

The Barriers in Using Oral Health Services of People Aged 18 or Over in Danang in 2023: A Cross-sectional Study

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ABSTRACT

Aims: This study aims to identify the barriers associated with access to oral health services among individuals aged 18 or over in Danang city.

Materials and methods: A cross-sectional descriptive study using a self-completed questionnaire with 29 questions built on the theoretical framework of Jean-Frederic Levesque and the modified dental anxiety scale (MDAS) was conducted on 386 people aged 18 years and older living in Danang city through face-to-face interviews. The study responses were closed after achieving the target sample size, with the sample collection period recorded as 3 months from October 2023 to January 2024. Data were analyzed using SPSS 20.0 software. Factors influencing the decision to use dental services among individuals who have either never used or have used oral care services more than 12 months ago were analyzed in univariate analysis and multivariate logistic regression analysis.

Results: The proportion of participants who have either never utilized dental services or had last used them more than 12 months ago was 57.5%. Factors linked to the decision to seek dental care include personal dental hygiene practices, knowledge of oral health, accessibility to information, recommendations from peers, the process of scheduling appointments, examination duration, and income level, with odds ratio (OR) of 2.011–15.394 ($p < 0.05$).

Conclusion: A large proportion of adults in Danang lack the habit of utilizing dental care services. The prevalent barriers include physical accessibility to dental facilities (such as locating, scheduling, and arranging appointments), affordability, and a deficiency in individual skills and knowledge regarding the importance of regular oral healthcare.

Clinical significance: The analysis of factors such as knowledge of oral health and service accessibility provides crucial insights for developing strategies to enhance community engagement in oral care. The clinical translational value of this research lies in its potential to support the development of more effective educational programs and healthcare policies, thereby encouraging regular oral health practices and improving the oral health of the community.

Keywords: Barriers, Dental health services, Health promotion, Oral care, Public health dentistry.

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INTRODUCTION

Over the years, with the development of applied science and technology in the medical sector, dental care services have been significantly improved to meet the diverse needs of patients. However, the results of the 3rd national oral health survey in 2015 indicate that oral diseases are highly prevalent among the Vietnamese population across all age-groups, with the incidence of permanent tooth decay appearing in children at an early age and becoming worse with time.¹ It is estimated that 20.9% of children aged 6–8 have permanent tooth decay, with this rate reaching 70% among individuals aged 18–44. The prevalence of periodontal disease is also considerable, with gum bleeding accounted for 54.5%; shallow periodontal pockets at 70%; and deep periodontal pockets for 3.9%. Consequently, accessing regular oral healthcare services is crucial for the early identification and prevention of oral diseases.² Individuals aged 18 and older typically possess a certain level of knowledge and understanding regarding self-care skills.

In truth, several studies demonstrate that the utilization of dental care services among the population remains relatively low. According to Ngo TMH's study,³ 39% of individuals do not undergo routine dental check-ups annually, with this percentage rising notably as age advances, in which the 65–75 age-group (52%) shows a significant disparity with those aged of 34–44 and 45–54, with rates of 37% and 33%, respectively. In a study by Pham HP,⁴ over 51.3% of patients visit the dentist every 6 months; however, 22.3%

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of patients take no action, and over 40% of patients decide not to see a dentist when they notice oral health issues (with 35.9% self-medicating and 5.8% seeking alternative solutions). This suggests that the level of interest and demand for treatment and prevention of oral diseases in this group of subjects is not commensurate with the current oral health status, potentially contributing to the high prevalence of oral health issues in the community.

In order to explore reasons why there are low utilization rates of dental services, it is essential to fully understand the barriers experienced by individuals seeking oral health care. De-Rubeis V et al.² have attempted to document the magnitude of the problems and identify barriers to oral healthcare for adults in Canada. It is mentioned that various factors impact duration since the last oral health visit and dental insurance. Other studies with similar objectives have been conducted across diverse populations and research contexts.^{5–11} Reported difficulties include patients' subjective motivations and objective barriers, such as the expense of dental care, psychological issues, geographic location, and numerous other factors, that hinder patients from accessing dental services.^{2,5,12} However, considering the geographical position and characteristics of the healthcare system in Vietnam, which differ from those of other countries in the region and worldwide, the population's responses to the scope of these issues and barriers to accessing oral healthcare services are likely to exhibit certain distinctions. Therefore, we conducted a study to describe the utilization of oral healthcare services among individuals aged 18 and over in Vietnam, specifically in Danang city, and to identify the barriers related to the decision to use dental services among the study subjects.

