

# **A Holistic Approach to Oral Health in Patients with Physical Disabilities: Interdisciplinary Collaboration between Dentistry, Physical Therapy, Respiratory Therapy, and Social Work in a Tertiary Hospital**

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## **Abstract**

**Patients with physical disabilities often face significant challenges in maintaining oral hygiene due to limitations in mobility, dexterity, and cognitive function. This qualitative study, conducted in a tertiary hospital, explored the impact of interdisciplinary collaboration between dentistry, physical therapy, respiratory therapy, and social work on improving oral health outcomes for these patients. Through semi-structured interviews with 20 patients and 20 healthcare professionals, thematic analysis identified key barriers to oral care, the benefits of physical therapy and adaptive devices, and the role of social and emotional support in enhancing patient well-being. The findings highlight the importance of a holistic, team-based approach to managing oral health and overall care in patients with physical disabilities.**

**Keywords: Oral Health, Physical Disabilities, Interdisciplinary Collaboration, Dentistry, Physical Therapy, Respiratory Therapy, Social Work, Tertiary Hospital**

## **Introduction**

Oral health is a critical component of overall well-being, yet it is often overlooked in patients with physical disabilities. Individuals with conditions that impair mobility, coordination, or cognitive function frequently face significant challenges in maintaining adequate oral hygiene, leading to a higher prevalence of oral diseases such as periodontal disease, dental caries, and oral infections (Anders and Davis, 2010). The impact of poor oral health in these patients extends beyond the mouth, as it can exacerbate other health conditions, including respiratory diseases, cardiovascular issues, and overall quality of life (Scannapieco & Cantos, 2016).

For patients with physical disabilities, the ability to perform basic self-care tasks, such as brushing and flossing, may be compromised due to limitations in movement or dexterity (Arnold et al., 2000). Additionally, patients who rely on caregivers may not always receive the necessary attention to oral care, further complicating their health outcomes. As a result, an interdisciplinary approach is essential to address

the multifaceted needs of these patients, involving professionals from various fields, including dentistry, physical therapy, respiratory therapy, and social work.

Physical therapists can play a crucial role in improving motor function and dexterity, which in turn can enhance patients' ability to maintain oral hygiene (Peiris et al., 2011). Meanwhile, respiratory therapists are integral in managing respiratory conditions, particularly in patients who are more prone to oral infections due to ventilatory support or other respiratory complications (Azarpazhoo and Leake, 2006). Social workers contribute by offering emotional support, coordinating care, and ensuring patients and their families have access to necessary resources (Oliver et al., 2012).

This paper aims to explore how an interdisciplinary collaboration between dentists, physical therapists, respiratory therapists, and social workers can improve oral health outcomes for patients with physical disabilities in a tertiary hospital setting. By integrating care across these disciplines, the study seeks to highlight the benefits of a holistic approach to patient care, emphasizing the importance of oral health as part of comprehensive rehabilitation.

## Literature Review

### Oral Health Challenges in Patients with Physical Disabilities

Individuals with physical disabilities face significant challenges in maintaining oral health, which can lead to a range of dental complications. Limited mobility, reduced dexterity, and cognitive impairments often prevent these individuals from performing daily oral hygiene tasks such as brushing and flossing. According to Anders and Davis (2010), the prevalence of periodontal disease and dental caries is significantly higher in individuals with physical disabilities compared to the general population. These patients may also have difficulties accessing dental care due to transportation issues or a lack of specialized services, further exacerbating their oral health problems (Arnold et al., 2000).

Moreover, studies have highlighted that poor oral health in this population is not just a localized issue. Scannapieco and Cantos (2016) point out that oral infections, if left untreated, can exacerbate systemic health conditions, including respiratory diseases and cardiovascular complications. This interrelationship underscores the importance of addressing oral health as part of a broader healthcare strategy for individuals with physical disabilities.

### The Role of Physical Therapy in Supporting Oral Health

Physical therapists (PTs) play a crucial role in rehabilitating patients with physical disabilities, improving their mobility, strength, and coordination. While PTs are primarily focused on enhancing motor function and physical independence, their work indirectly supports better oral hygiene. Peiris et al. (2011) demonstrated that improving a patient's upper body strength and fine motor control can make tasks such as holding a toothbrush or flossing more manageable. For patients with disabilities that affect their manual dexterity—such as stroke survivors or individuals with spinal cord injuries—physical therapy can be instrumental in restoring the necessary skills for self-care, including oral hygiene.

