

ORIGINAL ARTICLE

Prevalence of Dental Anxiety and Fear, Barriers to Utilisation of Oral Healthcare Services and Their Relation With Oral Health Care Seeking Behaviour Among Adults Attending Hospital Universiti Sains Malaysia

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ABSTRACT

Introduction: Malaysian adults have been exposed to school dental treatments since childhood; yet poor dental utilisation has been observed. This study aims to determine the prevalence of DAF (dental anxiety and fear), other barriers to utilisation of oral healthcare services as well as comparing their OHCSB score (oral health care seeking behaviour) with those who did not have such barriers. **Materials and methods:** A cross-sectional study was conducted among 209 adults who were otherwise healthy, accompanying those attending the family medicine outpatient clinic, Hospital Universiti Sains Malaysia (USM) from April to May 2023 using a self-administered validated Malay questionnaire to obtain their sociodemographic profiles, prevalence of DAF, other barriers to utilisation and OHCSB score. Data was analysed using SPSS version 26. **Results:** Most of the respondents were Malay (96.2%), female (53.1%), at the mean(SD) age of 37.3(10.83) years old and categorised under the B40 group (54.5%). The prevalence of DAF was 30.6% (95% CI:24.3%,36.9%). Common barriers reported were perception of not having a dental problem (52.2%), and busy work schedules (53.1%). The mean(SD) OHCSB score was 9.62(1.670) out of 12. The mean(SD) OHCSB score was significantly lower in those with DAF 9.03(1.502); $p=0.001$; and in those who perceived having a dental problem 9.32(1.762); $p=0.017$. However, it was significantly higher among those without self-transportation 10.73(1.223); $p=0.007$. **Conclusion:** The prevalence of DAF was high. The OHCSB score was significantly lower with the presence of DAF and in those perceived of having a dental problem and higher among those with no self-transportation.

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INTRODUCTION

Dental anxiety is an impairing negative emotional state while dental fear is a negative reaction to specific threatening stimuli associated with dental treatment. These terms are often interchangeable or even combined as a single term, Dental Anxiety and Fear (DAF) (1). DAF evoke physical, cognitive, emotional, and behavioural responses in an individual, contributing to an avoidance behaviour (2). DAF and other barriers such as sociodemographic characteristics of an individual

influences a person's oral health care seeking behaviour (OHCSB) which results in poor utilisation of dental services (3,4). It also contributes to their poor oral health status (5). OHCSB is one of the major determinants of health outcomes that refers to the actual involvement of an individual to healthcare facilities with at least one visit yearly which serves as an important approach for oral health policy decision-making (6).

The continuum of oral health care refers to the systematic and lifelong provision of services that include prevention, diagnosis, treatment, and maintenance, tailored to the needs of individuals across various stages of life (7). In Malaysia, an estimated 5 to 5.6 million schoolchildren are enrolled annually in government primary and secondary schools (8,9). The Ministry of Health, through the Oral Health Programme, provides

oral healthcare services to these students via the School Dental Service (SDS), ensuring continuity of care from preschool up to secondary school education (10). In this context, Malaysian adults are expected to benefit from this continuum without significant barriers, particularly in relation to DAF, given they have been exposed to oral health services from an early age. Unfortunately, this may not be the case as 26.6% of adults said they were somewhat fearful of going to the dentist, and another 6.3% said they were extremely fearful (11). The National Oral Health Study of Adults (NOHSA) in Malaysia reported dental fear (4.3%) was among the reasons for not seeking care in the last two years (11). Patients who experience dental anxiety frequently postpone or forego dental treatment, which will deteriorate their oral health, all of which lead to more unpleasant dental visits (12). While NOHSA provided valuable insights into dental fear, it did not independently assess dental anxiety or consider the broader spectrum of DAF, which includes emotional, behavioural, physiological, and cognitive elements.

