



## Original Research

## Dental Expenditures of population in Georgia

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**Abstract**

Nowadays the increasing cases of oral diseases requires to enlarge the costs of their treatment. However, in developing countries, including Georgia, where the majority of the population is low-income or unemployed, their spending on dental services is too small. Over the years, in Georgia, the share of healthcare expenses in the population's consumer expenditures varies within 10%, while the share of dental expenses in the whole consumer expenditures is about 0.5%. The share of dental expenses in healthcare expenditures is about 5%. 17.0% of respondents spend up to 100 GEL on dental services, 56.3% spend between 100 and 500 GEL, 12.0% spend between 500 and 1000 GEL, and 14.7% spend more than 1000 GEL. Expenditures for dental care vary significantly by gender, age, region, and between employed and unemployed persons. About a one third of the surveyed population cannot afford to visit a dentist for prevention or treatment due to low income.

**Keywords:** Dental expenditures, statistical survey**Introduction**

Nowadays the study of population's dental expenditures in Georgia is important. The increasing number of oral diseases, on the one hand, and the low income and unemployment of the population, on the other hand, led to low costs for dental services. The population consult the dentist not for prevention, but in many cases for the purpose of treatment. Mainly they visit to doctor for emergency dental services.

According to the statistical information of

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the World Health Organization, in 2019, per capita expenditure of dental services in Georgia amounted to 3.13 USD. According to this indicator, Georgia occupies the 127th place among the world countries. The share of dental expenses in the country's gross domestic product is 0.07% in the abovementioned period.

The survey is conducted in May 2023. One of the objectives of the research is to study dental expenses for the purposes of treatment



and prevention of oral diseases. Low incomes of the population of Georgia lead to the inability to receive proper treatment of oral

diseases. In many cases, people remain without treatment.

### Materials and methods

The purpose of the statistical survey is a detailed study of the expenses incurred by the population of Georgia on dental services. This goal is one of the component among other aims of the observation conducted by us in May, this year. 1023 people were interviewed, regardless of their gender, age, and employment.

In the research, we used the following statistical methods: sampling method, frequency distributions, bivariate analysis (cross tabulation), analysis method of statistical graphs, hypothesis testing chi-square criterion.

Data were processed in the statistical software package IBM SPSS Statistics 26

### Discussion of obtained results

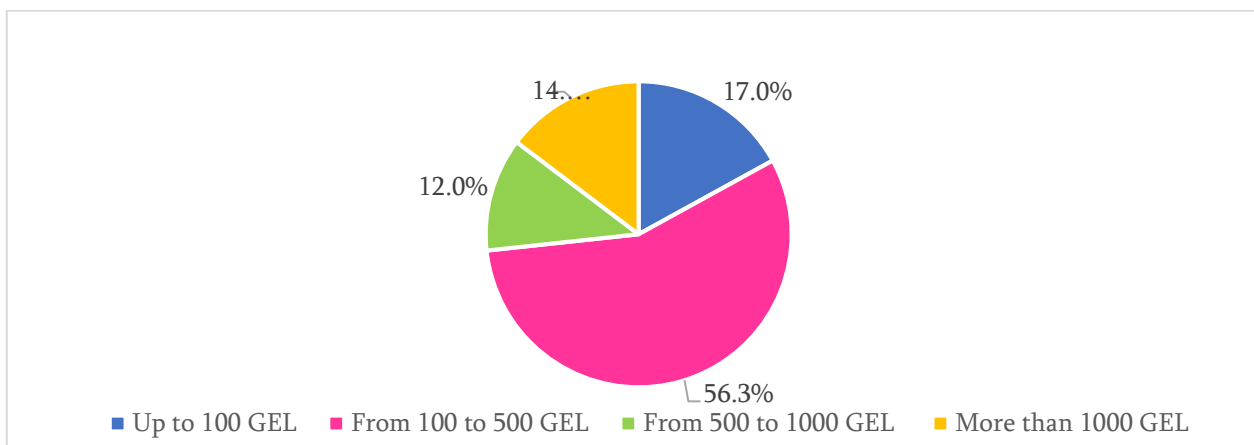
As a result of the statistical research, it was revealed that the share of expenses incurred by the population of Georgia on dental services in 2022 in the total consumer expenditures is very small and amounts to 0.57%. And the share of dental expenses in health care costs is 5.3%.

