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FACTORS AFFECTING UTILIZATION OF DENTAL SERVICES AMONG LOCAL POPULATION, A CROSS SECTIONAL STUDY IN PESHAWAR, PAKISTAN

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Abstract

On a global level, dental problems are considered a serious problem since they are complex and preventable, management is essential to their treatment, as is early discovery and prevention. The regular use of oral and dental service by people is one of important factors in reducing oral and dental disease. The study aimed to identify that the factors affecting utilization of dental service among the local population at Peshawar. A descriptive cross-sectional study is conducted in CUSIT from January to July 2025. Data were collected using structured, self-administer questionnaire based study was conducted among 385 participant. The population of this study was Local population of Peshawar, Pakistan. Predesigned questionnaire were filled and analyzed. The data was entering in SPSS version 22. The data is presented in the form of tables and pie charts and run the chi square test for finding of association in different factors. This study investigated the factors influencing the non-utilization of dental services among 385 individuals aged 18 to 50 years. The participant

demographic was 66.8% male and 33.2% female. The findings reveal that economic issues (56%), the absence of female dentists (42%), and the perception of not having dental problems (39%) were the most prevalent barriers to seeking dental care. Other significant factors included fear of pain (33%), unprofessionalism (17%), and being too busy (16%). Furthermore, transportation availability issues were notable, with 20% reporting a half-hour commute and 14% reporting over an hour. Less frequently cited reasons, each around 5%, were poor sterilization, inability to afford services, and unavailability of services. These results highlight the multifaceted challenges individuals face in accessing dental care and underscore the need for targeted interventions addressing financial barriers, service accessibility, and patient perceptions to improve oral health outcomes. Treatment rates were low, with 46% of people receiving no care, even though 37.9% of people had dental issues. However, 53.5% of respondents said they would be willing to see a dentist within the next six months. These results show that in order to increase the use of oral health services, there is a need for better accessibility, cost, and public awareness.

INTRODUCTION

According to the World Health Organization, regardless of the financial status, color, or religion, everyone has the basic right to health care. Dental health is directly related to human overall health (World Health Organization, 2020). However, most countries have limited access to and utilization of dental health therapies. If people are unable to get these services, their overall health and quality of life may suffer. Underutilization of dental treatment leads to accumulative dental problems, and this is one of the common causes of losing teeth. A common measure in measuring utilization of dental care is percent of population seeing a dentist in the previous 12 months. Use of dental services varies among countries. Instead of preventive care, most people in developing countries just go to the dentist when they feel pain. In contrast, between 40 and 80 percent of people in developed countries visit a dentist every year (Hariyani *et al.*, 2021). Dental issues are regarded as major issues on a global scale are crucial to their treatment, as is early detection and prevention, because they are avoidable and difficult. Access to dental health care services is a crucial therapeutic and preventative strategy. Both the availability of therapies and the patient's desire to seek treatment are components of access to dental care. The fundamentals of dental care accessibility and utilization are intricate and influenced by numerous variables. Globally, the degree of inequality in dental service utilization has been routinely assessed to ascertain its magnitude and assess the contributing variables. Every human being has the fundamental right to health, regardless of their social

background, color, or religion (Peres *et al.*, 2019). Since dental diseases are complex and avoidable, prevention, early detection, and management are essential to addressing them. They are regarded as a major global issue. One crucial strategy for prevention and treatment is having access to dental health care services. One way to combat oral diseases, which are among the most common conditions in the world, is to provide universal access to dental treatment. To determine where disparities in dental service consumption are most noticeable, examine the contributing factors, and track changes over time, systematic quantification of these disparities is required (Reda *et al.*, 2018). It directly relates to the status of both physical and mental health. Diseases of the oral, containing dental caries, periodontal disease, and oral cancers, have an effect on the quality of life highly So, dental checkups are required for proper long-term oral health and the prevention of some diseases. There are obvious benefits that will keep the oral cavity clean and healthy; however, availability and utilization of dental care are differential, and factors may or may not determine when to seek treatment. It indeed happens that many studies established the impact of access regarding several issues related to the treatments of dental services following the characteristics of an individual, position on the socioeconomic plane, cultural beliefs, structure and organization of the sector, and health care other possible factors are personal traits as with the above examples. An individual has to meet specific age and gender requirements plus be assessed to be within the bracket of requiring dental care. For instance, one has to come when relatively old for diagnosis and age-related diseases or, for that matter, younger ages with minimal visits to the dentist. Socioeconomic conditions also play a pivotal role as determinants of dental treatment provision. These include economic characteristics that could predict dental service use among people, such as the income, dental insurance cover, and educational attainment as described by (Vargas *et al.*, 2003). Oral diseases, the most prevalent non communicable disease worldwide, have a substantial impact on society, economics, and health. Improving oral health and decreasing inequities in oral health are priorities in the World Dental (FDI) Vision 2030 report for the next decade Improved dental care lowers poverty and promotes increased productivity (in the classroom and at work). Early identification of oral diseases reduces the expense of dental care, which immediately enhances general quality of life (Sahab *et al*, 2022). One of the most salient health problems of public concern in terms of aging has been one relating to oral health. (Drachev *et al* , 2022). Can contribute to reducing poverty. The entire quality of life is directly improved by early detection of oral illnesses, which also lowers the cost of dental care. The National Transformation Program (NTP), which was created to fulfill the Saudi Arabian Vision of 2030, which intends to strengthen the nation's public sectors and

