

Exploring Factors Shaping Dental Insurance Utilization: Insights from an Investigation in Iran

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Objectives One of the key indicators of the effectiveness of a country's healthcare system is the delivery of accessible and impactful health services, particularly in the field of oral and dental healthcare. Among the barriers to the utilization of oral and dental healthcare services within healthcare systems, the most prominent obstacles are a lack of awareness and insufficient financial resources. The objective of this research is to investigate the factors that influence the extent to which individuals in Iran make use of dental insurance services.

Methods The research employed a linear probability model to evaluate how eight independent variables influence the utilization of dental insurance services. These variables included possession of supplementary dental insurance, age, parenthood, marital status, gender, level of education, DMFT index, and accessibility. The study encompassed data from 384 policyholders who participated across 20 dental clinics located in Tehran. Sampling was conducted using a stratified random sampling method, covering individuals with dental insurance from mid-2022 to mid-2023. The Kolmogorov-Smirnov test ensured data normality. One-sample examined hypotheses, while Pearson's Chi-Square tested relationships. The Gamma coefficient assessed relationship strength, and the Friedman test ranked factors influencing dental service utilization.

Results Possessing supplementary dental insurance with an average rank of 5.2 is the most influential factor in the extent of utilization of dental services. The DMFT index, ranking on average at 2.5, is identified as the third factor (following accessibility to dental services as the second factor) in the utilization of dental services.

Conclusion Possessing insurance emerges as a crucial factor compared to the DMFT index when it comes to dental visits. In other words, Iranians with a DMFT index but lacking insurance coverage show a lower likelihood of seeking dental treatment. This observation holds true even in the more affluent northern areas of Tehran, contrasting with regions spanning from center to lower Tehran.

Keywords Oral health; Insurance; Dental; Delivery of health care; Iran

Introduction

Oral and dental health constitute vital aspects of public well-being, serving as fundamental prerequisites for holistic healthcare. Attaining and safeguarding oral hygiene demands individual attention, while achieving comprehensive results involves the concerted efforts of societal infrastructure and professional care.^{1, 2} Access to professional oral and dental health services relies on individual initiatives, cultural influences, organizational factors, and personal traits. Features of a dental service system, including the involvement of a third-party entity, play a crucial role in facilitating payments or providing assistance with cost coverage.³ To establish an effective and inclusive healthcare system, encompassing oral and dental service, individuals need to recognize its importance. Moreover, individuals should hold a correct perception of health and believe in the role of personal health care in aiding them to attain health objectives.^{4, 5} Assuming that a patient can overcome both physical and cultural factors and make the decision to avail themselves of oral and dental services, the healthcare system must exhibit appropriate features to motivate individuals to seek healthcare services.^{6, 7} Among the obstacles hindering the dental services utilization (DSU), the most formidable one is a lack of awareness and financial resources. Even in

advanced economies, financial resources are not always readily accessible, and a proper allocation to ensure an individual's access to oral and dental health care services is not consistently granted.⁸ In this regard, the features of oral and dental healthcare systems, particularly financial and insurance-related attributes, play a pivotal role in easing access to oral and dental health services and reducing associated costs.

Various studies have consistently affirmed the impactful factors on the DSU, with particular emphasis on the significant role played by dental insurance.⁹⁻¹¹ The expenses linked to oral and dental service have become a deterrent, causing individuals to shy away from dental visits. Consequently, cost-sharing initiatives facilitated by third-party supporting entities, such as insurance or health insurance, strive to alleviate or eliminate financial barriers and simplify access to oral and dental services. By mitigating financial hurdles and reducing patient out-of-pocket costs, the purchasing capacity of those seeking oral and dental health services is bolstered, leading to an increased demand for such services.^{12, 13}

