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KNOWLEDGE, ATTITUDES, AND PRACTICES OF PHYSIOTHERAPISTS TOWARD MINDFULNESS-BASED INTERVENTIONS IN PAKISTAN: A CROSS-SECTIONAL STUDY

Original Research

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ABSTRACT

Background: Patients undergoing rehabilitation following injury or surgery often experience both physical limitations and psychological distress, including anxiety, depression, and reduced motivation. These psychological challenges can impede recovery and functional outcomes. Mindfulness-Based Interventions (MBIs), which emphasize non-judgmental awareness and stress reduction, have been proven effective in improving both mental and physical health. Despite global recognition, the role of MBIs in physiotherapy practice remains underexplored in Pakistan.

Objective: To investigate the knowledge, attitude, and practice (KAP) of physiotherapists in Pakistan regarding the use of mindfulness-based interventions alongside disease-specific rehabilitation strategies.

Methods: A descriptive cross-sectional study was conducted over a three-month period across multiple healthcare settings in Pakistan, including hospitals, clinics, and rehabilitation centers. A self-developed, structured questionnaire comprising three domains—knowledge (8 items), attitude (10 items), and practice (10 items)—was distributed among physiotherapists using a non-probability convenience sampling method. Out of 390 physiotherapists approached, 375 completed the survey (response rate: 96.15%). Descriptive statistics were analyzed using SPSS version 22, and mean scores were interpreted using a cut-off value of 2.2 on a 3-point Likert scale.

Results: Physiotherapists demonstrated a high level of knowledge and a positive attitude toward MBIs, with mean domain scores of 2.57 and 2.70 respectively. However, the mean score for the practice domain was 2.04, indicating low integration of MBIs into clinical settings. Only 30.3% reported regular use of mindfulness techniques, and 36.8% cited time constraints as a major barrier.

Conclusion: Although physiotherapists in Pakistan are knowledgeable and supportive of MBIs conceptually, their actual clinical implementation remains limited. Structured training and resource allocation are essential to bridge this gap in practice.

Keywords: Attitude, Chronic Disease, Clinical Practice, Knowledge, Mental Health, Mindfulness-Based Interventions, Physiotherapy, Rehabilitation.

INTRODUCTION

The rehabilitation process following surgery or injury poses not only physical challenges for patients but also substantial psychological burdens. Emotional disturbances such as depression, anxiety, and diminished self-esteem have been frequently observed in both the general population and among athletes undergoing recovery (1). The intricate nature of physical rehabilitation has evolved considerably, demanding that physiotherapists operate in increasingly complex, chronic, and psychologically charged environments. There exists a well-established interconnection between mental and physical health, with mounting evidence underscoring the strong association between psychological stress, emotional distress, and the onset or exacerbation of mental illness (2). Alarmingly, over 51 million adults in the United States are currently living with a mental health disorder, and surveys indicate that physiotherapists are often on the frontlines of this intersection—41% report managing co-occurring mental health concerns daily, and 76% encounter them at least weekly in clinical practice (3). Given this psychosomatic overlap, there is growing interest in integrative approaches such as mindfulness-based interventions (MBIs) to enhance rehabilitation outcomes. MBIs are employed to mitigate pain, stress, and anxiety, and to support broader goals related to physical wellness, emotional regulation, and quality of life. The core of mindfulness lies in cultivating non-judgmental awareness of one's emotions, thoughts, and bodily sensations—an approach that embeds therapeutic values of acceptance, compassion, and psychological detachment (4,5). Among the most researched of these interventions is Mindfulness-Based Cognitive Therapy (MBCT), a structured approach developed to address specific mental health challenges with a strong empirical foundation (6).

