

Awareness of the role of physiotherapy in dental surgeries among physiotherapists.

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Date of Submission: 28-04-2024

Date of Acceptance: 08-05-2024

ABSTRACT: The aim of this study was to evaluate the awareness, attitude, knowledge and role of physical therapists in dentistry. This study was conducted on a group of 281 physiotherapists who had a minimum of one year of experience. A self-made questionnaire was sent to 71 Physiotherapists and 210 questionnaires were distributed physically. A comprehensive descriptive statistical analysis was used to assess the level of awareness and knowledge of the role of physiotherapy in dental surgeries for Physical Therapy (PT). A total of 281 physiotherapists participated in the study, resulting in a 100% response rate. The results show that a significant proportion of the population (33%) lacks any awareness of the conditions, interventions, benefits, and risks associated with dental surgery, around 46% of physiotherapists have shown a positive attitude towards the notion of collaboration between the fields of dentistry and physiotherapy and lastly about 50% of physiotherapists, lack the necessary expertise and understanding of the intricate applications of physiotherapy in the dental field. The findings reveal that there is a concerning lack of awareness among physiotherapists regarding the benefits and role of physical therapy in oral rehabilitation. This has led to a low rate of referrals from dentists to physiotherapists, highlighting the need for increased collaboration and communication between the two professions to ensure optimal care for patients.

KEYWORDS: Oral Rehabilitation, Physiotherapeutic Intervention, Postoperative complications, Dental conditions, Splints.

I. INTRODUCTION

Physiotherapy is an exceptional healthcare profession that is of viable importance and is expanding the scope of practice. According to the World Confederation for Physical Therapy (WCPT, 2011), physiotherapy is a dynamic

profession that provides services in multiple settings to individuals as well as to communities within the scopes of prevention, promotion, intervention, habilitation and rehabilitation. These interactions are crucial in the process of assessing movement and functional capacities, identifying needs, and formulating goals specific to a client^[1].

Oral health serves an individual with the freedom to speak, eat and socialize without discomfort, pain or embarrassment in the oral cavity and related tissues and structures. Quality of life, which consists of cognitive and emotional factors, is closely concerned with oral health status. Throughout the world, a pervasive burden placed on the population due to poor oral health. There are assured disabilities that may intervene with the achievement of optimum oral health^[2].

The oral health and dental care of people with disabilities is generally worse than that of the general population^[3]. For people with disability-related limitations, the routine traditions of oral care can pose a considerable challenge. It is particularly evident in patients with disabilities that affect the hands such as CVA and arthritis. Motor and sensory impairments of the face can also lead to improper dental and denture hygiene, ultimately leading to dental and periodontal disease.

Three main disorders that poses a great problem in the general population are: Temporomandibular disorders (TMD)^[4], Oral Submucous Fibrosis (OSMF) and Oral cancer. TMD are the most common chronic orofacial pain condition, leading to a diminished ability to work and interact in the social environment, which will lead to poor quality of life^[5].

Approximately 10% of the population has pain in the TMJ, and 3.6%–7% of the population will seek treatment due to the severity of their symptoms. Signs and symptoms of TMD may include localized pain in the temporomandibular joint and/or masseter muscles, restricted mouth

movements, temporomandibular joint sounds, and headaches. Cervical spine disorders were shown to be associated with TMD pain 70% of the time ^[4].

A long-standing disease- Oral Submucosa Fibrosis (OSMF) affects the oral mucosa, as well as the pharynx and the upper two-thirds of the oesophagus, leading to trismus which is a burning sensation in the oral cavity, paleness and stiffness of the oral mucosa and oropharynx ^[6].

Physical therapy (PT) is one of the most effective conservative treatments for TMD pain ^[7]. A large number of physiotherapeutic interventions that are used to treat TMD pain secondary to inflammation, masticatory muscle pain, TMJ hypo/hypermobility, fibrous adhesion, disc displacement, and others. On the basis of systematic reviews ^[8], manual therapy, jaw exercises, and postural re-education were shown to be effective in these patients.

In patients with signs and symptoms of OSMF, physiotherapy in conjunction with medical management can aid in better treatment.