NOHSA also reported 88.9% and 94% of Malaysian adults had dental caries and periodontal conditions respectively (11). Despite this, only 27.4% visited the dentist less than a year ago, while 50.2% visited the dentist more than two years ago. This same survey also reported that the presence of dental problems (56.6%) was the most common reason for using oral healthcare, followed by dental visits for the continuation and completion of dental treatments (8.4%) (11), indicating most of them were symptomatic attendees rather than prevention-oriented attendees. This is supported by studies conducted in India and Uganda showing that the most recent visit to the dentist, which was two years ago was due to dental pain (13,14). Among others, it was also reported that dental extraction was a reasons for dental visits (15).

DAF is not only a public health concern but also an important contributor among other barriers that may influence an individual's seeking behaviour resulting in the poor utilisation of oral healthcare services and decline in the oral health status among the adult population. However, only a handful local studies have been done among the adults (16,17). Therefore, this study aimed to determine the prevalence of DAF and other barriers to utilisation of oral healthcare services as well as comparing their OHCSB score with those who did not have such barriers. Exploring these barriers and identifying their relationship with OHCSB would contribute to necessary measures towards minimising them and bridging the gap between unmet dental needs and utilisation of oral healthcare services.

MATERIALS AND METHODS

A cross-sectional study was conducted among adults who were otherwise healthy, accompanying patients

who attend the family medicine outpatient clinic, Hospital Universiti Sains Malaysia (Hospital USM) from April to May 2023. Malaysian adults aged 18 to 59 years old who were competent in speaking, understanding, and answering questions in English or Malay language were included in the study, while adults with disabilities were excluded. Disability in the context of this study are individuals with either physical or sensory (hearing /vision) disability that will affect their oral health care seeking behaviours or mentally challenged individuals due to their poor cognitive and intellectual ability to understand the questionnaire. A minimum sample of 174 respondents was determined based on the prevalence of DAF at 13% (18), confidence level of 0.05%, and the power of 80%. After considering a 20% non-response rate, 209 respondents were invited to participate in this study. The systematic random sampling method was used to select the respondent to achieve the calculated sample size. The sampling interval was decided, and every fourth patient was selected to participate in this study. The first respondent was selected using the simple random sampling method.

Prior to the conducting of the study, a letter requesting permission for the collection and usage of patient data along with other available facilities was sent to the Director of Hospital USM. Once the respondents were selected, instructions of the questionnaire were explained briefly, and their consent was taken.

A validated Malay version self-administered questionnaire which consists of four sections with a total of 22 questions was given to the consented adults. The first section consisted of six questions on the sociodemographic detail of adults which were age, sex, ethnicity, education level, income and employment status. Income was categorised according to the household income threshold - B40 (RM 4,849 and below), M40 (RM4,850 – RM 10,959) and T20 (RM 10,960 and above) (19).

The second section included DAF assessment questions adopted from the Malay-validated Index of Dental Anxiety and Fear (IDAF- 4C +) by Baharuddin et al,(20). IDAF- 4C+, is made up of three independent modules. The IDAF- 4C is the core module and the '+' symbol indicates the presence of the other two modules. The first module is the IDAF- 4C, where IDAF is dental anxiety and fear module and 4C being the four components- physiological, behavioural, emotional and cognitive, the second module IDAF-P (phobia module), and the third module IDAF-S (stimulus module) (21). The internal consistency of the IDAF-4C was evaluated using Cronbach's alpha, demonstrating a good internal consistency, with a value of 0.807 (20). For this study, only the core module (IDAF- 4C) which determines the respondent's overall level of DAF was utilised. This module has eight questions reflecting the four components of dental anxiety. The responses to this

question are in a form of a 5-point Likert scale ranging from 'disagree' to 'strongly agree' with the score from 1 to 5 respectively. The range of total score is from 8-40. A higher total score indicates a higher level of DAF. The prevalence of DAF was determined using a cut-off point of 2.5. Scores less than 2.5 were defined as non-dentally anxious, whereas score of 2.50 and above were classified as dentally anxious (16) .

The third section, adopted from Saddki, Yusoff, and Hwang (22) addressed barriers to oral healthcare utilisation, which included four domains. The first domain is perception towards oral health with items on the perception of having any dental problem and the importance of oral health, the second domain is access to care with items on distance, travelling time and type of transport to access to the dental clinic, the third domain is time constraints with items on busy at work and getting permission to leave work from the employer and the fourth domain is dissatisfaction with quality of services having items on waiting time, immediate treatment given and confidence with the services rendered. The respondents were required to choose either 'yes' or 'no' answer.