The oral and dental health status in Iran significantly differs from that of developed countries.^{14, 15} In advanced nations, individuals at the age of 80 are expected to have a minimum of 20 healthy teeth.¹⁶ In contrast, Iranians typically have an average of approximately 21 to 27

healthy teeth within the observed age range.¹⁷ The therapeutic solution of tooth extraction often results in the need for dental prosthetics between the ages of 40 to 50 in Iran.¹⁸ Consequently, Iranians require oral and dental health care more than individuals in advanced countries. However, affordability poses a major challenge to the health of Iranians, as all routine dental services performed daily rank among the most expensive medical treatments for Iranians. Acquiring a comprehensive understanding of oral and dental health components necessitates a thorough awareness of the associated health needs. Several factors are directly or indirectly implicated in this context, encompassing the oral and dental health system, socio-economic elements, cognitive demographics, and behavioral aspects linked to prevalent oral and dental issues like dental caries and periodontal diseases.^{19, 20} Various variables have been employed to gauge the DSU.²¹⁻²³ Among these, Choi²⁴ posits that utilization is indicated when an individual has undergone a dental visit within the past 12 months, serving as a measure of their engagement with dental services. Conversely, independent variables include possessing supplementary dental insurance, age, parenthood (having children), marital status, gender, educational attainment, and the sum of the number of Decayed, Missing due to caries, and Filled Teeth (DMFT). Dental services in Iran hold the second position in terms of expenses, following hospitalization costs.^{25, 26} Primary insurances in Iran offer only limited coverage for dental services. Insurances such as health insurance, social security insurance, and armed forces insurance provide partial coverage for basic dental procedures like tooth extraction and dental cleaning. As a result, individuals are inevitably compelled to rely on supplementary insurances. In this regard, the factors influencing the utilization of supplementary dental insurance have been somewhat overlooked.

Among Iran's cities, Tehran, the capital of Iran, is situated in the northern central region, covering an approximate area of 700 km². It ranks as the 23rd most populous city globally.²⁷ The latest available data indicates that Tehran's population exceeds 8 million people, with over 15 million in the metropolitan area, constituting approximately 19% of the country's total population. Among these, 8.7 million

reside within the city, with the remainder primarily comprising commuting workers from suburban areas, neighboring cities, and satellite towns.²⁸ Tehran serves as the central hub for the state, housing administrative organizations, institutions, and the headquarters of financial entities, including banks, the stock market, and insurance companies. This underscores the significance of studying inequality in Tehran as a means to estimate national-level inequality. As of 2022, the average monthly cost of living for an average household size of 3.44 individuals in Tehran was 40.9 million IRR. In stark contrast, the minimum wage stood at only 8.1 million IRR per month, highlighting a substantial income disparity. The official poverty line was reported at 30 million IRR per month.^{29, 30} The glaring gap between the minimum wage, the poverty line, and average living costs points to structural poverty, particularly among workers, where 70% nationwide receive the minimum wage. Notably, only 23% of Tehran's population resides in more affluent districts in the north and west (districts 6, 1, 3, 2, and 7), while over 60% resides in less affluent districts.³¹ This study aims to analyze the key variables influencing the utilization of dental insurance services in Iran by identifying the factors that contribute to the extent of usage of supplementary dental insurance.

Methods and Materials

Statistical Population and sampling

The study's statistical population comprises individuals with dental insurance in Tehran over the 12-month period, encompassing the second half of 2022 and the first half of 2023. Stratified random sampling was employed as the sampling method. The stratification was based on key demographic factors such as age, and geographical location to ensure a representative sample across various dimensions. Strata were defined by categorizing participants into specific age groups and regions within Tehran. This systematic approach aimed to capture the diversity of the population and enhance the generalizability of the study's findings. Table 1 outlines the sample size distribution for each dental clinic, providing details on the allocation of these clinics and the corresponding sample numbers.

