for nurses' brain drain (Hashish & Ashour, 2020).

Objective of the Study and Research Questions

The current study is invested in investigating the determinants and reasons pertaining to nurses (push-pull) leaving Pakistan to overseas territories in health systems. Therefore, primarily, the question is intended to be answered through this research, "What are the determinants and reasons which are pertaining to nurses leaving Pakistan for overseas territories in health systems?"

Scope of the Study

The research is specified only on those nurses who are migrants from Pakistan or move to any country in the world. Only nurses are included in our study with < 1 year experience or more > than 12 years experience. Nurses who have recently moved or moved in the 90's are all included in our study. Nurses withholding degree nursing degrees such as PHD, MScN, BScN, Post RN BScN, Diploma in nursing (RN), and Registered Midwife (RM).

Review of Literature

Lee's Theory and the Pushes and Pulls Factors

The "push-pull" factors model has been widely used to evaluate migration. This study applies Lee's theory (Lee, 2017) to investigate the factors influencing migration and brain drain. According to Lee's push and pull theory, there is a relationship between push variables in the country of origin and, thus, pull elements in the destination country. The push factors are exemplified by (Okafor et al., 2020; Özaydin et al., 2024) and factors that influence nurses to move from their homeland to other developed nations. Employment opportunities and technologies in developed countries create incentives for skilled workers from developing countries to migrate such nurses, creating the pull factors.

A number of push and pull factors have been cited as influencing the decision of health professionals to leave their countries of origin. Push factors include low remuneration, poor working conditions, low job satisfaction, lack of professional development and career opportunities and political and ethnic problems, including civil and poor security. Pull factors include attractive remuneration, new career development, working conditions, a safe and secure environment and better living standards (Machayo & Keraro, 2013; Poku et al., 2023).



Push Factors

Economic Factor (Push Factor): Economic factor is the main reason for nurse's brain drain, such as low salary, remuneration, and devaluation of Pakistani currency. In developing countries like Pakistan, there is a bad economic condition nowadays and greater influence on healthcare workers to move abroad. Mostly, Pakistani nurses move for economic reasons because in Pakistan average salary is very low compared to other developed nations, and on this salary package, nurses do not fulfil their basic needs and wants. This may create an intention for nurses to migrate or move to another country (Meo et al., [2024](#)).

Social Factor (Push Factor): Nurses migrate due to social factors such as the education of the children and a safer environment. Children and mostly families are influenced to move abroad. Pakistan's inflation has made living expenses very high, and everything is extremely costly, including tuition and school fees (Khowaja-Punjwani et al., [2023](#)). Unsafe environment like kidnapping and other crimes influences nurses to migrate the other developed nations and other perceptions of the nursing profession in front of Pakistani society mostly. People most prefer nursing as a profession, and very limited communities to pursue nursing as a profession. And this attitude of society towards nurses influences them to move abroad (Ulupinar et al., [2024](#)). The other factors are family influence to move abroad like husband working abroad; children wanting to go for higher education and for the secure environment they move abroad, mainly family is the main reason for nurse's migration.

Political Factor: Political instability is a key factor in nurses' brain drain in Pakistan. Because the political condition of Pakistan has not been stable in the last few decades, economic factor is also the reason for crimes, violence and street crimes in Pakistan (Jadhav & Roy, [2024](#); Meo et al., [2024](#)). Three articles Pakistan's political instability are too exists due to government tension, strikes, lockdowns and other tension like government change and changes in rules and policies; nurses see there is no secure future in Pakistan, which is why they search for a better, politically stable country and move abroad.

Professional Growth: Professional growth, like career and skill development, needs more training (Ngoma & Ismail, 2013). The main reason for nurses' migration is a lack of career opportunities and a lack of training facilities in Pakistan (Chikanda, [2005](#)). In Pakistan, limited career opportunities and advanced levels of training in a nursing field like a PhD motivate nurses to move abroad for their higher professional qualifications (Khowaja-Punjwani et al., [2023](#)).

Work-Related Environment: Work-related environment is the key push factor, which includes the working environment, understaffing, workload, stress, lack of inadequate modern equipment, and the poor healthcare system. The push factors from source countries included a lack of resources, a lack of adequate facilities within the healthcare system, and a high workload. Chikanda ([2005](#)) reported that stress, inadequate equipment and a poor health care system which does not provide proper and basic health. The major causes of the nursing shortage are inadequate enrollment, inadequate quality nursing institutions, and a high emigration rate of nurses. Understaffing a nurse leads to workload and stress on-duty hours. Physical and mental stress is generated due to long working hours duties and sometimes double duties; there is a lack of inadequate modern equipment in the healthcare sector because Pakistan is a developing country and cannot afford modern equipment from developed countries. And poor healthcare system in Pakistan reason is that very limited tertiary care hospitals are in Pakistan as compared to the growing population. For some nurses, the standard of care in their countries was so bad that this was a motivation to migrate (Osei et al., [2023](#)).

