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Examining dimensions of career intentions: insights from medical and nursing students at a private not-for profit university in Vietnam

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Abstract

Background Understanding students' career intentions through evidence-based approaches is crucial for developing effective career guidance and intervention strategies. Although there has been considerable attention in this field, research remains limited, particularly in low- and middle-income countries (LMICs) in Asia. These regions have unique socioeconomic conditions and cultural norms that potentially shape decision-making processes. This study provides insights into the career intentions of medical and nursing students and identifies the key determinants influencing their choices at a newly established private institution (VinUniversity) in Vietnam.

Methods This study employs a mixed-methods design. The quantitative phase involved a survey of all undergraduate medical and nursing students. The qualitative phase consisted of in-depth 11 individual interviews with a purposive sample until data saturation.

Results A total of 198 students (77%) participated in the quantitative phase. The majority of students (75.8%) expressed interest in clinical practice, with preferences notably high for surgical specialties (30.9%), internal medicine (10.1%), and pediatrics (10.1%). 22.7% of students expressed a desire to work overseas, and a significant number (70.7%) indicated the lack of a career guidance program. Qualitative data revealed that personal interest, family influence, financial stability, and societal appreciation were primary influencers in career choice.

Discussion The study underscores the complex interplay between personal interests, family influence, financial considerations, and societal expectations in shaping career choices. The persistent low interest in family medicine and primary care continued to be a concern.

Conclusion This study provides further insights into the career intentions and influencing factors among medical and nursing students at VinUniversity. The implications for practice include implementing tailored career guidance programs, offering diverse elective tracks that incorporate global health experiences, and establishing structured mentorship programs. It is also recommended to measure the impact of these interventions through longitudinal follow-up studies to enhance career satisfaction, better prepare future healthcare professionals, and contribute to the improvement of healthcare systems.

Keywords Career intentions, Career guidance, Medical students, Nursing students, Vietnam

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Background

Making a career decision is a multifaceted process that significantly influences the transition to graduation, a journey that every healthcare professional student must navigate through during their undergraduate education [1]. Understanding students' career intentions through evidence-based approaches is crucial for developing effective career guidance and intervention strategies within health sciences institutions [2]. In addition, this understanding also contributes to the optimal distribution of careers within the healthcare system [2]. Recently, there has been a growing body of literature investigating these critical issues, reflecting the increasing attention given to students' career choices and the factors influencing their decision-making processes [2, 3] .

Literature review

In the context of low- and middle-income countries (LMICs), particularly within Asia, unique socioeconomic conditions and distinct cultural norms profoundly shape decision-making processes [4]. Despite the importance of these factors, research findings remain sparse [3, 4]. A scoping review published, three years ago, in 2021 identified 29 studies examining factors influencing the choice of specialty among medical students in LMICs [4]. A systematic review by Rosyila and colleagues highlighted that only five studies in Asia have investigated these issues, with even fewer focusing specifically on the Southeast Asian region, underscoring the need for further research [3]. The impact of the COVID-19 pandemic on career intentions among health professions students has yet to be thoroughly explored, leaving an uncertainty in understanding whether these intentions have remained stable or shifted in response to the pandemic [5]. Additionally, there is a notable deficit in qualitative research, which is crucial for gaining deeper insights into the perceptions and influences on students' career choices [4]. On the other hand, LMICs are more serious challenged by the unequal distribution of nurses and physicians; and significant shortages in several specialties such as primary care and family medicine [2, 6, 7]. Two papers conducted in career choice in Vietnam strongly highlighted the shortage of family medicine and general practioners contribution to the serious problem of this insufficient data and align with the findings generally [8, 9]. However these study were conducted in the southern of Vietnam and have not yet include any sample from the northern of the country.

Overview of career pathways for medical and nursing graduates in Vietnam

In Vietnam, medical doctor and nursing training programs are implemented at the undergraduate level under the supervision of the Ministry of Health (MOH) and the Ministry of Education and Training (MOET) [10]. Upon completion of these programs, students have a range of transition options to consider. They may choose to pursue clinical practice by applying for post-graduate programs in various specialties. However, the limited number of slots available in residency training makes the selection process highly competitive [11, 12]. Alternatively, students can register for internship programs in specific specialties and then proceed to become specialists or registered nurses after gaining a certain number of years of practice. Another path for students who do not wish to engage in clinical practice is to pursue academia research, or switch to a track in healthcare management or administration. It should be noted that some students may also choose to withdraw from the field entirely and pursue careers in unrelated areas [11, 12]. Thus, undergraduate training not only provides students with a foundation of professional knowledge and skills to enter the healthcare system, but also offers them an opportunity to explore and identify their areas of interest, thereby preparing them for future careers.

Introduction about VinUniversity, a not- for- profit institution

Beginning in 2020, VinUniversity, a new private not-for-profit institution in Hanoi, Vietnam, started recruiting its inaugural cohort, initially focusing on medical and nursing students [13]. The undergraduate curriculum is delivered primarily in English for theoretical campus-based components, while transitioning to a bilingual approach in both English and Vietnamese during hospital-based clinical rotations. In addition to equipping students with the necessary competencies to become proficient physicians and nurses, the curriculum also prepares them for standardized exams such as the United States Medical Licensing Examination (USMLE) and the National Council Licensure Examination (NCLEX) for medical and nursing students, respectively. By passing these standardized exams, they may have the opportunity to enter post-graduate training and practice overseas. Proficiency in English is an essential requirement for admission, and graduates are expected to be fluent in both Vietnamese and English medical terminology. This emphasis on English proficiency enhances students' employability not only within their home country but also overseas, provided they meet the requirements. To date, the institution has not conducted any investigative studies on the topic of student's career choices.

