

A QUESTIONNAIRE STUDY ON KNOWLEDGE OF PHYSIOTHERAPY AMONG DENTAL STUDENTS

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ABSTRACT

Background: Physiotherapy is an integral part of the complex dental therapy. The aim of physiotherapy is to influence specific linkages in pathophysiology or treating symptoms through physical means. The interdisciplinary approach may assist dentists in referring patients with orofacial pain to other specialists for better care of the illness. Hence this questionnaire survey was carried out among dental students to assess their knowledge and awareness in physiotherapy in order to treat different oral diseases. **Materials and Methods:** A questionnaire survey was carried out among a sample of convenience of 103 dental students from a private dental college in Chennai. **Results:** About 32% of the participants belong to the category of 3rd year and about 34% of participants belonging to the categories of 4th year and CRRI. Majority of people, i.e. 35.9% of participants have responded that physiotherapist in dentistry is necessary for treating impacted molar, Oral submucous fibrosis and trauma. **Conclusion:** The findings of this study reveals that the participating students were well informed about physiotherapy in dentistry.

KEYWORDS: Dentistry, physiotherapy, pain, Oral submucous fibrosis, trismus.

INTRODUCTION

Physiotherapy is an integral part of the complex dental therapy.^[1] With the aim of influencing specific linkages in pathophysiology or treating symptoms, numerous physical therapy techniques are used in conjunction with clinical treatments to treat illnesses of the trigeminal nerve, Temporomandibular joint (TMJ), and oral mucous membranes.^[2] Physiotherapy is one of the most effective conservative treatments for orofacial pain.^[3] Physical therapy has long been used to treat musculoskeletal illnesses because it reduces pain and muscle spasms and improves mobility and muscle strength. As a conservative treatment, physical therapy is becoming more and more respected.^[4] Physical therapy has been found to help individuals with orofacial pain, along with behavioural therapy and occlusal appliances, among other non-invasive treatments.^[5] To treat orofacial

discomfort brought on by inflammation, masticatory muscle pain, TMJ hypo/hypermobility, disc displacement, bruxism, and fibrous adhesion, physiotherapy uses a variety of methods such as jaw exercises and postural reduction to enhance mobility and function.^[6] The coordinated effort between the dentist and the physiotherapist promotes early diagnosis and increases the efficacy of therapeutic measures. As a result of the presentation of workable solutions that enhance population living conditions, this has an impact on the advancement of research and sustainable regional development.^[7] The knowledge of the interdisciplinary approach may assist dentists in referring patients with orofacial pain to other specialists for better care of the illness. The cooperation between dentists and physiotherapists can result in a significantly better prognosis.^[8]

MATERIALS AND METHODS

A questionnaire survey was carried out among 103 dental students from a private dental college in Chennai. They were explained about the study and those who were willing to take part in the survey were included. Their demographic details were collected and the questionnaire

was distributed to them. The questionnaire consisted of 10 questions based on knowledge and awareness of physiotherapy in dentistry. The total sample consists of 42 male students and 61 female students. Their responses were transferred to excel sheet and the data thus obtained was statistically analyzed using SPSS Software V22.0

Table 1: Survey Questionnaire.

S.No	Questions	Option 1	Option 2	Option 3	Option 4
1.	Are you aware that dentist collaborate with physiotherapist in treating head and neck disorders?	Yes	No	Maybe	Not Sure
2.	When do you think physiotherapy is necessary for dental problems?	Impacted 3rd molar	OSMF	Trauma	All of the above
3.	When should the physiotherapy rehabilitation be given to the patient?	On the first post - operative day	After post – operative edema reduces	After post – operative pain reduces	Both B & C
4.	Physiotherapy exercises includes	Electrotherapy	Physical therapy	Thermal therapy	All of the above
5.	From the options below, what do you normally include in the evaluation of patients with restricted mouth opening?	Signs of parafunctional habits	TMJ Palpation	Masticatory muscle palpation	Others
6.	Which of these is most effective exercise for tongue thrusting?	TENS	LLLT	4s Exercise	Thermal Therapy
7.	TENS	Non medicinal Non-invasive therapy	Invasive therapy	Both A & B	None of the above
8.	What are simple mouth opening exercise commonly used to treat restricted mouth opening?	Stack of ice cream sticks kept between posterior	Spring loaded device – provides active opening	Mouth gag	All of the above
9.	Indications of Therapeutic ultrasound	Tendonitis	Scar tissues	Muscle spasms	Myofacial Trigger Points
10.	Physiotherapy is used to treat orofacial disorders like	Facial palsy	Trismus	Myofacial Pain Dysfunction Syndrome	All of the above

RESULTS

Table 2: Descriptive Statistics.