MATERIALS AND METHODS

Study Design

This cross-sectional study was conducted on adults aged 18 and over in Danang city, Vietnam, from October 2023 to March 2024. Participants were recruited from districts, wards, and communes in Danang city. A total of 7/9 districts, including central and suburban districts, participated in the study based on a selective process to ensure that the subjects sufficiently met the research criteria and individual assent to the study. Exclusion criteria included incomplete answer for a question, more than one answer for single-choice question, individuals who were unable to respond (e.g., neurological disorders, visual impairment, hearing impairment, etc.) and those who did not consent to participate in the survey.

Ethical Clearance and Informed Consent

The Ethics Committee in Biomedical Research at Duy Tan University has approved the study (No 14/CN-HĐĐĐ). Study participants gave their permission and cooperation with the study. All information collected is kept confidential and used only for study and intervention purposes.

Sample Setting

The sample size was calculated to estimate a proportion:

$$n = Z_{\left(1-\frac{\alpha}{2}\right)}^2 \times \frac{p(1-p)}{\Delta^2}$$

In which n is the minimum sample size for the study; is the probability of type I error ($\alpha = 0.05$). $Z_{(1-\alpha/2)} = 1.96$ with 95% confidence. p is the proportion of adults who encounter difficulties in using dental care services, choose $p = 0.5$ to get the largest sample size; choose $\Delta = 0.05$. We have a minimum sample size of 385. The final sample size is 386.

The study selected samples by convenience and purposive sampling method. Data collection was conducted across various districts in Danang in a convenient manner without prior planning. At the research sites, suitable survey participants were identified based on study criteria until the desired sample size was achieved.

Data Collection and Analysis

The questionnaire was presented in Vietnamese, including initial questions regarding demographic parameters, general health status, and dental treatment history, followed by 22 self-developed questions through three phases:

Phase I: From the theoretical framework of Jean-Frederic Levesque and the modified dental anxiety scale (MDAS) prepare a "Preliminary questionnaire."^{13,14} Then test the questionnaire with five people to complete the "Original Questionnaire".

Phase II: Consult with five experts in the field of Odonto-Stomatology to edit into a "Test Questionnaire," calculating the S-CVI/Ave index for a result of 0.99.

Phase III: A pilot survey was conducted on 30 people who met the survey requirements, and the results were then tested for reliability using the Cronbach Alpha scale, we obtained a dental anxiety score of 0.92, ensuring the reliability of the questionnaire. Finally, the toolkit used in the study can be completed.

The demographic questions were open-ended options, while all 22 survey questions investigating barriers to dental care use were multiple-choice, with 1 out of them comprised of fill-in responses. The multiple-choice options were provided based on questions framed. Data were analyzed using SPSS 20.0 software, descriptive statistics by frequency distribution and percentage, with p -value < 0.05 for statistical significance.

RESULTS

The survey obtained 386 valid samples, of which 62.4% were female. Demographic details indicated that 96.1% of the participants belonged to the Kinh ethnic group, 67.9% were in the 18–39 age-group (with a mean age of 35.47 ± 14.81). Those in government jobs represented 35.0%, and residents from suburban areas made up 56.5%. The majority of participants reported were in normal health (74.1%).

There were 57.5% of participants who had never used or have used oral care services more than 12 months ago (Fig. 1).

Table 1 shows factors related to the decision to use dental care at statistical significance ($p < 0.05$), including occupation, awareness

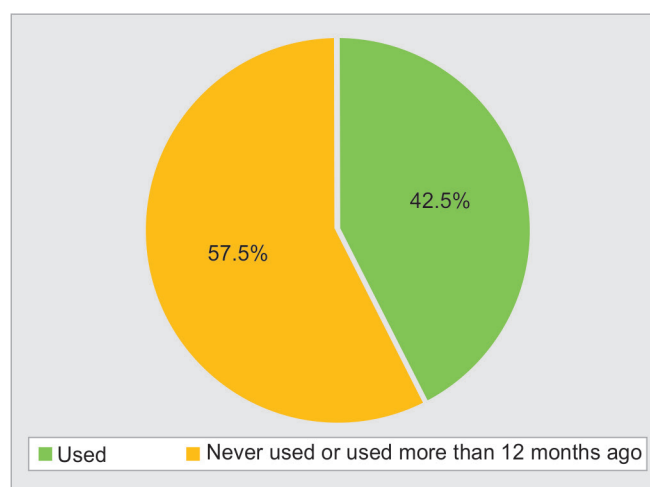


Fig. 1: The decision to use oral health services

Table 1: Univariate analysis of factors related to the decision to use dental care services

