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Perceived Effectiveness and Safety of the Mulligan Technique in the Management of Shoulder Impingement Syndrome: A Cross-Sectional Study Among Physiotherapists in Al Khums, Libya

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الفعالية والأمان المتصوران لتقنية موليجان في علاج متلازمة اصطدام الكتف: دراسة مقطعية بين أخصائيي العلاج الطبيعي في الخمس، ليبيا

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Abstract:
Shoulder impingement syndrome (SIS) is a prevalent musculoskeletal disorder that impairs functional mobility and quality of life. The Mulligan technique, particularly Mobilization with Movement (MWM), has gained popularity as a manual therapy intervention for treating SIS. However, limited regional evidence exists regarding its clinical effectiveness and safety in routine practice. This study aimed to evaluate the perceptions of physiotherapists in Al Khums, Libya, regarding the effectiveness and safety of the Mulligan technique in the management of shoulder impingement. A descriptive cross-sectional study was conducted using a structured questionnaire distributed to 85 physiotherapists across nine clinical centers in Al Khums between December 2024 and March 2025. The questionnaire assessed usage patterns, experience levels, perceived improvements in pain and range of motion (ROM), and opinions on the technique's safety and efficacy. Among the respondents, 76.5% reported using the Mulligan technique. A majority observed moderate to significant improvements in both pain (41%–80%) and ROM. Notably, 95.4% of participants deemed the technique effective, and an equal proportion considered it safe. A smaller percentage expressed uncertainty, primarily attributed to limited clinical experience. The findings suggest a high level of clinical acceptance and confidence in the Mulligan technique among physiotherapists in Al Khums. The technique is perceived as both effective and safe for managing SIS. However, variation in practitioner experience highlights the need for structured training and future comparative studies to validate long-term outcomes and optimize application protocols.

Keywords: Mulligan Technique, Mobilization with Movement (MWM), Shoulder Impingement Syndrome, Manual Therapy, Physiotherapy, Clinical Effectiveness.

الملخص

تُعد متلازمة الانحشار الكتفي (SIS) من الاضطرابات العضلية الهيكلية الشائعة التي تؤثر سلبًا على الحركة الوظيفية وجودة الحياة. وقد اكتسبت تقنية موليجان، لا سيما "التعبئة مع الحركة(MWM) "، شعبية متزايدة كعلاج يدوي لهذا النوع من الإصابات. ومع ذلك، لا تزال الأدلة الإقليمية حول فعاليتها وسلامتها في الممارسة السريرية محدودة. هدفت هذه الدراسة إلى تقييم تصورات أخصائيي العلاج الطبيعي في مدينة الخمس، ليبيا، بشأن فعالية وسلامة تقنية موليجان في علاج متلازمة الانحشار الكتفي. أُجريت دراسة وصفية مقطعية باستخدام استبيان منظم وُزِّع على 85 أخصائي علاج طبيعي في تسعة مراكز علاجية بمدينة الخمس خلال الفترة من ديسمبر 2024 إلى مارس 2025. تناول الاستبيان أنماط استخدام التقنية، مستوى الخبرة، مدى التحسن في الألم ونطاق الحركة(ROM) ، وآراء المشاركين حول فعالية وسلامة التقنية .أفاد 76.5٪ من المشاركين بأنهم يستخدمون تقنية موليجان. وأشار أغلبهم إلى وجود تحسن ملحوظ إلى متوسط في مستوى الألم (بنسبة تتراوح بين 41% و80%) ونطاق الحركة. كما صنّف 95.4٪ من الأخصائيين التقنية على أنها فعّالة، واعتبر العدد ذاته أنها آمنة. وأبدى عدد محدود من المشاركين شكوكًا، يُعزى معظمها إلى قلة الخبرة السريرية .تشير النتائج إلى قبول واسع وثقة سريرية عالية في تقنية موليجان بين أخصائيي العلاج الطبيعي في الخمس. وتُعتبر التقنية فعّالة وآمنة في إدارة متلازمة الانحشار الكتفي. ومع ذلك، فإن تفاوت مستويات الخبرة بين الممارسين يبرز الحاجة إلى تدريب منظم وإجراء دراسات مقارنة مستقبلية للتحقق من النتائج على المدى الطويل وتحسين بروتوكولات التطبيق.

الكلمات المفتاحية: تقنية موليجان، التعبئة مع الحركة (*MWM*)، متلازمة اصطدام الكتف، العلاج اليدوي، العلاج الطبيعي، الفعالية السريرية.

Introduction

Among musculoskeletal disorders, shoulder pain ranks as the third most prevalent symptom, following lower back and neck pain. Its occurrence is particularly common in the working-age population, where it significantly impairs occupational performance and diminishes overall quality of life (Cekok et al., 2024). Within this context, shoulder impingement syndrome (SIS) is recognized as the leading etiology, accounting for approximately 44–65% of shoulder pain cases (Hassan et al., 2021).