Some literature suggests that international job opportunities have limited influence on the career intentions of students from low- and middle-income countries (LMICs) [4]. However, during the matriculation process at VinUniversity, a notable number of students express a preference for programs that incorporate the

possibility of practicing overseas after graduation. This trend is likely influenced by VinUniversity's unique bilingual training approach mentioned above, and its higher proportion of international students (approximately 8%) compared to other health sciences institutions in the country. Recognizing the critical importance of supporting students in their career transitions, VinUniversity is planning to develop a comprehensive career guidance program aimed at enhancing student career satisfaction. Therefore, it is imperative to investigate students' career intentions through evidence-based research to effectively address their needs.

Purpose of the study

This study aims to provide insights into medical and nursing students' career intentions and the underlying determinants of their choices, serving as baseline findings for future necessary interventions.

Methods

Study design

This study employs a mixed-methods research design, integrating quantitative and qualitative approaches to investigate the career intentions of medical and nursing students and the factors influencing their choices. The quantitative phase involved administering a survey to all undergraduate health professions students, including medical and nursing students, across four consecutive cohorts at VinUniversity. This approach enabled large-scale data collection, allowing for comprehensive statistical analysis and enhancing the generalizability of the findings [14]. The qualitative phase consists of in-depth individual interviews with a purposive sample of students until data saturation is achieved. This approach offers detailed insights into personal experiences, perceptions, and motivations, facilitating a contextual understanding of the complex interplay of cultural norms, family influence, and personal intentions [15].

Phase one: quantitative approach

Objectives

- To gather generalizable data on students' career intentions, including speciality preferences, clinical practice, non-clinical roles, practicing location and career guidance.
- To examine potential correlations between career intentions and variables.

Sample size and population

The survey was distributed to all 257 undergraduate health professions students (medical and nursing) across four consecutive cohorts at VinUniversity, representing the entire undergraduate student body in the health sciences field at the institution to date. This comprehensive approach aimed to maximize large-scale data collection. A response rate of 77% was achieved, with 198 students participating.

Timeline

Data collection for phase one occurred over three weeks from September to October 2023, during the orientation period of the Academic Year 2023–2024.

Instrument design

The survey questionnaires were developed to align with the specific purpose of the study, capturing the dimensions of career intentions and potentially relevant factors identified from the literature. The survey began with an informed consent section, followed by the main questionnaire. The structure of the survey included total thirteen items divided into five sections (i) Participant information; (ii) Career intentions; (iii) Influence factors; (iv) Career guidance and support and (v) Additional information (with optional open-ended questions for students to share further insights). The participant information section contained six items, collected data on student name, program, gender, age, scholarship/ financial support and nationality. The career intentions section contained three items, listed possible career tracks with multiple-choice options, focusing on clinical practice (continuing residency training, applying for job practice) and non-clinical tracks (academic researcher, administrator, entrepreneurship). For students selecting clinical practice, an additional item regarding specialty preference was included, offering a range of specialties with single selection and an option to specify any other desired specialty.

Factors influencing career choice contained one item, rated on a scale from 1 to 5, where 1 indicated "Not important at all" and 5 indicated "Extremely important." The list of influence factors included both intrinsic (e.g., personal interest and passion) and extrinsic motivations (e.g., financial considerations, job market demand, family influences.) [2]. The full questionnaire is provided in the supplement.

To further enhance the validity and reliability of the instrument, a pilot study was conducted prior to the main data collection. This pilot study involved a smaller subset of students who provided feedback on the clarity, relevance, and comprehensiveness of the questions. Based on their responses, necessary revisions were made to the questionnaire to address any ambiguities and ensure it reflected the research objectives. The survey was administered using the Google Forms platform and was conducted in English. Students were reminded twice at one-week interval to complete the survey to maximize response rates.

Phase two: qualitative approach

Objectives

- To gain in-depth insights into the career intentions and influences factors.
- To understand the contextual factors affecting career decision-making.
- To provide explanatory insights into the quantitative findings.

Selection criteria and sample size

A purposive sample of 11 students was selected for in-depth individual interviews until data saturation was achieved. Selection criteria included diversity in gender, nationality (both foreign and local students), program type (medical doctor and nursing), and career intentions to ensure a broad representation of perspectives. Additionally, the participants agreed to participate and were readily available and willing to arrange time for the interviews.

Timeline

Data collection for phase two took place from November to December 2023, following the quantitative phase.

Instrument design

The qualitative questions for this study were developed based on the preliminary findings from the quantitative phase. The integration of quantitative data into the design of qualitative questions ensures that the qualitative phase addresses specific areas of interest and provides further insights into the patterns observed in the quantitative data. The survey began with an informed consent section. The interview protocol comprised six sections with total 17 items: (i) Background and Career intentions; (ii) Influences factors; (iii) Attitudes and perceptions; (iv) Social influences and (v) Perceived control and future plans and (vi) Reflection and closing. The full protocol is provided in the supplement.

Individual interviews were conducted either online or in person, according to the preferences and availability of the participants. Each interview lasted approximately 60 min and followed a semi-structured interview protocol. The interviews were conducted in English and recorded using Zoom software to ensure high-quality audio and video capture for transcription and subsequent analysis.

