

# Perception and Knowledge Regarding Role of Physiotherapy in Oral/Mouth Cancer Survivors amongst Non Medical Professionals: An E-Survey

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## ABSTRACT

**Background & Objectives:** About 5 million people are diagnosed with cancer worldwide. 50% are expected to live at least 5 years with most survivors living with cancer related disabilities. Physiotherapy rehabilitation becomes crucial for better quality of life after cancer treatment. The objective of the present study was to assess the perception and knowledge regarding role of physiotherapy in oral/mouth cancer survivors amongst non medical professionals in India.

**Methodology:** This e-survey was conducted using a self-prepared questionnaire in English language carried out for a period of 3 months. Questionnaire was circulated among respondents across India via social media

**Results:** Out of 265 respondents, a total of 92.8% respondents had fair knowledge regarding oral cancer and its causes. 57.7% respondents had knowledge about problems faced by oral cancer survivors. Physiotherapy as a treatment option was known to 87.9%. 75% respondents possessed knowledge of physiotherapy in treating functional limitations seen in oral cancer patients.

**Conclusion:** There was sufficient knowledge among the respondents regarding oral cancer and physiotherapy treatment in oral cancer survivors. However, there is a dire need to take measures to assess the awareness of physiotherapy in cancer to improve quality of life amongst rural population.

**KEY WORDS:** Perception, Oral cancer survivors, Human papilloma virus (HPV), Palliative care, Physiotherapy, quality of life.

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## INTRODUCTION

Cancer is a leading health problem in India, with approximately one million cases occurring each year. Over 200,000 cases of head and neck cancer occur each year in India [1]. The world's highest incidence of cancers associated with tobacco are found in districts of northeast, central and southern

India [2]. Oral cancer is one of the most fatal health problem faced by mankind today. In India, because of the cultural, ethnic, geographic factors and the popularity of addictive habits, the frequency of oral cancer is high. Several factors like tobacco and its related products, alcohol and genetic predisposition are suspects as

possible causative factors [3]. Cancer and its various treatments can result in impairments, which can affect multiple body systems. These impairments restrict physical functioning and participation in activities of daily living and quality of life. Many such impairments are amenable to physiotherapy interventions [4].

Physiotherapy is one of the oldest professions in healthcare practice since 460 B.C by as documented by great physicians such as Hippocrates and Galen. Due to continuous efforts, research and development of various techniques over the years, it has gained recognition and appraisal with its evidence based practice. According to World Confederation of Physical therapy, "Physical therapy is concerned with identifying and maximizing quality of life movement potential within the sphere of promotion, prevention, treatment and rehabilitation. This encompasses physical, psychological, emotional, and social wellbeing. Recent studies shows that there is adequate knowledge of physiotherapy in musculoskeletal, sports, neuroscience. Some fields like physiotherapy in OBG, plastic surgery, oncology, cardiopulmonary are poorly known to non medical professionals [5]. There are numerous studies that have shown beneficial effects of physiotherapy interventions. However, the integration of physiotherapy services in cancer care continues to languish [4]. Hence, there is a need to assess the knowledge regarding physiotherapy in oral cancer amongst non-medical professionals in India.

#### **MATERIALS AND METHODOLOGY**

An ethical clearance was obtained from the Institutional Ethical Committee (REF/SL no.770, obtained on 6<sup>th</sup> November 2020) prior to the commencement of the study. The study period ranged from October to December 2020 at KAHER Institute of Physiotherapy, Belagavi, Karnataka. The calculated sample size was two hundred and sixty four (264) based on the prevalence rate formula ( $n = Z^2 \times pq / e^2$ ) where n=sample size, Z=expected confidence level p=prevalence level, q= 1-p, e= accuracy level.

