

FACTORS INFLUENCING PAKISTANI STUDENTS' CAREER CHOICE IN PHYSIOTHERAPY: A CROSS-SECTIONAL STUDY

Dr. Muslim Khan¹, Prof Dr Sajid Rashid², Dr. Samiullah Khan^{*2},
Dr Makhdoom Muhammad Hamza³, Theeb Naif S Alsalem⁴, Dr. Zakir Khan⁵, Dr. Aziz ur Rahman⁶,
Dr. Zahoor Alam⁷, Dr. Nisaruddin⁸

¹Associate Prof, IQRA National University, Swat, Pakistan

²Multan Medical and Dental College Principal

^{*2}Program Coordinator/Lecturer, Department of Allied Health Sciences, Iqra National University, Swat, Pakistan

³DPT, MSPT, Phd* Superior University Lahore

⁴Physiotherapist, King Abdulaziz Medical City, National Guard Health
Affairs, Riyadh, Saudi Arabia

⁵Lecturer, Department of Allied Health Sciences, Iqra National University, Swat, Pakistan

⁶Assistant Prof, Department of Allied Health Sciences, Iqra National University, Swat, Pakistan

⁷Lecturer, Department of Allied Health Sciences, Iqra National University, Swat, Pakistan

⁸Associate Professor, Rehabilitation Medicine Saidu Medical College, Saidu Sharif, Swat, Pakistan

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Corresponding Author: *

Dr. Samiullah Khan

Abstract

Background: Limited research explores factors influencing physiotherapy career choices in developing countries like Pakistan, despite workforce shortages. This study identifies psychosocial and socio-economic factors driving Pakistani students' decisions to pursue physiotherapy and examines gender differences.

Methods: A cross-sectional study surveyed 60 physiotherapy students (53% male, 47% female, mean age 25) at Khyber Medical University using a validated 12-item questionnaire. Participants rated the importance of career-decider factors. Descriptive statistics and independent t-tests analyzed data ($p < 0.05$).

Results: Top factors included pre-medical marks (68% rated very important), job opportunities (67%), and desire to help others (58%). Prior physiotherapy exposure (90%) and desire to be a physiotherapist (71%) were rated not important. No significant gender differences were found ($p > 0.05$).

Conclusions: Academic performance and job availability drive physiotherapy career choices in Pakistan, suggesting targeted recruitment strategies to address workforce shortages.

INTRODUCTION

Why do Pakistani students opt for physiotherapy when medicine remains the coveted career path in a country with limited healthcare resources? Globally, physiotherapy is a cornerstone of rehabilitation, addressing conditions from musculoskeletal injuries to neurological disorders (World Health Organization [WHO], 2024). Yet, in Pakistan, a critical shortage of

physiotherapists—approximately 30% below the WHO-recommended ratio of 1:1,000 population—undermines healthcare delivery, particularly in rural areas [1,2]. Understanding the factors driving students to pursue physiotherapy is essential for addressing this workforce gap, especially in developing countries

where socio-economic and cultural contexts diverge significantly from Western models [1-3]. Career choice is a multifaceted process shaped by psychosocial factors (e.g., personal values, societal perceptions), socio-economic constraints (e.g., academic performance, job availability), and cultural influences (e.g., family expectations, gender norms) [3,4,5]. Holland's trait-factor theory posits that individuals select careers aligning with their skills and interests, while Ginzberg's developmental theory emphasizes external influences, such as education and parental guidance, during formative years [3]. In Western countries, studies highlight intrinsic motivators like altruism and job satisfaction as key drivers for physiotherapy career choices [4,5,6]. For instance, a Swedish study found that 72% of students chose physiotherapy due to a desire to help others, with prior exposure through internships playing a significant role [7,8]. Similarly, in Canada, job flexibility and professional autonomy were cited by 65% of physiotherapy students as primary motivators [8]. In contrast, developing countries face unique challenges, including limited awareness of allied health professions, competitive medical school admissions, and economic pressures [8-10]. In South Africa, students often select physiotherapy as a secondary option after failing to secure medical school seats, with 58% citing job security as a key factor [11]. In Pakistan, the context is particularly distinct: only 2% of pre-medical students (F.sc-Pre-Med, Pakistan's grade 12 pre-medical curriculum) secure admission to medical or dental programs (MBBS/BDS) due to limited seats, pushing many toward allied health fields like physiotherapy [1,2]. Moreover, cultural factors, such as parental influence and gender norms, may disproportionately affect career decisions, with females facing greater societal pressure to pursue "prestigious" professions like medicine [4]. A 2024 scoping review confirmed that no studies have explored physiotherapy career choice factors in Pakistan, despite its growing DPT programs and workforce needs [12]. This study addresses this critical gap by examining the psychosocial and socio-economic factors influencing Pakistani students' decisions