Data collection and analysis

Quantitative data

The survey was administered via Google Forms. Researchers involved in the analysis could not identify students through their identification numbers to guarantee confidentiality. The data were analyzed using SPSS software. Frequencies and percentages were calculated to describe the specific attributes of the survey respondents. Pearson's chi-square test was employed to identify significant differences in career intentions among various demographic groups. Stacked bar charts were utilized to visually represent the importance of factors influencing their choices.

Qualitative data

Thematic analysis was conducted on the qualitative data from the interviews to identify key themes and patterns. The interviews were transcribed verbatim, and coding was performed using NVivo software to ensure systematic analysis.

Ethics approval and consent to participate

The research proposal was approved by the Institutional Review Board (IRB) of Vinmec Healthcare System, Vietnam under reference number 58/2023/QD-VMEC. Participants received an email with a survey link, including information on the study's purpose and the consent process. Consent was acknowledged by clicking the start button. Before interviews, participants were provided with a consent form, and interviews proceeded only after obtaining their agreement. All procedures were conducted in English. No incentives were offered to participants.

Results

Phase one: quantitative data

A total of 198 students participated, yielding a response rate of 77%. Results with p-values ≤ 0.05 were considered statistically significant. Descriptive statistics, including frequencies and percentages, were calculated to describe the specific attributes of the survey respondents. Table 1 summarizes the demographic characteristics of the survey respondents.

Participant demographics

Career intentions

Table 2 shows the current career intentions of respondents. A significant portion of participants (75.8%) plan to engage in clinical practice, specifically continuing residency training. Additionally, 60.1% plan to pursue clinical practice by applying for jobs in hospitals, while a smaller cohort (12.6%) favors non-clinical practice through entrepreneurship start-ups. Participants were allowed to choose multiple answers, resulting in a total frequency greater than 198.

Table 1 Participant's demographic characteristics

	Frequency (*n* = 198)	Percentages (%)
Gender		
Women	112	56.6
Men	84	42.4
Prefer not to say	2	1
Enrollment year		
2020	38	19.2
2021	53	26.8
2022	52	26.3
2023	55	27.8
Program		
Bachelor of Nursing	29	14.6
Medical Doctor	169	85.4
Has scholarship/tuition support		
No	28	14.1
Yes	170	85.9
Nationality		
Vietnamese	184	92.9
Foreigner	14	7.1

Table 2 Consideration of future career among participants

	Frequency (*n* = 198)	Percentages (%)
Clinical practice (Entering Residency training)	150	75.8
Clinical practice (Apply for a job in the hospital)	119	60.1
Non-clinical practice (Researcher)	50	25.3
Non-clinical practice (Administration)	37	18.7
Non-clinical practice (Entrepreneurship start-up)	25	12.6

Table 3 Specialty preferences among 188 students considering clinical practice

	Frequency (*n*)	Percentages (%)
Consideration of clinical practice (entering residency and/or apply for a job in the hospital)		
No	10	5.1
Yes	188	94.9
Specialty of interest among 188 students		
Surgery	58	30.9
Undecided	34	18.1
Internal medicine	19	10.1
Pediatrics	19	10.1
Dermatology	14	7.4
Psychiatry	12	6.4
Family medicine/primary care	8	4.3
Obstetrics and gynecology	7	3.7
Orthopedic	5	2.7
Neurology	4	2.1
Pathology	4	2.1
Emergency medicine	3	1.6
Cardiology	2	1.1
Forensic	2	1.1
Geriatrics	2	1.1
Oncology	2	1.1
Anesthesiologist	1	0.5
Microbiology	1	0.5
Radiology	1	0.5

Specialty preferences

In Table 3, among the 188 students interested in clinical practice, various medical specialties were identified. Surgery emerged as the most favored choice, with 30.9%, followed by those undecideds at 18.1%. Internal medicine and pediatrics each garnered notable interest at 10.1%, while psychiatry and family medicine followed closely with 6.4% and 4.3%, respectively. Less commonly chosen specialties included cardiology, forensics, geriatrics, oncology, anesthesiology, microbiology, radiology, each with percentages ranging from 0.5 to 1.1%.

Career intentions by demographic characteristics

Table 4 presents the career intentions of students by various demographic characteristics. The analysis revealed the following patterns.

Notable differences in career intentions between male and female students. A higher percentage of male students (83.3%) expressed interest in entering residency training compared to female students (71.4%), which is statistically significant ($p = 0.049$). Conversely, a larger proportion of female students (69.6%) preferred applying for hospital jobs compared to male students (47.6%), with this difference being significant ($p < 0.001$). Additionally, female students showed a greater inclination towards non-clinical roles in administration (27.7%) compared to their male counterparts (7.1%), also statistically significant ($p < 0.001$). These findings suggest gender-based differences in career intentions, with female students leaning more towards hospital-based roles and administrative positions, while male students show a stronger preference to continue residency training post-graduation.

The data indicates variations in career intentions across different cohorts. Students enrolled in 2020 demonstrated a higher interest in both residency training (73.7%) and hospital jobs (65.8%) compared to later cohorts. However, these differences were not statistically significant, suggesting that the enrollment year does not strongly influence career intentions. The slight variations observed might be attributed to individual cohort characteristics or evolving perspectives as students' progress through their education.