Shoulder impingement syndrome refers to the pathological compression of the rotator cuff tendons, most notably the supraspinatus tendon, as they traverse the subacromial space beneath the acromion. This mechanical encroachment provokes tendonitis, leading to pain, muscular weakness, and restricted range of motion in the affected shoulder (Moyes, 2011). Clinically, SIS is characterized by entrapment of soft tissues within the shoulder joint space, with most patients presenting after the age of 40 and reporting chronic pain in the absence of acute trauma. Etiological factors often include repetitive mechanical stress or minor, seemingly inconsequential injuries (Garving et al., 2017).

The hallmark symptoms of SIS include shoulder pain, muscular weakness, and limited movement, which are exacerbated by overhead activity and may disrupt sleep, particularly when lying on the affected side. Pain during active forward elevation of the arm, especially within the arc of 60° to 120°, is a diagnostic indicator known as the "painful arc" (Chen et al., 2003).

Management of SIS typically involves various physical therapy modalities, including thermotherapy, electrotherapy, therapeutic exercise, and manual therapy techniques. Among these, therapeutic exercises have demonstrated efficacy in restoring shoulder mobility and correcting muscular imbalances (Hassan et al., 2021). This study specifically examines the effectiveness of the Mulligan Concept, with a focus on the Mobilization with Movement (MWM) technique, a manual therapy approach developed by New Zealand physiotherapist Brian Mulligan in the 1980s. The MWM technique integrates sustained, passive joint mobilizations with active physiological movement to address musculoskeletal dysfunction and alleviate pain (Mulligan, 2021).

Mulligan's MWM has been shown to effectively restore pain-free joint range of motion (ROM) and improve functional outcomes in both upper and lower extremity conditions (Stathopoulos, Dimitriadis, & Koumantakis, 2019). This technique is particularly beneficial in addressing joint stiffness, adhesive capsulitis, and post-surgical rehabilitation, ultimately enhancing patients' functional independence and quality of life (Kim et al., 2021). Furthermore, emerging evidence supports the efficacy of MWM in the management of other musculoskeletal conditions, such as chronic neck pain, lumbar spine dysfunction, and knee osteoarthritis (Zainudin et al., 2023).

A recent study by Elgendy et al. (2024) demonstrated that incorporating mobilization techniques into SIS treatment protocols yields superior outcomes compared to conventional interventions, with the Mulligan method outperforming other mobilization strategies. Similarly, a systematic review by Meena and Varghese (2020) concluded that the application of Mulligan's MWM technique in shoulder dysfunction significantly enhances clinical outcomes related to ROM, pain relief, muscular strength, and overall functional ability.

Research Problem

Shoulder impingement syndrome (SIS) is a prevalent musculoskeletal disorder that significantly compromises upper limb functionality and negatively impacts patients' quality of life. Among the various therapeutic modalities employed in clinical rehabilitation, the Mulligan technique, particularly the Mobilization with Movement (MWM) approach, has gained traction as a manual therapy intervention aimed at alleviating pain and restoring range of motion (ROM). Despite its increasing application in clinical settings, there remains a paucity of empirical evidence evaluating its efficacy through statistically rigorous methodologies, especially within specific regional contexts such as the city of Al Khums. Consequently, this study seeks to address this gap by exploring the perspectives and clinical observations of local physiotherapy specialists regarding the effectiveness of the Mulligan technique. Such an investigation is essential for advancing the understanding of its practical utility and therapeutic value in managing SIS.

Significance of the Study

This study holds considerable clinical and academic relevance as it contributes to the growing body of knowledge concerning the efficacy of the Mulligan technique in treating SIS. By focusing on the regional context of Al Khums, it not only assesses clinical outcomes, specifically improvements in ROM and reductions in pain, but also investigates the prevalence and patterns of use of the technique among practicing physiotherapists. The findings are expected to generate a localized evidence base that can inform evidence-based clinical decision-making. Furthermore, the study offers insights into practitioner experiences and could serve as a foundation for standardizing manual therapy protocols in SIS management across similar healthcare environments.

Objectives of the Study

General Objective:

To evaluate the perceived effectiveness of the Mulligan technique in reducing pain and improving range of motion in patients with shoulder impingement syndrome, based on the perspectives of physiotherapists practicing in Al Khums.

Specific Objectives:

- To assess the level of awareness, knowledge, and utilization of the Mulligan technique among physiotherapists in Al Khums.
- To examine physiotherapists' clinical opinions regarding the technique's effectiveness in enhancing ROM and alleviating pain in patients with SIS.

Research Questions

- To what extent is the Mulligan technique utilized by physiotherapy specialists in the management of shoulder impingement syndrome in Al Khums?
- What levels of clinical improvement in pain reduction and range of motion are observed following the application of this technique?
- How do local specialists evaluate the safety and therapeutic efficacy of the Mulligan technique in the treatment of SIS?
- What practitioner-related or contextual factors (e.g., clinical experience, training background) influence the successful implementation of the technique?

