

ASSESSMENT OF ORAL CAVITY LESIONS BY THE PATIENTS THROUGH SELF-EXAMINATION

¹KULSOOM FATIMA RIZVI, BSC, BDS, MSC, DDPDRCS

²ROZINA NAZIR, BDS, FCPS

³NASREEN AMANAT, BDS, FDSRCS, MSC

ABSTRACT

There is a significant lack in the awareness of oral cancer and its risk factors among the community. The objective of this study was to determine whether those at risk of developing oral cancer are able to correctly detect oral cancers through mouth self-examination (MSE), if given adequate oral health education. 100 Participants received an oral mucosal examination by the dentist to check the presence or absence of potentially malignant oral lesions, then patients performed MSE after education through a self-read leaflet. Following MSE, participants were requested to complete a brief questionnaire. The prevalence of disease was found to be 34%. The sensitivity of MSE was 70%, and the specificity was 93%. MSE had positive predictive value (PPV) of 77% and a negative predictive value (NPV) was 91%. Mouth self-examination can be used as an effective tool to improve the awareness of oral cancer and for the early detection of lesions.

Key Words: Mouth Self Examination, Oral Cancer, risk factors, awareness, screening

INTRODUCTION

Oral cancer is the 11th most widespread cancer in the world.¹ In Pakistan, it is the 2nd most common cancer after breast in women and lung cancer in men. The annual estimated incidence is around 275,000; two third of which occur in developing countries.² In high risk countries such as Sri Lanka, India, Pakistan and Bangladesh, oral cancer is the most common cancer in men and may contribute up to 25% of all new cases. In Central and Southeast Asia it accounts for up to 40% of all cancers, whereas in most industrialized countries it is relatively uncommon accounting for less than 4%.^{3,4,5} With a low 5 year survival rate, more than 90% of cases are squamous cell carcinoma with tongue and floor of the mouth being the most common sites (75-85%).^{6,7} The incidence of oral cancer in Karachi

south district is the highest in the world. The most common site is the buccal mucosa (55.9%) followed by the tongue (28.4%), palate (6.8%), gingiva (4.4%), Lip (3.1%) and floor of the mouth (1.4%). About 30% of the cases occur in patients aged d" 40 years and 23% in those aged e" 65 years, but now the trends are changing since the young generations have also been observed consuming betel quid and related products in large quantities.⁸

Primary prevention of oral cancer includes avoidance of risk factors. Oral health care providers should include betel quid, areca nut and tobacco use cessation and alcohol abuse counselling as a standard aspect of care.⁹

Secondary prevention of oral cancer includes screening. Nagao & Warnakulasuriya in 2003 addressed screening is very acquiescent for early recognition of oral cancer.¹⁰ Oral cancer and pre- cancer meet most of the requirements of a disease suitable for population screening. Systemic clinical examination of the oral mucosa is non- invasive and well tolerated, the disease has a recognized early symptomatic stage and facilities for diagnosis and treatment are available.

Correspondence: Assistant Professor & Head Community & Preventive Dentistry Dental Section, Bahria University Medical & Dental College, DHA Phase II, adjacent to PNS Shifa Hospital, Karachi, Pakistan. Phone Off: 021 99204685-Ext.1101 Email: kulsumhussain@hotmail.com Cell # +923333095787

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The present study is to determine whether those at risk of developing oral cancer are able to correctly detect potentially malignant oral symptoms via mouth self-examination (MSE); by health education and awareness, which will facilitate in prevention of disease and detection of disease at an early stage.

METHODOLOGY

This is a cross-sectional study and the proposed research is primarily a study of inter-rater agreement between the participant and dentist in recognizing potentially malignant oral symptoms. The research was conducted in a teaching institute with the dental section catering multi cultural, multi ethnicity, multi linguistic persons; belonging to different socioeconomic classes. The study was approved by the Ethical Committee and Epi Info was used for sample size calculation. Recruitment of approximately 100 participants was sufficient to identify 26 participants with changes in mouth. Purposive, convenient, non-probable sampling technique was used.

According to Inclusion Criteria, people of all age groups who were exposed to risk factors like; eating betel quid/areca nut, smokers, and alcohol abusers were included. People who were already aware of the premalignant lesions in their mouth were excluded from the study.