Factors	The decision to use dental care services	Have never used or have used oral care services > 12 months ago		p-value
		Have used n (%)	n (%)	
Occupation	Student	28 (17.1)	60 (27.0)	<0.05
	Government	68 (41.4)	67 (30.2)	
	Private	48 (29.3)	57 (25.7)	
	Others	20 (12.2)	38 (17.1)	
Dental care methods being applied	Use only home oral hygiene methods	87 (53.0)	192 (86.5)	<0.001
	Combine oral hygiene methods at home and regular dental check-ups	76 (46.4)	22 (9.9)	
	Do not use any oral hygiene methods	1 (0.6)	8 (3.6)	
The importance of dental care at home	Very important	151 (92.1)	190 (85.6)	<0.05
	Not so important	11 (6.7)	14 (6.3)	
	Not important	2 (1.2)	18 (8.1)	
Dental care services offer good value to oral health	Regular dental health check-ups and tooth scaling		<0.05	
	Yes	155 (94.5)		187 (84.2)
	No	9 (5.5)		35 (15.8)
	Treatment of dental and periodontal diseases			
	Yes	116 (70.7)		125 (56.3)
	No	48 (29.3)		97 (43.7)
Dental esthetics	Dental esthetics		<0.001	
	Yes	75 (45.7)		51 (23.0)
	No	89 (70.7)		171 (77.0)
	Clear and complete understanding			
The importance of regular oral health examinations	Clear and complete understanding	70 (42.7)	60 (27.0)	<0.001
	Incomplete understanding	92 (56.1)	134 (60.4)	
	Do not know	2 (1.2)	28 (12.6)	
Access information about dental care services through referrals from others	Peer's recommendation		<0.05	
	Yes	83 (50.6)		88 (39.6)
Characteristics of information accessed	No	81 (49.4)	134 (60.4)	<0.001
	Very complete and clear			
	121 (73.8)	113 (50.9)		
Professional requirements for dental esthetics	Partially understood and applied		<0.001	
	43 (26.2)	94 (42.3)		
	Difficulties to understand and apply			
The attention of peers	0 (0.0)	15 (6.8)	<0.001	
	High requirement			
Difficulty in scheduling oral care appointments with the clinic	97 (59.1)	92 (41.4)	<0.001	
	Not required			
Beliefs that regular dental check-ups are unnecessary	67 (40.9)	130 (58.6)	<0.001	
	Have ever received dental advice			
Lack of reputable medical examination locations in the area	123 (75.0)	116 (52.3)	<0.001	
	Never received dental advice			
Time for dental examination	41 (25.0)	106 (47.7)	<0.05	
	No			
Monthly income	41 (25.0)	31 (14.0)	<0.001	
	Yes			
Time for dental examination	123 (75.0)	191 (86.0)	<0.001	
	Yes			
Beliefs that regular dental check-ups are unnecessary	10 (6.1)	42 (18.9)	<0.001	
	No			
Lack of reputable medical examination locations in the area	154 (93.9)	180 (81.1)	<0.001	
	Yes			
Time for dental examination	32 (19.5)	75 (33.8)	<0.001	
	No			
Monthly income	132 (80.5)	147 (66.2)	<0.05	
	During office hours			
Time for dental examination	60 (36.6)	47 (21.2)	<0.05	
	Out-of-office hours			
Monthly income	46 (28.0)	80 (36.0)	<0.001	
	Any			
Monthly income	58 (35.4)	95 (42.8)	<0.001	
	> 10 million/month			
Monthly income	58 (35.4)	41 (18.5)	<0.001	
	5–10 million/month			
Monthly income	52 (31.7)	67 (30.2)	<0.001	
	< 5 million/month			
Monthly income	45 (27.4)	100 (45.0)	<0.001	
	Unstable			
Monthly income	9 (5.5)	14 (6.3)	<0.001	

p-value: Chi-square test

Table 2: Multivariable logistic regression analysis of factors linked with the decision to use dental care services

