

# Knowledge and Attitude of Sudanese General Medical Practitioners towards Oral Diseases

## Original Article

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**Abstract:** ***Introduction:** Physicians have the opportunity to detect oral health problems more frequently than dentists because they are the first who come in contact with the patients, thus their role depends on their degree of knowledge and type of attitude towards oral diseases. **Aim:** This study aimed to assess the knowledge regarding oral diseases amongst the general medical practitioners working in all of the fifteen public hospitals of Khartoum Locality. **Materials and Methods:** This is a descriptive cross-sectional study in which we conducted a survey for the medical doctors in the public hospitals of Khartoum locality. Data was gathered using a self-administered questionnaire which consisted of four sections (demographic data, knowledge about oral diseases, attitude towards oral health and awareness about systemic conditions and their relation to oral health). The data was analyzed by the Social Package of Statistical analysis. **Conclusion:** General medical practitioners showed moderate level of knowledge about oral diseases except for periodontal diseases in which they showed poor level of knowledge. Their attitude towards oral health was positive especially the younger and recently graduated. Their awareness about some systemic conditions and their relation to oral health was moderate.*

**Keywords:** knowledge, oral diseases, general medical practitioners

## 1. Introduction

Oral health has always been an intimate part of general health [1]. The first Surgeon General's Report on Oral Health in America emphasized the importance of oral health to general health and well-being. The report discussed the emerging associations between oral health and systemic conditions and noted that chronic oral infections can be associated with diabetes, heart and lung diseases, stroke and preterm labor and low birth weight [2]. Early detection of oral diseases makes them more amenable to treatment and allows the greatest chance of cure [3].

The World Health Organization (WHO) recently developed a global strategy with emphasis on the prevention and control of non-communicable diseases linked by common risk factors including diabetes, cancer, cardiovascular diseases, chronic obstructive pulmonary disease (COPD) and oral disease [4].

Some diseases affecting the oral cavity are the most prevalent chronic diseases in children and adults worldwide [1]. Dental caries is the most common long-lasting infectious disease in many developed and developing countries [1]. Mothers with high number of cariogenic oral bacteria are at greater risk of infecting their children at early age [5].

Approximately 60 to 90% of the children in developed countries suffer from dental caries [1]. Untreated caries can lead to dental pain, tooth loss and other complications such

as dental space infection which sometimes if left untreated can lead to a more serious life threatening conditions such as Ludwig's Angina. Pediatricians and family physicians have the opportunity to improve and motivate the oral health of children due to their early and frequent contact during well-child and chronic condition visits [6].

Periodontal diseases affect the majority of the population either as gingivitis or periodontitis [7]. Severe to moderate periodontitis affects approximately 10 to 15% of the adult population, but even less severe gingivitis affects over 80 to 90% of the adults in a global scale [8]. Previous researches had established that periodontal infection is a probable risk factor for various systemic diseases including diabetes, pregnancy complications, cardiovascular diseases, respiratory diseases and rheumatoid arthritis [9,10]. Despite this evidence, most physicians still lack this knowledge and they do not advise their patients to visit a dentist.

As for oral cancer, it is a global health problem with increasing incidence and mortality rates. It is considered the eighth most common type of cancer worldwide [1]. Its incidence rates in Sudan are 3.7% for men and 2.6% for women [11]. Survival rates worldwide are very poor, at approximately 50%, and have not improved markedly in recent decades despite advances in therapeutic interventions [12]. Early detection and treatment of oral cancer at an early stage, when lesions are small or localized, can improve the outcomes and allow for a better quality of life. Unfortunately, patients at risk of oral cancers who use tobacco and alcohol are more likely to seek physician's help

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instead of dentists. Physicians do not frequently examine the oral cavities and are not sufficiently trained to detect oral cancer [1].

Previous research has indicated that delayed referrals to appropriate specialists are due to the inadequate knowledge of the general medical practitioners (GMPs) in regard to understanding the risk factors for oral cancer and recognizing the characteristic lesions [13].