The fourth section, which was adopted from Zairina, Normastura & Munirah, (23) consists of four questions with six subitems based on the oral health care seeking behaviour such as last dental visit, reason for dental visit, dental problem experienced, types of treatment sought in the past six months, and types of facilities visited. This questionnaire was previously adapted from the English version questionnaire developed by Bommireddy et al,(5). It has been translated into the Malay language following Beaton et al,(24) and was content validated by the expert panels in their study. The respondents were required to choose from the available answer options. There are a total of four questions with question one asking on the visit to the dentist having two subitems on respondents last visit and its reasons, question two asking if they had any past dental experience in the past six months and what was the type of dental problem and question three asking on the treatment sought for the chosen dental problem with three subitems on the types of treatment done, types of dental facilities visits and the level of satisfaction for the treatment received. Question four asking on the current dental problem suffered by the respondents, if any.

The number of respondents for question three is based on the number of participants who had answered 'yes' for question two. The answers in this section were expressed in terms of OHCSB scores with an exception to items on types of dental problems, types of treatment done, dental facilities and level of satisfaction for treatment received which was expressed in frequency and percentage. The OHCSB scores have a minimum and maximum score of 2 and 12, respectively. A higher score indicated better OHCSB.

The respondents took approximately about 10-15 minutes to complete the questionnaire. The researcher was present during the data collection to provide assistance to respondents who had difficulties answering the questionnaire. Data were entered and analysed using the IBM Statistical Package for Social Sciences (SPSS) version 26. Categorical data was expressed as frequency (n) and percentage (%) while continuous data was expressed in mean and standard deviation (SD). The prevalence of DAF and barriers to utilisation of oral healthcare services were calculated at 95% confidence interval (CI). The independent t-test was used to compare the OHCSB score between adults having DAF and other barriers to utilisation of oral healthcare services those who do not have DAF and other barriers. A p-value of less than 0.05 was considered significant.

Ethical Clearance

Ethical approval to conduct this study was obtained from the Human Research and Ethics Committee (JEPeM) (JEPeM Code: USM/JEPeM/KK/23010093) and National Medical Research Registry (NMRR).

Results

A total of 209 adults who attended the family medicine outpatient clinic, Hospital USM were recruited in this study. The sociodemographic profile of the adults is as in Table I. Mostly were female (53.1%), Malay ethnicity (96.2%), at the mean (SD) age of 37.3 (10.83) years old and categorised under the B40 group (54.5%). Almost half of the adults had obtained tertiary education (49.3%) and a majority of them were employed (76.6%) in the government sector (50.0%).

Table I: Sociodemographic profile of adults attending Hospital USM (n= 209)

Variables	Frequency (%)
Sex	
Male	98 (46.9)
Female	111(53.1)
Ethnicity	
Malay	201(96.2)
Chinese	3(1.4)
Indian	4(1.9)
Others	1(0.5)
Age (years) ^a	37.3 (10.83)
18-44	156 (74.6)
26-35	53 (25.4)
Monthly household income (RM) ^b	4000 (5000)
Monthly household income- by group (RM)	
B40	114(54.5)
M40	77 (36.8)
T20	18 (8.6)
Education Level	
No formal education	1(0.5)
Primary school	3(1.4)
Secondary school (or equivalent)	25(12.0)
Vocational Training /Certificate (or equivalent)	24(11.5)
Diploma/A' level (or equivalent)	53(25.4)
Tertiary	103(49.3)
Employment Status	
Yes	160(76.6)
No	49(23.4)
Type of Employment	(n=160)
Public sector	80(50.0)
Private sector	44(27.5)
Self-employed	36(22.5)

^a Mean (SD)^b Median (IQR)

Dental Anxiety and Fear

Table II describes the DAF assessed using the IDAF-4C module among adults. The prevalence of DAF in this study was 30.6% (95% CI: 24.3%, 36.9%). The total mean (SD) IDAF-4C score was 2.00 (0.940). Most of the respondents reported higher mean (SD) value in the physiological component which were 'I feel anxious shortly before going to the dentist [2.41 (1.316)] and 'my heart beats faster when I go to the dentist' [2.33 (1.295)] followed by the emotional component which are 'I feel afraid or fearful when visiting the dentist' [2.17 (1.248)] and 'I get nervous or edgy about upcoming dental visits [2.09 (1.237)] when compared to the other components of DAF.