Lack of Managerial Support: Mostly, the migration of nurses due to lack of managerial support, work not recognised by the supervisor, lack of encouragement and favouritism in promotion; recognition of nursing started with how they sew themselves but also how other healthcare professionals and society saw them. They indicated that in order to be recognized as a profession, they had to show the world what it meant to be a nurse and what the world would be like without nurses. Factors participants thought that positively impacted the image of nursing were a strong social standing, being proud of being a nurse, and a professional association that worked towards maintaining a high status of the nursing profession (Roth et al., [2022](#)). If nurses work and their efforts are not recognized, they move abroad because it creates

frustration and exhaustion to influence them to a developed nation where their work would be recognised and appreciated.

In short, all these factors are responsible for nurses' push factors and brain drain from Pakistan, such as economic, social, political, work-related environment, professional growth and skills development and lack of managerial support.

Pull Factors

Economic Factors (Pull Factors): Economic factors of pull mean developed countries attract nurses towards their country. It includes high salaries, better incentives and remuneration; nurses migrate this development to improve their financial improvement and salary structure. This is one of the main factors which attract nurses. Mostly nurses move abroad due to financial improvement in developed countries. Better incentives and overtime are given in an interview; one nurse said that when they do extra nights, the hospital gives them overtime money and also incentives when they do weekend duties and double on holidays (Khowaja-Punjwani et al., [2023](#); Meo et al., [2024](#)).

Social Factors (Pull Factors): Social factors of pull also attract nurses towards developed nations such as children's education, safe and secure environment for children and mostly the family also settles in abroad are the factors of nurses' migration. For children's future and their higher education and to provide a secure and safe environment for children, nurses move from their homeland either because they are satisfied with their jobs or due to family factors they move. Many nurses have said that children's education is free and our families are also safe here (Sapkota et al., [2014](#)).

Political Factors (Pull Factors): According to Abraham Maslow's Hierarchy of human needs, safety is one of the most precious human needs. Therefore, developed countries where there is a stable socio-political environment attract nurses from developing nations like Nigeria, where the masses are faced with social unrest ranging from tribal to religious crises. National problems from Fulani Herdsmen and the Boko Haram debacle which has terrorized Nigeria to a magnitude as never seen before, especially in the northeastern zone of the country. Due to a stable socioeconomic environment and stable conditions as compared to our country, nurses move to these countries (Isiugo-Abanihe & IOM, [2014](#)).

Work-Related Environment (Pull Factors): The work environment is the factor which influences nurses to move to develop such as workplace safety and security, all types of modern equipment, adequacy of staff, supportive staff and quality healthcare system. These factors pull nurses to developed nations (Okafor et al., [2020](#)). Nurses, due to their job security and safe environment, access modern equipment for patient care, and also family avail of these health services. Developed nation with the presence of improved technologies provide.

Professional Growth (Pull Factors): Professional and career development also influence nurses to move abroad; in nursing, there is a need to be updated and timely need of training and career development. There are opportunities to improve and develop knowledge, skills, and specialities, but there is no opportunity in Nepal (Sapkota et al., [2014](#)). Advanced systems of working practice, facilitation, information systems and technology in the UK are incomparable to the developing countries. System and regulations work here; just do what you are supposed to do with confidence (Sapkota et al., [2014](#)). There is more skill development and career advancement in developed nations, they provide time-to-time training to polish their workforce, and they keep updating their employees and also promote their skills development and promotion opportunities. One of the nurses during the the interview said that I moved here only when I was a staff nurse, but they trained me. Now, I am the nurse manager of two main departments of the hospital promotions are more frequent than in our country, and there are also a lot of job opportunities here.

Nursing Image: This is the main reason for nursing image in developed countries, such as good nursing image and status of nurses is higher and professional pride. The advancement of the profession with the transition to university qualification was an important pull factor for sustaining the workforce (Zander et al., [2013](#))



One of the main reasons was that in advanced countries, women, who have traditionally dominated the nursing profession, now prefer to join other, more prestigious professions. It is possibly true that in both rich and poor countries, nursing as a profession has drawbacks in terms of attracting young people into nursing (Hussain & Afzal, 2015). One of the Canadian nurses in the interview said that they have professional pride in the country and that nurses have a big image in developed nations and give them respect. Their reason for migration is nurses have a bad image in our country, and here, nurses are equally competent as other healthcare professionals.

Personal Factors (Personal Ambitious)

This is the factor of the nurse's personal factor. This is also a pull factor. According to a number of studies, nurses are mostly driven by their own wants and goals. For example, some nurses relocate so they may visit their ancestors, while others view their career as a passport to the rest of the world. These factors (push and pull) of nurses' brain drain from the country nowadays in Pakistan frequently nurses brain drain due to the country's poor political condition and economic conditions as well as social factors these factors are related to each other and cause nurses' brain drain from Pakistan and same pull factors which attracts nurses towards them to fulfil their need to capture skilled and qualified nurses from Pakistan.

Hypotheses

H1: There is a distinction between the push and pull elements of the brain drain of Pakistani nurses.

H2: For the brain drain of Pakistan nurses, there is a contrast between economic reasons that push and economic factors that pull.

H3: For the brain drain of Pakistani nurses, the social factors of push and social aspects of pull differ significantly.