Oral lesions commonly found in HIV-positive persons are frequently the first clinical sign of immune - suppression [1]. Approximately 40 to 50% of those patients have an oral fungal, bacterial, or viral infection [1]. Early detection is necessary because it can prolong asymptomatic period, delay disease progression and prevent opportunistic infections if proper education and counseling of patient is performed, therefore physicians must look for oral manifestations in suspected cases of HIV, a process which will aid in early diagnosis and treatment of patients [14].

Medical curriculums are deficient in providing the required space for oral health. Many medical doctors are not familiar with the oral cavity, and their knowledge about oral diseases and the relationship between oral health with systemic diseases and life threatening oral diseases is limited [15, 16]. Because proper knowledge of oral diseases is important in medical practice, the American Association of Medical Colleges in 2008 recommended that medical schools should increase oral health education [17].

Till date there is no published study available to assess the knowledge of oral diseases among Sudanese general medical practitioners. Hence, the present study was undertaken as a preliminary study aimed to assess their knowledge in Khartoum locality public hospitals, Khartoum State, Sudan.

## 2. Material and Methods

This descriptive cross-sectional survey was conducted during two months period time (November and December /2015) in all public hospitals of Khartoum locality among 228 general medical practitioners with a response rate 99.1%. A study questionnaire was developed based on previous validated surveys [20] with some modifications. It consisted of 21 questions in which six questions detecting the socio-demographic characteristics, five close ended questions to assess the knowledge, five for attitude and another five for awareness level regarding the systemic conditions and their relation to oral health. The self-administered questionnaire was distributed by the researcher during work days with consideration not to disturb the hospitals program, the medical practitioners were approached personally and the purpose of the study was explained to them, then it was collected directly after GMPs filled in it. The database was imported in to Social Package of Statistical Analysis (SPSS software version 16 Microsoft excel). The analysis was done with the help of a biostatistician. Frequency tables and percentage were used to describe the results. Chi square test, P-Value < 0.05 was considered statistically significant.

## 3. Results

The majority of the participants (87.6%) were within the age group of 21-30 years old. Females comprised (55.7%) of the total sample, whereas the males were 44.3%. Regarding universities from which the participants were graduated, their number was twenty two. Forty eight of the participants (21.1%) were graduated from University of Khartoum. most of the participants (91.1%) had an experience of practice ranging from 1-5 years. Forty seven (20.7%) and forty six (20.3%) of the participants were distributed in Departments of Medicine and Surgery respectively. Most of them medical (70.4%) knew that bacteria is the causative microorganism of dental caries, however only (22.5%) recognized it as a transmissible disease (Table 1). Regarding periodontal disease, only (25.2%) of them knew that plaque and calculus are the most causative factors of it (Table 2).

The distribution of knowledge scores of participants is shown in (Table 3), a medium score was obtained by one hundred and thirty eight (61%) of the participants, forty six (20%) scored poor and forty two (19%) scored good. There is a highly statistical significance associating the knowledge about oral diseases with age ( $p=0.009$ ); younger doctors are more knowledgeable about oral diseases than older ones (Table 4).

However as for the attitude scores, hundred and five of the participants (46%) had a medium score, seventy six (34%) had a good score while forty five (20%) scored poor (Table 5).

**Table 1:** Which type of microorganism causes dental caries?

Type of microorganism	Frequency of Answers	Percentage %
a) Bacteria	159	70.4
b) Fungus	7	3.1
c) Virus	5	2.2
d) No microorganism is involved	55	24.3

**Table 2:** The most responsible factor for periodontal disease

Responsible Factor	Frequency of Answers	Percentage%
a. Dental caries	86	38.1
b. Plaque and calculus	57	25.2
c. Inflammation of the tongue	12	5.3
d. Smoking	71	31.4

**Table 3:** The distribution of knowledge scores among participants

Knowledge score	Total answers	Percentage%
Good (4-5) right answers	42	19%
Medium (2-3) right answers	138	61%
Poor (0-1) right answers	46	20%