Limitations of the Study

The reliability and generalizability of this study's findings are inherently dependent on the subjective assessments and clinical experience of the surveyed physiotherapists. Additionally, the study is geographically limited to practitioners operating within Al Khums, which may constrain the applicability of results to broader populations. The accuracy of the conclusions is also contingent upon the honesty and precision of participants' responses to the research questionnaire.

Study Design

This research employed a descriptive cross-sectional study design to evaluate the perceived effectiveness of the Mulligan technique in managing shoulder impingement syndrome. Data collection was carried out through a structured and pre-validated questionnaire, which was distributed across nine physiotherapy centers located in the city of Al Khums.

Data Collection

Data were obtained from physiotherapists working in multiple healthcare and rehabilitation facilities, including the Physiotherapy Department at Al Khums Teaching Hospital, Khums Diabetes Center, Souq Al-Khamis Center, Steps Center, Al-Erada Center, Al-Nukhba Center, Saraya Hospital, and the Libyan-Egyptian Center. The data collection process spanned from December 2024 to March 2025. A total of 85 physiotherapists participated in the study.

Inclusion and Exclusion Criteria

Inclusion Criteria:

- Licensed physiotherapists with clinical experience in managing shoulder impingement syndrome using the Mulligan technique.

Exclusion Criteria:

- Respondents who submitted incomplete questionnaires.
- Physiotherapists with no practical experience in applying the Mulligan technique in clinical settings.

Statistical Analysis

The collected data were analyzed using Microsoft Excel 2013. Descriptive statistics, including frequencies and percentages, were employed to summarize the dataset and visualize the distribution of participants' responses. This approach facilitated a clear and comprehensive representation of the perceptions and clinical observations regarding the use of the Mulligan technique.

Ethical Considerations

Ethical clearance for the study was obtained from the Physiotherapy Department at the Faculty of Health Sciences prior to the commencement of data collection. All participants were informed of the study's objectives and voluntarily provided consent. Anonymity and confidentiality were strictly maintained throughout the research process to uphold ethical standards and protect participant integrity.

Results:

Percentage of Mulligan technique users:

Table 1 and Figure 1 collectively illustrate the distribution of responses regarding the utilization of the Mulligan technique among physiotherapists in Al Khums. Out of the 85 respondents surveyed, 65 physiotherapists (76.5%) reported using the Mulligan technique in their clinical practice, while 20 participants (23.5%) indicated they do not incorporate this method into their treatment protocols.

Table 1: Percentage of Mulligan technique users.

Variable	Frequency	Percent
Yes	65	76.5%
No	20	23.5%
Total	85	100%

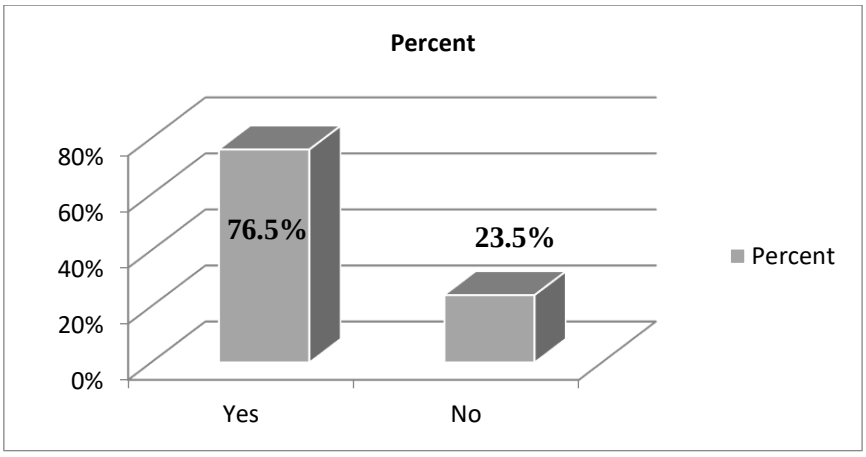

Figure 1: Percentage of Mulligan technique users.

The high proportion of affirmative responses suggests a strong acceptance and integration of the Mulligan technique within local physiotherapy practices. This prevalence may reflect a growing awareness of the technique's clinical efficacy in managing musculoskeletal disorders, particularly shoulder impingement syndrome (SIS). Such widespread use also implies that many practitioners in the region consider the Mulligan method a reliable component of manual therapy approaches aimed at improving joint function and alleviating pain.

Furthermore, the relatively low percentage of non-users (23.5%) invites further exploration. Possible factors contributing to non-utilization could include limited training opportunities, lack of access to continuing professional education, or skepticism regarding its efficacy compared to other mobilization techniques. These aspects warrant additional qualitative investigation to better understand barriers to adoption and to inform future professional development programs.

