

THE INFLUENCE OF WORKING CONDITIONS ON PRO-MIGRATION CONSIDERATIONS AMONG NURSING STUDENTS

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Abstract: Purpose of the article: to identify the pull factors of migration among nursing students and the impact of migration flows on the Slovak labour market with an aspect on the health care sector. Findings: Nursing students are most attracted to studying abroad by the following pull factors: legal norms, regulations and requirements for work performance, the behaviour of supervisors, relationships between colleagues and the favourable social climate in the country. Factors that are less influential are remuneration, education and a higher standard of living. Based on the answers of the respondents, a high percentage of considerations about looking for a job abroad were shown. Out of the 423 students, up to 80% of the respondents plan to go abroad for work. The current number of nursing students is not sufficient to cover the needs of the Slovak labour market in the health sector. The massive outflow of potential staff in hospitals exacerbates the staffing problems in hospitals.

Keywords: intention to leave, nursing students, working conditions of nurses, labour market, pull factors

1 Introduction

Migration of health workers is a relatively well-developed issue in terms of current scientific research, as evidenced by the number of published scientific studies (Hajian et al., 2020; Hajian et al., 2023; Mara, 2023; Boboc et al., 2024; Sax Dos Santos Gomes et al., 2024 and others). Although labour migration can generally be seen as one of the many effects of globalisation and an expression of individual free will, knowing what factors drive labour to decide to migrate is crucial. In the case of healthcare workers, job satisfaction or working conditions are often mentioned as one of the factors, which have been investigated in many scientific studies (Kurimoto et al., 2020; Kalinowska, Marciniowicz, 2020; Silva, Potra, 2021; Karadaş et al., 2022; Bragadottir et al., 2023 and others). For regions and countries from which health workers emigrate due to job dissatisfaction, it is possible to speak of migration as a negative phenomenon. This is because it weakens the local health system, indirectly overburdens domestic health workers, and ultimately represents lost public funds invested in the training of the future workforce, which will return this investment in the form of work done in a country other than the home country. Therefore, it is logical that the affected countries are attempting to eliminate this negative trend by finding and implementing solutions that have proven to be pull factors in the countries where health workers immigrate most frequently - the issue of pull factors has been addressed in many scientific studies (Botezat and Ramos, 2020; Almansour et al., 2023; Kuhlmann et al., 2024).

However, in the context of this information, it is important to recognize that measures aimed at mitigating the outflow of health workers should not only affect those who are already an active part of the labour market, but also future workers, who are students in health professions. It is clear that potential health workers are already considering their professional future at the time of their preparation for the profession - whether it is the place of work or considerations about staying in the profession itself (Aydin et al., 2021; Kim et al., 2021; Visiers-Jiménez et al., 2022). Less obvious, however, is the influence of specific factors on students' considerations, which can be called pro-migration considerations. We do not know how specifically these students' reflections are influenced by working conditions and, for this reason, we do not know the parameters of the relationship between these two variables, which we consider as an interesting research problem. Determining the intensity of this relationship will help in identifying shortcomings in practice (in accordance with push and pull factor theory) and at the same

time suggest ways to address them. When solving the research problem, we use descriptive analysis, Bartlett's test of sphericity and KMO test to verify the suitability of the data for the use of factor analysis. The results of the research further specify the interrelationship between working conditions as factors that condition the emergence of nursing students' pro-migration considerations in the selected health care institution. The paper consists of an abstract, introduction, literature review, methodology and research section, conclusion and list of resources.

2 Literature review

When examining the impact of working conditions on the pro-migration considerations of nursing students, it is essential to consider the age factor. This is because, as a rule, they are members of younger generational groups, most often Z and millennials (Y). It is well known that these people (especially members of Generation Z) have lived most of their lives in a world marked by the emergence and rapid development of many globalising trends (social networks, information technology, affordable commercial travel, wide opportunities to study abroad, etc.). The volatility of an environment marked by constant change has inevitably necessitated a higher degree of flexibility on the part of these generational groups, which has been confirmed directly or indirectly by a number of studies in the meantime (Schroth, 2019; Tjiptono et al., 2020; Bulinska-Stangrecka, Naim, 2021; Roncak et al., 2021; Goryunova, Jenkins, 2023). In line with the above studies and the general social consensus, these are people who, thanks to the current opportunities, generally dare to travel more, study abroad, and often possess good language skills. These but also other characteristics of (especially) Generation Z - struggle for social change and social equality, striving for economic independence, striving for work-life balance, demanding flexible forms of work organisation, climate activism, etc. (Jung, Yoon, 2021; Bulinska-Stangrecka, Naim, 2021; Elenga, Krishnaswamy, 2023; Botezat et al., 2024) can therefore be considered as factors that also influence, to varying degrees, considerations of preferences regarding suitable places to live and work.