**Table 4:** The distribution of knowledge score among participants separately by age

Knowledge score	Age range (yrs.)			Total
	21-30	31-40	41-60	
Good	28	2	12	42
Medium	128	2	8	138
Poor	42	2	2	46

\*P = 0.009

**Table 5:** The distribution of Attitude Scores among the participants

Attitude Score	Total Answers	Percentage
Good (4-5) right answers	76	34%
Medium (2-3) right answers	105	46%
Poor (0-1) right answers	45	20%

#### 4. Discussion

There has always been a widespread perception that oral diseases are limited to the scope of dentistry. Medical curricula traditionally lack any type or level of information about oral diseases mostly because of the wrong perception of considering the dentist as solely responsible for the prevention and treatment of any of the dental diseases.

##### Knowledge of oral diseases

In the present study, the participants possessed moderate level of knowledge regarding oral diseases. One hundred and fifty nine (70.4%) knew that bacteria cause dental caries, this is similar to the finding of Kumar Raja Gaddam in which 83% of the participants knew that bacteria is the primary cause of early childhood caries [6], on the other hand fifty five (24.3%) of the participants in this study thought that no microorganism is involved in the process of dental caries and only twelve (5.3%) answered fungus and virus. This misconception confirms the fact of lacking basic information about oral health in the medical curricula.

Only fifty one (22.5%) of the participants knew that dental caries is a transmissible disease which is similar to the findings of a study by O.O. Olatosi in which eighteen (27.7%) participants knew that dental caries can be transmitted from mother to her child [18]. Also a similar finding was obtained in a study by Poornima P in which (29%) of the participants responded that bacteria which cause dental caries can be transmitted between mother and child [19].

Regarding periodontal disease, the participants were not aware even of the word (periodontal) and the researcher had to explain it for each of them. Only fifty seven (25.2%) answered that plaque and calculus are the most responsible factors of periodontal disease and when the researcher asked them about their source of knowledge, it was obvious that they had a peer dentist or a relative. This finding is different when compared to a study in Kanpur city, India in 2013 by Ashish Bhalla and Anuradha K. P in which fifty one (55.4%) of the respondents knew that plaque and calculus are the most responsible factors of periodontal disease [15]. Also a result of a study by S Srinidhi showed that two

hundred and twenty (73.3%) of the participants answered the same [20].

However, for the effect of fluoride in the tooth pastes one hundred and forty eight (65.5%) of the participants agreed that fluoride in toothpaste can prevent caries, in contrast to the results of a study by Poornima in which 64% of the participants were not aware that fluoride dentifrices and dental sealants would prevent dental caries [19].

As for oral cancer, a hundred and fifty two of the participants (67.3%) answered that oral cancer may present as a persistent ulcer, white patch or red patch. This is similar to the findings of M. Greenwood in which 77.5% of the participants were familiar with the presentation of oral cancer [21].

The present study revealed that there is relation between three variables (age, year of graduation and duration of practice) and level of knowledge in regard to oral diseases. Younger and recently graduated medical practitioners with experience of five years or less were more knowledgeable than other groups. This is could be explained as they still have fresh information or may be because of little modification in their curricula.

##### Attitude of participants towards oral health

In the present study, the participants showed positive attitude towards oral health. One hundred and five (46.5%) of them usually advise their patients to visit a dentist. In contrast, two hundred and twenty nine of the participants (76.3%) advised their patients to visit a dentist at least once every six months in a study by S Srinidhi [20].

Regarding the routine oral examination, only fifty three (23.5%) of the participants said that they always did it, while 45.1% responded that they usually examine the throat only. This finding differs from that obtained by T. Sarumathi in which (85.9%) of the participants said that they routinely examined the oral cavity while only 4.2% examined the throat only [22].

