

PAKISTANI DENTISTS ATTITUDE TOWARDS CHAIRSIDE SCREENING OF MEDICAL CONDITIONS

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ABSTRACT

Due to the increased burden of non-communicable diseases in Pakistan, shortage of primary physicians and the need for greater collaboration among health professionals, dentists need to be involved in the overall health of their patients. There is a strong body of evidence demonstrating the efficacy of chairside screening of medical conditions by dentists to identify and refer patients at risk of life threatening events.

The objective of this study was to determine dentists' attitudes and practices related to chairside screening of systemic diseases with emphasis on Diabetes Mellitus(DM).

Cross-sectional multicenter study was conducted utilizing validated questionnaire that was distributed to 214 dental professionals based on convenience sampling from six different dental colleges from Karachi, Pakistan.

Results showed that more than 89% of dentists expressed their willingness to screen for systemic non-communicable diseases. Furthermore 77% of dentists surveyed expressed their readiness to collect samples through different tools. 94.8% dentists were willing to screen for Diabetes and hypertension was rated second highest 93.9% among the dental professionals. Topmost barriers that hindered in screening procedures were patient's resistance and lack of referral knowledge according to this multicenter study. After screening, 80% of dentists were equipped for regular monitoring, counseling and advised use of glucometer to known cases of DM. In this study dentists were found to be in general agreement to chairside medical screening & monitoring of diabetes. Screening only detects the absence or presence of disease; proper diagnosis should be done and for that proper referral should be given by dentists. Medical screening should be done by dental professionals to promote an integrated approach to health promotion and disease prevention. Majority of dentists surveyed in this study considered medical screening to be important and were willing to incorporate in their dental practices. Practical implementation strategies and continuing education are deemed mandatory to address perceived barriers.

Key Words: *chairside screening, diabetes mellitus, sample collection, dental education.*

INTRODUCTION

According to WHO, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."¹ According to

WHO, "Oral health is essential to general health and quality of life. It is a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing".¹ Both definitions clearly depict the relation between oral and general health. Currently there is an increasing trend amongst medical professionals on providing holistic care to the patient, the U.S. surgeon general affirmed for the first time the importance of oral health to the general health and well-being of the population in the 2000 report Oral Health in America.² The World Oral Health Report (2003) stated clearly that there is growing body of evidence to prove the relationship between oral health and general health.³ Oral health is influenced by general health and vice versa.⁴ Poor oral health is associated with major chronic diseases.

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Furthermore, poor oral health causes significant disability and morbidity.² Oral health issues and major non-communicable diseases have common risk factors.³ It has been established that general health problems may cause or worsen oral health conditions.⁵

Many of the systemic diseases are increasing day by day and oral cavity is more or less associated with these systemic diseases.⁶ As far as the medical conditions and diseases are concerned diabetes mellitus is of prime concern.⁷ According to IDF (International Diabetes Federation) death of people due to diabetes mellitus was 86,364 and 7 million cases were reported in Pakistan in 2015 and the number of reported cases of diabetes are expected to rise to 12 million by 2035.^{8,9} This increasing prevalence of non-communicable diseases such as diabetes and hypertension in Pakistan has led to increased advocacy of effective disease prevention through screening for diseases by medical practitioners.¹⁰ Hypertension, diabetes mellitus, AIDS, hepatitis and many more systemic diseases are increasing rapidly in our country and strengthening their roots.¹¹ For prevention, early detection and management of these diseases, screening and counseling should be performed to every single patient attending any health care provider.¹²