A room with adequate light and ventilation was chosen at the premises. A mirror was mounted on the wall by the window to recreate an environment similar to patients own setting for MSE (e.g. home) rather than clinical dental room. At their visit, each participant was asked to fill consent form after obtaining enough information on the research through participation information sheet. Once consent was obtained, oral visual mucosal examination was conducted by the dentist. For infection control masks and gloves were used by dentist. Findings were recorded on the examination form. After the dentist's examination, participants were given a leaflet titled 'How to spot mouth cancer early'. Leaflet provides brief outline of what is mouth cancer, early signs of mouth cancer, significance of checking mouth and steps of Mouth Self Examination. Participants were asked to read the leaflet cautiously and follow the instructions to check their own mouth. Following MSE, participants were

TABLE 1: SOCIODEMOGRAPHIC DETAILS & HEALTH RELATED BEHAVIOURS OF PARTICIPANTS

Sociodemographic Details		Frequency
Gender	Male	44%
	Female	56%
Marital Status	Single	45%
	Married	51%
	Divorced	2%
	Widowed	2%
Ethnicity	Sindhi	37%
	Punjabi	13%
	Balochi	5%
	Pathaan	11%
	Mahajir	34%
Education	Graduation	48%
	Intermediate	13%
	Secondary	21%
	Primary	5%
	None	13%
Employment	Employed	46%
	Unemployed	52%
	Retired	2%
Health Related	Behaviour	Frequency
Dental attendance	At least every 6 months	6%
	Every 6-12 months	17%
	Every 2-5 years	10%
	Emergency only	45%
	Never	22%
Cigarette smoking	Yes	26%
	No, but use to smoke	12%
Eating betel quid	Never smoked	62%
	0-5	84%
	6-10	4%
	11-15	5%
	16-20	3%
Eating areca nut	>20	4%
	0-5 pkt	83%
	6-10	7%
	11-15	2%
	16-20	5%
Frequency of checking mouth	>20	3%
	Once a day	30%
	Once a week	24%
	Once a month	12%
	Once a year	4%
	Not at all	30%

requested to complete a brief questionnaire. A questionnaire to record presence and site of potentially malignant oral symptoms, perceived difficulty of MSE, confidence to perform MSE and emotional reaction to MSE was adopted from the study conducted in UK on MSE and revised for current study.¹¹ Socio-demographic details and health-related behaviours were also recorded via same questionnaire. Participants were facilitated the researcher for the completion of questionnaire. Both Urdu and English version of the questionnaire was available. Each participant was debriefed after they have completed the questionnaire.

SPSS version 16.0 was used for statistical analysis of data. Descriptive statistics was used to report perceived difficulty of MSE, confidence to perform MSE, emotional reaction to MSE, socio-demographic details and health-related behaviours. Sensitivity, specificity, positive predictive values (PPV), negative predic-

tive values (NPV) along with confidence intervals (CI) were determined to calculate accuracy of MSE. Prevalence of oral mucosal lesions was also calculated.

RESULTS

Out of 136 walk-in participants, 104(76.5%) participants consented to take part in the study. Amongst these 104 participants, 100 participants finally consented. Out of 100 participants there were 44% males and 56% females, with a mean age of 33.5 years, (standard deviation= SD 14.5) with an age range of 19 years to 78 years of age. The socio demographic details and health related behaviours of the sample are summarised in Table 1. Oral Examination was performed by dentist and by the participants; results are summarised in Table 2 & 3. Amongst the 100 participants, 58(58%) found MSE very easy or easy while rest of them found it average or difficult (39%). 8(8%) participants found MSE very difficult. 70(70%) par-

TABLE 2: FINDINGS OF ORAL EXAMINATION BY THE DENTIST

Lesions		Size	Site	Differential Diagnosis	Frequency
Ulcers	Present	≤1.5cm	Buccal &	Frictional keratosis	22%
	Absent		Labial Mucosa		78%
Red patch	Present	≤0.5cm	Palate	Traumatic lesions	1%
	Absent				99%
White Patch	Present	≤2.5cm	Mandibular retro-molarArea, Palate, Lip	Leukoplakia, Keratosis, Fibrosis	7%
	Absent				93%
Lump	Present	1-2cm	Buccal mucosa,	Papules, hyper plastic tissue	4%
	Absent		Palate and Tongue		96%

TABLE 3: MSE - DETECTION OF POTENTIALLY MALIGNANT ORAL LESIONS BY THE PARTICIPANTS

Lesions		Site	Frequency
Ulcers	Present	Gingivae, lips, buccal mucosa, tongue	16%
	Absent		84%
Redpatch	Present	Tongue, gingivae, under surface of the tongue	3%
	Absent		97%
White Patch	Present	Tongue, gingivae, palate, under surface of tongue, lips and buccal mucosa	5%
	Absent		95%
Swelling	Present	Gingivae, palate, tongue, buccal mucosa,	3%
	Absent		97%