Factors	Regression coefficient (β)	OR	95% CI	p-value
Dental care methods being applied				
Use only home oral hygiene methods	1	1	–	–
Combine oral hygiene at home and regular dental check-ups	1.538	4.656	2.370–9.144	0.000
Do not apply any oral hygiene methods	2.734	15.394	1.227–193.051	0.034
Cosmetic dentistry brings good value for oral health (self-assessment)				
Yes	1	1	–	–
No	0.813	2.254	1.248–4.074	0.007
The importance of regular oral health examinations				
Clear and complete understanding	1	1	–	–
Incomplete understanding	-0.126	0.882	0.462–1.682	0.703
Do not know	2.073	7.952	1.174–53.844	0.034
Access information about dental services				
Yes	1	1	–	–
No	2.869	17.618	1.623–191.259	0.018
The attention of people around				
Have ever received dental advice	1	1	–	–
Never received dental advice	0.756	2.131	1.177–3.857	0.012
Difficulty in scheduling dental care appointments with the clinic				
No	1	1	–	–
Yes	0.853	2.346	1.134–4.852	0.021
Time for dental examination				
During office hours	1	1	–	–
Out-of-office hours	1.342	3.826	1.809–8.095	0.000
Any	0.699	2.011	1.006–4.019	0.048
Monthly income				
> 10 million/month	1	1	–	–
5–10 million/month	0.497	1.644	0.788–3.433	0.185
< 5 million/month	0.860	2.364	0.700–7.987	0.166
Unstable	0.999	2.717	1.223–6.034	0.014

of the importance of dental care at home, knowledge of dental care services that bring good value, accessing information about dental care services through referrals from others, difficulty in scheduling appointments for treatment with the clinic, and the time frame in which dental examinations can be performed. Current dental care methods, understanding of the importance of periodic dental health checks, characteristics of information accessed, professional requirements for dental esthetics, and concern of people around, beliefs about the unnecessary value of regular dental check-ups, lack of reputable examination locations in the area, and monthly income are factors related to the decision to use dental care with statistical significance ($p < 0.001$).

Table 2 illustrates that people who do not apply any oral hygiene methods or only use oral hygiene methods at home have 15.394 times (95% CI of 1.227–193.051; p -value of 0.034) and 4.656 times (95% CI of 2.370–12.27; p -value of 0.000) higher barriers in using dental health services compared with those who used a combination of home oral hygiene methods and regular dental check-ups.

People without knowledge about dental cosmetic services have 2.254 times higher barriers in using dental services (95% CI of 1.248–4.074; p -value of 0.007) than people with knowledge.

People who do not know about the importance of regular oral health examinations have 7.952 times higher barriers to using dental services (95% CI of 1.174–53.844; p -value of 0.034) than those who have complete and clear resources of knowledge.

People who do not access information about dental services have 17.618 times higher barriers in using dental services (95% CI of 1.623–191.259; p -value of 0.018) than people who do.

People who have never received dental recommendations from peers have 2.131 times higher barriers in using oral health services (95% CI of 1.177–3.857; p -value of 0.012) than those who have received.

People who had difficulty in scheduling dental care appointments with the clinic had 2.346 times higher barriers in using dental services (95% CI of 1.134–4.852; p -value of 0.021) than those who did not.

People who can have dental check-ups outside of office hours or any other hours have 3.826 times (95% CI of 1.809–8.095;

p-value of 0.000) and 2.011 times (95% CI of 1.006–4.019; *p*-value of 0.048) higher compared to those who could only be examined during office hours.

People with unstable monthly income have 2.717 times higher barriers in using oral services (95% CI of 1.223–6.034; *p*-value of 0.014) than people with income > 10 million each month.

The inference of the present study indicated that several factors significantly influenced the decision to utilize and the duration of use of dental services.

DISCUSSION

Identifying difficulties in utilizing dental care services strongly supports efforts to enhance oral health quality in the community through clear identification and appropriate interventions. In the present study, we used a self-developed questionnaire based on theoretical framework of Jean-Frederic Levesque and the modified dental anxiety scale to collect opinions from adults in Danang city.^{13,14} Comparative and analytical methods based on relevant studies were applied to clarify the stated barriers.

About 57.5% of the participants in our study had never utilized dental services or had done so more than 12 months ago. Upon comparing this study with several domestic and international investigations, it becomes evident that our findings are considerably less substantial than those of Marshman Z et al.⁶ on adults in the UK and Ngo TMH and Ngo DK³ study on people in Ho Chi Minh city, Vietnam, with 71.4%, and 51% respectively, in terms of the percentage of subjects who have utilized dental services within the previous 12 months. This demonstrates that our study participants' interest and utilization of dental services are quite low compared with regional and international standards.