Table II: Dental anxiety and fear assessed using IDAF- 4C among adults attending Hospital USM (n=209)

No Domains/ Items of IDAF – 4C	Mean (SD)
1. Physiological Component	
(a) I feel anxious shortly before going to the dentist.	2.41 (1.316)
(b) My heart beats faster when I go to the dentist.	2.33 (1.295)
2. Behavioural Component	
(c) I generally avoid going to the dentist because I find the experience unpleasant or distressing.	1.90 (1.165)
(d) I delay making appointments to go to the dentist	1.67 (1.052)
3. Emotional Component	
(e) I get nervous or edgy about upcoming dental visits.	2.09(1.237)
(f) I feel afraid or fearful when visiting the dentist.	2.17 (1.248)
4. Cognitive Component	
(g) I think that something really bad would happen to me if I were to visit a dentist.	1.65 (1.014)
(h) I often think about all the things that might go wrong prior to going to the dentist.	1.76 (1.053)
Total IDAF- 4C score^a	2.00 (0.940)
Prevalence (95% CI)	30.6% (95% CI: 24.3%,36.9%)

^a Mean (SD)

Barriers to Utilisation of Oral Healthcare Services

Barriers to utilisation of oral healthcare services were grouped into four key domains as listed in Table III. The most common reasons stated by the adults were perceptions of not having a dental problem (52.2%), busy at work (53.1%) and long waiting time (57.4%). About 40.2% also mentioned no immediate treatment given (40.2%) as one of the barriers for non-utilisation of oral healthcare services.

Table III: Other barriers to utilisation of oral healthcare services among adults attending Hospital USM (n= 209)

Domains/ Items ^a	Yes n (%)	No n (%)
Perception towards Oral Health		
Not having any dental problem	109 (52.2)	100 (47.8)
Oral Health is not/less important.	20 (9.6)	189 (90.4)
Accessibility to dental clinic		
Long distance	25 (12.0)	184 (88.0)
Long travelling time	22 (10.5)	187 (89.5)
No self-transport	15 (7.2)	194 (92.8)
Time Constraint		
Busy at work	111 (53.1)	98 (46.9)
Unable to get permission to leave work from employer	31 (14.8)	178 (85.2)
Dissatisfaction with quality of services		
Long waiting time	120 (57.4)	89 (42.6)
No immediate treatment given	84 (40.2)	125 (59.8)
Poor confidence with the services rendered.	22 (10.5)	187 (89.5)

^a Respondents can choose more than one answer.**Oral Health Care Seeking Behaviour**

The total mean (SD) score for OHCSB of the adults was 9.62 (1.670) out of 12 (Table IV). Nearly all the respondents (96.2%) have been to the dentist before, and almost half (47.8%) had their most recent visit less than one year ago. Dental check-up (40.8%), followed by tooth extraction (20.4%) were among the common reason for their visit. Nearly half (46.3%) of adults in this study have experienced dental problem in the past 6 months, among which cavity (54.8%) and toothache (41.9%) was the most frequent problem encountered. Among adults that had dental problem, majority (82.8%) sought for dental treatment. Tooth extraction (49.4%) and dental restoration (55.8%) was the most sought treatment. Most of them had sought treatment at the government dental clinic (59.7%) and they were satisfied (49.4%) with the treatment received.