TABLE 4: EMOTIONAL RESPONSES TO MSE

Emotional	Responses	Frequency
Anxious	Not at all	30%
	A little bit	34%
	Moderately	24%
	Quite a bit	10%
	Very much	2%
Distressed	Not at all	43%
	A little bit	27%
	Moderately	19%
	Quite a bit	8%
	Very much	3%
Scared	Not at all	55%
	A little bit	26%
	Moderately	12%
	Quite a bit	6%
	Very much	1%
Afraid	Not at all	56%
	A little bit	23%
	Moderately	13%
	Quite a bit	7%
	Very much	1%

TABLE 5: COMPARISON OF FINDINGS OF MOUTH SELF EXAMINATION AND DENTIST EXAMINATION

		Dentist Examination		
Mouth Self Examination		Present	Absent	Total
	Present	27	11	41
	Absent	7	52	59
	Total	34	66	100

ticipants were slightly confident, moderately confident or confident in their ability to perform MSE, 24(24%) were very confident and only 6(6%) were not at all confident. Out of 100 participants, 82% had average, clear or completely clear idea of how to perform MSE, 12(12%) had some idea and only 6(6%) had no idea at all. Participants' perception of MSE is shown in Table 4.

A simple measure of diagnostic accuracy indicated that the proportion of correct diagnosis was 79%. The sensitivity of the MSE = 70% (95% CI 51% to 88%), and the specificity of MSE = 93% (95% CI 87% to 98%). These measures help in giving more indication of presence and absence of disease. PPV of the oral lesions was found to be 77% (95% CI 59% to 94%) NPV was

91%. (95% CI 84% to 97%). The prevalence of disease was found 34%. MSE was compared with dentist examination and the results are summarised in Table 5.

DISCUSSION

The opportunities for oral cancer control, with respect to known aetiology, long natural history, possibility of identifying precancerous, oral cancer lesions by oral examination and considerable therapy when diagnosed at early stage directs it towards the prevention of the disease.¹² Thus, it is important to determine successful methods of encouraging early presentation. MSE is an adjunct to early detection, and in no way lessens the importance of periodic professional examination.

To the best of our knowledge, this is the only study done so far on MSE in Pakistan and the second study (worldwide) to assess accuracy of MSE.¹¹ This strategy may be used in early detection of oral cancer,¹³ and is thought to be economically feasible which requires no scheduling to attend a dentist. It is simple, non-invasive, and easy to perform in everyday life. Information leaflet has significant effect on long term knowledge of oral cancer in the public.¹⁴ If MSE is encouraged through other means like media, health care professionals and health care centres might help in early presentation of oral cancer. In this study 82% of participants have some idea of how to perform MSE which is in comparison with a study by Elango KJ et al¹⁵ which showed 87% compliance to MSE.

Prevalence of potentially malignant oral lesions was 34% in the sample in contrast to a study by Scott SE et al¹¹ in which the prevalence was 22%. This might be due to presence of more high-risk habits among this population group. The sensitivity of MSE was 70% with CI from 51%-63% and positive predictive value of 77% this is in contrast with the study by Elango KJ et al¹⁵ and Scott et al¹¹ they found sensitivity of 18% and 33% respectively, Sensitivity of 70% in this study indicates that majority of participants correctly recognized the presence of oral lesions and the range of CI shows that this estimation of sensitivity is nearly accurate. The high sensitivity may have occurred due to patient's ability to distinguish between normal anatomical landmarks and oral mucosal changes.

Majority of them performed MSE with confidence; they found it easy and had clear idea of what to do. The leaflet has been enough to enable them to learn to differentiate between pathological changes and normal mucosa. The specificity was acceptably high (93%) with CI range between 87-98% and negative predictive value of 91% which is comparable to the study by Elango KJ et al¹⁵ reporting specificity 99%. This indicates that people could correctly note when lesions were not present. In this study specificity estimations may have been higher if those participants who noted they were unsure as to the presence of an oral lesion were classed as 'absent' rather than 'present' it was done for purpose of analysis and to eliminate any chances of error.

In sum, specificity indicates that MSE may be feasible and sensitivity predicts that lesions were identified when they were there. It was also noteworthy that 99% of participants who reported the presence of a lesion indicated that they had not been aware of it prior to performing MSE yet only 36% of participants who reported finding a lump or swelling were aware of it prior to MSE. This may simply because the different oral lesions may have had accompanying symptoms (e.g. discomfort) or some participants may have looked in their mouth prior to attending for the study, or a dentist may have previously brought it to their attention. When participants found a lesion, they generally intended to seek advice from health care professionals for the oral lesions. This indicates that the messages in the leaflet regarding the importance of seeking help for potentially malignant oral lesions was taken on board by most participants.