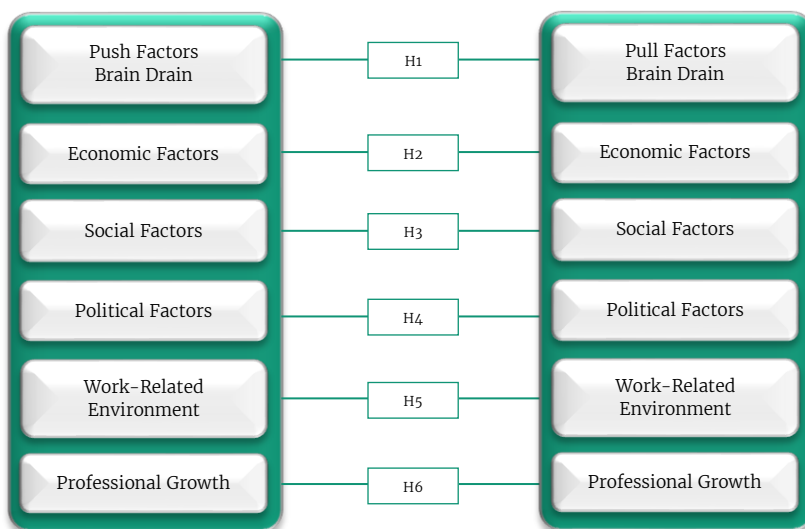
H4: There is a difference in the political factors of push and political factors of pull for the brain drain of Pakistani nurses.

H5: There is a difference in the work environment of push and the work environment of pull for the brain drain of Pakistani nurses.

H6: There is a difference in the professional growth of push and professional growth of pull for the brain drain of Pakistani nurses.

Figure 1

Research Framework



Methodology

Research Design

The factors of pull and push, as identified in the literature review, require the quantification of the subject matter. It is, therefore, imperative to use quantitative and cross-sectional research designs to study the brain-drain phenomenon in the Pakistani healthcare industry (Cooper & Schindler, 2014; Zikmund et al.,

2010). The single point in time study will help understand the factors that have influenced nurses in Pakistan to move abroad. Data was collected from online sources with Google Docs administered through various social media platforms, including WhatsApp. Data was analyzed through SPSS 26, considering descriptive statistics and paired sample t-tests for drawing inferences and testing the hypotheses and for that matter, the migration was considered as an "intervention" to the study of the perceived change in push and pull factors caused after leaving the country.

Study Instrument

A structured questionnaire was developed and validated after an extensive literature review, and further relevant constructs were found by receiving literature by brain drain by specifically nursing professionals.

The Validation Process of the CONSTRUCTS

The factors of push and pull were identified through the extant literature. After this, they went through a validation process to improve both the face and content validity (Saunders et al., 2019; Sekaran & Bougie, 2016). In-depth interviews with 5 nurses relocated in America, Canada, Kuwait, England and Dubai. Face validity by insured by presenting the same respondent and cross-checking their interpretation. Mismatch in the interpretation of the concept was corrected by making the communication simpler (Saunders et al., 2019). These five nurses refused to mention their current country's salary package, so that's why I was not included in my Questionnaire. The questionnaire consists of the following four main sections.

Section 1: It includes a demographic questionnaire for nurses as well as work-related data.

Section 2: It includes 20 elements to assess the "pressure" for nurses to relocate from one country to another. It covers six major explanations. Economic factors (2 items) Social aspects (5 items) Political variables (2 items) Professional development (2 items) Work-related environment (5 items) a lack of managerial support (4 items)

Section 3: Section 3 includes (16 items) to measure "pull" to attract nurses to move to other countries it includes Six main reasons: Economic factors (2 items) social/ family factors (2 items) professional growth (2 items)

Section 4: This section includes six items related to personal factors (personal ambition)

Sections 2, 3, and 4 responses were scored on a five-point Likert scale ranging from 1 to 5 (1 = strongly disagree, 5 = strongly agree).

Study Population/Settings

The study population consists of nurses who migrated from Pakistan because of various push and pull factors featured in the literature review. Therefore, those nurses were approached by various referrals from local nurses, their relatives and friends. Since one of the authors is from the same nursing industry, having vast experience working in different tertiary care hospitals, therefore it helps in data collection. The inclusion criteria involve those nurses who migrate from Pakistan and are included in our study, whereas the exclusion criteria are those nurses who stay in Pakistan and are not included in our study.

Sampling Technique and Size

A sampling technique in which units of the sample are selected on the basis of personal judgment or convenience; the probability of any particular member of the population being chosen is unknown (Zikmund et al., 2009). Snowballing sampling procedure in which initial respondents are selected by probability methods and additional respondents are obtained from information provided by the initial respondents (Zikmund et al., 2009). The survey was administered through sampling techniques, such as non-probability convenience sampling and snowballing sampling (Saunders et al., 2019; Zikmund et al., 2010). The Questionnaire was sent to immigrants living in these countries that are personally known by me. These emigrate were asked to identify and assist me in reaching out to the other emigrates in these countries to obtain sufficient responses. Therefore, snowball sampling was used to obtain an effective sample of Pakistani emigrates, and 100 responses were received from Pakistan emigrates working overseas.



Ethical Considerations

Ethical consideration and confidence were maintained, and informed consent was taken. The participants were given the autonomy to refuse any time to fill out the survey and also ensure that their names, email addresses and responses were completely confidential.