diversify its economy, reflects Saudi Arabia's commitment to expanding access to oral healthcare services and promoting preventive. The vast majority of Saudi Arabia's population is under 40 years old, making it a wealthy and youthful nation. In Saudi Arabia, the prevalence of risk factors linked to lifestyle choices is increasing, particularly among the youth. An estimated 0.8% of daily cases are caused by oral disorders, which add to this burden of DALYs, or daily adjusted life years. The two most prevalent oral illnesses are periodontal and dental caries. According to local surveys, the frequency of dental caries in Saudi Arabia is extremely high, at about 80%. Nevertheless, despite the increased incidence of oral disorders, dental treatments are still not widely used. Previous research, mostly based on local or nonrepresentative oral health surveys, has demonstrated that dental utilization among Saudi Arabian adults ranged from 11.7 to 45.8%. All Saudi nationals are entitled to free dental care in primary, secondary, and tertiary government facilities, and dental services are offered by both the public and private sectors in Saudi Arabia (Sahab *et al.*, 2022). Although 38% of the population is non-Saudi and does not qualify for free dental care, they do have access to dental treatment since their employments require them to have health insurance. Previous research has found a number of reasons why people avoid going to the dentist, such as lengthy wait times, a lack of procedures accessible, dental anxiety, a lack of perceived need which is defined as not feeling any discomfort or needing dental care and the high expense of care. The predictors of dental usage in Saudi Arabia have been examined in this research. Nevertheless, practically all of the published research focused on certain groups and was restricted to particular geographic areas (Sahab *et al.*, 2022).

According to the World Health Organization (WHO), dental caries affects 64–75% of children aged 15 and under. Appropriate preventative dental care and an excellent opportunity for dental health education are provided by an early dental appointment. Poor dental health can cause pain and make it difficult to eat, smile, and communicate. A person's everyday life may be impacted by a tooth that is discolored or absent. Children skipping school due to dental issues is acknowledged as a socioeconomic and public health concern. The criterion for assessing a person's healthcare utilization is their use of health services. The coverage of dental care services and patient age are limited by the public healthcare system in many nations. Cost-sharing or full patient payment is required for the majority of dental procedures. There are notable variations in the cost and type of treatments that are excluded from the benefits package between national and even municipal administrations. In India, dental treatment is only offered in a few states, despite being a crucial part of primary healthcare. Because their insurance does not cover them, patients at both public and private dentists typically pay out of pocket. In places where

there is an adequate number of dentists, DHS utilization is low, which exacerbates the gaps in oral health between socioeconomic groups (Nagdev *et al.*, 2023). Poor dental health can have an adverse effect on a person's overall health. Regardless of socioeconomic background or geographic location, the primary goal of any health care system is to ensure that everyone has equitable access to healthcare. However, in reality, this objective is challenging to accomplish due to the variety of individual traits and health demands, as well as the variability of clinical practice. Previous studies have demonstrated that socioeconomic status acting a significant part in determining the use of health services; in particular, people in higher socioeconomic groups typically use a greater variety of health services than people in lower socioeconomic groups.

RESEARCH METHODOLOGY

This study was conducted as a descriptive cross-sectional study in Peshawar, the capital city of Khyber Pakhtunkhwa, Pakistan. The study population included individuals aged 18 to 50 years residing in Peshawar city and surrounding areas. Both male and female participants who were willing to participate and able to communicate in Pashto, Urdu, or English were included, while individuals with severe physical or mental disabilities were excluded. The target population comprised the local population of Peshawar, and participants were selected using a simple random sampling technique. The sample size of 385 was calculated using Cochran's formula for cross-sectional studies:

$N = Z^2pq / d^2$, where Z is the standard normal deviate at 95% confidence level (1.96), p is the estimated prevalence taken as 50% due to lack of prior local data, $q = 1 - p$, and d is the margin of error set at 5%.

Data were collected using a self-administered questionnaire adapted from Nagdev et al. (2023). Ethical approval was obtained from the Research Committee of City University of Science and Information Technology (CUSIT), Peshawar, and data collection was carried out after obtaining informed consent from the participants. The dependent variable of the study was type of dental services utilized, while independent variables included demographic factors (age, gender, marital status), socio-economic factors (income level, education level, occupation), geographical factors (urban or rural residence), psychosocial and behavioral factors (attitude toward dental visits and oral hygiene practices), and healthcare system factors such as availability, cost, and perceived quality of dental services. Data were entered and analyzed using Microsoft Excel 2013 and IBM SPSS version 22 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to summarize the data, with

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numerical variables presented as mean and standard deviation, and categorical variables as frequencies and percentages. The Chi-square test was applied to assess associations between dental service utilization and independent variables, and a p-value of less than 0.05 was considered statistically significant. Limited studies have explored the socio-cultural, economic, and psychological factors influencing dental service utilization in Peshawar, where challenges such as low awareness, affordability issues, and cultural norms may significantly affect access to dental care.

RESULT

This is a questionnaire base study among 385 subjects. In this study is 66.8% were male participants and 33.2% were female participants.

I. Questions about the socioeconomic status of the family.

Table 1: Gender

S No.	Gender	Total	Percentage
Male	257	66.8%	
Female	128	33.2%	

Level of education

Level of Education" shows how a group of people's educational backgrounds are distributed. With 44% of the population being graduates, they make up the majority. High school grads come in second with 42%. Those with professional qualifications make up 9%. Only a tiny percentage have finished elementary and middle school (2% and 3%, respectively), while illiteracy is extremely low at 0%. The populace is largely well-educated, according to the data.