Mindfulness-Based Stress Reduction (MBSR), pioneered by Dr. Jon Kabat-Zinn in the 1970s at the University of Massachusetts Medical Center, remains the most established mindfulness protocol. MBSR incorporates practices such as body scanning and yoga, promoting non-reactive observation and present-moment awareness (7-9). Mindfulness-based approaches have shown moderate but consistent efficacy across a range of psychological and physical conditions, including the reduction of rumination and emotional dysregulation, and have also demonstrated therapeutic benefits in patients with psychosis, including reductions in symptom severity and hospitalization duration (8-10). These programs are implemented under various terminologies—mindfulness-based therapies, mindfulness-based training, and mindfulness-based programs—though they are unified by their foundational principles and therapeutic aims (11,12). Despite this global momentum, the implementation of MBIs within physiotherapy practice in Pakistan remains nascent and under-researched. A substantial gap exists in understanding how physiotherapists in the local context perceive and utilize these interventions in tandem with conventional rehabilitation strategies. This study is therefore designed to investigate the knowledge, attitudes, and clinical practices of physiotherapists in Pakistan concerning the integration of mindfulness-based interventions within disease-specific rehabilitation frameworks.

METHODS

A cross-sectional descriptive study was conducted over a period of three months in diverse healthcare settings across Pakistan, including public and private hospitals, outpatient clinics, and rehabilitation centers Ethical approval of the study was obtained from the Institutional Review Board of Helping Hand Institute of Rehabilitation Sciences, Mansehra under reference number (HHIRS/RD/2024/1183) and the research was carried out in accordance with the principles of the Declaration of Helsinki. Informed written consent was obtained from all participants prior to their inclusion in the study, ensuring voluntary participation and data confidentiality. The target population comprised physiotherapists registered with the Pakistan Physical Therapy Association (PPTA), with an estimated national pool of approximately 15,000 professionals as reported by the World Confederation of Physical Therapy. Using the Raosoft sample size calculator, a representative sample size of 375 physiotherapists was determined to ensure adequate statistical power. A non-probability convenience sampling method was employed due to accessibility constraints. Inclusion criteria required participants to be actively practicing, PPTA-registered physiotherapists of either gender, with a minimum of one year of clinical experience, ensuring they had sufficient exposure to rehabilitation protocols and potential integration of mindfulness-based interventions (MBIs). Physiotherapists with less than one year of clinical experience were excluded to avoid bias from insufficient exposure and to maintain consistency in clinical perspectives.

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A self-structured questionnaire was developed to assess the knowledge, attitudes, and practices (KAP) of physiotherapists regarding the use of mindfulness-based interventions in clinical rehabilitation. The tool was designed following the standard questionnaire development framework suggested in a study (13). The questionnaire was divided into three sections: knowledge (8 items), attitude (10 items), and practice (10 items), each using a five-point Likert scale. Content validation was performed through expert review, and following iterative revisions, a pilot study was conducted with five licensed physiotherapists to evaluate clarity, reliability, and face validity. Although the pilot sample was limited, it provided foundational insights for refining the instrument. Data were collected in person and electronically using the finalized questionnaire. Demographic variables such as age, gender, years of experience, place of employment, and prior exposure to MBIs were also recorded. Data were entered and analyzed using IBM SPSS version 21. Descriptive statistics including means and standard deviations were computed for continuous variables, while frequencies and percentages were used for categorical data. The scoring of KAP responses followed a structured process: total scores were calculated using the formula Σ (fi × Likert scale score), and the mean score was derived by dividing the total score by the number of respondents using the formula Mean Score = Σ (fi × Likert item score) ÷ Number of Respondents. A cut-off mean value of 2.2 was used to classify knowledge, attitude, and practice levels, as referenced from prior literature (14,15).