In order to ensure good oral health, all aspects of the life should be analyzed and all the systems of human body should be checked.¹³⁻¹⁶ As the knowledge and science is progressing, dentists are not keeping themselves confined to oral cavity instead they are resolving their boundaries and limitations and working with other medical professionals.¹⁷ Dental professionals being a part of health care team member also share the responsibility of screening and counseling patients for various systemic and infectious disease.¹⁸⁻²⁰ Dental institutes are entertaining a greater portion of population on daily basis, it is important to rule out if their patients have any systemic diseases.²¹ "Screening is the process of detecting disease early, with the intention of intervening to halt its progression."²² This screening can be easily done and then referral should be made to the physician so that patient can be treated accordingly.²⁰ Efficacy of chairside medical screening in identifying at risk individuals has been demonstrated by various studies conducted in USA and India and dentists and patients have expressed their readiness for screening procedures.²³⁻²⁵ To combat the growing epidemic of non-communicable diseases primarily hypertension and diabetes, chairside screening in dental offices have been proposed as potential preventive strategies. Results of surveys of chairside screening have demonstrated willingness by both the dentists and patients to participate.^{19,21,25-27}

Keywords using chairside medical screening, primary preventive medical care, medical care by dentists was used in the search engines of PubMed, Google scholar, Pakmedinet.com and Podj.com.pk and no relevant publication involving Pakistani dentists was found.

Dental education include the knowledge and skill to deal with the medical conditions and procedures to diagnose these diseases.²⁸ In Pakistan, dental curriculum includes description of medical conditions and their diagnosis but generally dentists lack the skill and training required for screening and diagnosing common medical conditions such as hypertension and diabetes.²⁹ In this study, our primary objective was to evaluate the attitude and perception of dental professional towards chairside screening of common medical conditions. Attitudes of chairside screening of medical practitioners, dental hygienists and even patients have been evaluated in numerous studies with positive and favorable outcomes.^{18,19,21,25,26}

There is a dire need to incorporate medical screening by dentists as there are ample opportunities available and it is a very cost-effective means of prevention and early diagnosis of medical conditions.^{25,26,30-32} Pakistani dentists need to be more engaged in the overall health care of their patients and thus willingness of Pakistani dentists need to be sought. Strategic planning to commence chairside screening in Pakistani dental institutes includes comprehension of the sensitivity of the increasing prevalence and incidence of the non-communicable diseases in Pakistan and willingness of dental staff towards identifying patients in their early stages so that they can be treated and complications can be prevented. This study has thus explored the feasibility of conducting chairside medical screening in dental offices in Pakistan. A secondary objective of this study was to assess dentists' attitudes towards chairside screening of diabetes within routine dental practice.

METHODOLOGY

To ascertain the opinion of the dental professionals about screening of various diseases, six dental colleges were randomly selected from Karachi which were Dow Dental College (DDC), Dow International Dental College (DIDC), Hamdard Dental College (HDC), Jinnah Medical and Dental College (JMDC), Karachi Medical and Dental College (KMDC) and Fatima Jinnah Dental College (FJDC). From these six colleges total of 214 subjects completed this questionnaire. Voluntary completion of the questionnaire was taken as informed consent to participate in this study. Out of 214, through convenience sampling 38 were selected from DDC, 30 from DIDC, 55 from HDC, 19 from JMDC, 36 from KMDC and FJDC each. JMDC was the only institute

from which house officers were selected as they don't have postgraduate trainees. Subjects from remaining five colleges include both house officers (HO) and post-graduate trainees (PG).

Questionnaire consisting of 32 items was developed and modified from a validated questionnaire by Ander et al and Greenberg et al which mainly include demographics, knowledge, opinion and attitude of dental professionals towards practicing of screening through different tools and devices.^{21,26} Through these items, we would like to evaluate the dental professional thinking and their attitudes towards screening of systemic diseases. Out of 32 items 20 questions were rated according to Likert's scale in order of 1-5 showing the options of strongly agree, neutral, disagree and strongly disagree respectively. Remaining questions included demographics and questions on barriers were rated as strong barrier, no barrier and somewhat a barrier.

RESULTS

Data was computed and cross tabulation was done using SPSS version 23. Non-parametric binomial test was applied to find out whether more than half of the proportion of dental professional's attitude, knowledge and practice prefer screening of systemic diseases or not. After cross tabulation results of "strongly agree" and 'agree' were added for every item of questionnaire and then item analysis was performed and p value was calculated.

