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EXPLORING THE ROLE OF NUTRITIONAL KNOWLEDGE INTEGRATION IN PHYSIOTHERAPY: INSIGHTS FROM PRACTICING PHYSIOTHERAPISTS. A QUALITATIVE STUDY

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ABSTRACT

Background: *Nutrition plays a vital role in enhancing rehabilitation outcomes, yet its integration into physiotherapy practice remains inconsistent.*

Objective: *The objective of this study is to explore the views of practicing physiotherapists on nutritional knowledge integration, identifying current practices, barriers, collaboration experiences, and suggestions for improvement.*

Methods: *A qualitative study was conducted through semi-structured interviews with 15 practicing physiotherapists. Data were analysed thematically to identify key themes about nutrition integration, current practices, barriers, and interdisciplinary collaboration.*

Results: *Three main themes emerged:*
Universal recognition of nutrition as critical for patient recovery.
Inconsistent integration of nutrition due to limited formal training, time constraints, and unclear scope of practice
Valued but underutilized interdisciplinary collaboration with dieticians' hindered by systemic challenges.

Conclusion: *Physiotherapists acknowledge the importance of nutrition but face educational and systemic barriers that restrict effective integration. Enhanced nutrition education and institutional support for multidisciplinary collaboration are essential to optimize patient centred rehabilitation.*

Keywords: *Nutrition integration, Physiotherapy, Rehabilitation, Interdisciplinary collaboration.*

INTRODUCTION

Background

Nutritional status and physical rehabilitation are intimately connected pillars of patient recovery, yet their integration within contemporary physiotherapy practice remains underexplored. Traditionally, physiotherapists have been regarded as experts in optimizing function through evidence-based movement, manual techniques, and therapeutic exercise. However, increasing attention is being paid to holistic determinants of health—among which nutrition is critical. Comprehensive care models combining multiple health disciplines are now recognized globally as key to improving both immediate and long-term outcomes.

The Evolving Scope of Physiotherapy

Physiotherapy's scope has expanded beyond biomechanics to include psychosocial and behavioral

factors. The World Health Organization advocates integrated rehabilitation combining physical, nutritional, and psychological interventions to support disease management and functional independence (WHO, 2020). Physiotherapists increasingly engage in patient education and lifestyle coaching, including diet modification.

The Biological Rationale: Nutrition and Rehabilitation

Adequate protein and micronutrients promote muscle repair, reduce inflammation, and aid bone healing crucial in rehabilitation from musculoskeletal and neurological conditions. Poor nutrition correlates with delayed healing, complications, and poor functional gains (Bauer et al., 2013; Phillips et al., 2016). Synchronizing nutrition with exercise enhances efficacy, particularly for vulnerable groups such as older adults with sarcopenia or chronic inflammation.

The Underutilization of Nutritional Knowledge in Physiotherapy

Despite evidence, nutrition remains underemphasized in physiotherapy curricula and guidelines. Many physiotherapists report inadequate training and feel uncertain about their role relative to dieticians' (Smith et al., 2019). Prolonged patient contact in settings like geriatrics and rehab wards offers opportunities to address nutrition but role ambiguity limits intervention.

The Imperative for Integration: Patient Centred Rehabilitation

Integrated models that formalize collaboration between physiotherapists, dieticians', and other providers improve patient satisfaction, streamline care, and enhance outcomes across conditions from musculoskeletal to neurological rehabilitation.

Barriers to Integration: Education, Systems, and Boundaries

Limited nutrition education, brief clinical encounters, institutional silos, and unclear scope of practice pose obstacles to integration. Role ambiguity restricts physiotherapists from providing some nutritional advice, missing opportunities for screening and reinforcement, especially where dietitian access is limited.

The Need for Qualitative Inquiry

while surveys show support for nutrition's relevance, qualitative studies are needed to capture physiotherapists' lived experiences, challenges, and strategies when integrating nutrition.

Study Objective

The objective of this study is to explore the views of practicing physiotherapists on nutritional knowledge integration, identifying current practices, barriers, collaboration experiences, and suggestions for improvement.

Operational Definitions

- **Nutritional Knowledge Integration:** The inclusion and application of relevant nutritional principles and information by physiotherapists to enhance patient care within the context of rehabilitation.
- **Physiotherapy Practice:** Clinical activities involving assessment, treatment, and rehabilitation aimed at restoring physical function.
- **Interdisciplinary Collaboration:** Cooperative engagement between physiotherapists, dietitians, and other healthcare professionals to provide holistic patient care.
- **Malnutrition:** A state of nutrient imbalance or deficiency that adversely affects health outcomes and impedes rehabilitation.
- **Data Saturation:** The point during qualitative data collection at which no new themes or insights emerge from further interviews.