The e-survey was a self designed questionnaire which included open and closed ended questions which was circulated using Google forms using WhatsApp, Facebook, and Email. An E-Informed consent was obtained prior to participation attached to the 1<sup>st</sup> part of the Google questionnaire. The timing was tested prior to circulation that took total of 13 minutes to record the responses. All respondents across India of both gender who were willing to participate and were over the age of 22 years and above got included in the study. The questions were framed to inquire respondents knowledge under the following headings:

- Demographic Data/Profile
- Knowledge of Oral Cancer
- Knowledge of cause of Oral Cancer
- Knowledge of problems faced by Oral Cancer survivors
- Knowledge of treatment options for Oral Cancer
- Knowledge of role of physiotherapy in Oral Cancer
- Knowledge of psychosocial impact on Oral cancer survivors

The data was then tabulated and analyzed.

#### **RESULTS**

Most of the responses were from age group belonging to 22-29 years (n=193).The least response was from age group of 50 years and above (n=13).Female respondents were dominant (n=143) then followed by males (n=121). Maximum respondents were from Maharashtra (n=82) followed by Karnataka (n=43) followed by Madhya Pradesh (n=13), Gujarat (n=8), Andhra Pradesh (n=4), Rajasthan (n=4), Goa (n=4), Kerala (n=4), Haryana (n=3) respectively. Maximum number of respondents were Engineers by profession (n=85) followed by Entrepreneurs (n=39) and others. Most respondents did not report of any habits (n=183) (Table 1). Maximum respondents had knowledge regarding oral cancer (n=246) including oral cancer being 2<sup>nd</sup> highest cause of death(n=145).

**Table 1:** Demographic profile of all the participants in E-survey.

Variables	Responses	Frequency (n)	Percentage %
1.Age	22-29 years	193	72.8
	30-39 years	24	9.1
	40-49years	35	13.2
	50 years and above	13	4.9
	Total	265	100
2.Gender	Female	143	54
	Male	121	45.7
	Others	1	0.4
	Total	265	100
3.State	Karnataka	143	54
	Maharashtra	82	30.9
	Andhra Pradesh	4	1.5
	Rajasthan	4	1.5
	Haryana	3	1.1
	Goa	4	1.5
	Kerala	4	1.5
	Gujarat	8	3
	Madhya Pradesh	13	4
	Total	265	100
4.Profession	Engineer	85	32.1
	Banker	24	9.1
	Entrepreneur	39	14.7
	Teacher	21	7.9
	Lawyer	9	3.4
	CA	3	1.1
	Others	84	31.7
	Total	265	100
5.Qualification	Graduate	183	69.1
	PostGraduate	75	28.3
	PhD	4	1.5
	Others	3	1.1
	Total	265	100
6.Do you have any of the habits mentioned below?	Consuming tobacco in any form	18	6.4
	Alcohol consumption	58	22.3
	Recreational Drugs	6	2.3
	None	183	69.1
	Total	265	100
7. If you are a smoker, how many cigarettes do you smoke per day?	No response	247	84.2
	<10 cigarettes per day	11	13.2
	>10 cigarettes per day	4	1.5
	>20 cigarettes per day	2	0.8
	>25 cigarettes per day	1	0.4
	Total	265	100
8. If you consume alcohol, on an average how much alcohol do you consume in a week?	No responses	207	76.2
	30 ml	14	6
	60 ml	8	3.4
	90 ml	7	3.4
	>90 ml	29	10.9
	Total	265	100
9. If you consume recreational drugs mention in which form do you consume?	No responses	259	69.1
	Marijuana	1	0.4
	Lysergic acid diethylamide(LSD)	2	0.8
	Powder	1	0.4
	Smoke (weed)	2	0.8
	Total	265	100
10. How much time in a day do you engage in Physical activity?	StrenuousPhysical activity	63	23.8
	Moderate Physical activity	65	24.5
	Mild Physical activity	94	35.5
	No Physical activity	43	16.3

**Table 2:** Table no. 2 Participants knowledge regarding oral cancer (A), their causes (B), problems faced by oral cancer survivors (C) treatment options in oral cancer (D)