Oral cancer is the sixth most common cancer across the world, with squamous cell carcinoma (SCC) of the buccal mucosa being the most common malignant tumour in Southeast Asia mainly- India, Taiwan, and China ^[9]. Buccal mucosa SCC is considered an aggressive malignant form of tumour in the oral cavity. It is associated with a high rate of regional recurrence, mainly affecting the inner lining of the cheeks, lateral margin of the tongue, oropharynx, floor of the mouth, and lips.

Mucositis, infection, pain, bleeding, difficulties in swallowing, injury to the glands that produce saliva (xerostomia) or damage to the muscles and joints of the jaw and neck (trismus), loosening of teeth, difficulty wearing dentures, painful swallowing (odynophagia), speech impairment (dysarthria) are said to be the most common postoperative oral problems occurring after radiation and chemo therapy. Physiotherapy prevents and treats multiple complications arising because of cancer treatments; it also plays a crucial role in the rehabilitation of patients with oral cancers who undergo various treatments ^[10]. With regards to gaining an adequate functional range of motion and improving quality of life, the physiotherapeutic rehabilitation programme helps post-operative cancer survivors to recover physically, emotionally and socially ^[11].

There are several types of oral surgery procedures performed each year. Some of the most common include orthognathic surgery (corrective

jaw surgery), tooth surgery, dental bone grafts, dental implants, periodontal surgery, sleep apnea surgery and cleft lip and palate repair.

Intracapsular joint disorders (clicking and clicking-related jaw in coordination as a result of disc displacement), acute and chronic joint inflammation, and Bell's palsy are the common complications or problems encountered by patients after a dental surgery. Pre-op difficulties faced by patients are:

Arthritic changes in TMJ, masticatory muscle pain, mandibular mobility disorders (hypomobility and hypermobility), delayed soft tissue healing, and tissue and joint contracture ^[12]. Physiotherapy can aid in dental surgeries to prevent complications and for better management before or after dental surgeries.

Type of physiotherapeutic intervention used in dental surgeries are:

1. Jaw exercise:

Radiotherapy and surgery of the head and neck can result in reduced mouth opening. This can result in difficulties eating/drinking, cleaning your teeth, having your mouth examined and difficulties placing an artificial airway (where that is necessary).

Fish stretch, resisted opening of the mouth, resisted closing of the mouth ^[13].

2. Tongue exercise:

Malocclusions such as mouth breathing, tongue thrusting develop due to abnormal tongue position. Early correction or interception of these habits by tongue exercises is one of the easiest ways of managing the habit in most of the paediatric patients. One of the most impressive and commonly used exercises is the 4S exercise. This comprises of identifying the spot by the tongue, squeezing the spot, salivating, and swallowing. This new swallowing pattern should be practiced at least 40 times a day ^[14].

3. Lip exercises:

For a patient with hypotonic short upper lip, exercises will increase the tonicity of the upper lip, other exercises include asking the patient to stretch the upper lip in a posterior inferior direction toward the chin by overlapping the lower lip, which also helps in maintaining the oral seal during swallowing ^[14].

Electro therapy:

Is used for the treatment of acute or chronic orofacial pain via the application of electric

current. It comprises transcutaneous electric nerve stimulation (TENS), acupuncture, therapeutic ultrasound, laser therapy, diathermy, ultraviolet radiation, and infra radiation.

4. Transcutaneous electric nerve stimulation(TENS):

TENS is the application of low-frequency current and is commonly used for acute and chronic pain in various conditions:

- Indications of TENS in dentistry: TMJ pain, myofascial pain dysfunction, Facial nerve injury, Traumatic injury and peripheral nerve injury.
- Contraindications: Patients with pacemakers, pregnancy, apprehensive and epileptic patients.

5. Laser therapy (LASER):

Affects the function of connective tissue cells (fibroblasts), fastens connective tissue repair, and acts as an anti-inflammatory agent.

- Indications: TMJ disorder, herpetic ulcer, myofascial pain dysfunction, neuralgic pain, accelerating healing of a wound and other infectious condition of the oral cavity.
- Contraindications: neoplastic area, photosensitive areas of skin

Thermal therapy:

6. Heat application:

Heat is applied via hot packs, paraffin, or hydrotherapy. Heat causes vasodilatation leading to an increase in blood flow, an increase in metabolic rate and tissue extensibility. Heat also increases the oxygen uptake which accelerates tissue healing.

- Indications: Myofascial pain dysfunction, TMJ disorder, traumatic injury, muscle spasm, trismus and others
- Contraindications: In patients with acute haemorrhage, localized infection, bleeding and over areas of metal implants.