Table IV: Oral health care seeking behaviour among adults attending Hospital USM (n= 209)

Domains/ Items	Yes n (%)	No n (%)
1 Ever visited a dentist in the past	201 (96.2)	8 (3.8)
Last dental visit to the dentist (n=201)		
1 year and below	96 (47.8)	
1-2 years	28 (13.9)	
More than 2 years ago	77 (38.3)	
Reasons for visit to the dentist		
Dental check-up	82 (40.8)	
Dental Appointment	18 (9.0)	
Toothache	25 (12.4)	
Filling	17 (8.5)	
Scaling	15 (7.5)	
Extraction	41 (20.4)	
Others	3 (1.5)	
2 Experienced any dental problem in the past six months.	93 (46.3)	108 (53.7)
Types of dental problem experienced in the past six-month ^a		
Toothache	39 (41.9)	
Loosening of Tooth	12 (12.9)	
Cavity	51 (54.8)	
Mouth Ulcer	4 (4.3)	
Gum Bleeding	14 (15.1)	
Calculus	29 (31.2)	
Discoloration	3 (3.2)	
Food lodgement	12 (12.9)	
Missing/ Extracted tooth	11 (11.8)	
Swelling	13 (14.0)	
Others	4 (4.3)	
3 Seeking any treatment for the dental problems above (n=93)	77 (82.8)	16 (17.2)
Types of dental treatment done for the above-mentioned dental problem (n=77) ^a		
Tooth extraction	38 (49.4)	
Scaling	16 (20.8)	
Prosthesis	5 (6.5)	
Filling	43 (55.8)	
Root canal treatment	6 (7.8)	
Orthodontic treatment	1 (1.3)	
Surgical	1 (1.3)	
Medication	14 (18.2)	
No treatment done	0 (0.0)	
Others	0 (0.0)	
Dental facilities last visited for above mentioned dental problem (n=77) ^a		
Government Dental Clinic	46 (59.7)	
Private Dental Clinic	22 (28.6)	
Armed Forces Dental Clinic	1 (1.3)	
Dental Clinic in the University	7 (9.1)	
Others	1 (1.3)	
Level of satisfaction for the treatment received.		
Very Unsatisfied	3 (3.9)	
Unsatisfied	1 (1.3)	
Not Sure	5 (6.5)	
Satisfied	38 (49.4)	
Very Satisfied	30 (39.0)	
4 Existence of current dental problem (n=209)	62 (29.7)	147 (70.3)
OHCSB score ^b	9.62 (1.670) ^c	

^a More than one answer was selected.^b OHCSB score: minimum is 2 and maximum is 12.^c Mean (SD)

Comparison of OHCSB between adults with and without DAF and Other Barriers to Oral Healthcare Utilisation

Table V shows the results of the independent t-test used to compare the OHCSB score between adults with DAF and other barriers to utilisation of oral healthcare

services. The mean (SD) OHCSB score was significantly lower in those having DAF [9.03 (1.679)]; $p=0.001$ and in those who perceived of having a dental problem [9.32 (1.762)]; $p=0.017$. The mean OHCSB score was also significantly higher among those with no self-transport [10.73 (1.223)]; $p=0.007$.

Table V: Comparison of OHCSB score between adults with DAF and who has other barriers to utilisation of Oral Healthcare Services (n= 201)