Age (years)	N	103
	Mean	22.0
	Std. Dev	1.36
	Minimum	20
	1st Quartile	21
	Median	22
	3rd Quartile	23
	Maximum	26

The table 2 describes the variation of age of the respondents. The mean age is 22.0; and the standard deviation being 1.36. From the above table it is evident that a greater number of students have participated in the survey with minimum age of 20 years and the maximum age of 26 years.

From the total of 103 respondents the number of participants belonging to 4th year and CRRI were equal and high, compared to the number of participants belonging to 3rd year. Among the 103 participants, females were high (59.2%) when compared to males(40.8%). About 32% of the participants belong to the category of 3rd year and about 34% of participants belong to the categories of 4th year and CRRI.

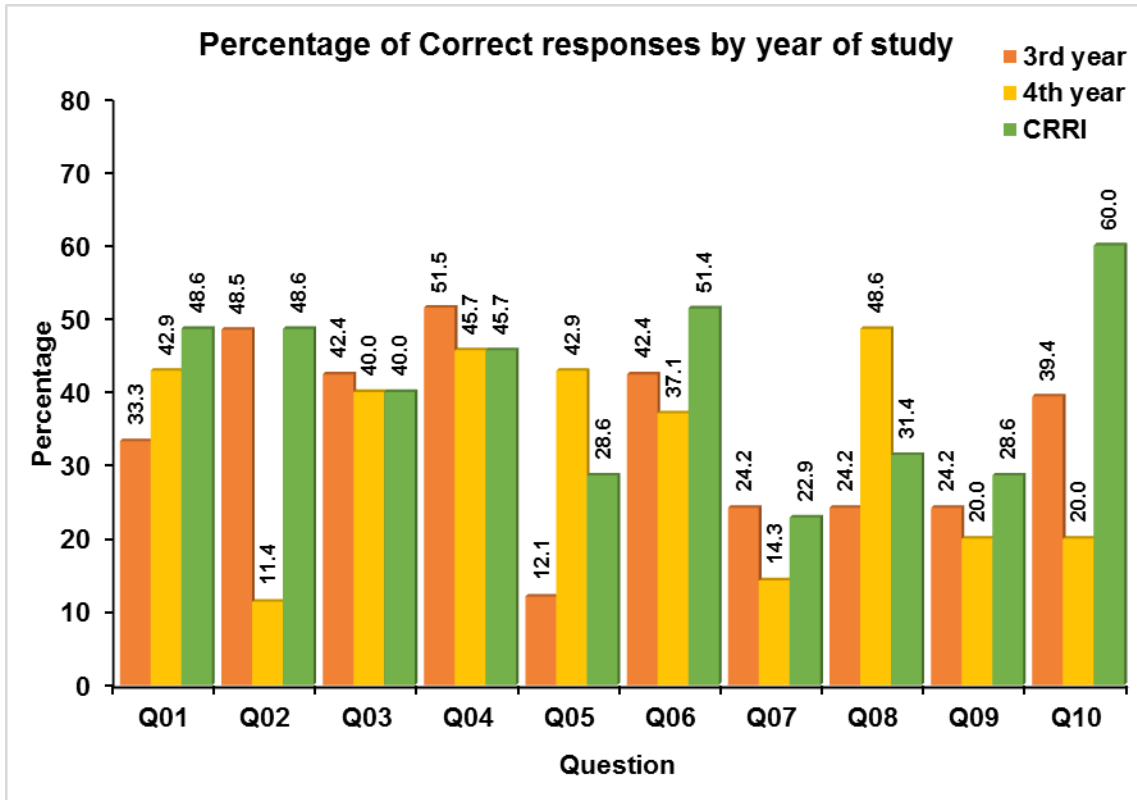


Figure 1 – Percentage of correct response.