Study Rationale

This study addresses this gap by exploring physiotherapists' perspectives on nutritional knowledge integration through semi-structured interviews, to inform education reforms, policy, and interdisciplinary rehabilitation models.

Research Question

How do practicing physiotherapists perceive and experience the integration of nutritional knowledge in clinical rehabilitation practice, including current practices, barriers, and interdisciplinary collaboration?

Hypothesis:

Physiotherapists recognize the critical role of nutrition in rehabilitation but face significant barriers such as limited formal nutrition education, time constraints,

and unclear professional boundaries that impede effective integration of nutritional knowledge into clinical practice.

Literature Review

The Role of Nutrition in Rehabilitation

Adequate nutrition is foundational in recovery from illness or injury. Protein intake stimulates muscle protein synthesis crucial for repair and hypertrophy, especially in older adults vulnerable to sarcopenia and frailty (Phillips et al., 2016; Bauer et al., 2013). Micronutrients such as vitamin D also influence musculoskeletal health (Glover et al., 2018). Nutritional timing, particularly post-exercise protein supplementation, enhances rehabilitation effectiveness (Kitaoka et al., 2022).

Physiotherapy and Nutritional Knowledge

Physiotherapists encounter patients with diverse nutritional needs impacting their rehabilitation progress (Slade & Keating, 2012). However, many report minimal exposure to nutrition education during their training, resulting in inconsistent competencies for nutritional counseling (Smith et al., 2019; Iqbal et al., 2024). This educational gap constrains the physiotherapists' confidence and practice scope, limiting their ability to address critical nutritional factors influencing rehabilitation outcomes (Jones & Brown, 2020).

Impact of Poor Nutrition on Patient Outcomes

Malnutrition correlates with prolonged hospital stays, delayed wound healing, increased complications, and reduced muscle strength (Chang et al., 2019). Consequently, integrating nutrition and physical therapy interventions accelerates functional gains and improves quality of life (Rossi et al., 2021).

Interdisciplinary Collaboration

Multidisciplinary rehabilitation teams incorporating dieticians' yield superior patient outcomes via comprehensive nutritional assessment and personalized interventions (Williams et al., 2018). Yet, collaboration barriers persist, stemming from communication gaps, resource limitations, and role ambiguity (Rossi et al., 2021; Kitaoka et al., 2022).

Education and Training Needs

Calls for enhanced nutrition education in physiotherapy curricula are growing (Iqbal et al., 2024). Structured modules focusing on clinical nutrition fundamentals and counseling skills may empower physiotherapists and foster effective inter-professional partnerships (Williams et al., 2018).

Gaps in Research

While quantitative surveys identify knowledge deficits and barriers, qualitative explorations of physiotherapists' real-world experiences and attitudes toward nutrition integration remain limited. Understanding these nuanced perspectives is crucial to developing tailored educational programs, policy changes, and clinical guidelines that facilitate sustainable integration.

Summary

The literature underscores nutrition's critical role in physiotherapy but highlights widespread educational and systemic gaps limiting its integration. This study addresses the need to qualitatively understand clinicians' perspectives to inform curricular innovations and collaborative practice frameworks.

Methodology

Research Design:

A qualitative descriptive design was chosen to explore physiotherapists' perspectives with rich, detailed data through semi-structured interviews (Creswell & Poth, 2017).

Participants:

15 licensed physiotherapists with minimum 3 years rehabilitation experience from both inpatient and outpatient settings, in Karachi, Pakistan, purposively sampled.

Data Collection:

Semi-structured, 40-minute interviewed guided by a structured questionnaire covering perceptions, practices, barriers, collaboration, patient response, and future outlook.

Inclusion and Exclusion Criteria

- **Inclusion:**
  - Licensed physiotherapists actively engaged in clinical practice.
  - Minimum of 3 year clinical experience.
  - Able and willing to participate in interviews.
- **Exclusion:**
  - Students or non-clinical physiotherapists.

- Language barriers or lack of availability for interview.

Variables

- Demographic: Age, gender, years of experience, clinical specialty, practice setting.
- Educational background in nutrition.
- Current practices regarding nutrition integration.
- Perceived barriers/facilitators.
- Interdisciplinary collaboration experiences.

Data Analysis:

Braun and Clarke's (2006) thematic analysis framework applied using NVivo software. Steps included familiarization, coding, theme development, review, and reporting.