RESULTS

Out of the 390 physiotherapists contacted, a total of 375 respondents completed the questionnaire sufficiently and were included in the final analysis. Fifteen responses were excluded due to incompleteness or missing data, yielding a response rate of 96.15%. The analysis thus focused on these 375 physiotherapists across Pakistan. In the knowledge domain, the overall responses indicated a strong awareness and understanding of mindfulness-based interventions (MBIs) among physiotherapists. All eight items demonstrated a mean score above the cut-off value of 2.2 on the 3-point Likert scale, indicating a positive knowledge trend. The highest mean score was observed for the item on the integration of MBIs into physiotherapy practice (mean = 2.78), followed by awareness of present-moment non-judgmental attention (mean = 2.62) and understanding of stress and anxiety management (mean = 2.61). The lowest mean score within this domain was recorded for knowledge about evaluating the effectiveness of MBIs (mean = 2.30). The overall knowledge domain reflected updated awareness and familiarity with mindfulness among the participants. The attitude domain findings revealed consistently positive perceptions of MBIs. All ten attitude-related items scored above the 2.2 threshold. The strongest agreement was seen regarding the potential of MBIs in preventing a range of health issues (mean = 2.84) and their impact on mental health outcomes (mean = 2.75). Additional notable scores were seen in the belief that MBIs benefit physiotherapists themselves (mean = 2.72) and that MBIs can enhance patient outcomes (mean = 2.70). Even time commitment concerns for integrating MBIs into clinical practice were relatively well-tolerated, with a mean score of 2.49. These findings suggest an overall favorable and progressive attitude among physiotherapists toward the use of mindfulness-based techniques. Contrastingly, the practice domain indicated low implementation of MBIs in clinical settings. All ten items scored below the 2.2 cut-off, indicating negative practice levels across all subdomains. The lowest reported mean score was for the frequent use of MBIs with patients (mean = 1.86), followed by use in personal clinical practice (mean = 1.94), and perceived sufficiency of training (mean = 1.90). Even items related to time constraints (mean = 1.97) and access to supporting materials (mean = 2.02) revealed practice limitations. The highest, yet still negative, mean score within this domain was for confidence in guiding patients through mindfulness exercises (mean = 2.16), which was marginally below the benchmark.

Table 1: Mean Score and Interpretation for Knowledge Domain of MBIs

S.No	Knowledge Question	Likert Scale	Frequency (%)	Multiply by Likert Scale Score	Total Score	Mean Score	Interpretation
1	I am aware of mindfulness-based interventions.	No	31 (7.5%)	31	977	2.60	Positive
		Up to some extent	86 (20.7%)	172			
		Yes	258 (62.0%)	774			
2	Mindfulness interventions can be integrated into physiotherapy practice.	No	15 (3.6%)	15	1045	2.78	Positive
		Up to some extent	50 (12.0%)	100			
		Yes	310 (74.5%)	930			
3		No	50 (12.0%)	50	882	2.35	Positive

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S.No	Knowledge Question	Likert Scale	Frequency (%)	Multiply by Likert Scale Score	Total Score	Mean Score	Interpretation
	I am aware of the research evidence supporting the use of mindfulness interventions in clinical practice.	Up to some extent	143 (34.4%)	286			
		Yes	182 (43.8%)	546			
4	Mindfulness involves paying attention to the present moment without judgment.	No	47 (11.3%)	47	984	2.62	Positive
		Up to some extent	47 (11.3%)	94			
		Yes	281 (67.5%)	843			
5	I am aware of the potential benefits of mindfulness interventions for patients in both acute and chronic conditions.	No	35 (8.4%)	35	972	2.60	Positive
		Up to some extent	83 (20.0%)	166			
		Yes	257 (61.8%)	771			
6	I understand how to measure or evaluate the effectiveness of mindfulness interventions in clinical practice.	No	57 (13.7%)	57	849	2.30	Positive
		Up to some extent	162 (38.9%)	324			
		Yes	156 (37.5%)	468			
7	I am aware of how mindfulness can help in the management of stress and anxiety.	No	31 (7.5%)	31	982	2.61	Positive
		Up to some extent	81 (19.5%)	162			
		Yes	263 (63.2%)	789			
8	I am familiar with the physiological effects of mindfulness practice (e.g., changes in heart rate, cortisol levels).	No	50 (12.0%)	50	946	2.52	Positive
		Up to some extent	79 (10.9%)	158			
		Yes	246 (59.1%)	738			