The presence of scholarship support did not show statistically significant differences in career preferences. Both groups, those with and without scholarship

Table 4 Career intentions by demographic characteristics

	Clinical practice (Entering Residency training)			Clinical practice (Apply for a job in the hospital)			Non-clinical practice (Researcher)			Non-clinical practice (Administration)			Non-clinical practice (Entrepreneurship start-up)		
	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p
Gender[#]															
Women (*n* = 112)	80	71.4	0.049	78	69.6	< 0.001	33	29.5	0.121	31	27.7	< 0.001	14	12.5	0.999
Men (*n* = 84)	70	83.3		40	47.6		16	19		6	7.1		11	13.1	
Prefer not to say (*n* = 2)	0	0		1	50		1	50		0	0		0	0	
Enrollment year															
2020 (*n* = 38)	28	73.7	0.772	25	65.8	0.827	10	26.3	0.997	10	26.3	0.051	5	13.2	1
2021 (*n* = 53)	42	79.2		33	62.3		13	24.5		8	15.1		6	11.3	
2022 (*n* = 52)	41	78.8		29	55.8		12	23.1		6	11.5		7	13.5	
2023 (*n* = 55)	39	70.9		32	58.2		15	27.3		13	23.6		7	12.7	
Program															
Bachelor of Nursing (*n* = 29)	7	24.1	< 0.001	26	89.7	< 0.001	11	37.9	0.023	12	41.4	< 0.001	6	20.7	0.094
Medical Doctor Program (*n* = 169)	143	84.6		93	55		39	23.1		25	14.8		19	11.2	
Has scholarship support															
No	21	75	0.998	20	71.4	0.092	6	21.4	0.815	5	17.9	0.997	6	21.4	0.062
Yes	129	75.9		99	58.2		44	25.9		32	18.8		19	11.2	
Nationality															
Vietnamese (*n* = 184)	141	76.6	0.099	108	58.7	0.003	45	24.5	0.163	34	18.5	0.931	22	12	0.123
Foreigner (*n* = 14)	9	64.3		11	78.6		5	35.7		3	21.4		3	21.4	

[#]: Pearson's chi square testing is applied for men and women only

support, had similar preferences for residency training, hospital jobs, and non-clinical roles. This suggests that financial support mechanisms may not heavily influence the career intentions of students at this stage, indicating more focus on other factors.

When examining nationality, Vietnamese students exhibited slightly higher preferences for clinical practice roles compared to their foreign counterparts, but these differences were not statistically significant. However, foreign students showed a higher preference for hospital jobs (78.6% vs. 58.7%, $p=0.003$), indicating a potential difference in career planning and opportunities perceived by local versus international students. This highlights the need for tailored career guidance and support that considers the diverse backgrounds and intentions of both local and international students.

Factors influencing career intentions

The stacked bar chart in Fig. 1 illustrates the importance of various factors influencing the career intentions of students. The data is categorized into five levels of importance: not important at all, slightly important, moderately important, important, and very important. The following analysis provides findings into how these factors are perceived by the students.

The influence of family and friends exhibits a diverse range of significance among students. While a substantial number of respondents (70) consider this factor moderately important, a notable proportion of students view it at the extremes—either not important at all (34 respondents) or very important (25 respondents).

Opportunities for research and academic involvement are predominantly regarded as crucial, with a combined total of 100 respondents rating this factor as important or very important. The practical consideration of job market demand is another significant factor, with 116 respondents rating it as important or very important. This highlights a pragmatic approach to career planning, where students seek fields with stable and promising employment prospects. Work-life balance is highly valued, with 121 respondents considering it important or very important. Financial stability and rewards are crucial for many students, with 136 respondents rating salary and financial considerations as important or very important.

Personal interest and passion stand out as the most critical factors influencing career intentions, with 115 respondents deeming it very important and 42 considering it important. This highlights the intrinsic motivation driving students' choices, emphasizing that personal fulfillment and passion for the field are paramount.

Figure 2 shows the differences in factors influencing career interest between male and female students. The data reveals that female students are more focused on job market demand and financial considerations, reflecting a