The mentioned specificity and basic characteristics of the members of the younger generations logically also affect nursing students belonging to the aforementioned generational groups. A study from the USA confirmed that low age and migration considerations correlate - younger people from the healthcare sector are more likely to consider migrating for work (Giraldo-Santiago et al., 2024). Experience of living outside their home country, the courage to travel, or time spent studying abroad, and acquired language skills can greatly facilitate and influence their decision on a suitable place to work, regardless of geography. However, the mentioned characteristics of Millennials and Generation Z themselves do not represent a reason for migration for work; they can be understood more as suitable predispositions for such a decision. Real factors of nursing students' pro-migration considerations can be considered as issues of so-called "push" and "pull" factors, which deal with the reasons and motives for work emigration and immigration and are elaborated on by many international studies (among the most recent are Adovor et al., 2021; Naval et al., 2024; Bunduchi et al., 2024; Boboc et al., 2024; Khan, 2024, and others). Specific are the so-called dyadic factors, which also influence migration considerations (Adovor et al., 2021).

The range of factors that determine the willingness or need of nursing students to emigrate for work can be very broad. It is evident that they are not only related to the quality and setting of the education system, but also to other social, socio-economic, environmental, political and legislative attributes of the home country, in line with the findings above regarding Generations Y and Z. Push factors (i.e. factors that stimulate the intention to leave the home country) include, for example, poor working

conditions or lack of career opportunities (Bunduchi et al., 2024). These findings are corroborated by other studies (Khan, 2024; Boboc et al., 2024; Naval et al., 2024), mentioning other factors such as job dissatisfaction, low salary, long working hours, but also political instability, corruption or poor quality health infrastructure and outdated health technologies (Konlan et al., 2023). Inadequate working conditions are also a major reason for considering leaving the profession according to studies by Park et al. (2019), Martinez et al. (2021), Çamveren, Kocaman (2021), İşsever, Bektas (2021) and others. Pro-migration considerations, however, are not necessarily supported only by negative perceptions of conditions in the home country - often the incentive is a better situation abroad (pull factors). A better situation can be understood as, for example, better salaries, a better working environment, better opportunities for professional development (Schumann et al., 2019; Domagała et al., 2022; Kuhlmann et al., 2024; Boboc et al., 2024) or a higher standard of living in the form of a higher quality of life (Pál et al., 2024). Satisfactory working conditions are a prerequisite for job satisfaction, which according to another study is negatively correlated with intention to leave (Salahat, Al-Hamdan, 2022). The results of multiple regression analysis of another study, in turn, suggest that nursing students' satisfaction with their personal practice experience is a significant predictor of consideration to remain in the profession (Kim et al., 2021). Thus, prevention of labour emigration requires, among other things, adequate systemic solutions and adjustment of personnel management processes in healthcare institutions (Poliakova et al., 2022).

Although knowledge about migration is generally based on the theoretical division of push and pull factors, their inseparability is evident. What may be considered a push factor in the home country may at the same time be a pull factor in the host country. Although both push and pull factors can be seen as a natural consequence of the continuity of social, socio-economic or political development, the immigration policies of individual countries are increasingly intervening in this issue. They can be referred to as targeted influences on migration balance. The impact of these factors on the brain drain from the healthcare sector and the attraction of highly skilled professionals is evidenced by several studies (Douaiher et al., 2018; Adovor et al., 2021), which often pose an ethical dilemma, as immigration-attractive countries gain necessary healthcare workers at the expense of countries from which these workers depart (Ferracioli, De Lora, 2015; Quamruzzaman, 2020), creating gaps in the healthcare sector in the countries of origin of migrants (Ondrusova et al., 2023). For these reasons, it can be stated that addressing this issue is constantly relevant and necessary. A research gap in the case of the present study is the absence of deeper knowledge about the factors that most intensively influence Slovak nursing students and stimulate them to consider job opportunities abroad. Based on the above, the aim of the research is to identify the pull factors from the field of working conditions acting as predictors of the pro-migration considerations of these students.

3 Objective and methodology

Research aim: To identify the pull factors of migration among nursing students and the impact of migration flows on the Slovak labour market with a focus on the health care sector.