District	The center of Tehran city	The north of Tehran city	The east of Tehran city	The west of Tehran city	The south of Tehran city	Total
The number of selected clinics	4	4	4	4	4	20
Distribution percentage	20%	20%	20%	20%	20%	100%
The number of distributed samples	76	80	76	76	76	384

Clinics Selecting Strategy

The strategy for selecting clinics was purposeful, aligning

with the segmentation conducted by the Tehran Municipality. Clinics in each district were approached, and

after explaining the research objectives to clinic managers, questionnaires were distributed among the samples. Following the comprehensive collection of questionnaires, all districts were categorized based on geographical specifications, including north, south, east, and west.

In consideration of some clinics declining participation during the data collection process, the research team had contingency plans in place to address potential rejections. These measures included seeking additional clinics or adjusting the sampling strategy to ensure representation from all intended districts. These adjustments were implemented as needed due to the cooperative response from the majority of the clinics.

Logistics for clinic visits were meticulously managed to ensure a comprehensive representation of various dental specialties, encompassing orthodontics, endodontics, restorative surgery, prosthodontics, periodontics clinics, and maxillofacial surgery. The sampling process was conducted over three consecutive days (Sunday, Monday, and Thursday) during weeks without formal holidays, enhancing the likelihood of obtaining a diverse and unbiased participant pool. As for illiterate individuals participating in the study, special attention was given to facilitate their inclusion. Trained assistants proficient in the local language were present during the survey administration to provide verbal assistance and ensure clarity in understanding the questionnaire. This approach aimed to overcome potential literacy barriers, enabling the participation of individuals with varying literacy levels.

Moreover, to maintain the temporal relevance of the study, the sampling period covered the 12-month span from the second half of 2022 to the first half of 2023, offering a comprehensive view of dental insurance utilization trends in Tehran during this specified timeframe. Exclusions were made for individuals without insurance or those with less than one year of insurance coverage, aligning with the study's defined parameters and objectives.

Variables

In this research, we have incorporated Choi²⁴, seven variables (possessing supplementary dental insurance, age, parenthood (having children and their number), marital status, gender, educational attainment (the level of education), and DMFT and, additionally, introduced the variable of accessibility. The impact of these variables on DSU was examined using a self-reported questionnaire. Each variable has own specific questions (items) that measures the DSU affection (see Table 1 in the Appendix for the questionnaire items).

It is crucial to emphasize that, in our methodology, the terms "dental utilization" or "utilization of dental services" encompass the frequency and scope of dental services accessed by individuals covered by insurance. This includes visits, treatments, and preventive measures.

Units of Measurement

To measure participants' responses, a structured questionnaire was employed, utilizing a Likert scale. The Likert scale, ranging from 1 to 5, was designed to assess participants' opinions and attitudes towards the 8 variables under investigation. A score of 1 indicated lowest level/response (Very Poor: Participants who chose this option exhibited a profound lack of engagement with the questionnaire item. Their selection suggests that, in their view, this particular item has wielded a substantial influence on the DSU), while a score of 5 signified highest level/response (Excellent: The top score denotes an exceptional level of the questionnaire items, indicating that, as per the participants' perspective, this particular item had a negligible impact on the DSU). This scaling system was chosen to capture the nuanced variations in participants' perceptions and experiences related to the variables.

Data Analysis

Data analysis was conducted with IBM SPSS software version 28. P-values < 0.05 were considered statistically significant. We employed the Kolmogorov-Smirnov test to assess the normality of the distribution for each of the eight variables considered in the study. To examine the relation of variables with DSU involved the application of a one-sample t-test, Binominal and Chi-Square test. To investigate the independence or dependence of variables such as age and education on the DSU, the Pearson's Chi-Square test of independence was employed. Additionally, to assess the strength of the relationship between variables, the Gamma coefficient is used. If the absolute value of the Gamma coefficient is equal to 1, it indicates a very strong relationship between the two variables. If it is equal to 0, it suggests no relationship between the two variables. Further, the components influencing the extent of DSU were ranked using the Friedman test.

The Gamma coefficient is calculated using the formula:

$$\gamma = \frac{n_s - n_d}{n_s + n_d} \quad (1)$$

Here: n_s is the number of concordant pairs, and n_d is the number of discordant pairs.