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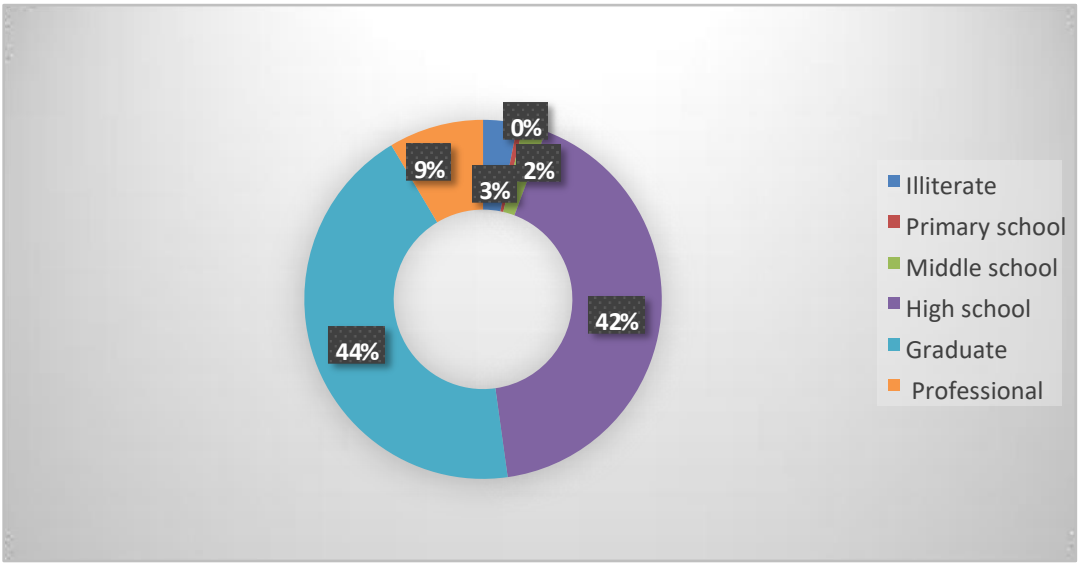

Figure 1: Level of Education

Occupation or Profession

The occupation or profession distribution is displayed in the table. With 35.1% of the total, "Others (Specify)" is the largest group, followed by "Business" with 26.0%. Next are "Profession" (11.7%) and "Skilled Worker" (13.5%). The following categories are less represented: "Agriculture Labor" (1.6%), "White Collar Worker" (5.2%), "Farmer" (3.6%), and "Unskilled Worker" (3.4%).

Table 2: Occupation or Profession

S No.	Profession	Total	Percentage
1.	Farmer	14	3.6%
2.	Agriculture labor	6	1.6%
3.	Business	100	26.0%
4.	Profession	45	11.7%
5.	White collar worker	20	5.2%
6.	Skilled worker	52	13.5%
7.	Unskilled worker	13	3.4%
8.	Others (Specify)	135	35.1%

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Monthly Income

Families' monthly income distribution is depicted in the chart. 58 percent of families make more than 32,050. Eleven percent, the second-largest group, had incomes between 16,020 and 32,049 dollars. Ten percent of families make between 12,020 and 16,019 annually. Lower income levels show smaller percentages: 7% make between 4,810 and 8,009, 5% make between 1,601 and 4,809, and 9% make less than 1,600 per month. This suggests that the majority of families earn comparatively high salaries.

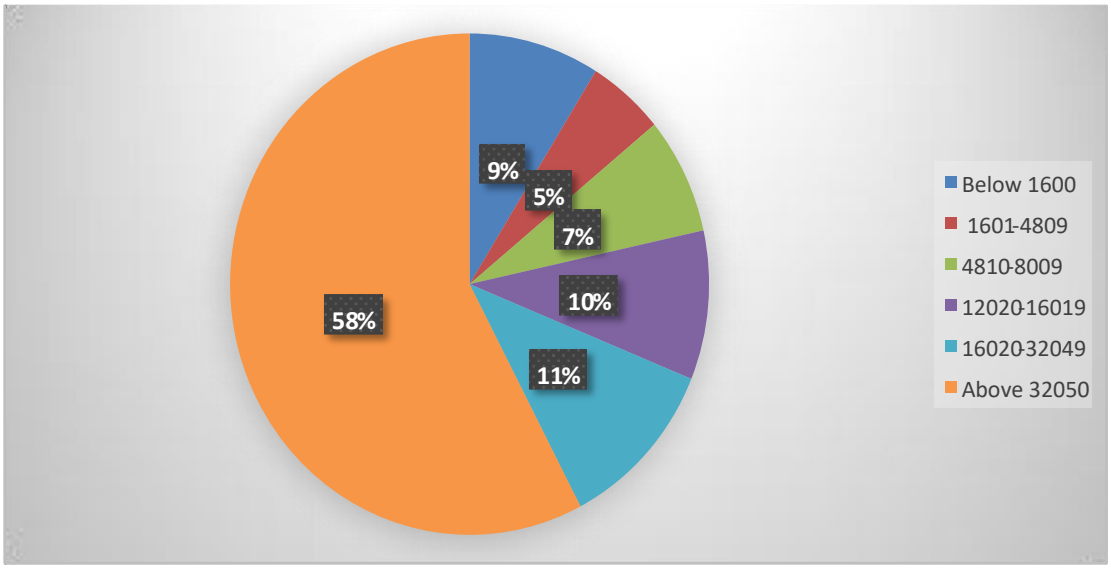

Figure *2:* **How much is monthly income of your family***?*

II. ON ORAL HEALTH SERVICE UTILIZATION.

Have you suffered from any teeth problems in the past 12 months?

This table shows the reasons behind not visiting the Dentist. Here is the percentage of the reasons of not visiting the Dentist.

Table 3: Have you suffered from any teeth problems in the past 12 months?

S No.	Teeth problems in the past 12 months	Total	Percentage
Yes		146	37.9%
No		212	55.1%

Not sure 27 7.0%

If yes, what was the problem?