Results

Demographic characteristics

Table 1

Demographic profile

Category	Items	Frequencies	Percentage
Gender	Male	11	11.0
	Female	89	89.0
Age	20–25 years	5	5.0
	26–30 years	25	25.0
	31–35 years	22	22.0
	36–40 years	14	14.0
	41–45 years	10	10.0
	46–50 years	6	6.0
	Above 50	18	18.0
Education	PhD	1	1.0
	M.ScN	17	17.0
	B.ScN	42	42.0
	Post RN BSc.N	26	26.0
	Diploma in Nursing (RN) Registered Midwife (RM)	9 5	9.0 5.0
Years of Experience	<1 year	4	4.0
	1–3 years	9	9.0
	4–6 years	29	29.0
	7–9 years	10	10.0
	10–12 years	7	7.0
	More than 12 years	41	41.0
Marital Status	Single	22	22.0
	Married	75	75.0
	Divorced	1	1.0
	Widowed	2	2.0

N = 100

Table 1 shows the demographic analysis of Pakistani nurses migrating abroad for better opportunities, revealing distinct trends that provide insights into the professional and personal characteristics driving this brain drain. Gender distribution shows a significant female majority (89%), reflecting the gender composition of the nursing workforce in Pakistan. Age-wise, the highest proportion of nurses falls within the early to mid-career age brackets, with 25% aged 26–30 years and 22% aged 31–35 years, suggesting that most migration occurs during the prime working years when individuals are likely seeking career advancement and financial stability. Interestingly, a notable 18% are above 50 years old, possibly indicating a delayed pursuit of better opportunities later in their careers.

Educational qualifications underline the dominance of bachelor's-level nurses, with 42% holding a B.ScN and 26% possessing a Post RN B.Sc.N degree, while advanced qualifications such as PhD remain rare (1%). This reflects the foundational role of undergraduate nursing education in preparing professionals for international mobility. Experience levels further highlight that 41% of these nurses have more than 12 years of professional experience, suggesting that seasoned professionals equipped with substantial expertise are likely to pursue global opportunities. However, a smaller but significant proportion (29%)

comprises nurses with 4-6 years of experience, indicating that migration is not limited to veterans but also includes early-career professionals.

Marital status data reveals that 75% of migrating nurses are married, signifying the role of family dynamics in influencing migration decisions. Single nurses account for 22%, potentially reflecting younger professionals exploring opportunities before family commitments. The minimal representation of divorced (1%) and widowed (2%) nurses suggests that socio-cultural factors may also shape the migration narrative.

These findings highlight that the brain drain of Pakistani nurses is characterized by a predominance of well-educated, experienced, and predominantly female professionals at various career stages, driven by aspirations for better opportunities, career growth, and improved living conditions abroad.

The Brain Drain of Nurses

The table shows years of the nurses brain-drained from Pakistan, the countries they migrated to and the average salaries they are getting in Pakistan.

Table 2

Nurse Brain-Drain

	Frequencies	Percentage
Year of Immigration		
1990-1995	09	9
1996-2000	08	8
2001-2005	09	9
2006-2010	03	3
2011-2015	13	13
2016-2020	19	19
2021-2024	39	39
Country Immigrated		
Kuwait	38	38.0
Dubai	2	2.0
Canada	27	27.0
America	17	17.0
England	6	6.0
Others	10	10.0
Average Salary per Month in Pakistan		
< 40,000	28	28.0
40,000-50,000	17	17.0
51,000-60,000	18	18.0
61,000-70,000	11	11.0
71,000-80,000	10	10.0
81,000-90,000	4	4.0
> 90,000	12	12.0

The data in Table 2 exhibit immigration trends and average salaries in Pakistan, revealing significant patterns. Most migrations occurred in recent years, with 39% of nurses immigrating between 2021-2024, highlighting an accelerating trend. The current push and pull factors highlight this surge, particularly during and post-COVID-19. The daunting economic situation may have accounted for this high surge. Previous waves of migration, such as those between 2016-2020 (19%) and 2011-2015 (13%), were comparatively lower, indicating that economic and professional drivers may have intensified recently.

Destination-wise, Kuwait emerged as the most favoured destination, attracting 38% of migrating nurses, followed by Canada (27%) and America (17%). This distribution suggests a preference for both Middle Eastern countries, likely due to proximity and cultural familiarity, and Western nations, where opportunities for professional growth and higher remuneration are prominent. Other destinations,



including England (6%) and diverse locations (10%), reflect smaller but significant pathways for migration.

Salary data indicates that a significant portion (28%) of nurses earned less than PKR 40,000 per month while working in Pakistan, with only 12% earning over PKR 90,000. These figures highlight the stark economic disparity between domestic and international earnings, which likely serves as a major push factor. Even mid-range salary brackets, such as PKR 51,000–60,000 (18%) and PKR 40,000–50,000 (17%), are insufficient compared to competitive international packages. This financial motivation, combined with the appeal of better working conditions and career prospects abroad, underscores the factors driving the exodus of skilled Pakistani nurses.

These findings reflect an accelerating trend of migration among Pakistani nurses, driven by economic disparity, global demand, and professional aspirations. The dominance of Kuwait, Canada, and America as destinations further emphasizes the role of geographic and economic considerations in shaping migration patterns.