In addition to physical rehabilitation, PTs often work with patients on adaptive strategies to compensate for limitations. For example, patients who cannot reach their mouths properly due to shoulder or arm limitations may benefit from assistive devices designed to extend reach or improve grip (Peiris et al., 2011). These strategies, combined with regular dental care, can significantly improve the oral health outcomes of patients with physical disabilities.

### The Impact of Respiratory Health on Oral Hygiene

Respiratory health and oral hygiene are closely linked, particularly in patients with chronic respiratory conditions or those requiring ventilatory support. According to Azarpazhooh and Leake (2006), patients with compromised respiratory function, such as those with chronic obstructive pulmonary disease (COPD) or those on mechanical ventilation, are at a higher risk of developing oral infections, including pneumonia related to poor oral hygiene. The use of ventilators, in particular, creates an environment that fosters bacterial growth in the oral cavity, which can lead to respiratory infections if oral care is neglected.

Respiratory therapists (RTs) are essential in managing the respiratory health of patients with disabilities, and they are increasingly involved in oral care routines to prevent ventilator-associated pneumonia (VAP). Research has shown that simple oral hygiene interventions, such as regular tooth brushing and the use of antiseptic mouthwashes, can significantly reduce the incidence of respiratory infections in these patients (Azarpazhooh and Leake, 2006). Collaboration between RTs and dental professionals ensures that oral health is maintained in patients at risk of respiratory complications, leading to better overall health outcomes.

### The Role of Social Workers in Coordinating Holistic Care

Social workers are critical in addressing the social, emotional, and logistical challenges faced by patients with physical disabilities. Their role extends beyond emotional support to include care coordination, patient advocacy, and resource management. Oliver et al. (2012) highlights the importance of social workers in connecting patients with physical disabilities to necessary healthcare services, including dental care, which may otherwise be inaccessible due to financial constraints, transportation issues, or a lack of specialized providers.

Social workers also play a key role in facilitating interdisciplinary collaboration, ensuring that the various healthcare professionals involved in a patient's care—dentists, physical therapists, and respiratory therapists—are working in a coordinated manner. This collaborative approach is particularly important in managing the complex needs of patients with physical disabilities, as it ensures that all aspects of the patient's health, including oral hygiene, mobility, and respiratory function, are addressed comprehensively (Oliver et al., 2012).

### The Importance of Interdisciplinary Collaboration

The need for interdisciplinary collaboration in healthcare, particularly for patients with complex conditions, is well-supported in the literature. Interdisciplinary teams allow for the integration of diverse expertise, which is crucial for providing holistic care. For patients with physical disabilities, such teams often include dentists, physical therapists, respiratory therapists, and social workers, all of whom contribute uniquely to the patient's overall health.

According to Southerland et al. (2016), interdisciplinary collaboration has been shown to improve patient outcomes in various healthcare settings, including rehabilitation and chronic care management. By working together, healthcare providers can ensure that all aspects of a patient's health are addressed. In the context of oral health, this means that dentists can work closely with physical therapists to help patients regain the motor skills needed for oral hygiene, while respiratory therapists and social workers can ensure that oral care is integrated into broader health management strategies for those with respiratory conditions or psychosocial barriers.

## Methodology

This study was conducted at a tertiary hospital with a focus on patients with physical disabilities who experience challenges in maintaining oral hygiene. The research explored the impact of interdisciplinary collaboration between dentistry, physical therapy, respiratory therapy, and social work on improving oral health outcomes for these patients. A qualitative approach was chosen to gain in-depth insights into the experiences of both patients and healthcare professionals.

### Study Design

This qualitative, descriptive study employed semi-structured interviews to gather data from patients and healthcare professionals, including dentists, physical therapists, respiratory therapists, and social workers. The study aimed to explore how an interdisciplinary approach influences oral health outcomes and overall well-being in patients with physical disabilities.

### Participants and Sampling

**Patients:** Purposive sampling was used to select 20 patients from the hospital's rehabilitation and outpatient dental clinics. Eligible participants included adults (aged 18 and above) with physical disabilities (e.g., stroke, spinal cord injury, muscular dystrophy) who had been referred to both physical therapy and dental services due to challenges in performing self-care tasks, including oral hygiene. Patients who were non-verbal or unable to provide informed consent were excluded from the study.

**Healthcare Professionals:** In addition, 5 dentists, 5 physical therapists, 5 respiratory therapists, and 5 social workers were recruited to participate in interviews. These professionals were selected based on their involvement in the care of patients with physical disabilities in the hospital. The healthcare professionals were chosen to represent each discipline involved in patient care, ensuring a comprehensive understanding of interdisciplinary collaboration.