Cold application:

Applied via ice packs, cooling gel packs, or cold spray. The application of cold decreases the temperature of the skin and soft tissues instigating a reduction in blood flow by vasoconstriction. It also lowers tissue metabolism, neuronal excitability, inflammation and conduction rate, and tissue extensibility.

- Indications: Postoperative pain, post-tooth extraction, postural surgical procedures, and swelling in injured tissues
- Contraindication: Peripheral vascular disease, rheumatoid arthritis, and sickle cell anaemia

[14,15,16].

Moreover, there are splints which help relieve TMJ pain caused by grinding teeth, clenching the jaw, or misalignment. They can help open the jaw for a detailed inspection, allowing a dentist to determine the cause of TMJ dysfunction. There are three types of splints: NTI-tss (Nociceptive Trigeminal Inhibition Tension Suppression System), repositioning splint, stabilization splint, and anterior biteplane splint. NTI-tss prevents tooth grinding, repositioning splint moves the lower jaw forward or backwards, stabilization splint smooths the bottom, and anterior biteplane splint prevents back teeth from touching. These splints are designed for people who grind their teeth and those who clench their jaw^[17].

The main idea of this study is to know how aware physiotherapists are of this fact, that physiotherapy can cause an immense boost in dental surgeries.

II. MATERIALS AND METHODS:

This is an observational-based study. A self-made questionnaire was designed and approved by the institutional ethical committee of the college. The questionnaire was then distributed to the physiotherapists in Pune.

A total of 281 physical therapists were recruited via a convenient sampling method. Participants were required to meet specific inclusion and exclusion criteria to ensure the validity of the results. An online and offline questionnaire was then distributed to the participants using two methods: the first involved directly visiting clinics and hospitals; the second used social media platforms such as WhatsApp to send questionnaire links to groups of practicing physiotherapists.

Before commencing the study, the participants were fully informed about the confidentiality of their personal information, and they were assured that their participation in the study was entirely voluntary.

The questionnaire, self-made and reviewed by the college's ethical committee, consists of 18 multiple-choice questions divided into three parts. It aims to gather information from physiotherapists about their awareness of their role in managing dental conditions. Part-I assesses physiotherapists' awareness of physiotherapeutic interventions, benefits, and complications of post-operative dental surgeries. Part-II explores physiotherapists' attitudes towards oral rehabilitation, interaction, and referrals,

determining their willingness to collaborate with dentists for comprehensive patient care. Part III evaluates physiotherapists' knowledge of dental conditions and surgeries, examining dental anatomy, common dental conditions, and complaints after surgical procedures. The questionnaire also includes questions about the sources of information used by physiotherapists to update their knowledge.

Descriptive statistics using mean \pm sd, frequencies, percentages, and ranges were utilised to analyse participants' responses. Graphs were included when possible. Demographic information such as age, gender, occupation, education level, and place of education was summarized. SPSS software (version 23) and Excel were used for comprehensive statistical analysis on awareness, attitude, and knowledge of physiotherapy in dental surgeries for PT.

The Institutional Ethical Committee granted ethical approval, and subjects were meticulously selected based on inclusion and exclusion criteria. The subjects were thoroughly

informed about the purpose and procedure of the study, and informed consent was unequivocally obtained from each subject who was willing to participate. Demographic data, which comprises name, age, gender, level of education, place of education, and occupation, was meticulously collected and documented. Finally, the subjects were provided with a questionnaire to fill out.

III. RESULTS:

The research conducted aimed to explore the awareness, attitudes, and knowledge levels of physiotherapists regarding oral rehabilitation and dental treatments. A total of 281 practicing physiotherapists participated, with demographics indicating a relatively young age group, predominantly female (70.5%), holding Bachelor's degrees (73.3%), and primarily working as clinical practitioners (75.4%). Graphs depicting age distribution, gender, education levels, occupation, and place of education provided a comprehensive overview of the participant characteristics (table 1).