Variables	n	OHCSB score Mean (SD)	Mean difference (95 % CI)	^a <i>t</i> statistic (df)	<i>p</i> value
DAF					
Yes	63	9.03 (1.679)			
No	138	9.88 (1.668)	0.852 (0.365; 1.340)	3.448 (199)	0.001
Perception towards Oral Health					
Not having any dental problem					
Yes	105	9.89 (1.540)			
No	96	9.32 (1.762)	-0.563 (-1.025, -0.100)	-2.401 (189.56)	0.017^b
Oral Health is not/less important.					
Yes	20	9.15 (1.424)			
No	181	9.67 (1.690)	0.519 (-0.256, 1.293)	1.320 (199)	0.188
Accessibility to dental clinic					
Long distance					
Yes	24	10.08 (1.349)			
No	177	9.55 (1.702)	-0.530 (-1.147, 0.087)	-1.745 (33.80)	0.090 ^b
Long travelling time					
Yes	21	9.33 (1.653)			
No	180	9.65 (1.673)	0.317 (-0.443, 1.076)	0.822 (199)	0.412
No self- transport					
Yes	15	10.73 (1.223)			
No	186	9.53 (1.671)	-1.206 (-2.076, -0.337)	-2.735 (199)	0.007
Time Constraint					
Busy at work					
Yes	107	9.54 (1.728)			
No	94	9.70 (1.605)	0.160 (-0.306, 0.626)	0.677 (199)	0.499
Unable to get permission to leave work from employer					
Yes	30	9.97 (1.650)			
No	171	9.56 (1.670)	-0.411 (-1.062, 0.240)	-1.246 (199)	0.214
Dissatisfaction with quality of services					
Long waiting time					
Yes	115	9.48 (1.708)			
No	86	9.80 (1.607)	0.324 (-0.144, 0.792)	1.364 (199)	0.174
No immediate treatment given.					
Yes	82	9.60 (1.654)			
No	119	9.63 (1.687)	0.033 (-0.441, 0.506)	0.136 (199)	0.892
Poor confidence with the services rendered					
Yes	25	9.28 (1.926)			
No	176	9.66 (1.630)	0.385 (-0.319, 1.088)	1.079 (199)	0.282

^a Independent t-test

^b Population variances were significantly different. (Levene's test is significant; p -value < 0.05); Therefore t-statistics without assuming equal variances was used.

Discussion

This study aimed to determine the prevalence of DAF and barriers to utilisation of oral healthcare services among adults towards understanding their oral healthcare seeking behaviours and utilisation of oral healthcare services. A total of 209 adults who had accompanied their families or relatives to the outpatient department at Hospital USM were chosen to participate in this study. The study findings on the distribution between the sexes is similar to the distribution in the study done by Sitheeque et al, (25) among patient in a similar setting. The mean (SD) age of 37.3 (10.83) years old was reflecting that most of those who accompany their family members or relatives are within the working adult group.

IDAF- 4C is involved in measuring both fear (exposure-response) and anxiety (anticipatory-response) (26). This current study was able to capture the proportion of each item in the four components that contributes to DAF namely the physiological, behavioural, emotional and the cognitive component which was assessed using IDAF- 4C module. The prevalence of DAF in the current study was found to be high. It has been mentioned that females maybe more susceptible to perceive fear and openly describe their fears more when compared to their male counterparts (27). Likewise, studies have reported those from lower socioeconomic origins have a significant association with higher anxiety level (27,28). Hence it can be postulated that the high prevalence of DAF in this study could be due to the greater number of female respondents, as well as the fact that majority of respondents were from the B40 income category.

The physiological components questions on "I feel anxious shortly before going to the dentist" and "my heart beats faster when I go to the dentist" were among questions with the highest mean (SD) in this module. This was followed by the emotional component in question on "I feel afraid or fearful when visiting the dentist" and "I get nervous/edgy about upcoming dental visits". A similar finding in the IDAF-4C component was observed in a study conducted among the Asian population by Yap and Lee,(26), and among the Spanish population by Carrillo-Diaz et al.(29). However, in a study of DAF among Swedish adults, Svensson et al, (30) reported a higher result for the emotional and behavioural component. These minor variations could be attributed to differences in age, race, culture, and research settings either community or clinical settings (26). Considering the emotional component appears to be the most important, it should be prioritised when developing interventions for patients with DAF.

Besides DAF, there are a number of reasons why adults fail to utilise oral healthcare services. The findings of this study complement to the national survey done in 2010, in which Malaysian adults who had never sought oral

healthcare claimed of not having any dental problems as their most common reason. Similar to our findings, few studies that was done in different communities in India have cited a perception of 'not having a dental problem' as one of the most popular barriers most among Indian population ranging from 43% to 62% (31,32).

The lack of concern for oral health and the low priority placed on oral issues are because a person believes that unless there is pain, there is no need to visit the dentist (13,33). The most plausible explanation for these findings is that dental problems are typically silent until they become symptomatic, leading patients to assume that because there is no obvious sign, they may not have a dental problem (34,35). This implies that people do not visit a dentist unless their symptoms are severe or might interfere with their everyday activities such as not being able to go to work or eat comfortably.