2A	Responses	Frequency	Percentage
1. Have you heard about Oral/Mouth Cancer?	Yes	246	92.8
	No	19	7.2
	Total	265	100
2. Do you know Oral/Mouth Cancer is the 2 <sup>nd</sup> highest cause of deaths in India?	Yes	145	54.7
	No	120	45.3
	Total	265	100
3. According to you, which is the most commonest age group which can be affected by Oral/Mouth Cancer?	10-19 years	6	2.3
	20-39 years	96	36.2
	40-60 years	142	53.6
	60 years and above	21	7.9
	Total	265	100
4. Do you know males in India suffer from Oral/Mouth Cancer more than females?	Yes	187	70.6
	No	78	29.4
	Total	265	100
5. Do you think Oral/Mouth Cancer is contagious?	Yes	93	35.1
	No	172	64.9
	Total	265	100
2 B	Yes	106	40
	No	159	60
	Total	265	100
1.Having previous history of any Cancers?	Yes	138	52.1
	No	127	47.9
	Total	265	100
2.Consumption of alcohol?	Yes	137	51.7
	No	128	48.3
	Total	265	100
3. Use of tobacco in any form?	Yes	137	51.7
	No	128	48.3
	Total	265	100
4. Poor oral hygiene?	Yes	97	36.6
	No	168	63.4
	Total	265	100
5. Bleeding from mouth/gums?	Yes	110	41.5
	No	155	58.5
	Total	265	100
6. Exposure to Human Papilloma Virus (HPV)?	Yes	92	34.7
	No	173	65.3
	Total	265	100
2 C	Yes	145	54.7
	No	120	45.3
	Total	265	100
1. A long standing non healing ulcer in mouth?	Yes	130	49.1
	No	135	50.9
	Total	265	100
2. Boil or infection in mouth?	Yes	143	54
	No	122	46
	Total	265	100
3. Lump in neck/throat/behind the ear?	Yes	140	52.8
	No	125	47.2
	Total	265	100
4. Unusual bleeding in mouth/gums?	Yes	147	55.5
	No	118	44.4
	Total	265	100
5. Long standing white/red patch anywhere in mouth/ tongue?	Yes	153	57.7
	No	112	42.3
	Total	265	100
6. Difficulty in swallowing, chewing or biting?	Yes	151	57
	No	114	43
	Total	265	100
7. Difficulty in opening mouth after removal of tumor/after surgery?	Yes	154	58.1
	No	111	41.9
	Total	265	100
8. Difficulty in talking after surgery?	Yes	133	50.2
	No	132	49.8
	Total	265	100
9. Dryness in mouth after surgery?	Yes	139	52.5
	No	126	47.5
	Total	265	100
10. Chronic pain and weakness/fatigue?	Yes	244	92.1
	No	21	7.9
	Total	265	100
2 D	Medical therapy	145	54.7
	Surgery	83	31.3
	Physiotherapy	28	10.6
	Others	9	3.4
	Total	265	100
1. According to you, can Oral/Mouth Cancer be treated?	Yes	233	87.9
	No	32	12.1
	Total	265	100
2. Which of the following you feel is the best treatment for Oral/Mouth Cancer?	Yes	101	38.1
	No	164	61.9
	Total	265	100
3.Have you ever heard of Physiotherapy?	Yes	111	41.9
	No	154	58.1
	Total	265	100
4. Have you taken Physiotherapy treatment for any of your ailments/diseases/problems?	Yes	103	38.9
	No	162	61.1
	Total	265	100
5. If yes, did you find any relief?	No responses	111	41.9
	Yes	103	38.9
	Total	265	100

**Table 3:** Importance of physiotherapy in oral cancer (A), knowledge regarding physiotherapy treatment for problems faced by oral cancer survivors (B) & psycho-social impact on oral cancer survivors (C)