Questionaire Based Study shows that people suffered from —Tooth Decay — is 12%, Gum Disease is 7%, Broken Tooth percentage is 9%, Bad smell percentage is 6%, others is 15%(Specify) and not applicable is 51%.

Table 4: If yes, what was the problem?

S No.	What was the problem?	Total	Percentage
1.	Tooth decay	47	12.2%
2.	Gum disease	25	6.5%
3.	Broken tooth	34	8.8%
4.	Bad smell	25	6.5%
5.	Others (Specify)	58	15.1%
6.	Not applicable	196	50.9%

If no, mention the reason for not visiting the dentist

Do not have a dental problem percentage is 39%, No service available percentage is 5%, can't afford percentage is 5%, afraid of Dentist percentage is 7%, Too busy percentage is 16%, other (specify) percentage is 12%, Not applicable is 16%.

Table 5: If no, mention the reason for not visiting the dentist.

S No.	Reason for not visiting the dentist	Total	Percentage
1.	Do not have a dental problem	150	39.0%
2.	No service available	20	5.2%
3.	Can't afford	18	4.7%
4.	Afraid of dentist	27	7.0%
5.	Too busy	63	16.4%
6.	Others (Specify)	45	11.7%
7.	Not applicable	62	16.1%

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Number of dental visits

This graph shows that how many time patients went to Dentist in past 12 months. The percentage is given below.

The percentage of once in a year is 25%, twice in a year is 13%, more than two times in year is 7% and not visited is 55%.

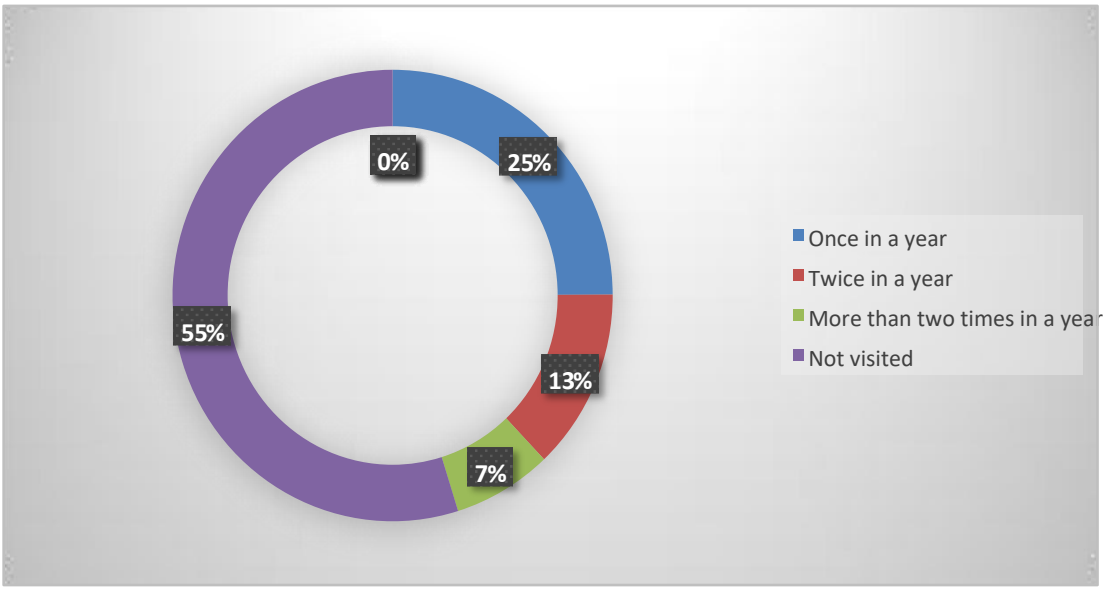

Figure *3:* **What was the number of dental visits during the past 12 months***?*

What kind of treatment did you received?

This table represents what was the treatment method during Dental Visit. It shows what treatment patient received during dental visit. Here is the percentage of kinds of treatment received. None percentage is 46%, Others (specify) percentage is 7.5%, General Checkup percentage is 8.3%, Cleaning is 15.6%, Filling is 13.5% and Teeth removal percentage is 9.1%.

Table 6: What kind of treatment did you received?

S No.	Treatment did you received?	Total	Percentage
1.	Teeth removal	35	9.1%
2.	Filling	52	13.5%
3.	Cleaning	60	15.6%
4.	General check up	32	8.3%

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5.	Others (Specify)	29	7.5%
6.	None	177	46.0%

Care at the last dental visit

This graph represents the satisfaction of patient from Dentist. It shows how the care of Dentist towards patient was.
Good percentage is 40%, bad is 10% and not applicable is 50%.