GEL, in the third group from 500 to 1000 GEL and in the fourth group more than 1000 GEL. 17.0% of respondents spend up to 100 GEL on dental services, 56.3% spend between 100 and 500 GEL, 12.0% spend between 500 and 1000 GEL, and 14.7% spend more than 1000 GEL.

To study the dental expenses in detail, we have identified the following groups. In the first group we combined expenses up to 100 GEL, in the second group from 100 to 500

The percentage distribution of the respondents by the costs incurred for dental services is presented below:

Chart 1: Dental expenditures of population, %



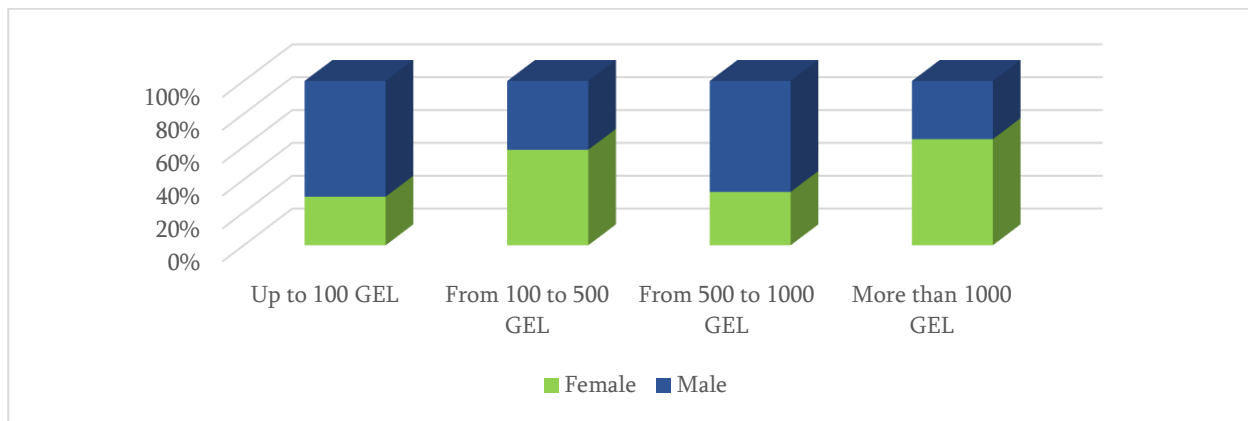
Dental expenditures are different by sex. The following frequency distribution table and

the corresponding chart confirm the abovemention.

**Table 1. Dental expenditures by sex, Percent**

		Expenditures				Total
		Up to 100 GEL	From 100 to 500 GEL	From 500 to 1000 GEL	More than 1000 GEL	
Sex	Female	11.5%	62.2%	8.8%	17.5%	100.0%
	Male	27.4%	44.8%	18.3%	9.60%	100.0%
Total		17.0%	56.3%	12.0%	14.7%	100.0%

**Chart 2: Dental expenditures by sex, Percent**



The results of the chi-square criterion used to test the statistical significance of differences by gender are as follows:

**Table 2. Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	48.084 <sup>a</sup>	3	0.000
Likelihood Ratio	46.972	3	0.000
Linear-by-Linear Association	9.06	1	0.003

According to the table, the significance level  $\alpha$  is equal to 0.000, which is less than the preselected significance level of 0.05. Thus, we can conclude that there is a significant statistical difference for dental expenditures by gender.