### Data Collection

**Semi-Structured Interviews:** Data were collected through one-on-one semi-structured interviews with both patients and healthcare providers. Interviews with patients explored their experiences with oral health challenges, their interactions with different healthcare professionals, and the perceived impact of the interdisciplinary approach on their overall care. The interview guide included questions such as:

- "How has your physical condition impacted your ability to maintain oral hygiene?"
- "Can you describe the kind of support you received from different healthcare providers?"

Interviews with healthcare professionals focused on their roles in managing the oral health of patients with disabilities, the challenges they encountered, and how they collaborated with other professionals. Sample questions included:

- "How do you collaborate with other healthcare providers in managing the oral health of your patients?"
- "What challenges do you face in providing comprehensive care to patients with physical disabilities?"

All interviews were audio-recorded with the consent of the participants and lasted between 30 and 60 minutes. Interviews were transcribed verbatim for analysis.

### Data Analysis

Thematic analysis was used to analyze the qualitative data. The analysis followed Braun and Clarke's (2006) six-step framework, which included:

1. Familiarization with the Data: Researchers reviewed interview transcripts multiple times to gain a deep understanding of the data.
2. Generating Initial Codes: Initial codes were created by two independent researchers based on the patterns and themes emerging from the data.
3. Searching for Themes: Codes were grouped into broader themes that represented the key issues identified in the interviews, such as “barriers to oral hygiene,” “benefits of physical therapy in oral care,” and “interdisciplinary collaboration.”
4. Reviewing Themes: The researchers reviewed and refined the themes to ensure they accurately reflected the data.
5. Defining and Naming Themes: Final themes were named and defined, with supporting quotes from participants.
6. Writing Up: The final themes were written up, and relevant excerpts from interviews were used to illustrate the findings.

### Ethical Considerations

Ethical approval for the study was obtained from the ethics committee. All participants were informed of the purpose of the study and provided written informed consent before participating. Patients were assured that their participation was voluntary and that their decision to participate or not would not affect the care they received. Confidentiality was maintained by anonymizing participant data and securely storing the interview recordings and transcripts.

### Trustworthiness of the Study

To ensure the trustworthiness of the findings, several strategies were employed:

- Credibility: Member checking was conducted, where a subset of participants reviewed the initial themes to ensure the findings accurately represented their experiences.
- Dependability: An audit trail was kept throughout the research process, documenting decisions made during data collection and analysis.
- Transferability: Detailed descriptions of the study’s setting, participants, and context were provided to allow readers to assess the applicability of the findings to other settings.
- Confirmability: Reflexivity was practiced throughout the study, with researchers acknowledging their biases and ensuring the findings were grounded in the data.

### Study Limitations

While the study provides valuable insights into interdisciplinary collaboration in managing oral health for patients with physical disabilities, there are limitations. The sample size, particularly of healthcare professionals, was small, which may limit the generalizability of the findings. Additionally, the study relied on patient self-reporting, which may be influenced by recall bias or subjectivity. Future research could benefit from including a larger and more diverse sample of patients and healthcare professionals, as well as real-time observational data during patient care.

### Findings

The thematic analysis of the interviews revealed three major themes: (1) Barriers to Maintaining Oral Health, (2) The Role of Physical Therapy and Adaptive Strategies, and (3) Benefits of Interdisciplinary Collaboration. Each theme includes sub-themes that further explore the participants' experiences and perspectives.

## Theme 1: Barriers to Maintaining Oral Health

Patients with physical disabilities face numerous challenges in maintaining oral hygiene, which contributes to poor oral health outcomes.

### Sub-theme 1.1: Physical Limitations and Oral Hygiene

Many patients reported that their physical disabilities made it difficult to perform routine oral hygiene tasks, such as brushing and flossing. Limited mobility, reduced dexterity, and pain were common barriers that prevented effective self-care.

- "I can't move my arms like I used to, and brushing my teeth feels like a workout. I need help, but sometimes even my caregiver can't do it the way I would." (Patient 6)
- "After my stroke, it's been hard to grip the toothbrush properly. I have to rely on someone else to help me, but it's not the same." (Patient 11)

### Sub-theme 1.2: Cognitive Impairments and Forgetfulness

Some patients, particularly those with cognitive impairments or memory issues, struggled to remember daily oral hygiene routines. This issue was often exacerbated in patients with neurological conditions, such as dementia or stroke.

- "Sometimes I forget to brush my teeth. I know it's important, but with everything else going on, it's hard to keep track." (Patient 14)
- "My memory isn't what it used to be, so I don't always remember to ask for help with brushing." (Patient 3)

## Theme 2: The Role of Physical Therapy and Adaptive Strategies

Physical therapy played a significant role in helping patients regain some functional independence in maintaining their oral hygiene.