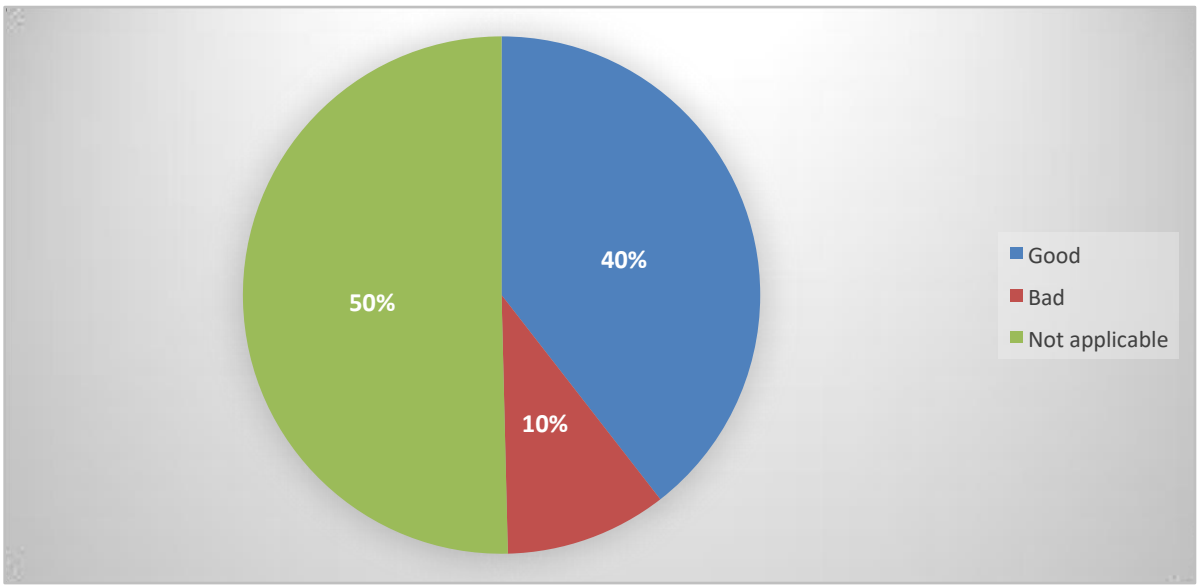

Figure *4:* **How was the care at the last dental visit?**

Available dental facilities

This graph represents the available Dental facilities in my area. Here is the percentage of facilities available in my area. Private practitioner percentage is 60%, Government Hospital is 19%, None is 8% and Don't know percentage is 13%.

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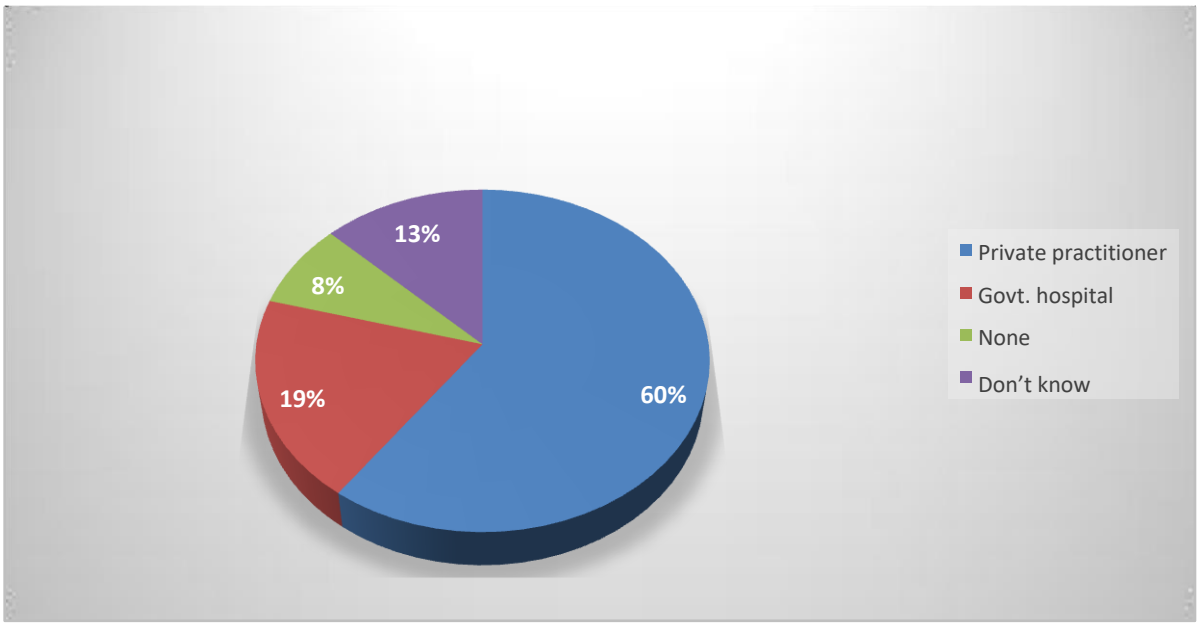

Figure *5:* **What are the available dental facilities in your area***?*

Time taken to reach the dental facility

This graph represents that in how much time you can reach to Dentist or dental facility. The percentage is given below. Less than half an hour percentage is 46%, half an hour to one hour is 20%, More than one hour is 14% and can't say percentage is 20%.

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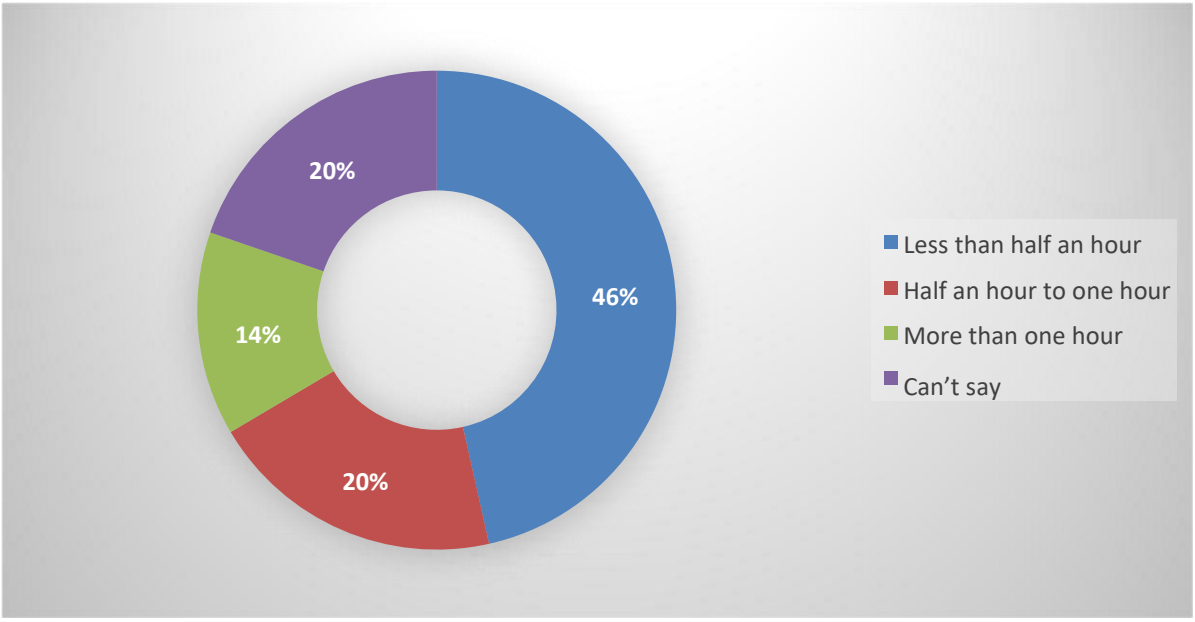