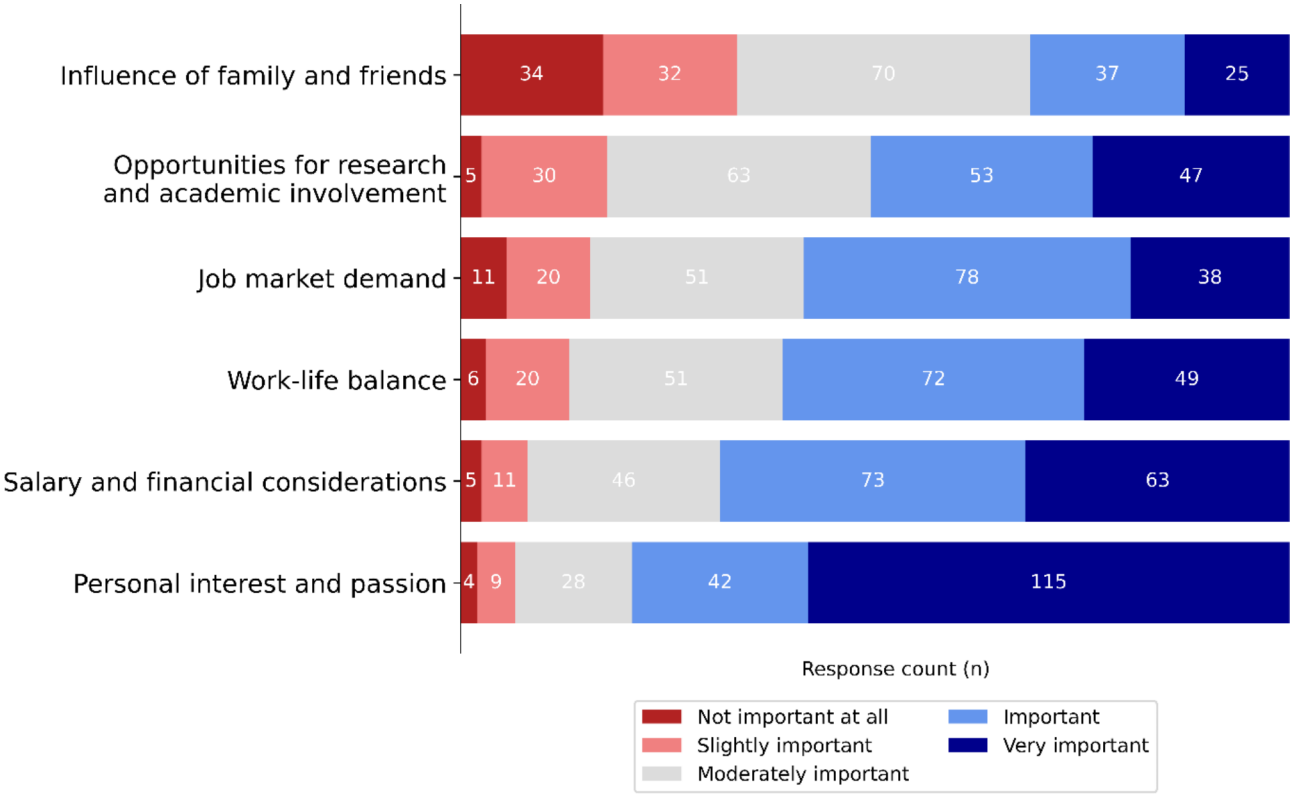

Fig. 1 Factors influencing the career interest of students

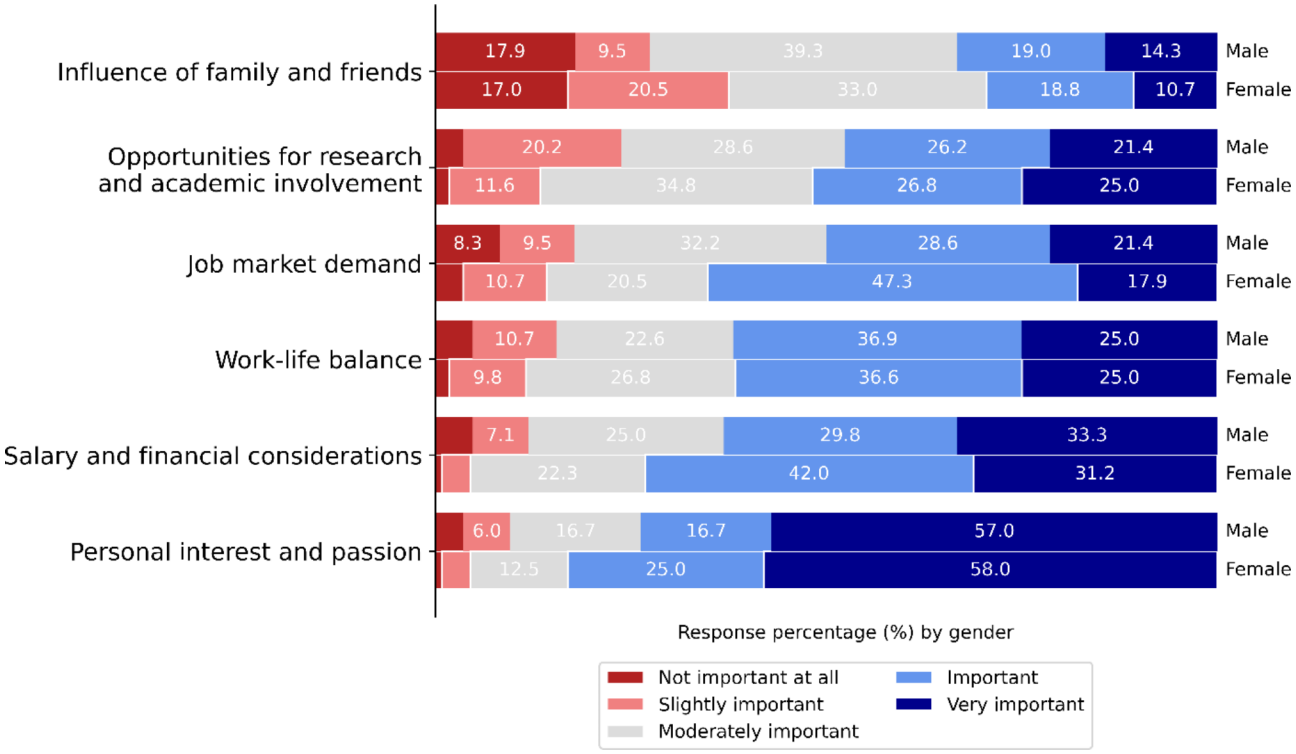

Fig. 2 Gender separates in factors influencing the career interest of student (Data labels less than 5% are hidden for better visibility)

practical approach to career choice. Male students, while also considering these factors, place relatively higher importance on the influence of family and friends. Both genders equally value work-life balance and personal interest and passion, highlighting common concerns for wellness and intrinsic motivation.

Figure 3 shows the difference between nationality among all factors considered. There was a significant difference in the percentage of Vietnamese students and foreign students in "Influence of family and friends" and "Work-life balance." Vietnamese students emphasize the influence of family and friends and opportunities for research and academic involvement more, reflecting cultural values and academic orientation. Foreign students place higher importance on job market demand, work-life balance, and financial considerations.