### Sub-theme 2.1: Improving Dexterity and Range of Motion

Patients who received physical therapy reported improvements in their ability to perform basic self-care tasks, including oral hygiene. Physical therapists worked with patients to enhance their upper body strength, range of motion, and fine motor skills, which facilitated better oral care.

- "My therapist helped me work on my arm strength and hand grip. Now I can hold the toothbrush better and even try flossing on my own sometimes." (Patient 8)
- "With the exercises, I've noticed I can move my arms a little more, which makes it easier to at least attempt brushing." (Patient 12)

### Sub-theme 2.2: Use of Assistive Devices

For patients with more severe physical limitations, physical therapists introduced adaptive tools to aid in oral hygiene. These included devices that extended reach or improved grip, enabling patients to perform oral care tasks more independently.

- "They gave me this special handle for my toothbrush that makes it easier to hold. It's been a game-changer for me." (Patient 2)
- "The adaptive devices really helped. I never thought I'd be able to brush my teeth again on my own, but now I can, even if it's not perfect." (Patient 10)

### Theme 3: Benefits of Interdisciplinary Collaboration

The collaboration between dentists, physical therapists, respiratory therapists, and social workers significantly improved the quality of care provided to patients with physical disabilities.

#### Sub-theme 3.1: Integrating Oral Health into Physical and Respiratory Care

Healthcare providers acknowledged that oral health was often neglected in patients with complex physical conditions. However, by working together, respiratory therapists and physical therapists could incorporate oral care into their routines, particularly for patients on ventilators or those with compromised respiratory function.

- "As a respiratory therapist, I see the connection between oral hygiene and respiratory health. We've been coordinating with the dental team to make sure our patients are getting proper oral care to prevent infections." (Respiratory Therapist 4)

- "The physical therapy team works with the dental team to help patients gain the motor skills needed for brushing, especially for those who've had a stroke." (Physical Therapist 3)

#### Sub-theme 3.2: Emotional and Social Support from Social Workers

Social workers provided vital emotional and social support to both patients and their caregivers. They helped coordinate care, addressed logistical barriers (e.g., arranging transportation for dental visits), and provided emotional support to patients struggling with the challenges of physical disabilities.

- "The social worker really helped me manage everything. From arranging appointments to just listening to my frustrations, they've been a huge help." (Patient 7)

- "We work closely with the physical and respiratory therapists to ensure that patients are getting the support they need, both physically and emotionally." (Social Worker 2)

#### Sub-theme 3.3: Improved Outcomes Through Teamwork

The interdisciplinary collaboration led to improved health outcomes for patients, as each discipline contributed its expertise. The integration of dental care into broader rehabilitation efforts ensured that oral health was not overlooked and was treated as an essential aspect of the patient's overall well-being.

- "By working together, we've seen a noticeable improvement in the oral health of our patients. It's a team effort, and it's making a real difference." (Dentist 5)

- "We're seeing fewer infections and complications because of the teamwork. When everyone's on the same page, the patient benefits the most." (Respiratory Therapist 2)

## Discussion

The findings of this study highlight the significant challenges faced by patients with physical disabilities in maintaining oral health and emphasize the critical role of interdisciplinary collaboration in addressing these challenges. The integration of dental care with physical therapy, respiratory therapy, and social work demonstrated clear benefits in improving both oral hygiene and overall health outcomes for these patients.

### Barriers to Oral Health Maintenance

The results align with previous research that indicates individuals with physical disabilities face substantial barriers to maintaining oral hygiene due to limitations in mobility, dexterity, and cognitive function (Anders and Davis, 2010). The inability to perform basic oral hygiene tasks, such as brushing and flossing, was a recurring theme among participants, who expressed frustration and helplessness regarding their oral care. These challenges were further compounded for patients with cognitive impairments, such as those with stroke-related memory loss, who often forgot or neglected oral hygiene tasks.

This finding is consistent with Arnold et al. (2000), who noted that barriers to self-care in patients with disabilities are multifaceted, encompassing not only physical limitations but also mental and emotional challenges. Addressing these barriers requires a more comprehensive approach that integrates physical rehabilitation and emotional support to empower patients in maintaining their oral health.

#### Role of Physical Therapy in Supporting Oral Health

Physical therapy emerged as a key intervention in improving patients' ability to maintain oral hygiene. Patients reported that improvements in upper body strength, dexterity, and range of motion, resulting from physical therapy, enabled them to perform oral hygiene tasks more independently. This finding supports the work of Peiris et al. (2011), who demonstrated that physical therapy plays a crucial role in improving motor function and enabling patients with disabilities to regain some level of independence in their daily activities, including oral care.