Table 3

Nurses Organization Working in Pakistan

Organizations (In Pakistan)	Frequencies	Percentages
Aga Khan University Hospital	58	58.0
Did not continue Midwifery	1	1.0
Didn't work	1	1.0
Dow university hospital	2	2.0
Dr. Ziauddin Hospital Clifton	1	1.0
Ever care hospital	1	1.0
Government	2	2.0
Hospital	1	1.0
Karachi	1	1.0
Kharadar General Hospital	1	1.0
Khyber teaching hospital	1	1.0
Lady Reading Hospital Peshawar	1	1.0
Lahore General Hospital Lahore, Pakistan	1	1.0
Memon Medical Institute	2	2.0
Ministry of Health	1	1.0
MoH Punjab	1	1.0
MTI	1	1.0
N/a	1	1.0
Ni	1	1.0
Nurse tutor agha khan university school of nursing karachi	1	1.0
PGIMER,	1	1.0
Pims Islamabad	2	2.0
Private clinic	1	1.0
Private university hospital	1	1.0
Punjab institute of cardiology	1	1.0
Semi govt	1	1.0
Shalamar Hospital Lahore	1	1.0
Sindh infection disease hospital and research centre	4	4.0
Smbb tc Karachi	1	1.0
South City	1	1.0
South city hospital	1	1.0
Tabba Heart	1	1.0
The Indus Hospital	1	1.0
Usman memorial hospital	1	1.0
Wah general hospital, taxila	1	1.0
Others	1	1.0
Total	100	100.0

The analysis of Table 3 of the Pakistani nurses' employment before immigration shows that 58% worked at the Aga Khan University Hospital, reflecting a concentration of skilled professionals from top-tier institutions. Other nurses were employed at notable organizations such as Dow University Hospital (2%), Sindh Infectious Disease Hospital (4%), and government facilities like PIMS Islamabad (2%). A few (1%) did not work or continue midwifery before immigration. This distribution highlights the presence of highly trained professionals among the migrating cohort and underscores systemic challenges in Pakistan's healthcare sector, such as low salaries and limited career growth, which drive skilled nurses to seek opportunities abroad.

Factors which Influence Nurses to Move from Pakistan: (Push-Factors)

Table 4

The Push Factors

Constructs & Items	S.D.	D	N	A	S.A.
Economic Factors (EF)					
Lower salary is the main reason to leave the country.	9 (9%)	12 (12%)	19(19%)	26(26%)	34(34%)
I left my country due to the Devaluation of the Pakistani currency.	6(6%)	27(27%)	31(31%)	23(23%)	13(13%)
Overall Trend (EF)	(7.5%)	(19.5%)	(25%)	(24.5%)	(23.5%)
Social Factors (SF)					
Living conditions in Pakistan are becoming unmanageable (the cost of living is high).	8(8%)	12(12%)	18(18%)	34(34%)	28(28%)
There is a Poor quality of education for children.	11(11%)	22(22%)	24(24%)	28(28%)	15(15%)
There is an Unsafe environment for children.	8(8%)	6(6%)	22(22%)	31(31%)	33(33%)
Negative attitude of society towards nurses or nurse profession.	6(6%)	20(20%)	29(29%)	28(28%)	17(17%)
My family influenced me to move abroad.	11(11%)	22(22%)	28(28%)	23(23%)	16(16%)
Overall Trend (SF)	(8.8%)	(16.5%)	(24.2%)	(28.8%)	(21.8%)
Political Factors (PF)					
There is a high level of violence and crime in the country.	7(7%)	16(16%)	17(17%)	32(32%)	28(28%)
I left my country due to Unstable political environment or government tension.	4(4%)	18(18%)	28(28%)	27(27%)	23(23%)
Overall Trend PF	(5.5%)	(17%)	(22.5%)	(29.5%)	(25.5%)
Professional Growth (PG)					
There is a lack of training opportunities to enhance my knowledge and skills.	9(9%)	26(26%)	27(27%)	26(26%)	12(12%)
There is no progress in career development/ promotion in Pakistan.	7(7%)	29(29%)	29(29%)	28(28%)	7(7%)
Overall Trend (PG)	(8%)	(27.5%)	(28%)	(27%)	(9.5%)
Work-Related Environment (WE)					
There is a Shortage/adequacy of nursing staff/understaffing in the country.	4(4%)	6(6%)	29(29%)	42(42%)	19(19%)
There is an excessive workload during duties.	5(5%)	6(6%)	16(16%)	36(36%)	37(37%)
There is a lack of Inadequate equipment/supplies.	9(9%)	26(26%)	26(26%)	32(32%)	7(7%)
I have gone through Physical and mental stress.	6(6%)	17(17%)	23(23%)	35(35%)	19(19%)
Lack of healthcare facilities in my country.	7(7%)	21(21%)	25(25%)	29(29%)	18(18%)
I am not satisfied with my supervisor.	17(17%)	32(32%)	29(29%)	14(14%)	8(8%)
My Work is not recognized by my supervisor/ manager.	16(16%)	30(30%)	25(25%)	25(25%)	4(4%)
There is a Lack of support and encouragement from the head nurse.	16(16%)	27(27%)	23(23%)	24(24%)	10(10%)
There was Favoritism in promotion/ duty roaster.	11(11%)	16(16%)	22(22%)	29(29%)	22(22%)
Overall Trend (WE)	(15%)	(26.25%)	(24.75%)	(23%)	(11%)