Partial aims and objectives of the research part of the paper:

- analysis and collection of relevant scientific papers from the international scientific databases Web of Science and Scopus;
- extraction of variables from questionnaire data;
- analysis of variables through mathematical-statistical methods;
- interpretation of the results of the analysis and formulation of conclusions based on the findings.

Data collection: The questionnaire was designed for the purpose of the research: APVV-19-0579 titled "The Setting of Personnel

Management Processes in Hospitals and Its Impact on Migration of Doctors and Nurses to Work Abroad". The survey involved 423 nursing students from secondary and higher education institutions in Slovakia.

Methods used:

- Descriptive analysis - descriptive analysis were processed using graphs that reflect counts or percentages of primary and secondary data;
- Bartlett's test of sphericity, Kaiser-Meyer-Olkin test (KMO) - these tests provide information about the suitability of the data for the use of factor analysis - if the result of the KMO test is above the value of 0.7, the variables are suitable for the use of factor analysis; if the result of the Bartlett's test of sphericity is below the specified level of $\alpha = 5\%$, the variables are significant and are suitable for the use of factor analysis;
- Principal component factor analysis - using the selected method, hidden factors are identified and clustered into a smaller number - these factors represent a set of variables that share common characteristics; by extracting the factors, pull factors of migration in nursing students are identified. Given the structure of the factors and the sample of respondents, it is appropriate to use exploratory factor analysis to help identify hidden factors influencing nursing students' migration intentions.

4 Results of the study

In the research part of the study, the processed results are interpreted. The subject of the research was nursing students in Slovakia and the impact of their departure on the domestic labour market. The total number of respondents was 423 from universities and secondary schools. The obtained data were recoded into numerical values, later statistically evaluated.

Table 1: Evaluation of test results for the appropriateness of using factor analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.855
Bartlett's Test of Sphericity	Approx. Chi-Square	681.242
	df	36
	Sig.	0.000

Source: own elaboration in SPSS, 2024

The Kaiser-Meyer-Olkin (KMO) test result is 0.855, where the data is appropriate and can be used in factor analysis. Bartlett's test of sphericity is below the $\alpha = 5\%$ threshold with a resulting significance level of 0.000. The results of both tests demonstrated the suitability of the data, thus the model can be considered suitable for use in factor analysis.

Table 2: Results of correlation matrix (R)

Extraction of main components				
Factors	own number	% of total variance	cumulative eigenvalue	cumulative %
F1	4.65	51.66	4.65	51.66
F2	1.06	11.79	5.71	63.44

Source: own elaboration in Statistica, 2024

The correlation matrix explains a number of common factors explained by the model. The Kaiser's criterion states that the eigenvalue must be greater than 1. In a correlation matrix with 9 variables, 2 grouping factors are identified, which explain 51.66% of the total variance. The selected variables are grouped using the principal component extraction method.

Table 3: Factor analysis of nursing students - identification of pull factors for migration

Variables - working conditions	Stress Factor: Varimax Normalized Extraction: Principal Components (Marked are > 0.70000)	
	Factor 1 - (workplace relations and organisational norms)	Factor 2 (remuneration system and workplace facilities)
Variable 1 - Organisation and working conditions	0.509374	0.182863
Variable 2 - Instrumentation and material equipment of health facilities	0.253921	0.761051
Variable 3 - Appraisal and remuneration for work	0.105546	0.887457
Variable 4 - Setting up professional and career development processes	0.453648	0.55311
Variable 5 - Legal standards, regulations and work performance requirements	0.768022	0.303419
Variable 6 - Supervisors' conduct and behaviour	0.865495	0.243004
Variable 7 - Relationships between colleagues	0.852759	0.156674
Variable 8 - Favourable social climate in the country	0.75124	0.26515
Variable 9 - Higher standard of living	0.511248	0.569945
Variance	3.432747	2.276949
% total variance	0.381416	0.252994