Table 2: Mean Score and Interpretation for Attitude Domain of MBIs

S.No	Attitude Question	Likert Scale	Frequency (%)	Multiply by Likert Scale Score	Total Score	Mean Score	Interpretation
1	I think that mindfulness-based interventions have further potential for preventing a range of health problems.	Disagree	9 (2.2%)	9	1066	2.84	Positive
		Up to some extent	41 (9.9%)	82			
		Agree	325 (87.1%)	975			
2	I believe that mindfulness interventions can benefit physiotherapists themselves.	Disagree	23 (6.5%)	23	1021	2.72	Positive
		Up to some extent	58 (13.9%)	116			
		Agree	294 (70.7%)	882			
3	I am interested in receiving additional training on mindfulness interventions.	Disagree	23 (6.5%)	23	1018	2.71	Positive
		Up to some extent	61 (14.7%)	122			
		Agree	291 (70.0%)	873			
4	I believe that mindfulness interventions can be effectively	Disagree	19 (4.6%)	19	1020	2.72	Positive
		Up to some extent	67 (16.1%)	134			
		Agree	289 (69.5%)	867			

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S.No	Attitude Question	Likert Scale	Frequency (%)	Multiply by Likert Scale Score	Total Score	Mean Score	Interpretation
	integrated into physiotherapy practice.						
5	I am confident in my ability to explain the mindfulness to my patients.	Disagree	30 (7.2%)	30	976	2.60	Positive
		Up to some extent	89 (21.4%)	178			
		Agree	256 (61.5%)	768			
6	I believe that mindfulness can enhance patient outcomes in physiotherapy.	Disagree	25 (6.0%)	25	1015	2.70	Positive
		Up to some extent	60 (14.4%)	120			
		Agree	290 (69.7%)	870			
7	I believe that mindfulness interventions require patient self-reflection and engagement.	Disagree	18 (4.3%)	18	1025	2.73	Positive
		Up to some extent	64 (15.4%)	128			
		Agree	293 (70.4%)	879			
8	I believe that mindfulness interventions can improve mental health outcomes for patients.	Disagree	17 (4.1%)	17	1032	2.75	Positive
		Up to some extent	59 (14.2%)	118			
		Agree	299 (71.9%)	897			
9	I believe that integrating mindfulness into physiotherapy practice requires minimal additional time commitment.	Disagree	41 (9.9%)	41	936	2.49	Positive
		Up to some extent	107 (25.7%)	214			
		Agree	227 (61.4%)	681			
10	I believe that mindfulness interventions are a valuable addition to traditional physiotherapy techniques.	Disagree	20 (4.8%)	20	1005	2.68	Positive
		Up to some extent	80 (19.2%)	160			
		Agree	275 (66.1%)	825			

Table 3: Mean Score and Interpretation for Practice Domain of MBIs

S.No	Practice Question	Likert Scale	Frequency (%)	Multiply by Likert Scale Score	Total Score	Mean Score	Interpretation
1	I currently use mindfulness techniques in my practice.	No	145 (34.9%)	145	731	1.94	Negative
		Up to some extent	104 (25.0%)	208			
		Yes	126 (30.3%)	378			
2	I frequently use mindfulness techniques with my patients.	No	153 (36.8%)	153	701	1.86	Negative
		Up to some extent	118 (28.4%)	236			
		Yes	104 (25.0%)	312			
3	I feel confident in guiding my patients through mindfulness exercises.	No	112 (26.9%)	112	811	2.16	Negative
		Up to some extent	90 (21.6%)	180			
		Yes	173 (41.6%)	519			
4	I have received sufficient training in mindfulness practices to use them effectively with my patients.	No	156 (37.5%)	156	714	1.90	Negative
		Up to some extent	99 (23.8%)	198			
		Yes	120 (28.8%)	360			
5	I observe positive outcomes in my patients when using mindfulness interventions.	No	121 (29.1%)	121	782	2.08	Negative
		Up to some extent	101 (24.3%)	202			
		Yes	153 (36.8%)	459			
6		No	123 (29.6%)	123	768	2.00	Negative