The findings indicate that multiple push factors contribute to nurses leaving Pakistan, with varying degrees of influence across economic, social, political, professional, and work-related factors. Economic factors, such as low salaries (34% strongly agree) and currency devaluation (13% strongly agree), highlight financial instability as a major driver. Social factors, particularly high living costs (28% strongly agree) and unsafe environments for children (33% strongly agree), were prominent, alongside societal attitudes toward nurses (17% strongly agree). Political instability and violence (28% strongly agree) emerged as critical concerns under political factors. Professional growth was hindered by limited training opportunities and career stagnation, with most respondents neutral or disagreeing about strong career support (28% neutral). Work-related challenges, including understaffing (42% agree), excessive workload (37% strongly agree), and lack of support from supervisors (32% disagree satisfaction), significantly impacted job satisfaction. Collectively, the data emphasize a complex interplay of systemic and situational factors driving the brain drain of Pakistani nurses.

Factors Which Attract Nurses to Move Other Countries (Pull Factors)

Table 5

The Pull Factors

Constructs & Items	S.D.	D	N	A	S.A.
Economic Factor (EF)					
The salaries of nurses in other countries are better than in our country.	4(4%)	2(2%)	3(3%)	38(38%)	53(53%)
They provide better Incentives/overtime.	4(4%)	3(3%)	15(15%)	33(33%)	45(45%)
Overall Trend (EF)	(4%)	(2.5%)	(9%)	(35.5%)	(49%)
Social / Family Factors (S/F F)					
There is a Safe/secure environment for children/families.	1(1%)	1(1%)	20(20%)	37(37%)	41(41%)
There is a Better education system for children.	1(1%)	7(7%)	28(28%)	27(27%)	37(37%)
My family had already settled abroad, so I also planned to move there.	11(11%)	33(33%)	25(25%)	16(16%)	15(15%)
Overall Trend (S/F F)	(4.3%)	(13.66%)	(24.33%)	(26.66%)	(31%)
Professional Growth (PG)					
There are more opportunities for Training and skill development.	4(4%)	7(7%)	27(27%)	42(42%)	20(20%)
There are Better career development opportunities and promotions.	4(4%)	13(13%)	24(24%)	39(39%)	20(20%)
Overall Trend (PG)	(4%)	(10%)	(25.5%)	(40.5%)	(20%)
Work Environment And Related Factors (WE)					
There is workplace safety and security.	1(1%)	3(3%)	24(24%)	47(47%)	25(25%)
All kinds of modern equipment and technologies are available as required.	1(1%)	3(3%)	16(16%)	48(48%)	32(32%)
There is Adequate staffing.	2(2%)	17(17%)	34(34%)	33(33%)	14(14%)
The available staff are quite supportive.	3(3%)	7(7%)	33(33%)	42(42%)	15(15%)
A good healthcare system provides standard and quality care.	2(2%)	4(4%)	24(24%)	46(46%)	24(24%)
Overall Trend (WE)	(1.8%)	(6.8%)	(26.2%)	(43.2%)	(22%)
Political Factors (PF)					
Political stability exists here, in contrast to our nation.	5(5%)	4(4%)	21(21%)	43(43%)	27(27%)
There is a Stable socio-political environment.	4(4%)	2(2%)	25(25%)	42(42%)	27(27%)
Overall Trend (PF)	(4.5%)	(3%)	(23%)	(42.5%)	(27%)
Nursing Image (NI)					
The good nursing image and status of nurses are higher in foreign countries.	2(2%)	5(5%)	22(22%)	37(37%)	34(34%)
Professional pride (respect our nursing profession).	1(1%)	5(5%)	20(20%)	40(40%)	34(34%)
Overall Trend (NI)	(1.5%)	(5%)	(21%)	(38.5%)	(34%)

The findings highlight various pull factors that attract nurses from Pakistan to other countries, emphasizing economic, social, professional, and workplace advantages. Economic factors are highly influential, with 53% strongly agreeing that salaries abroad are better, and 45% strongly agreeing on improved incentives and overtime benefits. Social factors, such as safer environments for families (41% strongly agree) and better education systems for children (37% strongly agree), are also significant, though family settlement abroad is less uniformly agreed upon (15% strongly agree). Professional growth is a major draw, with 42% agreeing and 20% strongly agreeing on better training and promotion opportunities. Work environment factors like workplace safety (47% agree), availability of modern equipment (48% agree), and quality healthcare systems (46% agree) further enhance the appeal. Political stability (43% agree) and a stable socio-political environment (42% agree) stand out among political factors. Lastly, the positive image of nurses and professional respect abroad (34% strongly agree) reinforces the desire to migrate. Collectively, these findings underscore the multifaceted allure of foreign opportunities, providing a compelling contrast to domestic challenges.