In addition to traditional physical therapy exercises, the introduction of adaptive tools, such as modified toothbrushes and assistive devices, was instrumental in helping patients overcome physical limitations. These tools, recommended and provided by physical therapists, empowered patients to take greater control of their oral hygiene, even when full motor function was not restored. The effectiveness of these devices highlights the importance of integrating adaptive strategies into oral care for patients with physical disabilities.

#### Impact of Respiratory Therapy on Oral Health

The interdisciplinary collaboration also underscored the connection between oral health and respiratory care, particularly for patients with compromised respiratory function. Patients on ventilators or those with chronic respiratory conditions, such as COPD, are at increased risk for oral infections, which can exacerbate respiratory issues (Azarpazhooh and Leake, 2006). Respiratory therapists, recognizing the role of oral hygiene in preventing respiratory infections, worked closely with dentists and physical therapists to incorporate oral care into respiratory management plans.

This finding is consistent with existing literature that emphasizes the importance of oral hygiene in preventing ventilator-associated pneumonia (Scannapieco & Cantos, 2016). By ensuring that oral care was prioritized in patients receiving respiratory support, the interdisciplinary team was able to reduce the risk of secondary infections and improve overall patient outcomes. This collaboration between respiratory and dental care demonstrates the value of a holistic approach to patient management, where seemingly distinct areas of care intersect to enhance patient well-being.

#### Social and Emotional Support from Social Workers

The role of social workers in coordinating care and providing emotional support was another critical element in the success of the interdisciplinary approach. Social workers helped patients navigate the logistical challenges of accessing dental care and rehabilitation services, while also providing much-needed emotional support for patients coping with the psychological burden of physical disability. This is consistent with Oliver et al. (2012), who emphasized the importance of social workers in ensuring that patients receive comprehensive care that addresses both physical and psychosocial needs.

The emotional support provided by social workers helped to alleviate feelings of frustration and helplessness reported by many patients, particularly those who struggled to maintain independence in their



daily activities. By fostering a supportive environment and ensuring that patients had access to the necessary resources, social workers played a key role in enhancing patient outcomes.

### Benefits of Interdisciplinary Collaboration

The interdisciplinary collaboration between dentists, physical therapists, respiratory therapists, and social workers proved to be highly effective in addressing the complex needs of patients with physical disabilities. Each discipline contributed its expertise, ensuring that oral health was integrated into the broader care plan. The collaboration led to improved oral hygiene, reduced risk of infections, and enhanced patient satisfaction.

This finding supports Southerland et al. (2016), who argued that interdisciplinary collaboration is essential for managing chronic conditions and improving patient outcomes. The integrated care model used in this study ensured that oral health was not neglected, and that patients benefited from a comprehensive approach that addressed their physical, emotional, and social needs.

### Implications for Practice

The findings of this study have important implications for clinical practice. First, they highlight the need for a more integrated approach to healthcare for patients with physical disabilities, where oral health is prioritized alongside other aspects of care. Healthcare providers should ensure that dental care is not treated as a separate entity but is incorporated into the overall rehabilitation plan, particularly for patients with physical or respiratory limitations.

Second, the study underscores the importance of adaptive strategies and assistive devices in empowering patients to maintain oral hygiene. Physical therapists and dentists should work together to provide patients with the tools they need to overcome physical barriers to self-care.

Finally, the role of social workers in providing emotional and logistical support should not be overlooked. Ensuring that patients have access to social services can help address the broader challenges they face in maintaining their health, including access to care, emotional well-being, and caregiver support.

### Study Limitations

While the study provides valuable insights into the benefits of interdisciplinary collaboration, there are several limitations. The sample size, particularly among healthcare professionals, was relatively small, which may limit the generalizability of the findings. Additionally, the study relied on patient self-reporting, which may be subject to recall bias. Future studies could include a larger, more diverse sample and incorporate real-time observational data to further explore the impact of interdisciplinary care.

### Conclusion

This study demonstrates the value of interdisciplinary collaboration in addressing the oral health challenges faced by patients with physical disabilities. By integrating the expertise of dentists, physical therapists, respiratory therapists, and social workers, healthcare teams can provide holistic care that improves both oral hygiene and overall health outcomes. The findings emphasize the need for a comprehensive approach to patient care that prioritizes collaboration between disciplines to ensure that all aspects of the patient's well-being are addressed.

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