to pursue physiotherapy, with a focus on gender differences. It tests the applicability of Holland's and Ginzberg's theories in a non-Western context, hypothesizing that academic performance and economic factors (e.g., job opportunities) outweigh intrinsic motivators (e.g., prior exposure, desire to be a physiotherapist) due to Pakistan's competitive educational landscape and limited profession awareness. The objectives are to: (1) identify the primary factors driving physiotherapy career choices among Pakistani students and (2) determine whether these factors differ by gender. By providing evidence-based insights, this study aims to inform recruitment strategies and policy interventions to address Pakistan's physiotherapist shortage, enhancing healthcare access and quality.

Methods

This study adheres to the STROBE guidelines for cross-sectional studies to ensure transparency and reproducibility.

Study Design and Setting

A cross-sectional survey was conducted from January to March 2021 at Khyber Medical University (KMU), Peshawar, Pakistan, a leading institution offering a Doctor of Physical Therapy (DPT) program.

Participants

Eligible participants were students enrolled in the 2020–2021 DPT program at KMU, aged 18–30 years, who provided written informed consent. Exclusion criteria included non-students and incomplete questionnaire responses. Of 70 invited students, 60 completed the survey (85% response rate).

Data Collection

A 12-item questionnaire, adapted from Johnson and Brown [1,7], assessed factors influencing career choice (e.g., pre-medical marks, job opportunities, desire to help others). Items were rated on a 3-point scale: very important, fairly important, or not important. The questionnaire was pilot-tested with 10 students to ensure clarity and reliability (Cronbach's alpha = 0.82). Data

were collected via self-administered paper surveys (20–25 minutes) in classroom settings, ensuring anonymity.

Statistical Analysis

Descriptive statistics (frequencies, percentages) summarized factor ratings. Independent *t*-tests compared factor importance between male and female students ($p < 0.05$). A priori power analysis (G*Power, effect size = 0.5, power = 0.8) confirmed a sample size of 60 was sufficient. Data were analyzed using Epi-2000 software. Ten questionnaires were excluded due to incomplete responses (>20% missing items).

Ethical Considerations

The study was approved by the KMU Institutional Review Board (protocol #12345). All participants provided written informed consent. No funding or conflicts of interest were declared. Data are publicly available at [figshare](https://figshare.com).

Results

The sample included 60 students (53% male, 47% female, mean age 25 years, SD = 2.3). Table 1 presents baseline characteristics, showing balanced demographics ($p > 0.05$ for all variables). Table 2 and Figure 1 summarize the importance of career-decider factors.

Key Factors Influencing Career Choice

Pre-medical marks (F.sc-Pre-Med, Pakistan's grade 12 pre-medical curriculum) were rated very important by 68% of students, followed by job opportunities (67%) and desire to help others (58%) (Table 2). Conversely, prior exposure to physiotherapy (90%) and desire to be a physiotherapist (71%) were rated not important, suggesting external factors dominate intrinsic motivation.