Table 6

Personal Factor (Pull Factor)

Constructs & Items	S.D.	D	N	A	S.A.
Personal Ambitious (PA)					
I have the curiosity to work abroad.	7(7%)	7(7%)	35(35%)	34(34%)	17(17%)
I Want to gain international nursing experience.	7(7%)	9(9%)	24(24%)	32(32%)	28(28%)
I want to work in different environments, cultures and languages.	5(5%)	8(8%)	26(26%)	33(33%)	28(28%)
I want to Travel to see the world.	7(7%)	9(9%)	22(22%)	29(29%)	33(33%)
I want Permanent residence or settlement.	7(7%)	12(12%)	24(24%)	32(32%)	25(25%)
I want Job security And job protection.	4(4%)	4(4%)	18(18%)	35(35%)	39(39%)
Overall Trend (PA)	(6.16%)	(8.16%)	(24.83%)	(32.5%)	(28.33%)

The findings indicate that personal factors significantly influence Pakistani nurses' decisions to work abroad, driven by ambitions and aspirations. A substantial proportion (32.5% agree, 28.33% strongly agree) express a desire for job security and international experience, reflecting professional growth aspirations. Curiosity to work in different environments, cultures, and languages (33% agree, 28% strongly agree) and the opportunity to travel and explore the world (29% agree, 33% strongly agree) are also key motivators. Permanent residence and settlement abroad attract many nurses (32% agree, 25% strongly agree). These trends reveal a strong pull of personal ambition, global exposure, and career stability in shaping migration decisions.

Hypothesis TESTING

Table 7

Test of Hypotheses

		Mean	S.D.	Paired Differences					t	df	Sig. (2-tailed)
				Mean	S.D.	Std. Error Mean	95% Confidence Interval of the Difference				
							Lower	Upper			
H1	PUSH Score - PULL Score	65.67 83.32	3.65 12.46	17.650	14.36 2	1.436	-20.49	-14.80	12.289	.000	
H2	Push Economic Factors Pull Economic Factors	3.37 4.23	1.02 0.83		-.860	1.073	.107	-1.07	-.64	8.013	.000



				Paired Differences					t	df	Sig. (2-tailed)
		Mean	S.D.	Mean	S.D.	Std. Error Mean	95% Confidence Interval of the Difference				
							Lower	Upper			
H3	Push Social Factors	3.38	0.83								
	Pull Social Factors	3.66	0.68	-.279	.871	.087	-.45	-.10	3.205		.002
H4	Push Political Factors	3.52	1.05	-.320	1.181	.11818	-.55	-.08	2.708		.008
	Pull Political Factor	3.84	0.92								
H5	Push Work Environment	3.47	.81								
	Pull Work Environment	3.76	.66	-.296	.897	.089	-.47	-.11	3.299		.001
H6	Push Professional Growth	3.02	1.02								
	Pull Professional Growth	3.62	.96	-.60	1.21	.12	-.84	-.35	4.924		.000

H1: A paired sample t-test was conducted to observe the difference in the push and pull factors of brain drain of Pakistani nurses. The results showed a significant difference in both mean and standard deviation of the push factors ($M = 65.67$, $SD = 13.66$) and pull scores ($M = 83.32$, $SD = 12.46$). Also, the difference is also significant with ($t = 12.28$, $p < 0.05$). Therefore, H1 is supported that it is concluded that there is a statistically significant difference in the push and pull factors of brain drain in Pakistani nurses.

H2: The paired sample t-test was run to evaluate whether there is a difference in the economic factors of push and pull in the Pakistani nurses. The results show a significant difference in Push Economic Factor ($M = 3.34$, $SD = 1.02$) and Pull Economic Factors ($M = 4.23$, $SD = 0.83$). The difference is also significant with ($t = 8.013$, p -value < 0.05). Therefore, the H2 is accepted, and it is concluded that there is a statistically significant difference in the push and pull economic factors causing the brain drain of Pakistani nurses.

H3: The difference in the push and pull social factors are exhibited in the table, as for push social factors ($M = 3.38$, $SD = 0.83$) and pull social factors ($M = 3.66$, $SD = 0.68$). Therefore, the H3 is supported with ($t = 3.205$, p -value < 0.05), as shown in the table.

H4: The difference in the push and pull political factors causing the brain drain is also evident for the push political factors ($M = 3.52$, $SD = 1.05$) and pull political factors ($M = 3.84$, $SD = 0.92$). H4 is supported by ($t = 2.708$, p -value < 0.05). Therefore, it is concluded that there is a statistically significant difference between the push and pull political factors of brain drain in Pakistan.

H5: The difference in the push and pull work-related environment is found to be significant as the push work environment ($M = 3.47$, $SD = 0.81$) and pull work environment ($M = 3.76$, $SD = 0.66$). H5 is supported with ($t = 3.299$, p -value < 0.05).

H6: Likewise, the difference in the push and pull professional growth is significant as push professional growth factors ($M = 3.02$, $SD = 1.02$) and pull professional growth factors ($M = 3.62$, $SD = 0.96$). H6 is supported with ($t = 4.924$, p -value < 0.05). It is, therefore, concluded that there is a statistically significant difference between the professional growth push factors and professional growth pull factors of brain drain in Pakistani nurses.