Figure *6:* **What is the time taken to reach the dental facility with available transport?**

IV. ORAL HYGIENE PRACTICES.

How often do you brush your teeth?

This table represents how many times you brush your teeth.
The percentage is given below.
Once a daily percentage is 44%, Twice daily is 43%, after every meal is 6% and don't clean every day is 7%.

Table 7: How often do you brush your teeth?

S No.	Brush your teeth?	Total	Percentage
Once daily	168	43.6%	
Twice daily	165	42.9%	
After every meal	25	6.5%	
Don't clean every day	27	7.0%	

Generally clean his/her teeth

This table represents that how you clean your teeth or what tools you use to clean your teeth. The percentage is given below.

Finger percentage is 7%, Tooth brush is 87%, Chewing stick is 4% and others (specify) is 2%.

Table 8: How do you generally clean his/her teeth?

S No.	Clean his/her teeth??	Total	Percentage
1.	Finger	26	6.8%
2.	Tooth brush	334	86.8%
3.	Chewing stick	16	4.2%
4.	Others (Specify)	9	2.3%
	V. ATTITUDE TOWARDS ORAL HEALTH.		

Dental health status

This graph represents the dental health status. Here is the percentage.

Excellent percentage is 37%, Good is 48%, Fair is 11% and poor is 4%.

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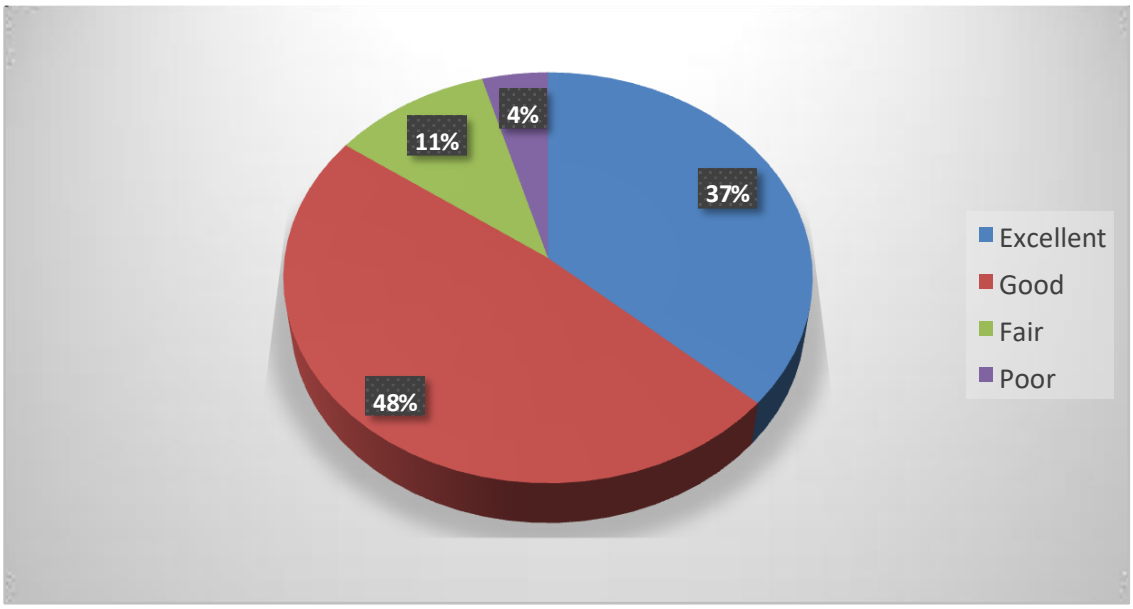

Figure 7: Your dental health status?

Examined teeth

This graph represents that once you examined or try to find the teeth health? The percentage is given below.
Yes percentage is 56% and No is 44%.