Source: own elaboration in Statistica, 2024

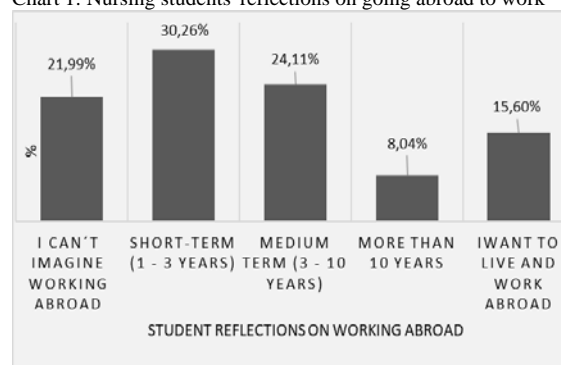
Using factor analysis, selected factors that have the greatest influence on nursing students' reflections on migration were grouped. In Factor 1 (workplace relations and organizational norms), the following variables were grouped using extraction: legal norms, regulations and job performance requirements (0.768022), supervisor's actions and behaviors (0.865495), relationships among colleagues (0.852759), and favorable societal climate in the country (0.75124). The results of factor rotation show that factor 1 accounts for 3.432747 of the total variance, which explains 22.27% with nine variables. These findings are in line with the results of several studies presented in the literature review section, e.g. Kim et al. (2021) or Poliaková et al. (2022), which, among other things, point precisely to the importance of pull factors such as good personal experience of work or the correct setup of personnel management processes in hospitals - these in fact fundamentally affect the requirements for job performance, the behaviour of supervisors, workplace relations or many other aspects.

Factor 2 (remuneration system and workplace equipment) is correlated with the variables: instrumentation and material equipment of health facilities (0.761051), evaluation and remuneration for work (0.887457). The results of factor rotation show that factor 2 accounts for 2.276949 of the total variance, which explains 2.52% for the nine variables.

The results demonstrate that the factors that most influence nursing students' pro-migration considerations are clustered in factor 1. To a lesser extent, they are also influenced by those that are grouped in factor 2. Factors that did not reach a value above 0.7 in the result are not significant for nursing students. Namely:

organization and working conditions, setting of professional and career development processes or higher societal level.

Chart 1: Nursing students' reflections on going abroad to work

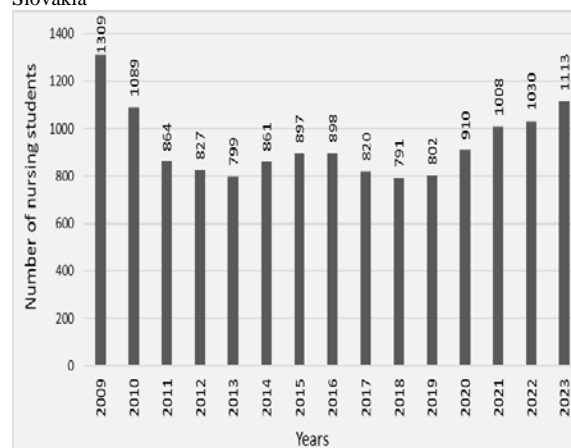


Source: own processing in Excel, 2024

Figure 1 interprets nursing students' reflections on their migration intentions. The questionnaire survey asked whether respondents were interested in working abroad. The representation of each response was processed as their percentage of the total 423 responses of the respondents. Out of the total, only 21.99% of the students are not considering working abroad. 62.41% want to work abroad for a certain period of time only, of which 30% want to work abroad for a short period of time (1-3 years), 24% for a medium period of time (3-10 years) and 8.04% for a long period of time (more than 10 years). 15.6% of the respondents want to stay abroad to live and work permanently. If 62.41% of the respondents (nursing students) decided to go abroad for work, the Slovak labour market would lose 288 people from universities who graduated and could work here.

The results of students' migration intentions by type of study also provide interesting findings. The number of secondary school student respondents to the questionnaire was 67 and the number of respondents in the position of nursing student in higher education was 356. The results of the response percentages show in more detail about pro-migration considerations. According to the results, as many as 77.61% of the respondents from secondary schools want to go abroad for work after graduation. According to the results of the responses of nursing students in universities, even as many as 80.45% of the respondents plan to leave after graduation. Thus, the total proportion of high school and college students who plan to go abroad for work is 80.38%.

Chart 2: Development of the number of nursing students in Slovakia



Source: own elaboration based on IZ data, 2024

Figure 2 shows the evolution of the number of nursing students in Slovakia after 2023. Secondary data are obtained from the Employment Institute portal and have been combined with primary data in the present research. The graph shows the

number of nursing students in universities. This section of people can be considered as a highly skilled workforce that has specialised clinical skills.