The analysis from this figure shows that, respondents who were aware of collaboration of dentists with physiotherapists were equal in number to the number of respondents who weren't aware of this, which is 25.2%. However, 26.2% of respondents think maybe this collaboration exists. Majority of people, i.e. 35.9% of participants have responded that physiotherapy in dentistry is necessary for treating impacted molar, OSMF and trauma. The people who responded physiotherapy only to treat impacted molars, i.e. 16.5% are less in number. When majority participants (i.e., 40.8% of participants) have responded that physiotherapy rehabilitation is necessary on the first post-operative day and after reduction of post-op pain, 25.2% participants responded as rehabilitation after the reduction of post-op edema. For fourth question, only 47.6% have responded that physiotherapy exercises include all three: electrotherapy, thermal therapy & thermal therapy. 14.6% responded as Electrotherapy, 27.2% responded as Physical therapy, 10.7% responded as Thermal therapy. Most of the participants (34%) have responded that they would include masticatory muscle palpation for the evaluation of patients with restricted mouth opening, whereas 17.5% of participants would check for signs of parafunctional habits, 28.2% would perform TMJ Palpation and 20.4% would evaluate the patients with other investigations. While majority of participants have opinion that 4s Exercise as the most effective exercise for tongue thrusting, 31% of participants have the opinion of TENS and 16.5% have responded as LLLT. Only 8.7% of participants believe that Thermal Therapy would be effective for tongue thrusting. A greater

number of participants (35%) would opt for stack of ice cream sticks kept between posterior for the treatment of restricted mouth opening; 26.2% would opt for spring loaded device, a least number of participants, i.e. 7.8% would opt for mouth gag and only 31.1% have opted for all the three procedures. Here, maximum participants (31.1%) believe that scar tissues are the major indication for the usage of therapeutic ultrasound, 24.3% of respondents believe that muscle spasms are the main indicator, 23.3% of respondents opted for tendonitis, and 21.4% of respondents have opted for myofascial trigger points. And in the last question, 28.2% respondents have opted that myofascial pain dysfunction syndrome is treated through physiotherapy, 17.5% respondents opted for facial palsy, about 14.6% of respondents opted for trismus and over 39.8% respondents opted for all the given disorders.

Table 3: Mean age of participants.

Year of study		Mean Difference	p-value
3rd year	4th year	-1.182	<0.001
	CRRI	-2.268	<0.001
4th year	CRRI	-1.086	<0.001

From the table 3, mean age of the participants are shown. The mean age of 3rd year students is 20.8 ± 1.1 years, the mean age of 4th year and CRRI are 22.0 ± 0.8 years and 23.1 ± 1.1 years respectively. The one-way ANOVA

result showed that these three mean ages are statistically highly significant ($p < 0.001$). Tukey's HSD pairwise comparison test showed that all three mean ages are statistically significant from each other ($p < 0.001$).

Table 4: Statistic significance of responses.

		Year of study								p-value
		3rd year		4th year		CRRI		Total		
		N	%	N	%	N	%	N	%	
1. Are you aware that dentist collaborate with physiotherapist in treating head and neck disorders?	Correct	11	33.3	15	42.9	17	48.6	43	41.7	0.439
	Incorrect	22	66.7	20	57.1	18	51.4	60	58.3	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
2. When do you think physiotherapy is necessary for dental problems?	Correct	16	48.5	4	11.4	17	48.6	37	35.9	0.001
	Incorrect	17	51.5	31	88.6	18	51.4	66	64.1	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
3. When should the physiotherapy rehabilitation be given to the patient?	Correct	14	42.4	14	40.0	14	40.0	42	40.8	0.973
	Incorrect	19	57.6	21	60.0	21	60.0	61	59.2	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
4. Physiotherapy exercises includes	Correct	17	51.5	16	45.7	16	45.7	49	47.6	0.860
	Incorrect	16	48.5	19	54.3	19	54.3	54	52.4	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
5. From the options below, what do you normally include in the evaluation of patients with restricted mouth opening?	Correct	4	12.1	15	42.9	10	28.6	29	28.2	0.019
	Incorrect	29	87.9	20	57.1	25	71.4	74	71.8	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
6. Which of these is most effective exercise for tongue thrusting?	Correct	14	42.4	13	37.1	18	51.4	45	43.7	0.476
	Incorrect	19	57.6	22	62.9	17	48.6	58	56.3	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
7. TENS	Correct	8	24.2	5	14.3	8	22.9	21	20.4	0.539
	Incorrect	25	75.8	30	85.7	27	77.1	82	79.6	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
8. What are simple mouth opening exercise commonly used to treat restricted mouth opening?	Correct	8	24.2	17	48.6	11	31.4	36	35.0	0.095
	Incorrect	25	75.8	18	51.4	24	68.6	67	65.0	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
9. Indications of Therapeutic ultrasound	Correct	8	24.2	7	20.0	10	28.6	25	24.3	0.705
	Incorrect	25	75.8	28	80.0	25	71.4	78	75.7	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	
10. Physiotherapy is used to treat orofacial disorders like	Correct	13	39.4	7	20.0	21	60.0	41	39.8	0.003
	Incorrect	20	60.6	28	80.0	14	40.0	62	60.2	
	Total	33	100.0	35	100.0	35	100.0	103	100.0	