<b>3A</b>	Yes	100	37.7
1. Do you know that physiotherapy is effective in treating oral/mouth cancer?	No	165	62.3
	Total	265	100
	Yes	198	74.7
2. According to you can giving advice on lifestyle modification like quitting of smoking/ chewing tobacco reduces the occurrence of oral/mouth cancer?	No	67	25.3
	Total	265	100
	Yes	156	58.9
3. Do you think physiotherapy helps in palliative care or terminal(last) stages of oral/mouth cancer?	No	109	41.1
	Total	265	100
	Yes	167	63
4. Do you know physiotherapy can help in increase quality of life of patients suffering from oral/mouth cancer?	No	98	37
	Total	265	100
	Yes	207	71
<b>3B</b>	Yes	207	71
1. Difficulty in mouth opening is managed by using special equipment and jaw exercises	No	58	28
	Total	265	100
	Yes	189	71.3
2. Difficulty in talking (communication) is managed by swallowing exercises	No	76	28.7
	Total	265	100
	Yes	208	78.5
3. Pain around mouth or from site of removal of tumor/mass is managed using special techniques by physiotherapists	No	57	21.5
	Total	265	100
	Yes	213	80.4
4. Pain which is referred to other areas ( e.g. Neck, shoulder, hand) is managed by using special techniques performed by physiotherapists	No	52	19.6
	Total	265	100
	Yes	207	78.1
5. Swelling (lymph edema) present in the arms and hands that is managed by therapeutic massage	No	52	21.9
	Total	265	100
	Yes	208	78.5
6. Breathing difficulty (if any) that is dealt by breathing exercises like pranayama	No	57	21.5
	Total	265	100
	Yes	208	78.5
7. Strengthening the weak muscles of face/neck and shoulder with exercises and equipments	No	57	21.5
	Total	265	100
	Yes	216	81.5
8. Improve the decreased joint movement neck shoulders by performing specific exercises	No	49	18.5
	Total	265	100
	Yes	209	78.9
9. Fatigue/ weakness and pain is managed by relaxation exercise	No	56	21.1
	Total	265	100
	Yes	205	77.4
<b>3C</b>	Yes	205	77.4
1. According to you, do patient suffering from oral/mouth cancer have low self-esteem	No	60	22.6
	Total	265	100
	Yes	216	81.5
2. Do you think patients suffering from oral/mouth cancer are depressed	No	49	18.5
	Total	265	100
	Yes	245	92.5
3. Do patients with cancer fear about death?	No	20	7.5
	Total	265	100
	Yes	210	79.2
4. Have you noticed that people with oral/mouth cancer consider themselves different from others	No	55	20.8
	Total	265	100
	Yes	184	69.4
5. Do you think oral/mouth cancer is a social stigma?	No	81	30.6
	Total	265	100
	Yes	168	63.4
6. Have you noticed that oral/mouth cancer patients are not acceptable by the society?	No	97	36.6
	Total	265	100
	Yes	216	82.3
7. Do you think poverty affects patients with oral/mouth cancer?	No	47	17.7
	Total	265	100
	Yes	210	79.2
8. Do you agree that patients with oral/mouth cancer develop an antisocial behavior?	No	55	20.8
	Total	265	100
	Yes	182	68.7
9. According to you, can patients with oral/mouth cancer effectively work in normal environment?	No	83	31.3
	Total	265	100