Table 4: Calculation of growth rate of nursing students

years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
growth rate		-16.81	-20.66	-4.28	-3.39	7.76	4.18	0.11	-8.69	-3.54	1.39	13.47	10.77	2.18	8.06

Source: own elaboration based on IZ data, 2024

In 2010, the growth rate of nursing students (Table 4) slowed down by 16.81% year-on-year and by 20.66% in the following year. After a period of fluctuation of this rate between positive and negative values, it is only since 2019 that a continuous increase in the number of students is observed, the strongest in 2020 (13.47% compared to the previous year). Thus, until 2023, there are no recorded declines in the number of students as in the previous decade. However, the number of nursing students that could cover the needs of the healthcare labour market of the Slovak Republic has not yet been reached. In retrospect, looking back at the presented students' reflections on working abroad, it can be stated that a large number of students plan to go abroad to work for a limited period of time or want to stay there permanently, which, combined with the insufficient number of domestic graduates, represents a major problem in the near future. However, a partly positive finding is that the interest of young people in studying nursing has been increasing over the last 5 years. The question remains, however, whether this workforce will capitalise on its knowledge, experience and education in the form of work done at home or whether it will head for the foreign labour market.

Impacts and implications of nursing students' pro-migration intentions on the staffing of health care facilities

A total of 423 nursing students from secondary schools and universities were able to participate in the survey. As a result, a total of 62.41% of the students want to go abroad for work after graduation and another 15.60% want to stay there to live. This section quantifies the potential loss of manpower if the students' pro-migration intentions are fulfilled. According to the results of the questionnaire survey, a total of 288 university students and 52 high school students plan to go abroad for work. In the case of the 288 university students who plan to go abroad to work, after deducting from the current number of nursing students in the Slovak Republic (1113; Figure 2, year 2023), only 825 nurses would join the nursing profession after graduation. According to Jašková, labour migration is currently a serious economic, social and political problem. The issue of labour migration is also closely related to changes in the labour market (Jašková, 2024). It should be noted that the formulation of this assumption is based solely on the results of the presented questionnaire survey. Other alternative labour market losses may result from maternity leave or a change of work sector, which may result in an even smaller gain of nursing graduates in the healthcare labour market. According to Tupá (2020), a significant problem in the labour market is that many graduates are not employed in their graduate field or go abroad for work. This creates gaps in the health care sector (Ondrušová et al., 2023).

5 Conclusion

Workplace relationships and organizational norms are the most important factors for nursing students when considering migration. The compensation system and workplace facilities influence them to a lesser extent. Factors such as work organisation, career development or social level did not play a significant role in the case of the present research. It was found

that migration poses a significant risk to the Slovak health care system, as up to 62% of nursing students involved in the conducted research are considering working abroad and almost 16% are considering staying abroad permanently. The departure of almost a quarter of nursing graduates would mean the loss of more than 288 skilled workers for the Slovak labour market, exacerbating the already existing shortage of nurses. The situation is exacerbated by the stagnating growth in the number of nursing students in recent years. Although the growth rate has increased slightly again in 2021, it has still not been able to reach the level of previous decades and meet the needs of the Slovak healthcare labour market.

From the findings of the study, it can be concluded that measures need to be taken to increase the number of nursing graduates and implement measures to reduce their emigration abroad. There are several possible solutions which can be summarised in two areas:

- creating retention support programmes for nursing students (e.g. scholarship programmes for students);
- increasing the attractiveness of the profession and study programmes (e.g. information campaigns on the nursing profession and its benefits).

The departure of a young and skilled workforce has a fundamentally negative impact on the labour market for the future. Hospitals in Slovakia have been understaffed for a long time, and similar attrition continues to exacerbate the problem. In addition, there are also negative effects in the staffing of individual departments, where nurses work beyond their competences and may experience constant stress and discomfort at work, leading to further manifestations of their dissatisfaction. Thus, the issue of migration of health professionals from Slovakia ultimately also poses a major ethical problem (Ferracioli, De Lora, 2015; Quamruzzaman, 2020) - all the more serious because migration considerations are already present in nursing students, where the return on the investment made in their education is only envisaged in the future.

Research limitations: the research was conducted on a sample of 423 nursing students from secondary schools and universities. This means that the results do not generalize to the entire group of high school and university students. The research was not focused only on graduating nursing students, so it is possible that their reflections will differ in the future (as graduates).

The study also concludes with contributions to scholarship that may expand on the question of nursing students' migration intentions. Based on the findings, factors that influence nursing students were identified, with an emphasis on workplace relationships and organizational norms. These findings add to existing knowledge on the issue and contribute to the understanding of migration intentions. By quantifying the risk of migration to the Slovak health care system, the present study highlights the need for urgent solutions.

In addition to the scientific benefits, the study has practical benefits. Knowledge of pull factors allows employers and policy makers to understand why nursing students choose to seek work abroad, enabling them to implement strategies to retain these students in their country of origin.

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Primary Paper Section: A

Secondary Paper Section: AM, AO, FQ