Career guidance and practice location preferences

Table 5 presents information on students' response for career guidance and their envisioned practice locations. A significant majority of students, 140 individuals (70.7%), reported not yet receiving adequate career guidance.

Regarding their envisioned practice locations, the data shows diverse preferences. The largest group of students, 85 students (42.9%) envision practicing within their home country, emphasizing the importance of domestic career opportunities. Additionally, 45 students (22.7%) of the students aspire to work overseas, reflecting the global aspirations and mobility of the student body.

Interestingly, a small percentage of students (3.0%) are open to both domestic and international career opportunities, indicating flexibility in their career intentions. However, a significant portion (31.4%) remains undecided about their future practice location.

Phase two: qualitative data

To augment the quantitative data acquired from Phase one, an additional qualitative method involving in-depth individual interviews was undertaken. These interviews included 11 students currently enrolled in either medical or nursing programs at VinUniversity. Among the 11 respondents, nine were Vietnamese students, indicating a predominantly local representation within the sample. The participants encompassed both medical doctor and nursing programs. Utilizing a thematic analysis approach, five key themes emerged:

Career intentions

The students expressed diverse career intentions, with many aiming to pursue clinical practice roles. Nursing students often focused on patient care, aspiring to become pediatric nurses or nursing professors. Medical students aimed to become highly skilled professionals, considering various specialties or academic roles through advanced degrees. One nursing student articulated, "I

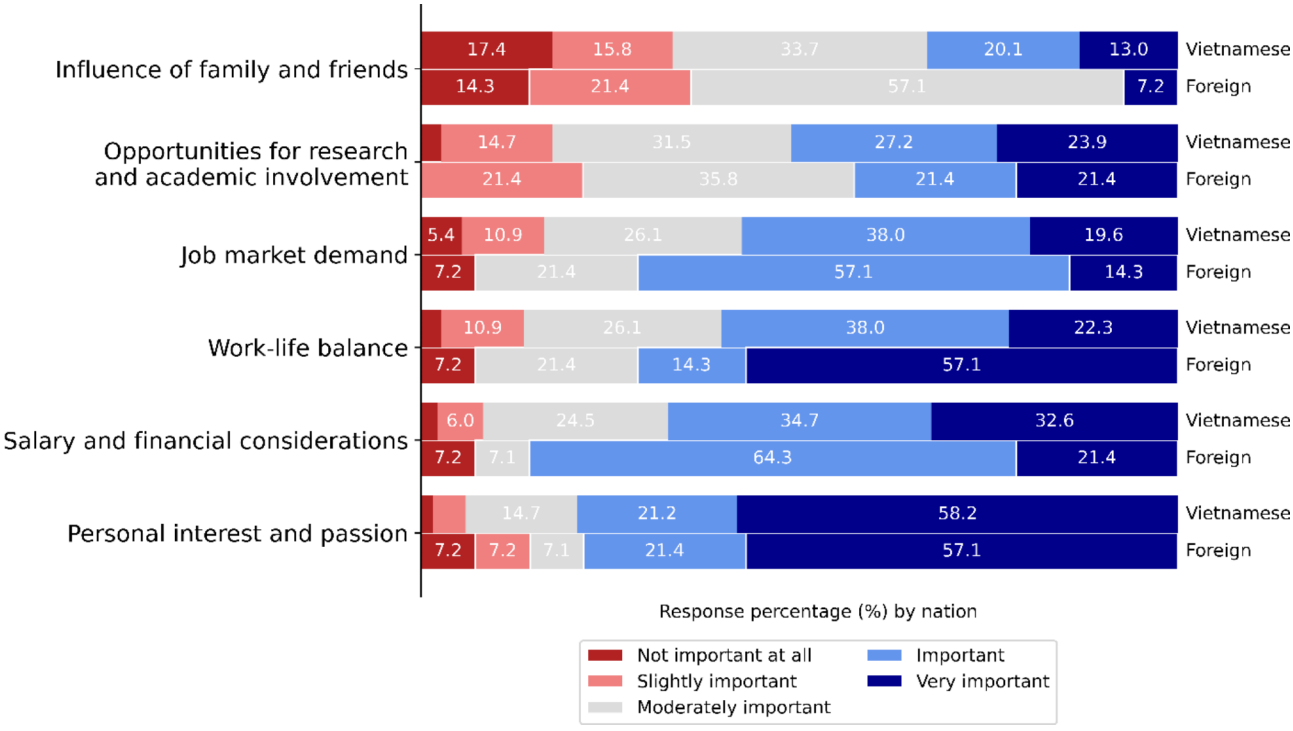

Fig. 3 Nationality separates in factors influencing the career intentions of student (Data labels less than 5% were hidden for better visibility)

Table 5 Students' career guidance and practice location preferences

	Frequency (*n* = 198)	Percentages (%)
Counselling or guidance during study		
Yes	58	29.3
No	140	70.7
Students envision		
Both	6	3.0
Domestic (within your home country)	85	42.9
Overseas	45	22.7
Undecided	62	31.4

want to become a pediatric nurse because I believe in the impact we can make on children's lives. It's a challenging field, but I feel it's where I can make the most difference." This aligns with the quantitative findings, where a significant portion of students (75.8%) expressed interest in clinical practice, particularly in surgical specialties (30.9%), internal medicine, and pediatrics (10.1% each). However, some students, especially those in their early years, expressed uncertainty about their career paths, highlighting the need for better career guidance. One student mentioned, "I am still exploring my options. There are so many specialties, and I want to make sure I choose the right one for me. I wish there was more guidance available."