Discussion

The study reveals critical insights into the demographic, professional, and socio-economic aspects, forming push and pull factors driving the migration of Pakistani nurses. The overwhelming majority of migrants are well-educated, experienced, and predominantly female, underscoring the systemic inefficiencies in Pakistan's healthcare system that fail to retain skilled professionals. The analysis of push and pull factors highlights a complex interplay of financial, professional, social, and political dynamics influencing migration decisions.

Economic disparity emerged as the most significant driver, with many nurses citing low salaries, currency devaluation, and insufficient incentives as key push factors. Social and familial concerns, such as unsafe environments, high living costs, and societal attitudes toward nurses, further compounded the issue. The lack of professional growth opportunities and poor workplace conditions—including understaffing, excessive workloads, and inadequate support systems—further accelerated migration trends.

On the other hand, pull factors were strongly associated with economic stability, professional growth opportunities, and improved work environments abroad. Higher salaries, access to modern equipment, and workplace safety were prominent draws, alongside political stability and the positive image of nurses in host countries. The attraction of better education and safer environments for families also played a significant role in migration decisions. These findings highlight systemic gaps in Pakistan's healthcare system that necessitate urgent attention to prevent further brain drain.

In general, the quantitative findings indicated that the described push-pull factors of economic, social, professional growth, political, and work-related environment are highly correlated with nurse brain drain and raise the potential nurses to migrate. The findings are consistent with the fact that there are five key reasons for migration: low pay, a lack of professional growth, bad healthcare, and a broken system. Likewise, as in Nigeria, Okafor et al. (2020) stated that nurses migrate to developed countries due to push reasons (poor remuneration, economic factors, unsatisfactory working conditions, work environment, and political conditions) and pull factors (excellent working conditions and better pay). Much research in different countries infers the same results as our quantitative finding that economic issues are the primary cause of Pakistani nurse brain drain, according to an African study (Machayo & Keraro, 2013).

Likewise, personal ambition (the pull factor), as in the Philippines, poor working conditions and lack of professional growth, are the main reasons for the push factors and pull factors include high salaries, good working conditions and advanced technologies (Dimaya et al., 2012). Political considerations, such as investigations undertaken in Romania and Malaysia to detect political corruption, are also contributing to the brain drain of Pakistani nurses (Sapkota et al., 2014). Nepalese nurses are concerned about the country's political status, unrest and security difficulties, political instability, criminality, and violence.

Limitations

There are some limitations which are being acknowledged; one is the small size of data collection due to time constraints. Most data was collected from those nurses who migrated from Karachi. Few are from other cities, but not much. It will be good when we collect data from overall Pakistani nurses. In spite of this limitation, this study may be useful to identify the factors which are responsible for brain drain from Pakistani nurses.

Conclusion

This study highlights the multifaceted factors contributing to the brain drain of nurses from Pakistan, emphasizing economic, professional, and socio-political challenges as key push factors. Conversely, attractive financial packages, professional opportunities, and improved living conditions abroad serve as strong pull factors. These trends not only underscore systemic inefficiencies but also point to the need for strategic interventions to retain talent within the country. Addressing these issues is critical for ensuring the sustainability and efficiency of Pakistan's healthcare system. This study reports the common causes of push-pull for nurse's brain drain from Pakistan. Although social factors and economic factors are reported as the main reasons for nurses' brain drain. Many challenges and reasons for Pakistani nurses to move the other developed countries. Our study highlights that provide nurses with attractive salary packages, proper working environment, professional pride, more advanced training and career growth opportunities improves overall factors that may prevent nurse migration

Implications for Healthcare Management

The findings offer actionable recommendations for healthcare policymakers and administrators in Pakistan to mitigate the migration of skilled nurses and strengthen the domestic healthcare workforce.



Addressing systemic inefficiencies requires a multi-faceted approach. Economic incentives, such as competitive salary packages, bonuses, and overtime pay, can help align domestic earnings with international standards. Investments in professional development through training programs and clear career progression pathways are essential for skill enhancement and motivation. Improving workplace conditions by addressing understaffing and providing modern equipment can significantly boost job satisfaction. Establishing mentorship programs and ensuring managerial support can create a more supportive work environment. Additionally, enhancing socio-economic infrastructure, including safety measures, child education facilities, and positive societal attitudes toward the nursing profession, is critical. Implementing these strategies can improve job satisfaction, curb migration trends, and ensure the retention of a competent and motivated nursing workforce.

Recommendations for Future Research

Future research can build on this study by exploring critical areas to deepen understanding of nurse migration dynamics and inform sustainable policy development. Investigating host country perspectives could uncover the challenges and experiences of migrating nurses, highlighting additional factors influencing their decisions. Assessing the effectiveness of retention strategies would provide evidence of their role in mitigating migration trends. Comparative studies across healthcare sectors, such as public versus private, can identify sector-specific challenges and solutions. Longitudinal studies could offer insights into the long-term impact of migration on Pakistan's healthcare workforce. Additionally, evaluating governmental and institutional policies would help identify their influence on migration patterns and inform evidence-based reforms. Addressing these directions can advance discourse and contribute to more effective and sustainable strategies.

Limitation of Study

There is limited time for data collection; most nurses are not filling out surveys due to the most interesting and some other issues. Also, more might have been collected from those nurses who have recently moved to Middle east countries. The larger sample might have given a good generalizability.

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