S.No	Practice Question	Likert Scale	Frequency (%)	Multiply by Likert Scale Score	Total Score	Mean Score	Interpretation
	I tailor mindfulness practices to meet the individual needs of my patients.	Up to some extent	111 (26.7%)	222			
		Yes	141 (33.9%)	423			
7	I regularly recommend mindfulness exercises to my patients for home practice.	No	128 (30.8%)	128	773	2.06	Negative
		Up to some extent	96 (23.1%)	192			
		Yes	151 (36.3%)	453			
8	I find it challenging to incorporate mindfulness practices into my physiotherapy sessions due to time constraints.	No	137 (32.9%)	137	740	1.97	Negative
		Up to some extent	111 (26.7%)	222			
		Yes	127 (30.5%)	381			
9	I receive positive feedback from patients regarding the mindfulness interventions I use.	No	106 (25.5%)	106	823	2.19	Negative
		Up to some extent	90 (21.6%)	180			
		Yes	179 (43.0%)	537			
10	I have access to resources and materials that help me integrate mindfulness into my practice.	No	127 (30.5%)	127	761	2.02	Negative
		Up to some extent	110 (26.4%)	220			
		Yes	138 (33.2%)	414			

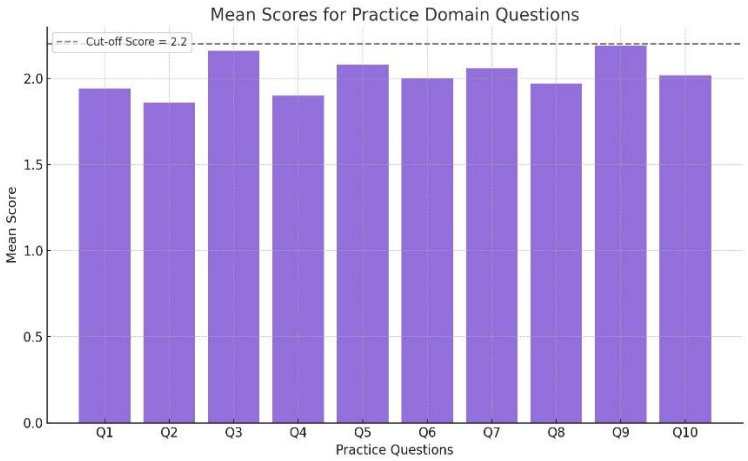

Figure 2 Mean Scores for Practice Domain Questions

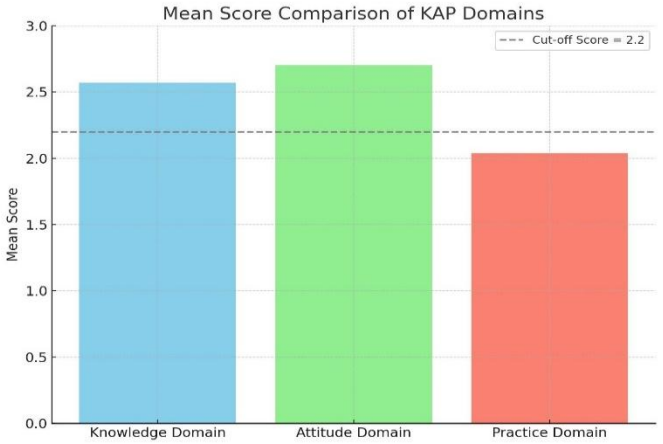

Figure 2 Mean Score Comparison of KAP Domains

DISCUSSION

The present study investigated the knowledge, attitude, and practice (KAP) of physiotherapists across Pakistan regarding the use of mindfulness-based interventions (MBIs) within disease-specific rehabilitation settings. The findings demonstrated that physiotherapists possessed a generally high level of knowledge and a favorable attitude toward MBIs, yet their clinical application of such interventions remained notably limited. This disparity highlights a critical implementation gap, despite widespread awareness and positive perceptions. The knowledge domain revealed that most physiotherapists were aware of the clinical benefits, physiological effects, and evidence-based support for mindfulness, with mean scores across all items exceeding the predefined threshold of 2.2. This trend reflected an informed professional population, consistent with findings from earlier international studies where physiotherapists reported

familiarity with psychosocial techniques such as guided self-reflection and progressive relaxation (16). In the current study, a similarly positive trend was observed in the attitude domain, where all items received affirmative responses, indicating that participants not only acknowledged the relevance of MBIs but also expressed interest in further training and integration within physiotherapy frameworks. These findings align with systematic reviews reporting favorable views among health professionals regarding MBIs and their potential for enhancing psychological and physical well-being across various populations (17,18).