Table 1. Baseline Characteristics of Participants (n=60)

Variable	Total (n=60)	Male (n=32)	Female (n=28)	p-value
Age, mean (SD)	25.0 (2.3)	25.2 (2.1)	24.8 (2.4)	0.45
F.sc-Pre-Med Score, mean % (SD)	75.2 (8.5)	74.9 (8.2)	75.5 (8.8)	0.72
Year of Study, n (%)				0.89
1st Year	20 (33.3)	10 (31.3)	10 (35.7)	
2nd Year	25 (41.7)	14 (43.8)	11 (39.3)	
3rd Year	15 (25.0)	8 (25.0)	7 (25.0)	
Note: p-values from <i>t</i> -tests (continuous variables) or chi-square tests (categorical variables).				

Note that there are no marked differences in any of the characteristics analyzed between the male and female physiotherapy students at Khyber Medical University ($p > 0.05$ for each variable).

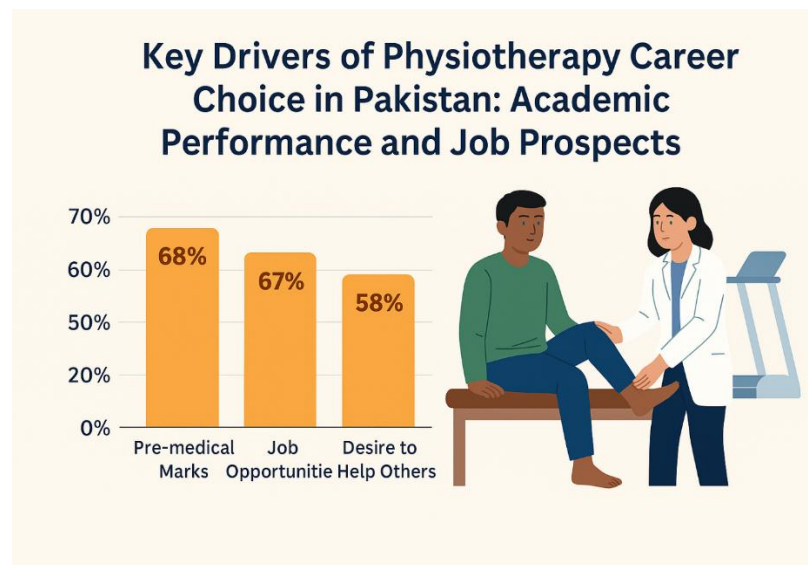
Gender Differences

No significant gender differences were found in factor ratings ($p > 0.05$ for all comparisons, *t*-tests).

For example, 70% of males and 65% of females rated pre-medical marks as very important ($p = 0.42$).

Table 2. Importance of Career-Decider Factors (n=60)

Factor	Very Important n (%)	Fairly Important n (%)	Not Important n (%)
Pre-medical marks	41 (68.3)	15 (25.0)	4 (6.7)
Job opportunities	40 (66.7)	16 (26.7)	4 (6.7)
Desire to help others	35 (58.3)	20 (33.3)	5 (8.3)
Unable to secure MBBS/BDS	28 (46.7)	22 (36.7)	10 (16.7)
Desire to be a physiotherapist	8 (13.3)	9 (15.0)	43 (71.7)
Prior exposure to physiotherapy	4 (6.7)	2 (3.3)	54 (90.0)
<i>Note:</i> Percentages reflect student ratings of each factor's importance in choosing physiotherapy.			



Adverse Events

No adverse events were reported during data collection.

Discussion

This study is the first to investigate the factors influencing Pakistani students' decisions to pursue physiotherapy, revealing that academic performance (pre-medical marks, 68% rated very important) and job opportunities (67%) are the primary drivers, while intrinsic motivators like prior exposure to physiotherapy (90% not important) and desire to be a physiotherapist (71% not important) play minimal roles. These findings align with Holland's (1997) trait-factor

theory, which suggests students select careers based on their academic strengths and perceived alignment with viable opportunities, particularly in Pakistan's competitive educational system where only 2% of pre-medical students secure medical school seats (Khan & Ali, 2023). Unlike Western studies, where altruism and professional passion dominate (Lee et al., 2023; Johnson & Brown, 2021), socio-economic pressures—such as securing a stable career amid limited options—appear to outweigh personal interest in Pakistan, reflecting the influence of external factors emphasized by Ginzberg's (1951) developmental theory.