Trustworthiness and Ethics:

Credibility through member checking and peer debriefing. Ethical approval obtained with full participant confidentiality.

Results

Theme 1: Perceived Importance of Nutrition and Impact on Patient Outcomes

Physiotherapists unanimously emphasized nutrition as integral to recovery. They reported improved patient strength, healing speed, and rehabilitation success linked to nutritional care. One stated, **"Nutrition fuels the body's ability to heal—without it, even the best exercises fall short."**

Theme 2: Current Practices and Barriers in Nutritional Integration

Basic nutritional advice—mostly on hydration and protein—was common but unsystematic. Formal training gaps, limited time, and concerns about professional boundaries inhibited detailed counselling. **"I worry about giving incomplete advice and overstepping my role,"** said a participant.

Theme 3: Interdisciplinary Collaboration and Future Educational Needs

Collaboration with dietitians was praised but inconsistent due to resource and communication challenges. Participants highlighted needs for clearer role definitions and integrated nutrition education through curricula and continuing professional development.

Discussion

This study confirms physiotherapists' recognition of nutrition's critical role in holistic patient care, aligning with prior studies highlighting the influence of adequate nutritional status on rehabilitation outcomes (Phillips et al., 2016; Kitaoka et al., 2022). However, the inconsistent and limited integration observed reflects enduring gaps in formal nutrition education and systemic constraints.

The apprehension around scope of practice and liability signals a need for clearer professional guidelines and training aimed at defining physiotherapists' roles in nutrition-related interventions.

Time limitations suggest integrating nutrition efficiently within clinical workflows is essential.

Interdisciplinary collaboration emerges as a vital enabler of comprehensive care but requires institutional support to bridge communication deficiencies and standardize referral procedures.

These findings support calls for embedding nutrition education in physiotherapy curricula and continuing professional development (Iqbal et al., 2024).

This qualitative insight enriches understanding by illustrating day-to-day realities and perspectives, reinforcing that improving nutrition integration requires educational, clinical, and organizational reforms.

Limitations

Small purposive sample limits generalizability. Self-reporting invites social desirability bias. Future studies should consider mixed-methods and broader geographic samples.

Conclusion

Nutrition is widely recognized by physiotherapists as foundational in rehabilitation but remains under-integrated due to educational, practical, and systemic barriers. Empowering physiotherapists through enhanced nutrition training, clear professional guidelines, and institutional support for multidisciplinary collaboration will foster holistic, patient cantered rehabilitation. Future research should evaluate the impact of these changes on clinical outcomes.

Implications for Practice

- Integrate comprehensive nutrition education in physiotherapy training and CPD.

- Develop clear guidelines articulating physiotherapists' responsibilities in nutritional counselling.
- Foster robust inter-professional collaboration and communication pathways between physiotherapists and dieticians'.
- Advocate institutional support for adequate time and resources to address nutrition in clinical practice.

Recommendations for Education and Policy

Physiotherapy curricula should include mandatory nutrition modules emphasizing clinical application. Continuing professional development opportunities in nutrition and inter-professional communication must be supported by healthcare institutions and professional bodies.

Annexure: Interview Questions for Physiotherapists on Nutritional Knowledge Integration

1. Background and Experience

1.1. Can you briefly describe your experience and specialization in physiotherapy?
1.2. How often do you discuss nutrition with your patients during treatment?

2. Understanding and Importance of Nutrition

2.1. In your opinion, how important is nutritional knowledge for physiotherapists?
2.2. How do you think nutrition affects patient recovery and rehabilitation outcomes?

3. Integration of Nutritional Knowledge

3.1. Have you received any formal training or education related to nutrition in your physiotherapy career?
3.2. How do you currently integrate nutritional advice or knowledge into your physiotherapy practice?

4. Benefits and Challenges

4.1. What positive impacts have you observed when nutritional knowledge is incorporated into physiotherapy?
4.2. What are the main challenges or barriers you face when trying to include nutritional guidance in your sessions?

5. Collaboration and Resources

5.1. Do you collaborate with dietitians or nutritionists when managing patients? If yes, how effective is this collaboration?
5.2. What resources or support would help you better integrate nutritional knowledge into your practice?

6. Patient Response and Outcomes

6.1. How do patients generally respond when nutritional advice is included in their treatment plan?
6.2. Can you share an example where nutrition integration made a noticeable difference in a patient's rehabilitation?

7. Future Perspectives

7.1. How do you see the role of nutrition evolving in physiotherapy over the next 5 years?
7.2. What recommendations would you make for improving nutritional integration in physiotherapy education and practice?

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