However, a pronounced contrast emerged in the practice domain, where mean scores fell below the cut-off value, signifying suboptimal real-world application of MBIs. The most reported barriers included time constraints, lack of formal training, limited access to resources, and insufficient institutional support. These outcomes parallel prior regional studies where physiotherapists, despite recognizing the significance of psychosocial strategies, expressed discomfort or lack of confidence in implementing them during routine clinical encounters (19). It is plausible that while theoretical understanding and intent are present, systemic and logistical challenges hinder the translation of MBIs into practice. The demographic data further contextualized these findings. The average participant age was 26.87 years, and the mean clinical experience was 2.57 years, suggesting a relatively young and early-career workforce. Nearly half of the respondents were from Khyber Pakhtunkhwa (51.7%), with comparatively fewer participants from Sindh (6.3%) and Balochistan (3.8%), indicating regional sampling imbalances (20,21). The short three-month data collection period and underrepresentation of specific provinces likely limited the generalizability of the results. Furthermore, the lack of stratification by physiotherapy specialization—such as orthopedics, neurology, pediatrics, or women's health—reduced the study's ability to discern how MBI awareness and use may vary across subspecialties. These limitations constrained the depth of interpretation and call for more granular research in the future.

Despite these challenges, the study had several strengths. It addressed a relatively underexplored area in the local context, applying a structured KAP framework supported by a validated and pilot-tested questionnaire. The high response rate and representation of diverse work settings, including hospitals and private clinics, added robustness to the dataset. Moreover, the findings contribute to the growing body of literature emphasizing the need to bridge the gap between theoretical awareness and clinical implementation of MBIs, particularly in low-resource and high-demand physiotherapy environments. Future research should prioritize longitudinal designs with larger, more geographically diverse samples. Incorporating subgroup analyses based on physiotherapist specialization, years of experience, and type of healthcare setting would help clarify contextual factors influencing MBI adoption. Qualitative components exploring the specific barriers and facilitators experienced by physiotherapists could also offer actionable insights. Importantly, interventional studies that assess the impact of targeted MBI training programs on clinical practice behavior may provide a direct pathway for improving uptake (22). Integrating mindfulness into structured rehabilitation protocols, supported by institutional policy and curriculum development, would likely enhance its practical application. Overall, while Pakistani physiotherapists exhibit commendable knowledge and a positive outlook toward MBIs, a strategic effort is needed to translate this readiness into consistent and confident clinical use. Institutional support, structured training modules, and evidence-based implementation guidelines would be essential in transforming MBIs from a theoretical construct to a routine rehabilitative practice.

CONCLUSION

In conclusion, this study highlights that, physiotherapists in Pakistan possess a sound understanding and positive attitude toward mindfulness-based interventions, recognizing their relevance and potential benefits in enhancing patient care. However, a significant disconnect persists between this awareness and their practical application in clinical routines. The findings underscore the need for targeted efforts to bridge this gap through structured training, accessible resources, and institutional support. By addressing these barriers, mindfulness practices can be more effectively integrated into physiotherapy, ultimately contributing to more holistic and patient-centered rehabilitation approaches.

AUTHOR CONTRIBUTION

Author	Contribution
Um-E-Habiba*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Laiba Shah	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Aqdas Waheed	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Hira Hafeez	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Shah Faras Khan	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Laiba Raza	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Hifza Arif	Contributed to study concept and Data collection Has given Final Approval of the version to be published

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