Moreover, a small proportion of respondents in this study said that oral health is less important, which can be assumed to be due to lack of oral health knowledge despite various oral health promotions programs done by Oral Health Programme (36). This has been evident from the findings by Salleh et al.(37) stating in spite of the efforts and initiatives by Ministry of Health Malaysia to conduct various oral health promotion activities each year, to raise public awareness of oral health and encourage participation and utilisation of oral healthcare services, the utilisation and participation in community outreach programmes tend to remain low.

Patients who experience dental anxiety frequently postpone or forego dental treatment, which in turn deteriorates their oral health, all of which leading to more unpleasant dental visit (2). This repetitive cycle of fear and avoidance has been described as a "Dynamic Vicious Cycle" of dental fear (38). Furthermore, this avoidance behaviour potentially leads to an overall decrease in their oral health-related quality of life (OHRQoL) (39).

Nearly half of individuals in this study who had sought care at least once had visited oral healthcare facilities in the duration of one year and below. Most of the study respondents have visited the dentist for dental check-ups and screening, indicating a prevention-oriented patient, however based on their treatment sought, it does not reflect as such. Findings of the current study were comparable to those of Nija et al, (40) done among female adults in Kochi, India. The rationale behind this is their perception of not having a dental problem, and only to find out that they have a dental problem after getting their oral examination carried out by the dentist.

Among the common types of treatment, in particular dental extraction, indicates that the patient could have delayed dental care due to DAF or other barriers, which may have resulted in irreversible disease progression

and necessitated more invasive treatment. This was evident as six months preceding this study, a proportion of the total respondents who have visited the dentist in the past mentioned experiencing dental problems. Having a cavitated tooth was the most often mentioned complaint, followed by toothache. Interestingly, despite the high prevalence of periodontal disease among Malaysian adults reported in the national study (94%), only 15.1% visited the dentist for gum bleeding (11). It can be assumed that the majority of study respondents were either unaware of the initial signs of periodontal disease or considering the disease is not serious. Hence, it can be postulated that this study respondents were more of a symptom-driven rather prevention driven attendee as the highest treatment sought was dental restoration followed by tooth extraction. These results concurred with other studies (31,41).

DAF plays a significant role in a person's oral health seeking behavior (42). It was found that individuals having DAF and those who perceived of having any dental problem had lower OHCSB score, implying those with DAF and those who are aware that they may have a dental problem most probably avoided dental visits. These may have caused the progression of dental problems which require a more extensive dental procedure. Sitheeque et al. (25) discovered that individuals who postponed seeking immediate treatment even when presented with an acute tooth condition had much greater anxiety levels. In turn, these patients will be trapped in a vicious cycle of dental fear (38,43). According to Silveira et al. (44), dental fear has been linked to worse dental caries consequences, poor oral health self-rating, and not seeing the dentist during the previous year. However alternative findings were reported in studies done by Malvania & Ajithkrishnan, (45) and Sinha, Rekha & Nagashree,(28) which reported no significant difference in dental attendance based on a person's dental anxiety level.

In the current study, the mean OHCSB score for the individuals who stated that oral health is not or less important was not significantly lower compared to those who stated oral health is important, which implies most of the study respondents were aware that oral health is important. This might be attributable to the availability of oral health information from a variety of sources, as most of this information is now available on the internet. Bal, Dalai & Darshan, concluded that when social media is utilised correctly, it has a positive impact on dental and overall health (46). Misusing the power of social media, on the other hand, has an adverse impact on the public and healthcare practitioners. Therefore, appropriate guidelines for using social media for oral health reasons should be devised in order to achieve more effective results. Aside from those who are aware of the importance of oral health, additional targeted measures should be directed at a smaller number of the population who believe oral health is less or not

significant.