The level of experience of Mulligan technique users:

Table 2 and Figure 2 provide detailed insights into the distribution of physiotherapists' self-reported experience levels in applying the Mulligan technique. Among the 65 participants who indicated they use the technique, the majority classified themselves either as professionals (46.2%) or beginners (41.5%), while a smaller proportion, only 12.3%, identified as experts. These figures reveal a notable trend: although the Mulligan technique is widely used, a significant portion of practitioners are still at an early or intermediate stage of proficiency. The near-equal distribution between beginners and professionals suggests that many physiotherapists are still in the process of building competence and confidence in applying the technique effectively. This trend is especially important from a clinical training and outcomes perspective, as it may influence both the consistency and success of treatment application.

Table 2: Level of experience of Mulligan technique users.

Variable	Frequency	Percent
Beginner	27	41.5%
Professional	30	46.2%
Expert	8	12.3%
Total	65	100%

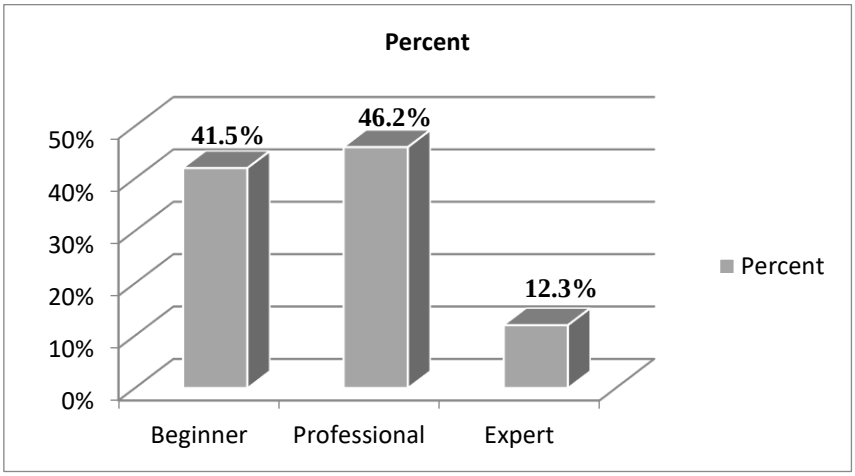

Figure 2: Level of experience of Mulligan technique users.

The relatively low percentage of experts (12.3%) raises questions regarding the availability and accessibility of advanced training programs or certifications in the Mulligan Concept, particularly within the region of Al Khums. It may also reflect limited opportunities for mentorship or continuing professional development (CPD) focused on manual therapy techniques. From a clinical standpoint, the predominance of users at the beginner and professional levels may have implications for treatment efficacy. Since the Mulligan technique requires a precise understanding of joint mechanics and manual handling skills, greater experience often translates into more effective and targeted interventions. Therefore, efforts to expand structured training and skill development, such as workshops, hands-on sessions, and postgraduate certifications are essential to elevate the quality of patient care. Furthermore, the distribution suggests a growing interest in the Mulligan technique, which, if supported by institutional training frameworks, could lead to an increase in expert-level practitioners over time. Such growth would not only enhance the therapeutic effectiveness of manual interventions but also foster evidence-based adoption in clinical settings.

Percentage of improvement in pain level:

Table 3 and Figure 3 provide an evaluative summary of physiotherapists' perceptions regarding the degree of pain reduction experienced by patients with shoulder impingement syndrome following the application of the Mulligan technique. The data represent a stratified distribution of reported pain improvement percentages among the 65 practitioners who employ this technique. The results indicate that the largest proportion of respondents (33.8%) observed a 61% to 80% reduction in patient pain levels, underscoring a high level of therapeutic efficacy. This is a critical finding as it positions the

Mulligan technique as a potentially powerful intervention for alleviating shoulder-related musculoskeletal pain. Notably, 27.6% of the participants reported a 20% to 40% improvement, while 24.6% noted a 41% to 60% reduction, further affirming its clinical utility across varying degrees of severity.

Table 3: Improvement in pain level after using Mulligan.

Variable	Frequency	Precent
Less than 20	6	9.2%
20-40	18	27.6%
41-60	16	24.6%
61-80	22	33.8%
More than 80	3	4.8%
Total	65	100%