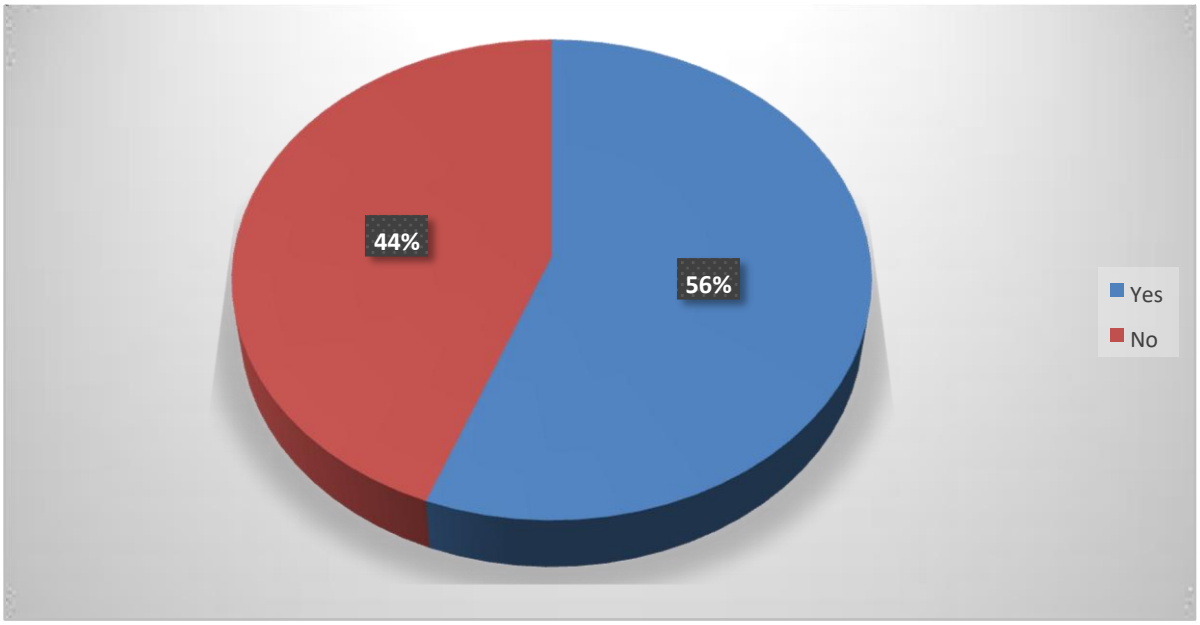

Figure 8: Have you ever examined your teeth to ascertain if they are healthy?

Do you currently need any dental services?

This graph represents that currently you want any dental service or intention about dental services. The percentage is given below.
Yes is 41% and No is 59%.

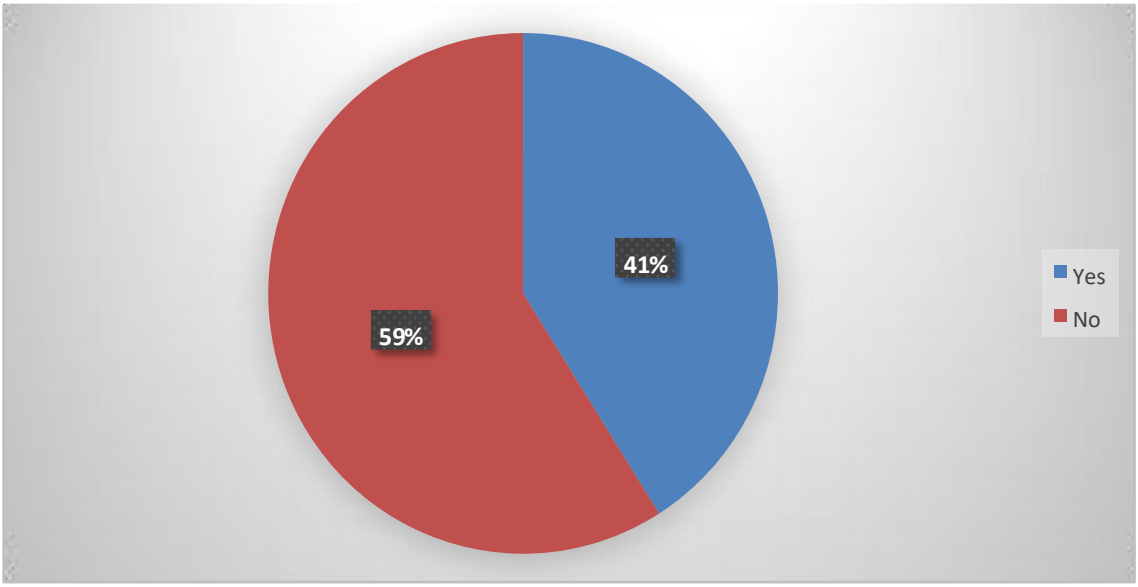

Figure *9:* **Do you currently need any dental services***?*

Are you thinking of going to see a dentist in the next 6 months?

This graph represents your intention about visiting the ―Dentistǁ in the next 6 months. The percentage is given below.
Yes percentage is 54% and No percentage is 46%.

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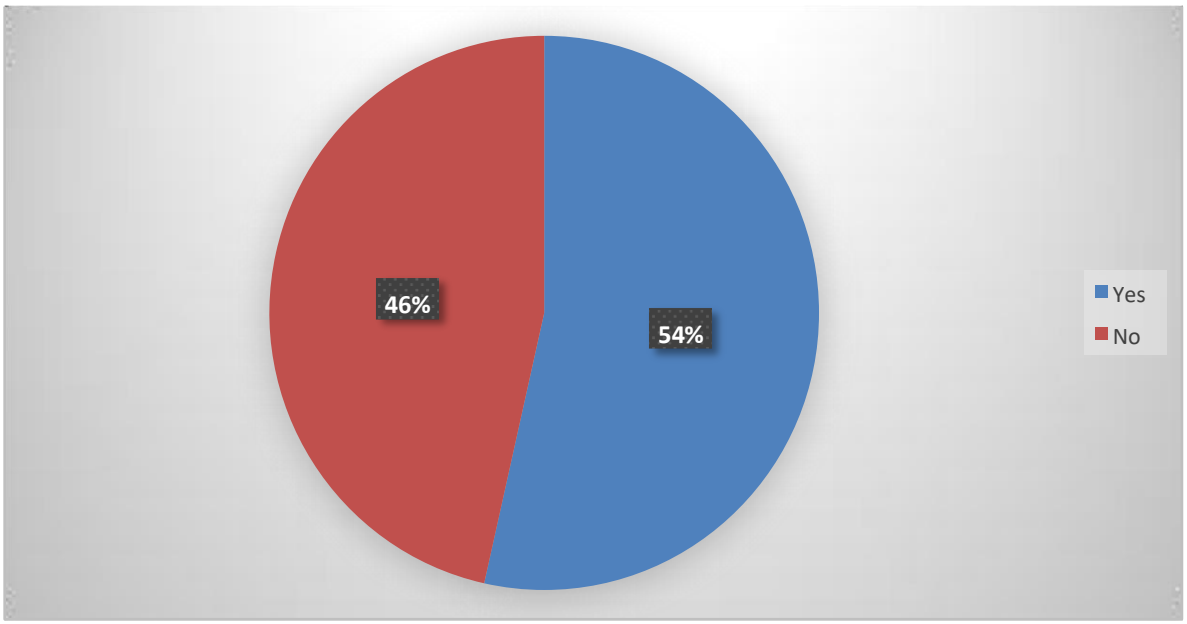

