

## Patient Related Factors Associated with Delayed Reporting in Oral Cavity and Oropharyngeal Cancer

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### ABSTRACT

**Background:** Delayed reporting resulting in advanced stage disease is a common problem in Indian cancer patients. This study analysed the impact of various sociodemographic and psychosocial factors on the delayed reporting to Healthcare Professional (HCP) in oral and oropharyngeal cancer patients.

**Methods:** This cross sectional observational study was conducted using a structured questionnaire. Questionnaire included questions to assess socio-demographic and psychosocial factors associated with delay. Delay was defined as time intervals of more than 3 month from first symptom recognition to first medical consultation to a HCP. Association of delay with these factors was analyzed using logistic regression analysis.

**Results:** Final analysis was done on 259 patients. Delay in reporting to HCP was present in 156 (60%) patients. Among sociodemographic factors delayed reporting was highly significant with older age group ( $P = 0.001$ ), low socioeconomic status ( $P = 0.02$ ), rural residence ( $P = 0.026$ ) and with insufficient knowledge of Head and Neck cancer ( $P = 0.014$ ). Sex and marital status were statistically insignificant factor for delay. Among psychosocial factors attribution of symptoms as minor ( $P = 0.011$ ), absence of fear ( $P = <.001$ ) and use of alternate therapy ( $P = 0.001$ ) were significant factors responsible for delay. Disclosure to other and motivation were statistically insignificant in our study.

**Conclusions:** The results of this study provide guidance towards interventions to reduce patient delay. Interventions should target the rural, older age group and lower socioeconomic population for educating them and to change their psychosocial behavior for oral and oropharyngeal cancer.

**Keywords:** Delayed reporting, Indian oral and oropharyngeal cancer patients, socio-demographic and psychosocial factors

### INTRODUCTION

Oral and oropharyngeal cancer is a major form of cancer in India due to increased tobacco consumption habits.<sup>[1]</sup> Delayed reporting is a common problem in these patients and

is responsible for advanced stage disease in most of these cases.<sup>[2]</sup> Delay can occur at three phases during the diagnostic process. Patient delay is the interval between the patient noticing a symptom and consulting a health care professional (HCP) doctor. Doctor or practitioner delay is the interval between first consultation and referral by a practitioner and finally, between referral and diagnosis (hospital or system delay).<sup>[3]</sup> Patient delay usually defined as intervals greater than 3 months and constitutes the largest proportion of the total delay period (30%).<sup>[4,5]</sup> Factors associated with patient delay can be grouped as clinical/tumor factors, patient socio-demographics factors, health care factors and psychosocial factors.<sup>[6]</sup> This study was aimed to identify socio-demographic and psychosocial factors associated with patient delay.

## METHODS

This cross-sectional observational study was conducted at JN Medical College (Aligarh Muslim University), a government tertiary care hospital of northern India. All the patients of newly diagnosed and previously untreated squamous cell carcinoma of the oral cavity and oropharynx registered in out-patient department (OPD) between December 2010 and June 2012 were selected. Patients who have a prior consultation with HCP or/and referred by HCP were included. Incidentally diagnosed patients and patients not sure of the date of first symptom recognition were excluded. Study was explained and consent from each participant was taken. Delay was defined as time intervals of more than 3 months from first symptom recognition to first medical consultation to a HCP. Socio-demographic factors in the study included age, sex, marital status, area of residence and socio-economic status (SES). Age up to 50 years was considered as younger age group and beyond 50 years as older age group. SES was calculated using revised Kuppusswami scale 2010.<sup>[7]</sup> Score 15 and greater means upper and middle class (higher SES) and score less than 15 means lower class (lower SES).

A structured questionnaire was prepared to assess knowledge and beliefs about head and neck cancer<sup>[8]</sup> and psychosocial factors. Psychosocial factors in the Questionnaire included patients' attributions of their symptoms, fear of symptoms, disclosing the discovery of symptoms to someone

else, source of motivation for attending HCP as self or other and Use of alternate therapy.

Content validity of the questionnaire was established by doing a pilot study in a sample of 40 patients and then by consensus formed among a panel of experts. Reliability was estimated with a test-retest analysis of 30 patients within a 10 days interval. Questionnaire had excellent consistency, with intraclass coefficients equal to or greater than 0.75. Construct validity (internal consistency) was assessed through estimation of Cronbach's alphas for each questionnaire dimension. The questionnaire showed acceptable validity with Cronbach's alphas in the range of 0.51-0.68. Sample size was calculated based on the quality criteria proposed by Terwee *et al.*<sup>[9]</sup>

Based on this questionnaire, participants were interviewed in a single sitting by the trained staff of the department. Logistic regression analysis was used after modifying the effects of confounders to determine the significant factors responsible for delay. It was analyzed in arm package of R software (<http://cran.r-project.org/web/packages/arm>).

## RESULTS

A total of 320 patients of newly diagnosed and previously untreated squamous cell carcinoma of the oral cavity and oropharynx were registered in our OPD between December 2010 and June 2012. After eligibility evaluation, 278 patients were included in the study. 19 patients did not return the questionnaire materials or gave incomplete response to the study questionnaire. Final analysis was performed on remaining 259 patients and data on these subjects are reported here.

The delay was found in 156 (60%) patients. The socio-demographic and psychosocial characteristics of study population are shown in Table 1. Association of these factors with delay is shown in Table 2. The independent effect of these factors on patient delay is described in Table 3.