(Table 2A) It was observed that the respondents (n=138 and n=137) had knowledge regarding consumption of alcohol and tobacco as a cause of oral cancer. (Table 2B) 154 respondents were familiar that oral cancer surgeries would lead to difficulty in talking, swallowing, chewing, biting and opening mouth. Respondents were aware that long standing white or red patch anywhere in the mouth or tongue (n=147) and/or a long standing non healing ulcer in mouth (n=145). (Table 2C) Participants knowledge regarding treatment of oral/mouth cancer was found to be adequate as most of them were aware that oral cancer can be treated (n=244). According to respondents felt that best form of treatment for oral cancer was medical therapy (n=145) Most of the respondents knew about physiotherapy as a treatment option (n=233). (Table 2D) According to n=167 respondents, physiotherapy is helpful in improving quality of life in oral cancer survivors. (Table 3A) Most respondents had knowledge regarding decreased joint movement in neck/shoulder can be managed by performing specific exercises (n=216). Respondents (n=213) were aware of referred pain that could be managed using special equipment. Respondents were also aware that fatigue/weakness could be managed by relaxation exercises, difficulty in mouth opening by using special equipment and jaw exercises (Table 3B) Respondents knowledge regarding psycho-social impact on cancer survivors was good as most of them agreed that patients with oral cancer fear about death (n=245). Most respondents agreed that cancer survivors are depressed and disease is a social stigma. (Table 3C).

## DISCUSSION

It's known that knowledge of physiotherapy utilization as a treatment option in the field of musculoskeletal, neurosciences, and sports is adequate, whereas in fields like plastic surgery, oncology, gynecology & obstetrics is quite poor [5]. Therefore, the present study recruited non medical professionals to assess the perception and knowledge regarding role of physiotherapy

in oral/mouth cancer survivors, and the major results of the present study shows that maximum non medical professionals had knowledge regarding integrating physiotherapy services in treating problems faced by oral cancer survivors, since there was no data available.

The results of this study demonstrated that the 92.8% of the respondents who were non medical professionals had fair knowledge regarding oral/mouth cancer and over 60% of the respondents were aware that oral cancer is not contagious. A study by Maweri et al was conducted which stated that 71.5% (n=543) of the respondents had heard about oral cancers and 37.8% were aware that oral cancer is not contagious.

There was general lack of knowledge observed among general population [6].

Findings from the present study identified that the respondents had knowledge about alcohol (52.1) and tobacco (51.7%) consumption as a major risk factor for oral cancer. In a study conducted by the authors Devadiga A & Prasad K among dental students suggested that only 69.8% and 37.8% respondents were able to identify tobacco and alcohol respectively as risk factors for oral cancer.<sup>7</sup>

According to the results of the current study 63.4% of respondents did not know about poor oral hygiene as a risk factor for Oral cancer. However in a study conducted by Gupta B et al found that poor oral hygiene is strongly associated with increased risk of oral cancer along with chewing tobacco. Missing more than five teeth was considered a marker of increased risk of oral cancer; however this question was not a part of our self designed questionnaire [8].

Human papilloma virus (HPV) is known to be one of the commonest cause of oral cancer next to tobacco, alcohol and oral hygiene [9].

In present study, only 34.7% non medical professionals were aware that human papilloma virus (HPV) is a cause for oral cancer; whereas it is known that oropharyngeal cancer is strongly associated with

serologic measures of exposure to HPV-16 and with presence of oral HPV infections. Meurman J [9] found that *Candida albicans* is a commonly isolated yeast in the oral cavity that is seen particularly among medically compromised patients. This may also be a cause for oral cancer since *Candida* in general is more prevalent on carcinoma lesions than on healthy mouth mucosa. Also a specific oral bacteria have shown a role in carcinogenesis along with poor oral hygiene increases the risk of oral cancer [10].

The results drawn from this study regarding the problems faced by oral cancer patients were satisfactory as more than half of the respondents knew that unusual bleeding from gums/mouth (n=52.8%), long standing white/red patch on tongue (n=55.5%), difficulty in swallowing, chewing, biting (n=57.7) and dryness in mouth (n=50.2) are the problems commonly faced by oral cancer survivors. Babiker T et al reported that out of 500 participants more than half of the respondents had satisfactory knowledge in regards to problems such as dry mouth, bleeding from gums, recurrent tonsillitis, burning sensations numbness, difficulty in swallowing, teeth loosening, white/red patches and swelling faced by the oral cancer survivor [11].