This study found that people are good in identifying normal mucosa and less likely to identify oral lesions. Therefore patients' awareness and education is required, to acquire the knowledge of appearance of oral changes, to differentiate between the normal anatomical land marks and pathological changes. The brochure was found very simple to read and participants could follow the instructions, and were confident to do MSE and they were confident enough for what to observe, which is evident from the sensitivity (70%) and positive predictive values (77%).

While performing MSE, patients had fairly low emotional response which may be due to the fact that

many participants were attending a dentist regularly, and had already been checked by the dentist. Also many participants did not find anything when they looked in their mouth, so they were not emotionally disturbed.

The study was desired to demonstrate the precision of MSE. It is important, however to determine the extent to which participants actually practise in future. For many patients, it was very motivating and encouraging to promote a simple and affordable method of diagnosing oral cancer, and participants were willing keep practising MSE and were interested in disseminating the leaflet, amongst their colleagues, friends and family. Beyond promoting MSE, the study may have had an additional impact of providing information about relation of alcohol, smoking, betel quid & areca nut with oral cancer to those at risk of developing oral cancer. These impacts may help the patients in either quitting or limiting use of betel quid/areca nut or smoking cigarettes. It would also be interesting to research whether providing information regarding precancerous and oral lesions to participants before invitation for MSE, could help participants to identify oral lesions. Limitation to this study is the small sample size. A large population sample will be needed to further evaluate accuracy of MSE. However, all participants were believed to be at risk of developing oral cancer due to their age and high risk habits.

CONCLUSION

This study concludes that MSE is feasible and easy to learn. High specificity indicates that people are fairly good at correctly noticing the absence of oral lesions and high sensitivity indicates that people are also good in noticing presence of lesions. They may be more accurate in recognising potential lesion if they acquire more knowledge of oral mucosal changes. If people learn to perform MSE and differentiate between precancerous/ cancer lesions and normal anatomical land marks, then the practice of MSE can be disseminated through health organisations and public forum to reduce the mortality rates of oral cancer.

REFERENCE

- 1 Steward BW, Kleihues PE. World Cancer Report. 2003. Lyon, IARC Press.

- 2 Globocon International Agency for Research on Cancer. 2002
<http://www.depd.iarc.fr/globocon> 2002.htm
- 3 Johnson NW. Orofacial Neoplasm : Global epidemiology, Risk Factors and recommendations for Research. *Intl Dent J* 1991; 41: 365-75.
- 4 Smith CJ. Epidemiology and Aetiology. In: Langdon JD, Henk JM editor *Malignant Tumors of the Mouth Jaws & Salivary Glands* London: Edward Arnold- 1995; 1-13.
- 5 Downer MC. Patterns of disease and treatment and their implications for dental health services research. *Community Dent Health* 1993;10-(Suppl.2): 39-46.
- 6 Pisani P, Parkin. DM, Bray F, Ferlay J. Estimates of the worldwide mortality from 25 Cancers in 1990. *Int. J Cancer* 1999; 83: 18-29.
- 7 Silverman SJ. Early diagnosis of oral cancer. *ancer* 1988; 62: 1796-9.
- 8 Bhurgri Y. Cancer of the oral cavity-trends in Karachi South (1995-2002). *Asian Pac J Cancer Prev* 2005; 6(1): 22-6.
- 9 Gustavo D Cruz, Jamie S Ostroff, Jayanath V. Kumar, Sangeeta Gajendra. *Preventing and Detecting Oral Cancer* 2005.
- 10 Nagao T, Warnakulasuriya KAAS. Annual screening for oral cancer detection. *Cancer Detect Prev* 2003; 27: 333-7.
- 11 Scott SE, Rizvi K, Grunfeld EA, McGurk M. Pilot study to estimate the accuracy of mouth self examination in an at risk group. *Head and Neck* 2010; 32; 1393-401.
- 12 Hecker R. The investigation of the patient. Modern development including automatic multiphasic health screening and the use of computers in medicine. *Med J Aust* ,1972 2: 492.
- 13 Mathew B, Sankaranaarayanan R, Wesley R and Nair MK. (1995) Evaluation of mouth self-examination in the control of oral cancer. *Br J of Cancer* 1995 71: 397-9.
- 14 Petti S, Scully C. Oral cancer knowledge and awareness: primary and secondary effect of an information leaflet. *Oral Oncol* 2007; 43(4): 408-15.
- 15 Elango KJ, Anandkrishnan N, Suresh A, Iyer SK, Ramalyer SK, Kuriakose MA. Mouth self-examination to improve oral cancer awareness and early detection in high-risk population. *Oral Oncol* 2011; 47: 620-4.

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