## DISCUSSION

In our study delay was present in 155 (60%) patients. Among socio-demographics factors older age group, lower SES and rural residence were found to be significantly associated with delay. Sex and marital status were not found to be significantly associated with delay. Although some studies

**Table 1:** Socio-demographic and psychosocial characteristics of the patients

Factors	No. of patients (%)
Total	259
Age	
Old	117 (45.2)
Young	142 (54.8)
Sex	
Female	21 (8.1)
Male	238 (91.9)
Marital status	
Married	252 (97.3)
Unmarried	7 (2.7)
Residence	
Rural	167 (64.5)
Urban	92 (35.5)
Knowledge	
Insufficient	202 (78)
Sufficient	57 (22)
Socio-economic status	
Higher	45 (17.4)
Lower	214 (82.6)
Attribution	
Benign	168 (64.9)
Cancer	91 (35.1)
Fear	
No	112 (43.2)
Yes	147 (56.8)
Disclosure	
No	39 (15.1)
Yes	220 (84.9)
Motivation	
Other	151 (58.3)
Self	108 (41.7)
Alternate therapy	
No	91 (35.1)
Yes	168 (64.9)

showed no association between socio-demographic factors such as age, sex and marital status and patient delay,<sup>[10]</sup> Llewellyn *et al.* in their study showed a positive association with being of a younger age group,<sup>[11]</sup> which is in contrast to our study.

Like some other studies<sup>[6,11]</sup> our study also found strong positive association between insufficient knowledge about Head and neck cancer and delay. Scott *et al.* identified lack of oral cancer knowledge as one of three independent predictors of patient delay.<sup>[12]</sup>

Oral symptoms are rarely attributed to cancer and are frequently interpreted as minor oral

**Table 2:** Frequency table of different factors with delay

Factors	No delay	Delay	Test used	P value
Total	103	156		
Age				
Old	41 (35)	76 (65)	$\chi^2$ (1 df)=1.65	0.2
Young	62 (43.7)	80 (56.3)		
Sex				
Female	6 (28.6)	15 (71.4)	$\chi^2$ (1 df)=0.74	0.389
Male	97 (40.8)	141 (59.2)		
Marital status				
Married	100 (39.7)	152 (60.3)	Fisher's exact test	1
Unmarried	3 (42.9)	4 (57.1)		
Residence				
Rural	53 (31.7)	114 (68.3)	$\chi^2$ (1 df)=11.74	<0.001
Urban	50 (54.3)	42 (45.7)		
Knowledge				
Insufficient	66 (32.7)	136 (67.3)	$\chi^2$ (1 df)=17.97	<0.001
Sufficient	37 (64.9)	20 (35.1)		
Socio-economic status				
Higher	30 (66.7)	15 (33.3)	$\chi^2$ (1 df)=15.12	<0.001
Lower	73 (34.1)	141 (65.9)		
Attribution				
Benign	37 (22)	131 (78)	$\chi^2$ (1 df)=60.76	<0.001
Cancer	66 (72.5)	25 (27.5)		
Fear				
No	15 (13.4)	97 (86.6)	$\chi^2$ (1 df)=55.39	<0.001
Yes	88 (59.9)	59 (40.1)		
Disclosure				
No	7 (17.9)	32 (82.1)	$\chi^2$ (1 df)=8.08	0.004
Yes	96 (43.6)	124 (56.4)		
Motivation				
Other	40 (26.5)	111 (73.5)	$\chi^2$ (1 df)=25.34	<0.001
Self	63 (58.3)	45 (41.7)		
Alternate therapy				
No	66 (72.5)	25 (27.5)	$\chi^2$ (1 df)=60.76	<0.001
Yes	37 (22)	131 (78)		

conditions. As a result of these beliefs, patients tend to postpone seeking help.<sup>[6]</sup> In this study, interpreting symptoms as “minor” or “not attributed to cancer” was significantly associated with delayed reporting to HCP.

Among the other psychosocial factors, absence of fear was significantly associated with delay in our study, but disclosing the symptoms to others

**Table 3:** Logistic regression predicting delay

Factor	OR (95% CI)	P (logistic regression-test)
Age: Young versus old	0.21 (0.09, 0.51)	<0.001
Marital status: Unmarried versus married	0.23 (0.03, 1.5)	0.132
Residence: Urban versus rural	0.42 (0.2, 0.91)	0.026
Knowledge: Sufficient versus insufficient	0.32 (0.13, 0.81)	0.014
Socio-economic status: Lower versus higher	2.92 (1.17, 7.27)	0.02
Attribution: Cancer versus benign	0.33 (0.14, 0.78)	0.011
Fear: Severe versus mild	0.18 (0.07, 0.47)	<0.001
Alternate therapy: Yes versus no	12 (5.04, 28.58)	<0.001

OR=Odd's ratio, CI=Confidence interval

and self-motivation were found to be statistically insignificant. Increase in fear level showed increased tendency toward earlier help-seeking but for low levels of fear, the picture is unclear.<sup>[13]</sup>

Delay associated with the use of alternate therapy is well-documented in the literature.<sup>[14-16]</sup> In India, use of alternative medicine could be attributed to the sheer ignorance and lack of primary health care facilities.<sup>[17]</sup> Kerdpon and Sriplung showed a positive association between the uses of herbal medication and delayed reporting to HCP.<sup>[18]</sup> In our study, use of alternate therapy was found to be a significant factor for delayed reporting to HCP.

The limitation of this study as also mentioned by Andersen *et al.* was the measurement of patient delay.<sup>[19]</sup>

## CONCLUSIONS

The results of this study provide guidance toward interventions needed to reduce patient delay. The data indicate that interventions should target the rural, older age group and lower socioeconomic population for educating them and to change their psychosocial behavior for oral and oropharyngeal cancer.

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