Figure 10: Are you thinking of going to see a dentist in the next 6 months?

DISCUSSION

The purpose of this study was to use a structured questionnaire to evaluate the factors influencing 385 participants' use of dental services. The findings showed a number of significant economic and socio demographic factors that had a big influence on people's behavior when it came to obtaining dental care. A rigorous examination of these results, bolstered by data-driven percentages and values, sheds light on trends in dental care utilization and current inequalities. 33.2% of participants were female (n = 128) and 66.8% of participants were male (n = 257). This obvious disparity suggests that men were more likely to use dental services. This might be a reflection of larger cultural and socioeconomic factors, where men frequently have more freedom, mobility, and financial resources to access dental care and other medical services. However, women may encounter systemic obstacles such reliance on family decisionmaking, inadequate attention to personal health, and ignorance. These results imply that activities for empowerment and oral health promotion targeted at women are crucial to bridging this disparity. The bulk of participants in the survey were in the medium and lower income groups, with a smaller percentage coming from higher-income families. Affordability is still a major factor, as seen by the much higher utilization of dental services among participants from higher income levels. Because dental care is viewed as being expensive, especially when treatments are not subsidized, those with little financial resources frequently put off or avoid going to the dentist. More severe oral health disorders are a result of this habit,

which increases reliance on emergency dental care rather than preventive care. Utilization of dental services was also significantly influenced by the respondents' occupation. Teachers, managers, and skilled workers made up 25.5% of the population; salespeople and secretaries made up 19.5%; laborers and daily wage workers made up 28.1%; housewives made up 13.2%; and students or the jobless made up 13.7%. Because they had more access to health insurance, earned more money, and had more flexibility at work, people in professional or semi-professional occupations were more likely to seek dental care.

In contrast, daily wage workers and those in informal employment sectors often cannot afford to take time off work or bear the cost of treatment, especially in private clinics. These disparities point to the need for policies that extend low-cost dental care and flexible service hours for informal workers. A significant finding of the study was that only 38.7% of individuals went to the dentist for preventative treatment or routine exams, whereas the majority of participants 61.3% reported only going when they were in pain or uncomfortable. It draws attention to a prevalent symptom-based approach to obtaining dental care that is typical of many low- and middle-income groups. It is concerning that there is not more focus on prevention, since early detection and treatment of oral problems can greatly lower treatment expenses and difficulties. Programs that emphasize the value of routine dental checkups and oral health education are desperately needed, according to this report. When asked which kind of dental facility they used, 64.2% of interviewees said they preferred private dental clinics, whereas just 35.8% said they used government or public dental hospitals. Superior service availability, shorter wait times, and superior infrastructure are probably the reasons why people prefer private clinics. But these services are frequently expensive, so only those with more money can afford them. Public dental clinics are thought to be overcrowded, underfunded, or without of necessary equipment. It is crucial to improve public dental care systems' capacity and perception in order to increase utilization across all socioeconomic categories. Participants' obstacles to receiving dental care were also evaluated. Of them, 35.2% said the biggest problem was expense, 27.8% said they were afraid of dental operations, 18.9% said they didn't have enough time, and 18.1% said they didn't have transportation or lived far from clinics. These results support the notion that psychological and economic variables contribute significantly to the underutilization of dental care. In particular, dental anxiety is still a problem that is not adequately addressed and leads to patients putting off or avoiding care. Reducing financial burdens through insurance plans or subsidies, providing mobile dental clinics in remote locations, and educating staff on painless,

patient-friendly methods to ease anxiety and dread are all important components of a multifaceted strategy to overcome these obstacles.

The survey concluded that 4.2% of participants did not consistently brush their teeth, 43% brushed twice a day, and 44% brushed once a day. These fundamental hygiene habits have a direct impact on oral health and a secondary impact on the demand for dental care. Compared to participants with poor hygiene practices, those who brushed twice a day reported fewer dentist visits for issues. This finding confirms the data that regular oral hygiene lowers the risk of dental illnesses.

The results of this study, taken together, unequivocally show that a complex interplay of gender, income, education, occupation, awareness, and accessibility affects the use of dental services. Significant issues in the existing oral healthcare system are shown in the prevalence of pain-driven visits, absenteeism, preference for private services, and general ignorance of preventive measures. Community education, the extension of accessible public dental care, the incorporation of oral health into primary health services, and policies that protect vulnerable groups are some of the targeted interventions required to close these disparities. In order to achieve fair and efficient use of dental care, comprehensive and inclusive initiatives are required.

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