Personal hygiene practices are related to the decision to use oral care methods, with those who do not apply any oral hygiene methods and those who only use oral hygiene methods at home being less likely to use dental services regularly. Other studies have reported similar results, which demonstrate a relationship between risk behaviors.¹⁵ For dental behavior, poor oral care habits (including not practicing any oral hygiene methods or using only oral hygiene methods at home) are associated with less access to dental services. Therefore, inappropriate oral care behavior can serve as a barrier to accessing oral health services.

Lack of knowledge about cosmetic dentistry is associated with the use of dental services. Dental esthetics is currently considered one of the most interesting dental fields with its impact on users.¹⁶ As a result, cosmetic dentistry has gradually become a top dental field of interest, motivating people to use dental services.

Lack of knowledge about the importance of regular oral health examinations is associated with the use of oral health services. This result is similar to the findings of other studies, whereby people who believe that regular dental visits are necessary are more likely to use oral healthcare services.⁷ In terms of the decision to use dental services, the precondition is that the subject needs to have certain knowledge about that type of dental service so that they can decide whether to access it or not.

The inability to find information about dental services is related to the decision to use dental services. With the development of technology and access to the Internet, there are many ways to access information about dental services instead of traditional information channels, such as through self-search or guidance

from others.¹⁷ Besides, information about oral health services has become popular and easy to access with high accuracy from a variety of information sources. As a consequence, users have more opportunities to seek out oral health services, understand their role in oral and overall health, and decide to use them effectively, making themselves healthier than those who do not.

Dental advice from others is related to the decision to use dental services. Psychosocial factors, such as peer recommendation, have a direct or indirect impact on the subject's ability to perceive needs. This can change the patient's perception of perceived needs to care needs.⁸ This finding is similar to the conclusion about the impact of cognitive need on the increase in dental appointments.⁹ These studies support the fact that knowledge and support from the community are important for reducing difficulties in accessing dental care services.

Difficulty in scheduling dental care appointments with the clinic was associated with the use of dental services. This is similar to the study of Alfaraj et al.¹⁰ These results can stem from a variety of factors, such as the ability to contact consultants, booking methods through social networking channels,¹¹ or limitations in the ability to make appointments with the clinic yourself. This is especially suitable to explain the fact that the elderly or people with low education levels face several limits in accessing pre-ordered forms of contact.¹⁸

The time for dental examinations is related to the decision to use dental services, especially among those who meet dentists outside of office hours and those groups of any time. This is because of dental examination facilities have limited working hours and often take place at the same time as the user's main work. Therefore, people who want to have a medical examination in outside of office hours will face more difficulties than those who do so during office hours. In addition, subjects who can visit a dental clinic at any time without pre-appointments will cause difficulties for healthcare facilities in arranging services for subjects in a reasonable and quick manner.

Unstable income affects the decision to use dental services. Previous studies also noticed this similarity, whereby higher income and material life increase the rate of dental visits.¹⁹ According to Freeman's study,⁸ the difficulty in obtaining this dental service is caused by the level of competition with the family's disposable income. When competition is so fierce, dental treatment can be considered a luxury and unnecessary. This is true for our study, when the group of subjects who have a lower income than the general average income of 107.8 million VND/12 months/person (equivalent to 8.98 million VND/month/person) faces many troubles in accessing and using oral health services.²⁰ For that reason, appropriate support measures are needed to minimize barriers to these subjects.

In the field of dentistry, which is developing rapidly in terms of technique and technology, patients' utilization of dental care services is an important aspect, determining the oral health quality of individuals and communities. Therefore, understanding the barriers to users' seeking and using dental services is essential in order to promptly provide appropriate and practical interventions. Besides, this also partly reflects a lack of knowledge and skills in oral care among the population and the responsiveness of dental facilities in the area to users' needs. The mentioned barriers are a source of data that can help the government and health managers develop policies to improve community oral health through

supportive financial dental policies, community dental education programs and initiatives that connect people with dental care facilities.

The major limitation of the study was that the sample size was quite small compared to the population of Danang city and the quantitative research method could not fully represent the population of Danang city. To gain a broader and more specific view of current barriers to dental care utilization in the community, studies with a longer duration and larger sample size are recommended; in addition, qualitative research methods should be applied.

CONCLUSION

In Danang City, 57.5% of adults have either never utilized dental care services or have used them during the previous 12 months. Factors linked with the decision to seek dental care include personal dental hygiene practices, knowledge of oral health, accessibility to information, recommendations from peers, the process of scheduling appointments, examination duration, and income level.

Studies with larger databases and the use of qualitative research methods are necessary to more thoroughly understand the impact of the above barriers on individuals' choices to seek dental services in Danang city and across Vietnam.

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