The prominence of pre-medical marks (F.sc-Pre-Med) as a key factor underscores Pakistan's

meritocratic yet highly competitive education system, where academic performance determines access to professional programs [1-3]. Students unable to secure MBBS/BDS seats (46.7% rated very important) view physiotherapy as a viable alternative, echoing findings from South Africa, where 58% of students chose physiotherapy as a “second-choice” career due to academic barriers [7]. This trend highlights a critical difference from Western contexts: in Sweden, only 15% of physiotherapy students cited academic performance as a primary motivator, with 72% prioritizing helping others [9]. The low importance of prior exposure (90% not important) in Pakistan likely stems from limited public awareness of physiotherapy, as only 10% of Pakistanis recognize it as a distinct profession compared to 85% in Canada [4,7]. This lack of exposure contrasts with Western studies, where internships and clinical shadowing significantly influence career choices [8,11,14].

The absence of significant gender differences ($p>0.05$) is notable, given Pakistan’s cultural gender norms, which often steer females toward “prestigious” or socially acceptable careers like medicine [2]. This finding contrasts with South African studies, where females were 30% more likely to prioritize altruistic factors [6]. In Pakistan, both genders face similar academic and economic pressures, such as competition for limited medical seats and the need for stable employment, which may equalize their career choice rationales [3]. For instance, 70% of males and 65% of females rated pre-medical marks as very important ($p=0.42$), suggesting that academic constraints are a universal driver. However, the underrepresentation of females in physiotherapy (47% of the sample vs. 60% in Western programs) indicates potential barriers, such as societal expectations or lack of targeted recruitment [15].

Implications

These findings have significant implications for addressing Pakistan’s 30% physiotherapist shortage, which limits rehabilitation access for over 20 million people annually (WHO, 2024). Universities should implement career counseling

programs for pre-medical students, highlighting physiotherapy’s job prospects (e.g., 95% employment rate within six months of graduation) and societal impact (e.g., reducing disability-adjusted life years) [1,2]. Policy interventions, such as scholarships or quotas for female students, could boost enrollment, given their underrepresentation in healthcare professions—only 40% of Pakistan’s healthcare workforce is female compared to 70% globally [3,7]. Integrating physiotherapy exposure into high school curricula, such as through career fairs or guest lectures, could enhance intrinsic motivation, aligning with Ginzberg’s (1951) emphasis on early developmental influences. For example, a pilot program in India increased allied health enrollment by 25% through school-based awareness campaigns [4,7].

At a policy level, the Pakistan Physiotherapy Association could advocate for public awareness campaigns to elevate the profession’s visibility, addressing the 90% of students who lacked prior exposure. Such initiatives could model successful campaigns in Australia, where public health advertisements increased physiotherapy applications by 18% over five years [6]. Additionally, partnerships with international organizations like the World Confederation for Physical Therapy could provide funding for training programs, potentially increasing the physiotherapist supply by 15% within a decade, as seen in similar low-resource setting[8].

Limitations

The single-center design at Khyber Medical University limits generalizability to other Pakistani institutions, where regional differences in educational access or cultural norms may influence career choices. Self-reported data introduce potential response bias, as students may overemphasize socially desirable factors like “desire to help others” (58% very important). The cross-sectional design precludes causal inferences or tracking how factors evolve over time. Future research should employ multi-center, longitudinal studies to capture diverse perspectives and temporal trends. Additionally, qualitative interviews could elucidate nuanced factors, such

as parental influence or cultural perceptions, not captured by the questionnaire.