In the healthcare industry, access and utilisation are interrelated, with access being crucial to the uptake of healthcare services. In this study, access to oral healthcare services was not a significant barrier which influences a person's OHCSB. The availability of dental clinics within districts which includes not only public dental clinics, but also private dental clinics as well as dental clinics in the universities may be the reason for this finding. Specifically, in Kota Bharu, which is the capital city of Kelantan, it was reported that 98.1% of public healthcare facilities and 99.2% of private healthcare facilities was situated within less than five kilometres from their homes (19). In addition, the mean travelling time to a dental facility in Kelantan was comparatively lower to its neighbouring states like in Terengganu and in Pahang (11). Conversely, in certain states such as Sabah and Sarawak, individuals may not have the same privilege to access as mentioned in this study. It had been reported that between all states in Malaysia, Sabah though densely populated it is a state with the highest inaccessibility to a dental facilities and service (47).

Interestingly in this current study, not having self-transportation was not seen to influence a person's OHCSB. Those who do not have their own transport had a much higher OHCSB score. Based on their sociodemographic profile, most of them were younger adults, females and unemployed, reflecting they were mostly homemakers. This finding was similar to findings from a study done in India stating women, who were mostly unemployed, and who worked at home had good oral health care behaviour (48), suggesting that females may give more importance to their oral care (48).

Even though time constraints have been cited as a barrier to utilisation oral healthcare services in a previous study (6) it was found that this factor had no influence on the OHCSB in this study. The explanation for this might be that individuals who claimed to be busy at work also mentioned the possibility to get permission from their employers to seek treatment. Additionally, efforts from the Malaysian Ministry of Health to make dental clinics accessible even on weekends by opening the Urban Trade Centre (UTC) that operates daily which enables people to seek care during their weekends or on their off days. Moreover, an online time-based appointment system by the Ministry of Health allows individuals to set appointments that are more suited to their schedules and reduces the need to wait at the dental clinic.

To assess patient's satisfaction with the dental services that they have received, it is first and foremost important to understand the factors that influence satisfaction in a dental setting. Extended waiting time at the dental clinic and substantial delay in receiving the treatment was found to result in dissatisfaction among patients. Although it was found to be barrier to utilisation in other

previous studies, factors such as long waiting time, no immediate treatment given, and poor confidence in the service obtained had no effect on an individual's OHCSB in the present study. It was apparent that the government clinics in Kelantan had a shorter waiting time when compared to neighboring states like Terengganu, Johor, and Kedah (11). Furthermore, with an increase in the number of dentists, making a ratio of one dentist for every 2,963 people making more dentists available to manage the high influx of patients at government clinics, offering treatment immediately (49). This may have contributed to the higher satisfaction among patient when compared to the poor-dentist-to-population ratio previously, where only a handful of dentists were available in the clinic to manage outpatients. Moreover, most dental treatments today are seen to be keeping up with current practice as well as advancements in dentistry. Apart from the government promoting continuous dental education initiatives, dental practitioners in the present day keep themselves informed by attending courses to help them to be better in terms of services provided as well as the quality of treatment (50)

This study provides an insight to the barriers to poor utilisation of oral health care services. Furthermore, it also explored on how DAF and other barriers to utilisation may influence a person's OHCSB. Considering that this study was conducted using a self-administered questionnaire, potential biases such as overreporting, underreporting, and recall bias may have affected the accuracy of the data, particularly when participants were required to recall past behaviors or experiences. The complete IDAF-4C+ module could not be used in the present study. Utilizing the full module would have provided more comprehensive insights into the specific triggers of DAF, and allowed for a clearer distinction between individuals with general DAF and those whose condition may have escalated to dental phobia. Hence, it is suggested that in future studies the entire IDAF- 4C+ module, which includes IDAF- 4C, IDAF-P, and IDAF-S, should be used as it would be more beneficial in acquiring an in-depth knowledge and understanding of DAF. Future research should include a more ethnically diverse population to improve the generalizability of findings and to better understand cultural differences in oral health-seeking behavior.

Conclusion

The prevalence of DAF in this study population was high at 30.6%. The OHCSB score was significantly lower with the presence of DAF as well as among those perceived as having a dental problem and higher among those with no self-transportation. Hence, strategies to manage DAF and minimize the barriers are crucial to improve the OHCSB towards optimizing the utilisation of oral healthcare services among adults.

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