In the present study, one hundred fifty four (68.1%) of the participants agreed that pregnant women need dental check-up while fifty seven (25%) did not know if they need it or not. This is a high percentage (68.1%) when compared to an Indian study by Varun Suri in which only forty one (40%) obstetricians reported that they routinely recommend dental examination during prenatal period [23]. On the other hand, a higher percent (two hundred seventy three-91%) of the participants reported the need of dental checkup among pregnant patients in a study by S Srinidhi [20]. About 75% of gynecologists thought that the referral of the pregnant for dental checkup should be done only if she complained of dental problem, a result of a study by Shenoy Ramya which is a different finding when compared to the present study [24].

In dealing with patients who presented with oral ulceration, one hundred and fifty two (67.3%) of the participants in the present study refer their patients to dental care, whereas seventy of them (31%) prescribe a treatment which is

similar to the finding of a study by R Morgan in which (30%) of doctors would prescribe nystatin if requested by the nursing staff without examining the mouth [25]. This is may be because of the doctor's misconception that oral ulceration is mostly a fungal infection.

In this study, one hundred and ninety nine (88.1%) of the participants refer their patients when they complain of dental abscess while twenty six (11.1%) prescribe antibiotics and analgesics which is similar to the finding of a study by S Srinidhi in which two hundred and thirty nine (79.7%) of the participants referred patients with dental abscess to dental care [20].

The present study revealed that there are relations between three variables (age, year of graduation and duration of practice) and attitude of the participants towards oral health. Younger and recently graduated participants with experience of five years or less showed more positive attitude towards oral health than other groups.

#### **Awareness of participants about systemic conditions and their relation to oral health**

Regarding some systemic conditions and their relation to oral health, one hundred and seventy four (77%) of the participants answered that Ludwig's Angina is a dental space infection however; the researcher observed that some picked this correct answer only by exclusion of other answers. This result is different from that obtained in a study by Ashish Bhalla and Anuradha K in which forty nine (53.3%) of the respondents thought that Ludwig's Angina is a cardiac disease [15].

While one hundred and forty four (63.7%) of the participants knew that oral manifestations of HIV positive patient may include fungal infection, viral infection and gingivitis/periodontitis, however fifty eight (25.7%) answered fungal infection. Gynecologists and obstetricians in Kanpur city, India scored a higher percentage regarding the same previous question in which eighty one (88%) of them were aware that oral manifestation of HIV may include fungal infection, viral infection and gingivitis/periodontitis in a study by Ashish Bhalla and Anuradha K [15].

In regard to periodontal disease as a risk factor to low birth weight babies, only seventy (31%) participants agreed while one hundred and twenty three (54.4%) of them did not know the right answer. This is different from the finding of a study in Brazil by José Mariano da Rocha in which over 80% of obstetricians reported that periodontal disease is a risk factor for preterm birth [26]. On the other hand, seventy seven (37%) medical doctors agreed to the fact that there is a link between oral health and premature low birth weight in a Nigerian study by O. I. Opeodu [27] and also a similar finding was obtained by Mohammad Nasir Shah [16].

In the present study, one hundred and seventy three of the participants (76.5%) answered that cavernous thrombosis is a life threatening situation due to untreated dental infection. This is similar to the result of (S Srinidhi et al, 2011) in

which two hundred and fifty seven (85.7%) answered the same [20].

Regarding the responses of the participants about the possible link between oral health and chronic obstructive pulmonary disease, one hundred and one (44.7%) of them agreed, eighty nine (39.4%) did not know and thirty six (15.9%) disagreed. This result is similar to the result of a study by O. I. Opeodu [27] in which one hundred and eight (52.2%) of the medical practitioners agreed, forty six (22.2%) did not know and fifty three (25.6%) disagreed.

#### **5. Conclusion**

The overall knowledge about oral diseases among general medical practitioners is moderate except for periodontal disease in which they possessed poor level of knowledge. Their attitude towards oral health is positive especially the younger and recently graduated general medical practitioners. Their awareness about some systemic conditions and their relation to oral health is fair.

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