Results

This study involved 384 participants, with 186 (51.6%) being female and the remainder male. Of these participants, 235 individuals (61.2%) were reported as married. Additionally, concerning the variable "age," it is important to mention that the average age of the participants is 36.45 years, with a standard deviation of 47.4 years (ranging from 22 to 52 years). In terms of educational attainment, 39 participants held qualifications below a diploma, 112 possessed a diploma, 177 had an associate degree, and 56 had attained a master's degree or higher. Besides, relevant data pertaining to the univariate analysis of the DMFT

variable, the accessibility variable, and the presence of supplementary dental insurance (Appendix, Table 1) have been delineated in terms of frequency and average. Univariate analysis of gender, marital status, education, and having children (Appendix, Table 2) has been conducted employing frequency and percent metrics. The Cronbach's alpha test results indicated that questionnaire's reliability exceeded 0.7.

The examination of the result of Kolmogorov-Smirnov for eight study variables revealed that the variable of possessing supplementary dental insurance, parenthood, access to dental services and, DMFT index had a normal distribution, while the other variables (age, gender, education, and marital status) did not have a normal distribution.

The findings of this study were presented in three sections:

first, the effects of variables on DSU were outlined; second, the independence of variables was examined; and third, the factors influencing the level of DSU were ranked. Impact of variables on DSU

As previously mentioned, a one-sample t-test was utilized to assess the influence of variables possessing supplementary dental insurance, having children, accessibility to dental services, and DMFT on dental services utilization. In the context of a one-sample t-test for a population, the value 3 is considered as the neutral point. A mean less than 3 implies no effect, while a mean greater than 3 suggests an effect. Examining Table 2, it can be declared that possessing supplementary dental insurance, having children, the accessibility to dental services and DMFT significantly affects the DSU.

Table 2- One-sample t-test for variables "possessing supplementary dental insurance, having children, accessibility to dental services, and DMFT"

Variable	Number	Average	t-statistic	Degrees of freedom	sig	Confidence interval 95%	
						Upper limit	Lower limit
possessing supplementary dental insurance	384	3.97	24.1	383	<0.001	0.857	0.727
Having children	384	3.76	17.106	383	<0.001	0.859	0.672
accessibility	384	3.87	29.73	383	<0.001	0.934	0.818
DMFT	384	4.17	33.04	383	<0.001	1.24	1.1

According to Table 3, the sample is categorized into two groups: less than or equal to 3 and greater than 3. With a confidence level of 95%, it can be concluded that age and

educational attainment significantly influences on DSU. Gender and marital status do not significantly influence on DSU.

Table 3- Binominal test for the variables "age, gender, education and marital status"

variable	Group	Number	Observed probabilities	Experimental probabilities	sig
Age	G1: less than or equal to 3	133	0.35	0.5	<0.001
	G2: greater than 3	251	0.65		
Gender	G1: less than or equal to 3	195	0.51	0.5	0.799
	G2: greater than 3	189	0.49		
Education	G1: less than or equal to 3	139	0.36	0.5	<0.001
	G2: greater than 3	245	0.64		
Marital status	G1: less than or equal to 3	199	0.52	0.5	0.507
	G2: greater than 3	185	0.48		

Independence of Variables

To assess the independence or dependence of age and education on the level of DSU, we categorized utilization into two groups: 6 months or less and more than 6 months to less than one year. The decision not to compare sub-items (Indices) between the two utilization groups (less and more than 6 months) is primarily grounded in the study's focus on overarching utilization patterns rather than detailed sub-item comparisons. This approach aims to provide a comprehensive understanding of the general trends in dental service utilization among different age and education groups, offering a holistic perspective on the

factors influencing utilization levels in the specified time frames.