The results of the above mentioned study and the present study were consistent.

Most respondents in this study had adequate knowledge regarding treatment options for oral cancer, since 54.7% participants choose medical intervention as the first line of treatment for Oral cancer followed by surgery (31.3%) and then later followed by physiotherapy (10.6%). A study by Muthu G suggested that 66% of respondents were aware of treatment options in oral cancer being Medical therapy, Surgery & Chemotherapy, the respondents were given a questionnaire with 25 structured questions obtain the information [12]. 87.9% respondents in the present study were aware about the term physiotherapy. 38.1% (n=101) participants had taken physiotherapy treatment for their ailments/problems out of which 29.4% (n=78) felt relief

post treatment. These findings were correlated with study conducted Doshi D et al where in 153 participants among the general population were surveyed and the results obtained were on the same lines with the current study; the study concluded that there need to create more awareness about the specialties in the field of physiotherapy [5].

Respondents knowledge regarding importance of physiotherapy in oral cancer was seen to be moderate. Respondents were known that physiotherapy is effective in treating oral cancer survivors for the functional limitations post surgery and that physiotherapy can help in palliative care or terminal stages of oral cancer also helps improve cancer related fatigue. Similar findings were seen in study conducted in 2010 which has documented that after giving intervention for period of 2 weeks (3 sessions per week) and each lasting for 30 minutes, programme included Active exercises of upper & lower limbs, selected techniques of myofascial release, proprioceptive neuromuscular facilitation. The analysis of the results demonstrated a significant decrease in fatigue scores (BFI) [13].

In the present study, most of the participants had considerable knowledge regarding importance of physiotherapy in treating the problems faced by oral cancer survivors such as difficulty in mouth opening, difficulty in talking, swelling (lymphedema), breathing difficulty, decreased ROM of neck & shoulder. A study supporting the underlying study was conducted in the year 2020 which concluded that a structured exercise protocol, manual lymphatic drainage, compression bandaging and TENS are useful in alleviating the symptoms experienced by oral cancer survivors. Massage therapy including effleurage, light stroking, petrissage, tapotment along with vibration was given for 30-45 minutes per session twice weekly and had considerable results in survivors. Deep breathing exercises, muscle relaxation training showed significant difference in participants. 2-3 layers of short stretch bandage compression

applied over edematous limb and it showed improvement in limb volumes of the subjects This review based study throws light on the scope of physiotherapy in hospice care and its benefits in patients with advanced cancer [14].

Psychological status is one of the major components of Quality of life. In the current study participants knowledge regarding psychosocial impact on oral cancer survivors was relatively higher as 68.7% participants agreed that patients with oral cancer cannot work effectively in normal environment. Rasmussen D et al conducted a study at the cancer rehabilitation centre by interviewing total of 23 participants twice. The study concluded that cancer survivors are unable to work efficiently, they lose a part of their identity; they lose the personal challenge and satisfaction related to work. Respondents in the study agreed that oral cancer patients are depressed and fear about death [15].

A meta-analysis regarding the Surveillance, Epidemiology, and End Results 18-registry database was queried for the top 20 cancer sites in the database, including HNC suggested suicide as a cause of death in patients with HNC although survival rates in cancer have improved due to improved cancer treatments. However, the risk of death by suicide remains a problem for cancer survivors, particularly those with HNC [16].

However, suicide as reason for death was not included in questionnaire and may be included for future studies.

## CONCLUSION

It was observed that there is sufficient knowledge among non medical professionals regarding oral cancer and physiotherapy treatment in oral cancer survivors. However, there is dire need to take measures to assess and improve awareness regarding physiotherapy as treatment option in cancer to improve the quality of life of oral cancer survivors including in rural population.

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**Ethical approval:** The study was approved by the Institutional Ethical Committee on 6<sup>th</sup> November 2020.

**Conflicts of interest: None**

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