It is evident that from table 4, it is evident that p value of the responses of the first, third, fourth, sixth, seventh eighth and ninth questions are 0.439, 0.973, 0.860, 0.476, 0.539, 0.095 and 0.705 respectively. On comparing with $p > 0.05$ significance level, the above-mentioned factors were found to be non-significant. The p value for the evaluation of patients with restricted mouth opening and physiotherapy for treating orofacial disorders were 0.019

and 0.003 respectively. These two factors satisfied the condition $p > 0.05$ and found to be significant. In this analysis the factors involved were signs of parafunctional habits, TMJ palpation, masticatory muscle palpation. The significance value of above mentioned variables were greater than 0.05, which satisfies the condition $p > 0.05$. Hence the variables associated were found to be significant. The significance value of facial palsy,

trismus and myofacial pain dysfunction syndrome was 0.003. The significance level about the conditions where

physiotherapy is necessary in dentistry was 0.001, which is highly significant compared to the value $p > 0.05$.

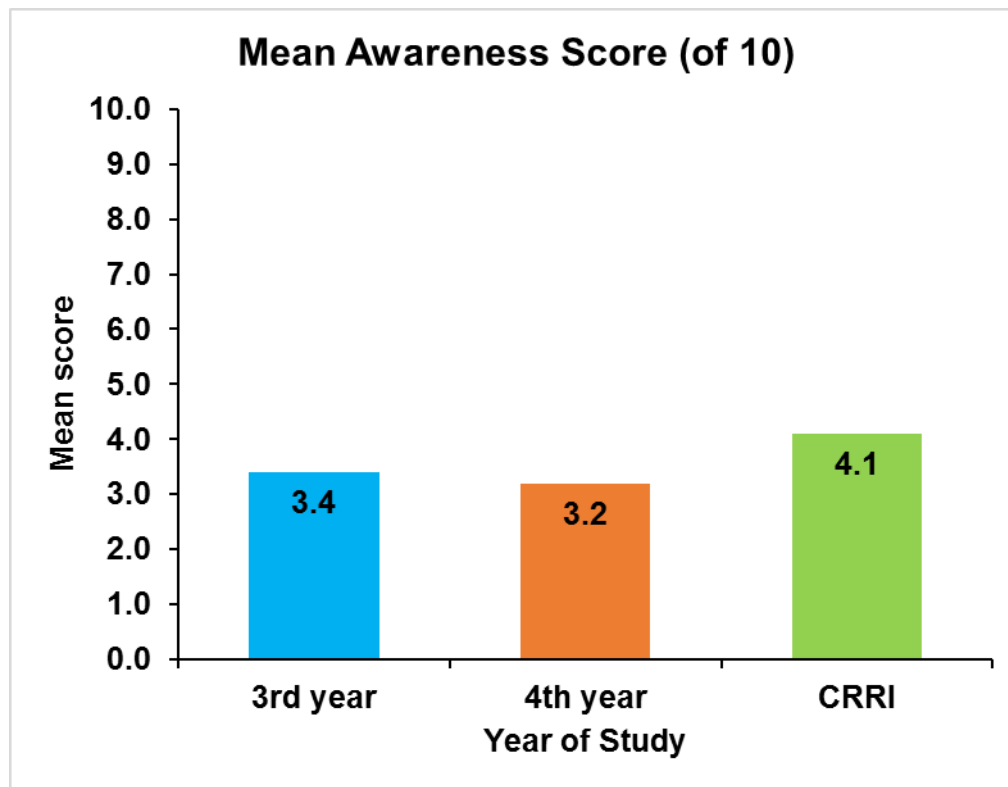


Figure 2 – Standard Deviation of knowledge score of 3 groups.