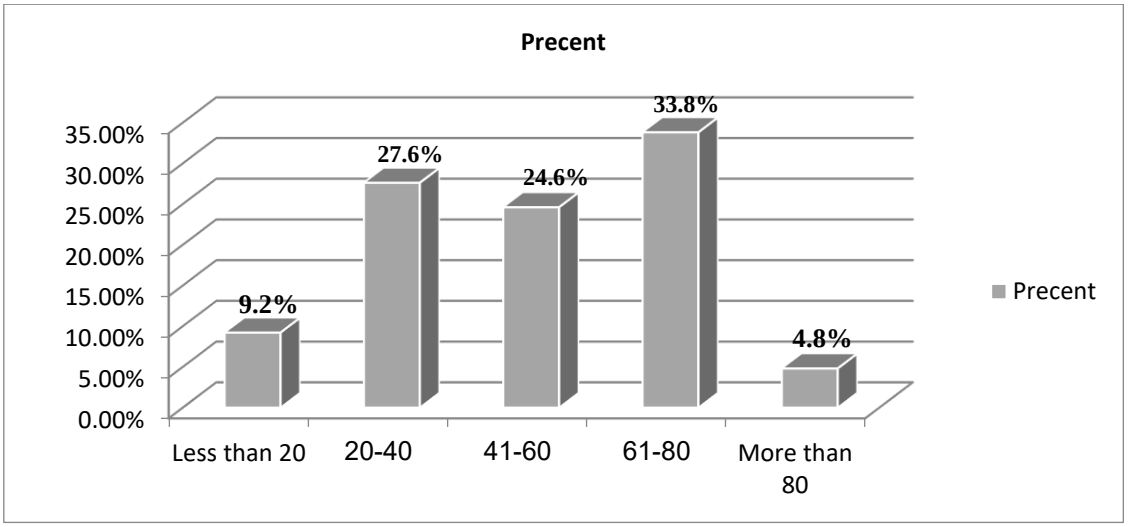

Figure 3: Improvement in pain level after using Mulligan.

Conversely, a smaller subset of physiotherapists (9.2%) reported less than 20% improvement, and only 4.6% claimed that pain reduction exceeded 80%. These outliers suggest that while the technique is generally effective, its outcomes may be influenced by patient-specific factors such as the chronicity of the condition, adherence to rehabilitation protocols, and the therapist's level of expertise. The bell-shaped distribution, peaking in the mid-to-high improvement categories (41%–80%), implies a generally favorable outcome profile for the Mulligan technique. The modest percentage of respondents observing minimal or maximal pain relief indicates variability that could be attributed to differences in application technique, patient response, or duration of therapy. This further supports the need for standardizing training and application methods to optimize outcomes. Importantly, these findings reinforce the hypothesis that the Mulligan technique contributes meaningfully to pain reduction in patients with shoulder impingement syndrome. The statistically dominant range of improvement (41%–80%) aligns with previous clinical studies emphasizing its biomechanical effectiveness in decompressing irritated structures and restoring functional joint movement.

Percentage of improvement in ROM:

Table 4 and Figure 4 depict physiotherapists' assessments of the degree of improvement in shoulder range of motion (ROM) among patients treated with the Mulligan technique. The results offer valuable insights into the technique's perceived efficacy in enhancing joint mobility in cases of shoulder impingement syndrome (SIS). The largest proportion of respondents,26 physiotherapists (40.0%), reported an improvement in ROM ranging from 41% to 60%, highlighting the technique's capacity to deliver substantial functional gains. This is particularly relevant given that restricted mobility is one of the hallmark symptoms of SIS. The next most frequent response came from 15 participants (23.1%), who reported 61% to 80% improvement, suggesting that nearly one-quarter of clinicians observed advanced recovery in shoulder movement among their patients.

Table 4: Increasing ROM after using Mulligan.

Variable	Frequency	Percent

Less than 20	6	9.2%
20-40	8	12.3%
41-60	26	40.0%
61-80	15	23.1%
More than 80	10	15.4%
Total	65	100%