Factors influencing career intentions

Personal experiences and observations played a crucial role in shaping career intentions. Many students cited early childhood experiences, family health issues, and personal encounters with healthcare professionals as significant influences. One student shared, "Growing up, I watched my mother struggle with her health, and the compassion shown by her doctors inspired me to pursue medicine. I want to be that source of comfort and care for others."

The COVID-19 pandemic also had a notable impact on career decisions. Some students were driven towards healthcare fields due to the increased visibility and importance of healthcare roles during the crisis. A student reflected, "The pandemic made me realize how crucial healthcare workers are. Seeing their dedication and impact made me sure that this is the path I want to take."

Attitudes and perceptions

Students' perceptions of the healthcare profession were mixed, with many recognizing its noble nature and the opportunities for personal and professional growth. One student noted, "Being in healthcare is not just a job; it's a calling. The ability to help others and contribute to their well-being is incredibly fulfilling." However, they also acknowledged the challenges, such as the high demands, emotional and physical stress, and the difficulty of balancing work and personal life. Another student mentioned, "Healthcare is demanding, both physically and

emotionally. Balancing work with personal life is tough, but knowing I'm making a difference keeps me going."

The quantitative data showed that personal interest and passion (58.1%), salary and financial considerations (63%), and work-life balance (49%) were significant factors influencing career choices. These themes were echoed in the qualitative interviews, where students discussed the rewarding aspects of the profession, such as making a positive impact on society, as well as the challenges, including the high demands and the difficulty of balancing work and personal life.

Social influences

Family, friends, and mentors emerged as pivotal influences in shaping career intentions. Many students highlighted the support and encouragement they received from their families. One participant said, "My family has always supported my dreams of becoming a doctor. Their belief in me has been a constant source of motivation." Family members often served as role models, inspiring students through their own experiences and values. This finding aligns with the quantitative data, where the influence of family and friends was a significant factor for many students.

Mentorship from faculty members and healthcare professionals also played a critical role. A student shared, "My mentor has been instrumental in my journey. Her guidance has helped me navigate the challenges and stay focused on my goals."

Perceived control and future plans

Students generally expressed confidence in their career paths, citing clear goals and strong support systems as key contributors. One student remarked, "I feel confident about my career choice. Having a clear plan and support from my mentors has made a big difference." However, they also discussed the proactive steps they are taking to achieve their goals, such as gaining experience, seeking mentorship, and pursuing further education. Another student emphasized, "I am actively seeking out internships and volunteer opportunities to build my experience and network."

Financial issues, work-life balance, and adapting to the demands of the profession were identified as potential challenges. A student expressed concern, "Balancing work and personal life is a major concern. I am trying to prepare myself for the challenges ahead." These insights align with the quantitative finding that 70.7% of students did not receive adequate career guidance, highlighting the need for enhanced support systems.

Discussion

The findings from this mixed-methods study provide further insights into the career intentions of medical and nursing students at VinUniversity and the factors influencing their choices. By integrating quantitative and qualitative data, this study offers a nuanced understanding of these trends, aligning with existing literature to underscore their broader implications.

Career intentions

The quantitative analysis revealed significant patterns in the career intentions of the students, with a substantial majority (75.8%) expressing a strong interest in clinical practice. Among these, surgical specialties (30.9%), internal medicine (10.1%), and pediatrics (10.1%) emerged as the most favored choices. These findings are consistent with global trends where high-prestige specialties like surgery and internal medicine are highly sought after due to perceived higher financial rewards and social status [1, 16–18]. Conversely, primary care and family medicine garnered limited interest (4.3%), a trend that mirrors findings from other studies [8, 16, 19]. Rosyila et al. similarly noted these patterns in their research in Asia [3]. This ongoing concern emphasizes the necessity for educational policymakers to implement effective interventions to prevent a significant shortfall of healthcare professionals in these areas.

A noteworthy 22.7% of students expressed a desire to work overseas, which highlights the need for considerations to better prepare students for international standards and practices. This trend underscores the necessity for further career guidance and support systems to help students navigate these intentions effectively [20, 21]. Conversely, the preference for domestic practice (42.9%) indicates an inclination towards contributing to the local healthcare system, which is crucial for addressing physician shortages in various specialties within Vietnam [8, 22].

Influences on career choices

Both quantitative and qualitative data provided insights into the factors influencing career choices, with personal interest and passion emerging as primary influencers. This finding is consistent with the systematic review by Rosyila et al. which identified personal interest as the most influential determinant in Asia [3]. This finding challenges the recent hypothesis that the main factors driving career choices have shifted from intrinsic to extrinsic motivations [23] .Thematic analysis of the interviews revealed that early childhood experiences and observations of healthcare professionals significantly inspired students to pursue careers in healthcare.

Family influence was another prominent factor, with many students citing parental guidance and support

as pivotal in shaping their career intentions. This finding aligns with the collectivist cultural context prevalent in many Asian societies, where family opinions heavily influence individual decisions [24]. For example, as observed in the study, family influence is one of the main determinants in collectivist cultures like those in Asia, shaping not only career choices but also reinforcing family-oriented values and future plans [3]. Foreign students tend to prioritize job market demand, work-life balance, and financial considerations more highly than local students. This emphasis is likely due to the practical challenges they face in securing stable employment and managing life in a new country [25].