Figure 2 reveals mean awareness scores of the participants are displayed. Awareness score is calculated as the sum correct answers for all ten question is awareness score out of 10. A score of “1” for correct answer and “0” for a wrong answer was assigned to each question. The mean awareness score of 3rd year students is 3.4 ± 1.46 , the mean awareness score of 4th year and CRRi are 3.2 ± 1.96 years and 4.1 ± 2.18 years respectively. The one-way ANOVA result showed that these three mean scores are statistically NOT significant ($p > 0.05$).

DISCUSSION

The participants of our study were from the category of 3rd year, 4th year and CRRi. Out of these categories, high participation was equally seen in the category of CRRi and 4th year. This study also noted high female participation compared to the male participation, in which the participation of female students of CRRi category was higher compared to the 3rd and 4th year students. The age. Distribution of our study is between 20 years to 26 years and high participation was observed in the age group of 21 – 22 years.

The findings of this study reveals the current level of awareness about physiotherapy in dentistry among the dental students and this study may help to further increase the level of understanding and knowledge gained. In our study the responses to the questions

regarding the indications of physical therapy rehabilitation and exercises in physiotherapy did not give any statistically significant value. The questions which had significant response were regarding the usage of physiotherapy in dentistry and evaluation of patients with restricted mouth opening (RMO) were significant.

Our study showed that about 25.2% of participants were aware about the role of physiotherapy in treating orofacial disorders. Hence this shows that the dental students need to be more educated about the role of physiotherapy in dentistry.

Physical Therapy (PT) also known as physiotherapy is concerned with the evaluation, diagnosis and management of both diseases and disabilities through physical means.^[9] It is non invasive, safe, convenient and cost effective treatment option that can be used simultaneously with other treatment procedures.^[10] Various diseases can be managed by PT like TMD, facial paralysis, Myofacial Pain Dysfunction Syndrome (MPDS), Oral Submucous Fibrosis (OSMF) and trismus.^[11]

Dental procedures such as third molar extraction, oral mucosal disorders such as OSMF are few conditions that can cause RMO which is also known as Reflectory Trismus in the cases of posterior pharyngeal infections.^[12] The masseter, temporalis, medial pterygoid and superior head of lateral pterygoid are the 4 muscles

that helps in jaw movements. The temporomandibular joint is the skeletal component involved in the opening and closing of the mouth. Thus the evaluation of RMO is done by palpating the masticatory muscles and TMJ.^[13] The results from our study showed significant responses for the same.

The study conducted by Alayat et al., regarding the usage of PT as treatment modalities for facial palsy included specific massages and exercises which were given to the patients with facial palsy thrice a week for consecutive 6 weeks. The results revealed that patients showed significant improvements.^[14] Likewise in our study we received a significant response for the corresponding to PT in patients with facial palsy. The study conducted by PH Thrott Et Al., consisted of 34 patients with MPDS. All the patients were given treatment which included. Both PT and generalized relaxation therapy. Their results showed that only 6 out of 34 patients responded favorably to PT and rest of the patients achieved success through relaxation therapy.^[15] Our study shows contrasting results were significant responses were noted for usage of physical therapy in treating MPDS. Dorland's medical dictionary states that "Trismus is a motor disturbance of the trigeminal nerve, leading to spasm of the masticatory muscles, with difficulty in opening the mouth". The study conducted by Suchit Shetty Et Al., was to evaluate the effect of structure 2 – week intervention using combination of PT exercises, where Myofascial Release (MFR) showed improvements in alleviating stiffness of masseter and temporalis. Similarly goldfish exercises showed improvement in the range of motion of jaw by breaking the muscle fibrosis.^[16] Similar significant results were obtained from our study.

CONCLUSION

For improved results and potential future breakthroughs in the treatment, role of physiotherapy in dentistry is crucial. Our study reveals that the participating students were well informed about the applications of physiotherapy in dentistry.

CONFLIT OF INETREST – Nil.

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