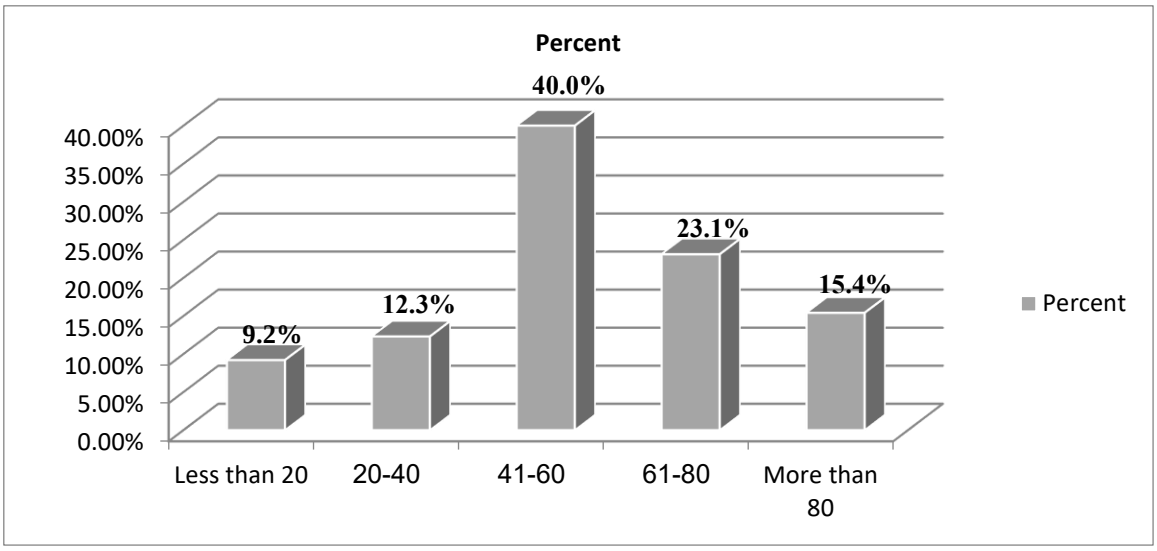

Figure 4: Increasing Rom after using Mulligan.

In contrast, 12.3% of respondents indicated 20% to 40% improvement, while 15.4% reported ROM gains exceeding 80%, which, although less frequent, demonstrate that significant enhancement in joint mobility is achievable with this technique in certain cases. However, 6 therapists (9.2%) observed only minimal improvement (<20%), suggesting that in a minority of cases, the intervention might yield limited outcomes, potentially due to patient non-compliance, chronicity of the condition, or therapist inexperience. The distribution across experience categories mirrors that of a moderate to high efficacy profile, with a concentration of responses in the 41% to 80% improvement range. These results reinforce the notion that the Mulligan technique can lead to meaningful restoration of ROM, thereby supporting rehabilitation goals focused on functional recovery and daily activity performance. Moreover, the presence of therapists reporting >80% improvement (15.4%) adds further weight to the evidence that this manual therapy can, under optimal circumstances, yield excellent outcomes. This may be influenced by factors such as accurate technique application, patient engagement in prescribed movement, and synergy with other complementary interventions such as strengthening exercises or soft tissue mobilization.

Effectiveness of Mulligan technique:

Table 5 and Figure 5 clearly highlight the overwhelmingly positive perception of the Mulligan technique among physiotherapists in the management of shoulder impingement syndrome (SIS). A striking 95.4% of respondents (62 out of 65) affirmed the effectiveness of the technique, while none reported it as ineffective. Only 3 respondents (4.6%) expressed uncertainty, selecting “Not sure” regarding its therapeutic value.

Table 5: Effectiveness of Mulligan technique.

Variable	Frequency	Percent
Yes	62	95.4 %
No	0	0.0%
Not sure	3	4.6%
Total	65	100%

The near-unanimous consensus regarding the technique’s effectiveness is highly significant and underscores its widespread acceptance in clinical practice. This level of agreement not only suggests high practitioner confidence but also reflects consistent clinical outcomes observed across varied patient populations. It provides a compelling argument for the inclusion of the Mulligan technique as a

standard component of manual therapy protocols for SIS, particularly in contexts similar to Al Khums where manual interventions play a crucial role in outpatient musculoskeletal care.

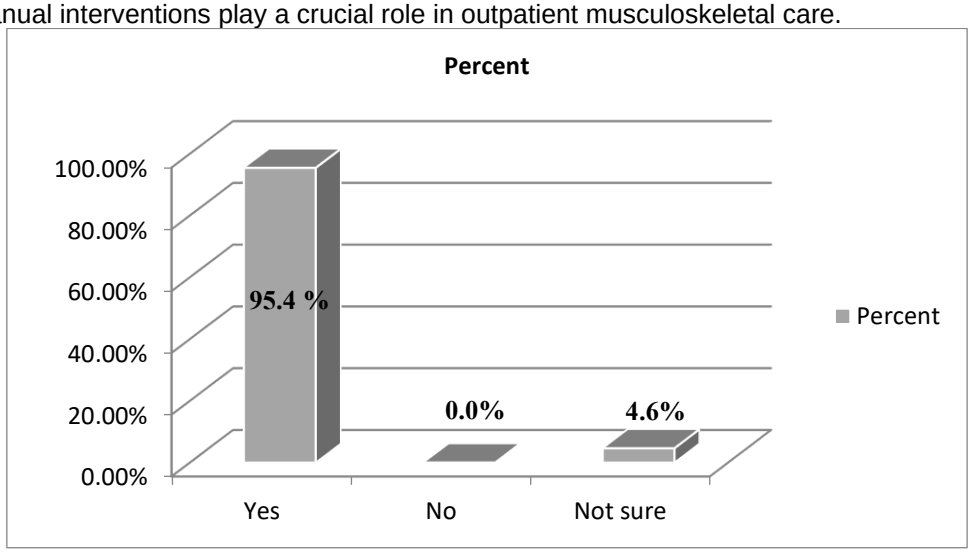

Figure 5: Effective of Mulligan technique.