Demographic Characteristics	Values
Age (mean \pm SD) in years	26.75 \pm 4.168
Gender	
- Male	83 (29.5%)
- Female	198 (70.5%)
Level of Education	
- Bachelor's Degree	206 (73.3%)
- Master's Degree	75 (26.7%)
Place of Education	
- Maharashtra	193 (68.7%)
- Outside Maharashtra	88 (31.3%)
Occupation	
- Clinical Practitioner	212 (75.4%)
- Teacher	13 (4.6%)
- Other (Student/ Researcher)	56 (19.9%)

Table 1. Participants characteristics and demographic data

The findings revealed a concerning lack of awareness among physiotherapists regarding the role of physiotherapy in dental surgeries and oral rehabilitation. Only a small proportion (12%) exhibited comprehensive understanding across various aspects of dental treatment and physiotherapy integration (Figure 1). Graphs

illustrating awareness levels regarding treatable dental conditions, physiotherapeutic interventions in dental surgeries, benefits of physiotherapy in dental rehabilitation, and collaboration between dental hospitals and physiotherapists indicated significant gaps in knowledge and awareness

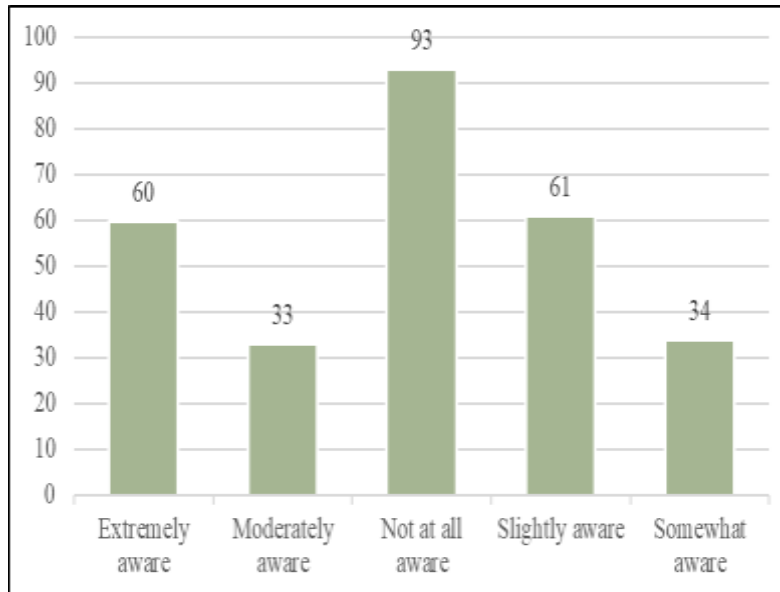


Figure 1. Overall awareness among the participants

Furthermore, the study highlighted varied attitudes among physiotherapists towards collaboration with dental healthcare professionals and the importance of dentists being as aware as physiotherapists. While a notable portion (20%) expressed positive attitudes towards collaboration (Figure2), a majority (67%) believed it essential for

dentists to match their level of awareness. Graphs on collaboration, recommendation to dentists, and the role of physiotherapy in improving oral health quality of life depicted diverse perspectives among participants.

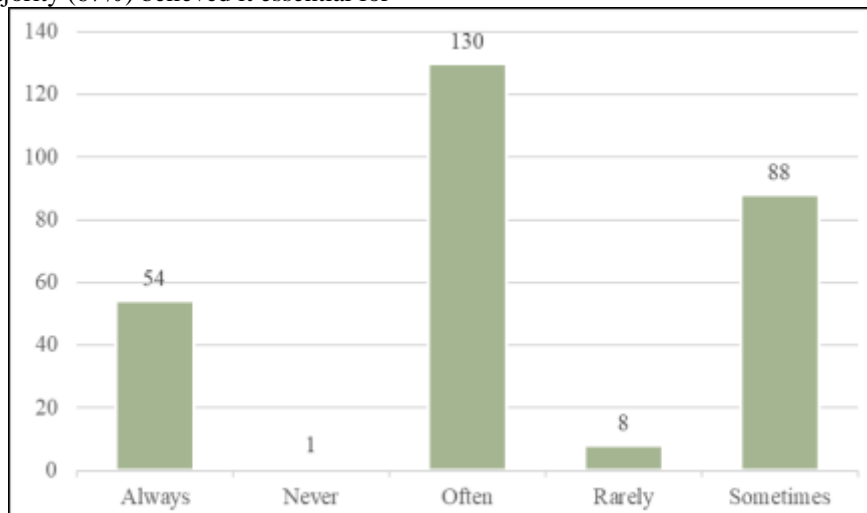


Figure 2: Overall attitude of physiotherapist

Regarding knowledge association with education levels and place of education, the results suggested that those with Master's degrees and education outside Maharashtra showed slightly higher levels of correct answers across various

domains related to dental physiotherapy. However, gaps in knowledge were evident across all categories, indicating a need for further education and training in this area (Table2).