As per Table 4, it's evident that two variables exhibit dependence. To assess the strength of their relationship, we employ the gamma coefficient. The computed gamma coefficient of 0.320 suggests a moderate association between these variables. Moreover, Table 4 highlights a dependency between DSU and educational attainment, with a gamma coefficient value of 0.476, signifying a moderate relationship between them.

Table 4- Two-dimensional frequency and Pearson's Chi-Square test of DSU, age and educational attainment

Age	level of dental care utilization		
	6 months or less	More than 6 months and less than 1 year	
Less than 25 years old	26	46	
26-40 years	50	65	
41-50 years	38	87	
51 years and above	30	42	
Pearson's Chi-square statistic value	Degrees of freedom	sig	Gamma coefficient
12.34	3	0.001	0.320
Educational attainment	level of dental service utilization		
	6 months or less	More than 6 months and less than 1 year	
Diploma and sub-diploma	15	24	
Associate Degree	46	66	
Bachelor	59	118	
Master's degree and above	24	32	
Pearson's Chi-square statistic value	Degrees of freedom	sig	Gamma coefficient
13.78	3	<0.001	0.476

Ranking of Factors Affecting the Level of Dental Service Utilization

According to Table 5, it can be stated that the indicators have different priorities.

Table 5- Friedman test

Chi-square statistic	Degrees of freedom	sig
101.26	5	<0.001

As shown in Table 6, the "possessing supplementary dental insurance" indicator has the highest priority in the level of DSU, while the "age" indicator has the lowest priority.

Table 6- Ranking of variables

Indices	Average rank	Rank
Possessing supplementary dental insurance	5.2	1
Parenthood (having children)	2.29	5
service accessibility	4.75	2
DMFT	2.50	3
Age	2.16	6
Education	2.47	4

Discussion

Our study findings underscored the significance of possessing supplementary dental insurance as the primary determinant of DSU among insured individuals. This aligns with research conducted by Manski and Moeller (2017)³² which identified the lack of dental insurance coverage as a significant barrier to accessing dental services, especially among older adults. The lack of dental service coverage for low-income adults has been interpreted as a "missed opportunity" to enhance access to dental care, as indicated in the study by Nasseh and Vujicic (2013).³³ In the research conducted by Robison, et al (2020)³⁴, it was emphasized that possessing dental insurance is a significant factor influencing the likelihood of receiving dental

cleanings during pregnancy. Rezaei, et al (2020)³⁵ conducted a study examining the DSU and its determinants in western Iran. The research revealed that the presence or absence of dental insurance significantly impacts the DSU. The evidence also supports that the financial aspects, specifically the financing of dental services, are significant factors influencing the utilization of such services.³⁶ Studies conducted in Iran indicate a high level of unmet dental needs within the Iranian population.^{37, 38} According this, More than 80% of dental services in Iranian cities are provided by the private sector.³⁸ In spite of healthcare system reforms in Iran, basic public insurance packages cover, on average, 3% of basic dental services, with supplementary insurance shouldering 7% of dental expenses. The predominant source of dental expenditures in Iran continues to be out-of-pocket payments.³⁹ Further, due to the high costs of dental treatments, especially in low-income countries with limited access to dental services and inadequate prepayment systems¹⁴, It is possible that households may incur catastrophic expenses to avail these services or be deprived of essential services due to the substantial costs associated with dental treatments.⁴⁰ Therefore, recommending the expansion of insurance coverage for dental services has a significant impact on reducing inequality in accessing dental care and contributes to enhancing fairness in service accessibility. The evidence also suggests that broader insurance coverage enhances dental service utilization by reducing perceived costs and increasing affordability.^{14, 41} Correspondingly, lack of supplementary insurance, especially for individuals with lower incomes, will be a contributing factor to the non-receipt of dental services.⁴² In the study conducted by Amiresmaili, et al (2018)⁴³, which investigated the influential factors on dental service utilization in Iran, it was demonstrated that having supplementary insurance significantly increases the likelihood of dental visits in the

past year compared to those without insurance.