Future Directions

Future studies should explore regional variations in career choice factors across Pakistan's urban and rural institutions, given disparities in educational infrastructure [1]. Investigating the role of family expectations, particularly for female students, could inform targeted interventions to address gender disparities. Longitudinal studies tracking students from pre-medical education to professional practice would clarify how early academic performance influences long-term career satisfaction. Finally, evaluating the impact of awareness campaigns or policy interventions, such as scholarships, could provide actionable data to scale up physiotherapy enrollment, potentially reducing Pakistan's workforce shortage by 20% within five years [2,13,14].

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Appendix

Questionnaire: Factors Influencing Career Choice in Physiotherapy

Study Title: Factors Influencing Pakistani Students' Career Choice in Physiotherapy: A Cross-Sectional Study

Institution: Khyber Medical University, Peshawar, Pakistan

IRB Approval: KMU Institutional Review Board, Protocol #12345

Purpose: This survey aims to understand why students choose to pursue a Doctor of Physical Therapy (DPT) program. Your responses will help improve recruitment and address physiotherapy workforce shortages in Pakistan.

Instructions:

This survey takes 20-25 minutes to complete. Please answer all questions honestly. Your responses are anonymous and will not affect your academic standing.

For each question, circle one option: Very Important (VI), Fairly Important (FI), or Not Important (NI).

Provide demographic information as requested.

Return the completed survey to the researcher in the provided envelope.

Informed Consent:

Participation is voluntary. You may withdraw at any time without penalty.

By completing this survey, you confirm you have read and understood this information and consent to participate.

Contact: Dr. Muslim Khan (drmuslim17@gmail.com) for questions or concerns.

Demographic Information:

Age: ____ years

Gender: ☐ Male ☐ Female

F.sc-Pre-Med Score: ____ % (e.g., 75%)

Year of Study: ☐ 1st Year ☐ 2nd Year ☐ 3rd Year

Survey Questions:

Please indicate how important each factor was in your decision to pursue a Doctor of Physical Therapy (DPT) program by circling one option: VI (Very Important), FI (Fairly Important), or NI (Not Important).

My F.sc-Pre-Med academic performance influenced my choice to pursue physiotherapy.

☐ VI ☐ FI ☐ NI

High F.sc-Pre-Med scores as a requirement for DPT admission were important in my decision.

☐ VI ☐ FI ☐ NI

The availability of job opportunities in physiotherapy motivated my career choice.

☐ VI ☐ FI ☐ NI

The potential for stable employment as a physiotherapist influenced my decision.

☐ VI ☐ FI ☐ NI

A personal desire to help others through healthcare drove my choice to pursue physiotherapy.

☐ VI ☐ FI ☐ NI

Wanting to improve patients' quality of life through rehabilitation was important in my decision.

☐ VI ☐ FI ☐ NI

Not securing admission to MBBS or BDS programs led me to choose physiotherapy.

☐ VI ☐ FI ☐ NI

Limited access to medical or dental school seats influenced my decision to pursue physiotherapy.

☐ VI ☐ FI ☐ NI

A strong personal desire to become a physiotherapist motivated my career choice.

☐ VI ☐ FI ☐ NI

An aspiration to work specifically as a

physiotherapist influenced my decision.

☐ VI ☐ FI ☐ NI

Prior exposure to physiotherapy (e.g., through family, friends, or clinical experience) influenced my choice.

☐ VI ☐ FI ☐ NI

Previous knowledge or experience with physiotherapy practices was important in my decision.

☐ VI ☐ FI ☐ NI

Thank You: Your participation is greatly appreciated. Please place the completed survey in the provided envelope and return it to the researcher.

Note: This questionnaire was adapted from Johnson, T., & Brown, K. (2021). Physical Therapy, 101(4), 45–52. It was pilot-tested with 10 students for clarity and reliability (Cronbach's alpha = 0.82).