Financial considerations, including job security and potential earnings, were also critical factors, particularly for those with financial burdens or dependents. This is supported by studies indicating that financial rewards and job security are significant determinants in career choice decisions among medical students [2, 25]. The influence of the COVID-19 pandemic further impacted career decisions, as some students witnessed firsthand the critical importance and heightened visibility of roles within the healthcare sector. This aligns with existing research highlighting the influence of the pandemic on healthcare career intentions [5].

Social influences

Family, friends, and mentors emerged as crucial influences in shaping career intentions. The influence of family was particularly strong, with many students highlighting the support and encouragement they received. This finding correlates with the quantitative data, where the influence of family and friends was a significant factor for many students. The study by Kongsompong et al. also underscores the importance of parental influence in career aspirations in collectivist societies, reinforcing the findings of this study [24].

Mentorship from faculty members and healthcare professionals also played a critical role shared from the study. The literature supports the importance of mentorship in career development, emphasizing how experienced professionals can provide valuable guidance and support [20, 21].

Perceived control and future plans

Students generally conveyed confidence in their chosen career paths, attributing this assurance to well-defined goals and robust support networks. Despite this confidence, they emphasized the importance of taking proactive measures to reach their objectives, such as acquiring relevant experience, seeking mentorship, and pursuing advanced education. However, they also identified financial constraints, work-life balance, and the need to adjust to professional demands as significant challenges. Both the quantitative and qualitative findings consistently highlighted the number of students who reported a lack of adequate career guidance and expressed a strong desire for additional support. This underscores the necessity for improved support mechanisms, as highlighted in previous studies which emphasize the critical role of effective career guidance in preparing students for the complexities of their professional journeys [26, 27].

Implications for practice

The findings of this study hold significant implications for VinUniversity's newly established institution and can be extended to other schools in similar contexts. These results play a key role in informing the design of curricula and the implementation of career guidance. The strong preference for high-prestige specialties such as surgery, internal medicine, and pediatrics underscores the need for educational institutions to diversify elective tracks [7]. This approach not only caters to student interests but also addresses the undersupply in less favored specialties like primary care and family medicine [19, 28]. Implementing rotations and early exposure to a wider range of medical fields can balance students' preferences with the healthcare sector's needs [28].

The notable interest in international careers among students highlights the necessity of integrating global health perspectives into the curriculum. Institutions should offer courses on international medical practices, provide information on global health opportunities, and facilitate mentorship programs for students aiming for overseas careers [29, 30]. Additionally, incorporating bilingual language training during clinical exposure and developing appropriate strategies to support this integration is highly recommended.

A significant proportion of students who did not receive adequate career counseling points to a critical gap that needs addressing. Enhancing career guidance services by offering personalized counseling, career planning workshops, and access to resources can help students make informed decisions [31, 32]. Structured mentorship programs pairing students with experienced professionals should be developed, echoing the recommendations fro other studies on the value of mentorship in career development [20, 21].

Limitations of the study

Despite the insights provided by this study, several limitations must be acknowledged. The cross-sectional design of the quantitative phase limits the ability to establish causal relationships between identified factors and career intentions. The sample size in the qualitative phase, while providing rich insights, was relatively small and may not fully capture the diversity of perspectives among the student population. Expanding the sample size and ensuring

a broader representation in future studies would enhance the generalizability of the findings.

Suggestions for further research

Future research can be considered to focus on longitudinal studies to track changes in career intentions over time and evaluate the long-term impact of career guidance interventions on students' career outcomes. Such studies can provide deeper insights into how career preferences evolve and the factors that influence these changes. Understanding how personal circumstances, experiential factors, and external influences such as healthcare policies or economic conditions impact career decisions can provide valuable insights for designing more effective career guidance programs. Exploring the impact of educational interventions, mentoring programs, and career guidance initiatives could support students in making well-informed choices that align with their interests and meet the needs of the healthcare system.

Conclusion

This study provides further insights into the career intentions and influencing factors among medical and nursing students at VinUniversity. The implications for practice include implementing tailored career guidance programs, offering diverse elective tracks that incorporate global health experiences, and establishing structured mentorship programs. It is also recommended to measure the impact of these interventions through longitudinal follow-up studies to enhance career satisfaction, better prepare future healthcare professionals, and contribute to the improvement of healthcare systems. These findings can serve as a foundation for further interventions and be considered for other institutions with similar populations and contexts, thereby extending the benefits of these insights.

Supplementary Information

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Supplementary Material 1

Supplementary Material 2

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Author contributions

H.T. developed the study design and drafted the manuscript.D.C. conducted the data collection and analysis.H.L. and H.H. analyzed the data and reviewed the manuscript.P.L. reviewed and finalized the manuscript.

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Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request. Consent for Publication: Not applicable. This manuscript does not contain any individual person's data in any form (including individual clinical details, images, or videos).

Declarations

Ethics approval and consent to participate

The research proposal was approved by the Institutional Review Board (IRB) under reference number 58/2023/QD-VMEC, authorizing its implementation. Participants received an email with a link to the survey, which included information on the study's purpose and the consent process. By clicking the start button, participants acknowledged their consent to participate. Prior to the interview sessions, participants were provided with a consent form and the interviews proceeded only after their agreement. No incentives were offered to the participants.

Consent for publication

Not applicable. This manuscript does not contain any individual person's data in any form (including individual clinical details, images, or videos).

Competing interests

The authors declare no competing interests.

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