The absence of negative responses (0%) is particularly noteworthy. It implies that, at minimum, the technique is perceived as non-harmful or neutral by all respondents, further reinforcing its safety profile. This makes it an attractive option in conservative management before pursuing more invasive interventions, such as corticosteroid injections or surgery. However, the 4.6% of respondents who indicated uncertainty about its effectiveness may point to a few important considerations. These could include limited exposure to the technique, a lack of hands-on training, or inconsistent results in their own clinical experience. It may also reflect the need for standardized implementation guidelines or continued professional development opportunities, particularly for novice therapists. In light of these findings, it is evident that the Mulligan technique holds strong perceived clinical value. The positive feedback aligns with earlier findings on pain reduction and ROM improvement, as discussed in previous tables, further validating the technique's role in addressing the multifaceted symptoms of SIS.

Percentage of mulligan technique safety for shoulder impingement:

Table 6 and Figure 6 provide critical insights into physiotherapists' perceptions regarding the safety profile of the Mulligan technique when applied to patients with shoulder impingement syndrome (SIS). The data indicate a very high level of confidence, with 95.4% (62 out of 65) of respondents affirming that the technique is safe for clinical use. In contrast, only 1 respondent (1.5%) deemed it unsafe, while 2 respondents (3.1%) expressed uncertainty. This overwhelming consensus on safety is particularly significant, as manual therapy techniques, especially those involving joint mobilization, can occasionally raise concerns regarding adverse effects or risk of injury if applied improperly. The near-universal agreement among respondents suggests that the Mulligan technique is not only effective (as shown in Table IV.5) but also widely trusted in terms of patient safety.

Table 6: Mulligan technique safety for shoulder impingement.

Variable	Frequency	Percent
Yes	62	95.4%
No	1	1.5%
Not sure	2	3.1%
Total	65	100%

The small fraction of respondents who were either unsure (3.1%) or considered the technique unsafe (1.5%) may reflect individual variations in experience, training quality, or exposure to specific clinical cases where outcomes were suboptimal. These responses underscore the importance of ongoing professional education to ensure correct application and to reduce hesitancy based on lack of familiarity or technical proficiency. Importantly, these findings align with global literature that classifies the Mulligan Concept, especially Mobilization with Movement (MWM), as a low-risk intervention when applied by trained professionals. It is typically non-invasive, performed within pain-free ranges, and involves active patient participation, all of which contribute to its favorable safety profile.The data also support the recommendation that the Mulligan technique can be safely integrated into routine physiotherapy practice for SIS, especially in outpatient and rehabilitation settings. This safety endorsement further

strengthens the case for including the technique in physiotherapy curricula, workshops, and clinical guidelines.

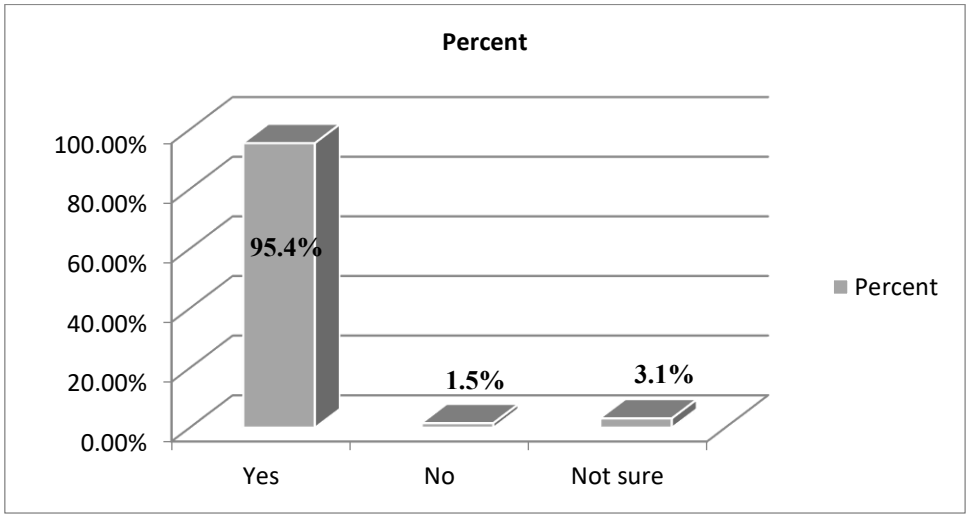

Figure 6: Mulligan technique safety for shoulder impingement.

Analysis and Interpretation

The findings of this study reveal a consistent pattern of widespread adoption of the Mulligan technique among physiotherapists, reflecting its increasing integration into routine clinical practice for managing shoulder impingement syndrome (SIS). Despite its broad use, a considerable number of practitioners identified themselves as either beginners or at a moderate level of experience. This variation in proficiency may influence not only the consistency with which the technique is applied but also the clinical outcomes achieved.