% of Correct answers compared with level of education	What can be the most common complaint of a patient after a dental surgery?	How did you gain information or come across Dental-physiotherapy?	What do you think are the benefits of physiotherapy in a dental surgery?	What according to you could be the major limitations for the lack of knowledge about Dental-physiotherapy?	According to you which dental condition requires mandatory attention by a PT?	Which splint is used to stabilize the TMJ and prevent its excessive movement?
Bachelor's degree	17%	8%	44%	44%	57%	39%
Master's degree	15%	13%	51%	56%	55%	44%

Table2: Association between knowledge and level of education

Overall, the study underscores the importance of enhancing awareness, fostering collaboration between dental and physiotherapy professionals, and providing comprehensive education on the integration of physiotherapy in oral rehabilitation and dental treatments.

IV. DISCUSSION:

This study, which aims to gauge physiotherapists' understanding of their involvement in oral rehabilitation and dental procedures, is a groundbreaking endeavour in the field of physiotherapy. This study highlights a crucial component of dental care that is sometimes disregarded: the cooperation of physiotherapists and dentists is essential to achieving the best possible outcomes for patients.

It highlights the shortcomings in physiotherapists' knowledge of physiotherapy's function in dental treatment. Merely a minority of people exhibit a high level of awareness regarding physiotherapeutic therapies in dental procedures and curable dental diseases. In addition, a sizeable segment of physiotherapists has a restricted comprehension of the advantages associated with incorporating physiotherapy into dental rehabilitation, and a noteworthy portion does not recognise its potential as an adjunctive treatment modality^[18,19,20].

The findings of the study suggest that there is a significant disparity in knowledge levels among physiotherapists based on their educational background and place of education. This raises concerns about the consistency of curriculum and educational standards across different regions of the country. In order to address this issue, it is

crucial to implement a standardized curriculum and comprehensive training programmes for physiotherapists to ensure uniformity in knowledge and practice¹¹.

Furthermore, the study also highlights concerning attitudes among physiotherapists towards collaboration with dental professionals. Only a minority of physiotherapists feel confident in their ability to effectively collaborate with dentists, indicating a lack of communication and understanding between the two fields

Efforts to address these knowledge gaps and foster collaboration between dentistry and physiotherapy are crucial for improving patient care and outcomes. By enhancing awareness, communication, and expertise in this area, healthcare professionals can maximise the potential of interdisciplinary partnerships to address complex oral health issues and enhance overall patient well-being.

In summary, the study underscores the importance of education, awareness, and collaboration in the field of physiotherapy, particularly in the context of oral rehabilitation and dental care. Through collaborative efforts, physiotherapists can expand their scope of practice, create new opportunities for employment, and ultimately contribute to improved patient outcomes in dental care.

V. CONCLUSION:

Based on our analysis of data collected from 281 physiotherapists, and within the limits of this study we have concluded that a large percentage of physiotherapists who completed the survey were found to be unaware of the benefits

and the role of physical therapy in oral rehabilitation. This lack of knowledge has resulted in a low rate of referral from dentists to physiotherapists, creating a communication gap between the two professions.

Increased awareness and collaboration between dentists and physiotherapists are necessary to bridge the communication gap and ensure optimal care for patients undergoing oral rehabilitation.

By working together, physiotherapists can expand their services and reach more patients, ultimately benefiting both the individuals seeking care and the professionals providing it.

VI. ACKNOWLEDGMENTS:

I am filled with gratitude as I reflect on the completion of my project, and I would like to take this opportunity to express my sincere thanks to Dr. Albin Jerome (PT), the principal of my college and my guide, for granting me permission to undertake this endeavor.

Working under the guidance of Dr. Jerome has been an honor, as he provided unwavering support, encouragement, and direction throughout the project. His feedback and review were invaluable in ensuring its timely completion.

I am also grateful to all the study participants who contributed their time and effort to make data collection possible. Their willingness to participate was crucial in the success of this project.

I would like to extend my thanks to my parents and coworkers for their support and for creating a positive work environment that facilitated the successful completion of this project.

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