One of significant observations in this study pertains to the role and priority assigned to the DMFT index in influencing visits to dental clinics. The DMFT index held the third position in priority that reveals Iranians with DMFT are less likely to seek dental clinic services in the absence of supplementary dental insurance. In the study conducted by Gao, et al (2020)⁴⁴, aiming to explore factors influencing dental service utilization in children, a relationship was also identified between DMFT scores and the DSU. The study by Sakri, et al (2010)⁴⁵ also indicated a correlation between the frequency of dental visits in urban Indian children and the levels of DMFT. In a study investigating the relationship between oral health status and dental visits in the adult population of Dharwad, Singh (2018)⁴⁶ found that individuals with DMFT three times higher are more likely to have dental visits compared to those without the condition.

Another noteworthy discovery in this study was the lack of independent significance in demographic indicators regarding DSU. To put it succinctly, indeed, based on our findings, parenthood alone does not serve as a pivotal factor in seeking dental services in Iran. Even with children, if an individual lacks insurance, the probability of seeking dental services remains low. This contrasts with the results of Guessous, et al (2014)⁴², which highlighted the effectiveness of having dependent children in influencing DSU. Additionally, Burr and Lee (2012)⁴⁷ asserted that among older individuals, having financially supportive independent children is associated with an increased probability of utilizing dental services. In a qualitative study conducted by Vahidi, et al (2022)⁴⁸ investigating the dental insurance preferences of Tehranian households, certain household heads expressed that, due to the elevated costs of dental services, they prioritize the

dental treatment of their children, delaying their own dental care as a result.

As revealed by the data, possessing supplementary dental insurance emerges as the most influential factor driving individuals to seek dental service within our study sample. This finding highlighted the pivotal role of dental insurance coverage, while also tacitly affirming the financial challenges Iranians face in affording dental services.

Conclusion

The examination of factors influencing the DSU has uncovered substantial associations among demographic variables, insurance coverage, and service accessibility. Across multiple statistical tests, consistently underscored the significant influence of variables like insurance coverage, familial status, service accessibility, and demographic factors on the DSU.

The prioritization analysis further accentuated the nuanced degrees of impact exerted by these factors. Of particular note is the prominence of the "possessing supplementary dental insurance" indicator, which emerged as the foremost influencer in determining the extent of DSU. This underscores the crucial role that insurance coverage plays in shaping behaviors related to seeking oral health care. The findings not only validate the importance of insurance but also emphasize its hierarchical significance among the various factors under consideration.

Conflict of Interest

No Conflict of Interest Declared ■

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**Supplementary
Appendix 1**