In terms of therapeutic efficacy, the data indicate a marked improvement in pain levels following the implementation of the Mulligan technique. A substantial proportion of respondents reported pain reductions in the range of 41% to 80%, underscoring the technique's perceived utility in alleviating subacromial discomfort. Similarly, improvements in shoulder range of motion (ROM) were noted by most participants, further validating the technique's role in restoring functional joint mobility and addressing biomechanical restrictions commonly associated with SIS.

The general evaluation of the technique's effectiveness was overwhelmingly positive. Notably, none of the surveyed physiotherapists reported the Mulligan technique as ineffective, while over 95% affirmed its clinical utility. This reflects a strong level of professional confidence in its application. Regarding safety, a similarly high proportion of respondents considered the technique to be safe, though a small percentage expressed uncertainty. This uncertainty is likely attributable to limited clinical exposure or lack of formal training, rather than adverse outcomes.

In summary, the results support the Mulligan technique as an effective and safe manual therapy intervention for shoulder impingement. However, the variation in experience levels and the minor proportion of therapists expressing hesitation emphasize the necessity for ongoing clinical education, skills development, and evidence-based training to ensure optimal and standardized application in clinical settings.

Discussion

The current study underscores the perceived clinical effectiveness and safety of the Mulligan technique, specifically Mobilization with Movement (MWM), in the treatment of shoulder impingement syndrome. A significant majority of surveyed physiotherapists reported favorable outcomes associated with its use, both in terms of pain reduction and functional restoration. Despite differences in experience levels, the widespread adoption of MWM suggests growing professional confidence in its utility and increasing incorporation into standard rehabilitation protocols.

These findings are consistent with prior empirical research supporting the role of manual therapy in managing shoulder dysfunction. For instance, Dabholkar et al. (2013) demonstrated immediate improvements in pain, shoulder joint range, and supraspinatus strength following scapular mobilization, emphasizing the neuromuscular and biomechanical benefits of such techniques. Similarly, Ajit and Shika (2016) investigated the impact of MWM on acromiohumeral distance using ultrasonography and found significant anatomical and clinical improvements, providing a biomechanical rationale for the pain relief observed in clinical settings.

Further reinforcing this evidence, Dalvi et al. (2024) reported that MWM, when integrated with conventional physiotherapy, produced superior outcomes in terms of pain relief, ROM restoration, and joint alignment compared to conventional therapy alone. Their findings parallel the responses of physiotherapists in the current study, many of whom acknowledged the technique's role in enhancing functional recovery and addressing subacromial compression symptoms.

Moreover, Mohammed et al. (2024) conducted a randomized controlled trial that demonstrated significant post-treatment gains in subacromial space, pain threshold, shoulder mobility, and overall functional ability when MWM was combined with standard care. These findings not only corroborate the therapeutic benefits identified in this study but also suggest that MWM can amplify the effects of traditional rehabilitation approaches, making it a valuable adjunct to comprehensive treatment plans.

Collectively, the congruence between the present study and existing literature reinforces the growing body of evidence supporting MWM as a beneficial intervention for SIS. Nevertheless, the reported variability in practitioner experience and the uncertainty expressed by a minority of respondents indicate a critical need for structured, competency-based training in manual therapy. Establishing standardized protocols and incorporating MWM training into physiotherapy curricula and continuing education programs could further enhance clinical outcomes and reduce practitioner hesitancy.

Conclusion

This study aimed to assess the perceived impact of the Mulligan technique, specifically Mobilization with Movement (MWM), on pain reduction and range of motion (ROM) enhancement in patients with shoulder impingement syndrome. Data were gathered through a structured questionnaire administered to physiotherapists practicing in Al Khums between December 2024 and March 2025, yielding 85 responses. The results demonstrated a notable improvement in both pain levels and shoulder mobility following the application of the Mulligan technique. Furthermore, the vast majority of respondents reported that the technique is both clinically effective and safe. These findings underscore the growing acceptance and integration of the Mulligan technique into physiotherapy practice for shoulder rehabilitation and highlight its potential as a valuable intervention in managing musculoskeletal dysfunctions.

Recommendations

- Comparative Effectiveness Research:

Future studies should conduct comparative analyses between the Mulligan technique and other manual therapy or conventional physiotherapy approaches to determine relative effectiveness in treating shoulder impingement syndrome.

- Integration into Clinical Training:

It is recommended that the Mulligan technique be incorporated into specialized physiotherapy training programs, workshops, and continuing education curricula to enhance practitioner proficiency and promote standardized application in clinical settings.

- Expanded Geographic and Temporal Scope:

Given the limited geographic coverage and relatively short data collection period of this study, further longitudinal research involving broader regional samples is warranted to ensure the generalizability of findings across diverse clinical environments.

- Enhanced Methodological Approaches:

While the current study relied solely on self-reported questionnaire data, future investigations should incorporate more robust clinical evaluation methods, such as observational assessments, objective outcome measures, and patient-reported outcome tools, to comprehensively evaluate the clinical effectiveness of the Mulligan technique.

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