The mean age of the sample was 25.6 years (± 3.9). Analysis showed that majority of dentists were willing to perform chairside screening for medical diseases

Attitudes	N(%)
Towards asking history regarding Diabetes Mellitus (DM)	191(89.2)
Towards educating risks of DM to overall health	196(91.5)
Towards educating risks of DM to oral health	206(96.2)
Towards discussing benefits of controlled DM	170(79.4)
Towards discussing strategies for controlling DM	142(66.3)
Towards measuring DM by using glucometer	172 (80)
Towards advising patients to use glucometer	195(91.1)
Monitoring blood glucose in dental clinic impacts on controlling patient diabetes	155 (72.4)
Towards spending better time other than measuring glucose in clinical setting	122(57%)

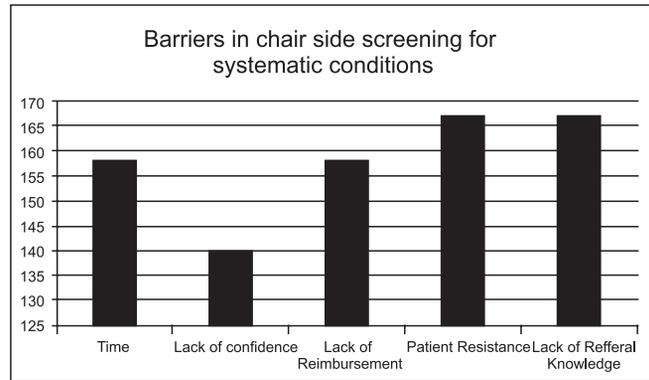


Fig 1: Barriers in Chair side screening for Systematic conditions (N=214)

in their clinics. Their values for acceptance to screen different diseases were hypertension 93.9%, Diabetes Mellitus 94.8%, cardiovascular diseases 89.7%, Hepatitis 89.2% and AIDS 86.4%.

The questionnaire inquired about willingness towards collection of samples and 77% showed positive response. However, dentists were found to be less willing to collect data on height and weight (37.8%), Collection of oral fluids (48.5%) as compare to blood withdrawal (56.5%) and blood pressure sampling (85.5%).

In this study, statistical significance was found where male members showed more willingness towards collection of oral fluids (p<0.05) while females were found more enthusiastic in screening for Diabetes Mellitus (p<0.005).

Dentist's attitude towards Diabetes Mellitus:

The second objective of this study was linked to assess attitudes towards screening diabetes mellitus in dental clinics and OPDs on daily routine basis as shown below in Table 1.

DISCUSSION

The validated questionnaire in this study was formulated in such a way that inclination of dental professional towards systemic diseases could be evaluated. As diseases are communicable as well as non-communicable ; five most common diseases were mentioned and dentists considered diabetes mellitus to be the most significant disease as periodontitis is one of the dental complications of uncontrolled diabetes.²² Hepatitis and AIDS are typically blood borne and communicable diseases where as diabetes mellitus, hypertension and CVD are non-communicable diseases.³³ Oral cavity is affected in all the mentioned systemic diseases but diabetes mellitus affects periodontal tissues and healing much more than others.^{4,34} Dentists have the potential and responsibility to assume an active role in the early identification, assessment, management of their patients with established diagnosis of diabetes or who are at risk of developing diabetes.^{18,26,35} Close and active collaboration with other health care

professionals involved in the care of diabetic patients will allow for better control of oral complications of diabetes and will contribute to holistic management of patient's overall health status.³⁶⁻³⁸ In order to reduce this disease prevalence and incidence everybody from the medical profession should comprehend that it is only their efforts which can suppress this expanding number.³⁰ There is an increasing body of evidence indicating that dentists should be trained to provide limited preventive medical care within the scope of dental practice for better patient outcomes.^{27,39}