Table 1- Variables and distribution of questions of variables

Variable	Questions	Very poor		Poor		Average		Good		Excellent		Avg	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Possession of supplementary dental insurance	1. How has the coverage provided by your dental insurance policy affected your utilization of dental services?	17	4.4	21	5.5	27	7	153	39.8	166	43.2	4.12	
	2.To what extent has your understanding of dental insurance policies impacted the quantity of dental services you utilize?	21	5.5	38	9.9	45	11.7	136	35.4	144	37.5	3.9	
	3.How has the ceiling of dental insurance coverage obligations (as per the tariff of dental services of the Joint Stock Company) influenced your utilization of dental services?	18	4.7	40	10.4	63	16.4	140	36.5	123	32	3.81	
	4.In what way have the types of dental insurance policies affected your utilization of dental services?	18	4.7	35	9.1	55	14.3	159	41.4	117	30.5	3.84	
	5.How has the payment of dental insurance treatment coverage impacted the quantity of dental services you use?	19	4.9	38	9.9	45	11.7	169	44	113	29.4	3.83	
	6.To what extent has the difference between the fees you paid and the payments made due to dental insurance coverage affected your utilization of dental services?	26	6.8	30	7.8	77	20.1	143	37.2	108	28.1	3.72	
	7.How has the approach to settling damages for dental treatment affected your utilization of dental services?	31	8.1	53	13.8	54	14.1	123	32	123	32	3.66	
	8.To what extent has the amount of insurance premium paid for dental services coverage affected your utilization of dental services?	23	6	35	9.1	104	27.1	137	35.7	85	22.1	3.59	
	9.How has the installment payment of the insurance premium affected your utilization of dental services?	34	8.9	43	11.2	46	12	175	45.6	86	22.4	3.61	
	10.In what way has the condition of dental coverage affected your utilization of dental services?	18	4.7	41	10.7	66	17.2	161	41.9	98	25.5	3.73	
	11.How have dental insurance policy discounts influenced your utilization of dental services?	11	2.9	31	8.1	41	10.7	159	41.4	142	37	4.02	
	12.To what extent has the deductible amount of the dental insurance policy affected the quantity of dental services you use?	40	10.4	45	11.7	59	15.4	113	29.4	127	33.1	3.63	
Having children	13.To what extent has having a child affected the quantity of dental services you use?	24	6.2	37	9.6	86	22.4	138	35.9	99	25.8	3.65	
	14.How has the number of your children affected the utilization of dental services?	22	5.7	25	6.5	38	9.9	192	50	107	27.9	3.88	
Accessibility	Total											3.76	
	15.How has the accessibility to dental services impacted the quantity of dental services used?	11	2.9	15	3.9	37	9.6	181	47.1	140	36.5	4.1	
	16.To what extent has the ease of utilizing available dental services affected the quantity of dental services used?	8	1.2	23	6	46	12	164	42.7	143	37.2	4.07	
	17.How has the efficiency of the available services affected the utilization of dental services?	28	7.3	54	14.1	78	20.3	131	34.1	93	24.2	3.54	
	18.To what extent has the speed of providing the appropriate available services influenced the utilization of dental services?	12	3.1	36	6.4	72	18.8	164	42.7	100	26	3.79	
	19.To what extent have the quality services provided by the identified dental centers affected the quantity of dental services used?	12	3.1	29	7.6	74	19.3	181	47.1	88	22.9	3.79	
	20.How has the continuous improvement of available services affected the utilization of dental services?	17	4.4	47	12.2	69	18	174	45.3	77	20.1	3.64	
	21.To what extent has the amount of awareness about available dental service centers impacted the utilization of dental services?	6	1.6	17	4.4	39	10.2	155	40.4	167	43.5	4.2	
	DMFT	22.How has the number of your filled teeth affected the utilization of dental services?	19	4.9	33	8.6	55	14.3	153	39.8	124	32.3	3.86
		23.To what extent has the number of extracted teeth influenced the utilization of dental services?	6	1.6	9	2.3	16	4.2	140	36.5	213	55.5	4.42
24.How has the number of your decayed teeth affected the quantity of dental services you use?		11	2.9	17	4.4	24	6.2	151	39.3	181	47.1	4.23	
Age	25.How has your age affected the utilization of dental services?	27	7	52	13.5	54	14.1	124	32.3	127	33.1	3.71	
Gender	26.To what extent did your gender influence the utilization of dental services?	42	10.9	70	18.2	83	21.6	115	29.9	74	19.3	3.28	
	27.How has your level of education impacted the utilization of dental services?	28	7.3	37	9.6	74	19.3	134	34.9	111	28.9	3.68	
Education													
Marital status	28.To what extent has your marital status influenced the utilization of dental services?	28	7.3	67	17.4	104	27.1	107	27.9	78	20.3	3.36	

Table2. Univariate analysis of gender, marital status, education and having children

Variable		Frequency	Percent
Gender	Female	186	48.4
	Male	198	51.6
	Total	384	100.0
Marital status	Married	235	61.2
	Single	149	38.8
Education	under diploma	39	10.2
	diploma	112	29.2
	Associate or expert	177	46.1
	Master's degree and above	56	14.6
Having children	3 persons and less	86	22.4
	4-6 persons	200	52.1
	More than 6	98	25.5
Total		384	100.0