Dentists were then asked about sample collection for screening of the systemic diseases but they expressed their reluctance in taking blood and oral fluid samples. The reason for this hesitation is inexperienced and untrained dentists because in our curriculum and daily practice we are not taught for this type of sample collection unless one is doing post-graduation in maxillofacial surgery.²⁹ A study conducted in India and USA showed similar reluctance in collecting samples by dentists.²⁵ Other explanations for this attitude can be the barriers which they were asked for in the questionnaire. According to the dentist's opinion chief barrier was perceived patient resistance and lack of knowledge of referral mechanisms. This is in conformity with the studies conducted by Greenberg et al and Ander et al.^{26,30} It should be focused here that dentist confidence was shown to be the least important in their opinion. As mentioned before dental team lacks the association with other medical staff doctors and surgeons, once patient screened positive with the disease, they are generally unaware of proper referral mechanisms. Dentists who are practicing in public sectors & hospitals are generally in communication with other physicians and surgeons to refer promptly diseased or at-risk patients. Whereas dentist working in private setting should have detailed knowledge of physicians or at least hospitals where they can refer their patients. Other chief barrier that came out to be of importance was patient's resistance but this could be overcome easily if every dental setup would screen first and then commence dental treatment. This strategy would break the stereotype of screening by medical practitioners and physicians only.^{37,40,41} This strategy will result in significant change in patient's attitude as they will then realize the importance of screening as observed by Greenberg et al.⁴²

Early management of non-communicable diseases by early detection through chairside screening will result in significant reduction in health care costs in Pakistan as demonstrated by studies conducted in the USA.³¹

Diabetes Mellitus was considered to be the most important disease as it is one of the most prevalent disease among others.⁹ Studies have confirmed that

individuals with undiagnosed diabetes and pre-diabetes can effectively be identified and referred by dentists through chairside screening.¹⁸ Our study also evaluated Dentist's attitude regarding use of glucometer by themselves, advising its use to patients, making strategies to control diabetes and explaining the risks of uncontrolled diabetes to overall health and oral health. In all the above-mentioned parameters dentists have expressed their willingness to render their services although their time can be spent in a more useful manner in performing dental procedures. This readiness of dentists to perform screening for diabetes in conformity with previous studies.^{18,19,26,42}

This study has highlighted that majority of dentists have expressed their willingness to be involved in overall health and wellbeing of the patients by performing chairside screening of medical diseases to lower the overwhelming burden of non-communicable diseases and their co-morbidities in Pakistan through inter-disciplinary and inter-professional collaborative efforts of healthcare providers.

CONCLUSION

It can thus be concluded that screening, monitoring and counseling of diabetic patients can be easily conducted in the dental office. Apart from Diabetes Mellitus, all other diseases must be of keen interest to dentists. The data from this study shows that dentists have expressed their readiness to incorporate chairside medical screening irrespective of their training, gender or graduating college and these findings are in conformity with studies conducted previously.^{19-21,25,26,32,43,44} Moreover, dentists should bear in mind that screening is not the first step towards diagnosis, it is important to remember that taking proper medical and dental history is the first step towards diagnosis of the patient.⁴⁵⁻⁵⁰

According to the theories of planned behavior and reasoned action, knowledge, attitudes and beliefs are strong predictors of intentions, and intention predicts behaviors.⁵¹ Based on these theories on behavior modification, dentist's knowledge and attitude was assessed, which ensured that dentist's behavior strongly favored chairside screening.¹⁹⁻²¹ After analyzing this behavior of dentist, changes must be seen in dental curriculum in the future resulting in regular practice of chairside screening before starting dental treatment. Primary disease prevention is the need of the hour and it can be practiced through chairside screening and well-designed management protocols to lower the burden of non-communicable diseases in Pakistan mandates an integrated approach that incorporates health care providers across disciplines. Considering findings of the current study, continuing education programs should incorporate knowledge and training needed for performing chairside medical screening by dentists.

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