Regarding dental care expenditures among the employed and unemployed persons, the expenditures of employed persons are much higher than those among the unemployed persons. The corresponding table and chart are presented below:

**Table 3. Dental expenditures by employed and unemployed persons, Percent**

	Expenditures				Total
	Up to 100 GEL	From 100 to 500 GEL	From 500 to 1000 GEL	More than 1000 GEL	
Employed	15.0%	52.0%	13.0%	20.0%	100.0%
Unemployed	32.0%	61.0%	6.0%	1.0%	100.0%

**Chart 3. Dental expenditures by employed and unemployed persons, Percent**



To test whether there is a statistically significant difference in dental care expenditures between the employed and the

unemployed persons, we used the chi-square test of hypotheses. The test result is given in the table:

**Table 4. Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35.786a	3	0.000
Likelihood Ratio	49.313	3	0.000
Linear-by-Linear Association	35.571	1	0.000

According to the table, the significance level  $\alpha$  is equal to 0.000, which is lower than the preselected significance level of 0.05. Thus, we can conclude, that there is a significant statistical difference in dental care costs between the employed and the unemployed persons.

According to the results of the research, there are significant difference in dental expenses by regions. The summary table of the chi-square criterion for hypothesis testing is presented below:

**Table 5. Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	415.173a	24	0.000
Likelihood Ratio	376.368	24	0.000
Linear-by-Linear Association	4.823	1	0.028

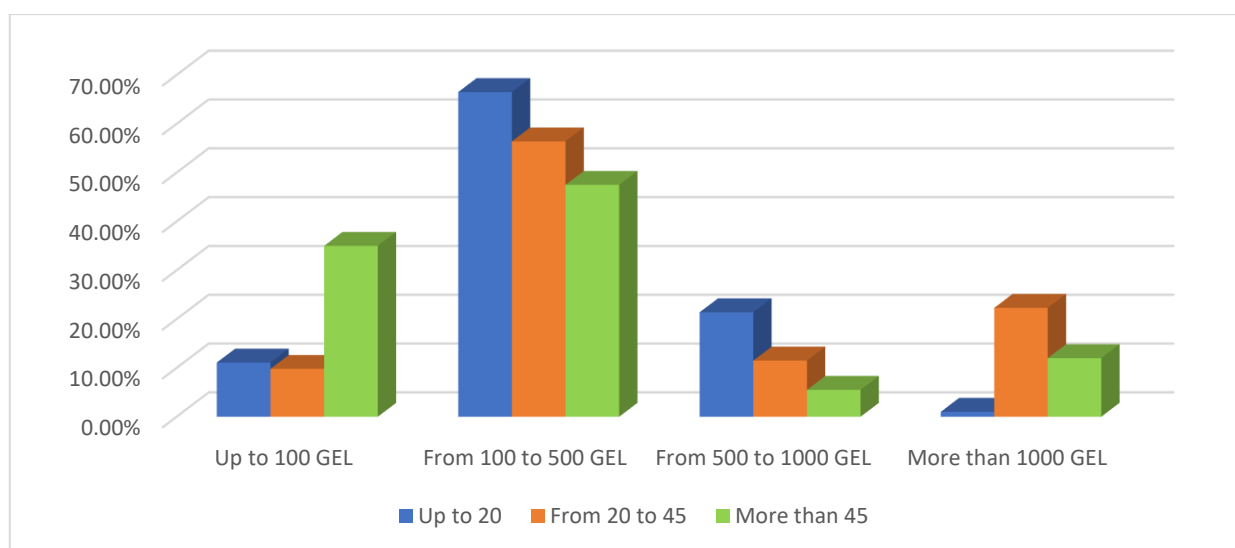
The significance level equals to 0.000. It is also less than 0.05 in this case. Thus, we can conclude that there is a significant statistical difference in dental costs by regions.

There are also significant differences in dental expenditures between different age groups. The cross-tabulation table and chart for dental expenses by age groups are presented below:

**Table 6. Dental expenditures by age groups, Percent**

		Expenditures				Total
		Up to 100 GEL	From 100 to 500 GEL	From 500 to 1000 GEL	More than 1000 GEL	
Age	Up to 20	11.1%	66.5%	21.4%	1.0%	100.0%
	From 20 to 45	9.8%	56.4%	11.5%	22.3%	100.0%
	More than 45	35.0%	47.5%	5.5%	12.0%	100.0%

**Chart 4. Dental expenditures by age groups, Percent**





The result of the chi-square criterion used to test the statistical significance of the

difference in dental care expenses according to age groups is presented in the table below:

**Table 7. Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	103.657	6	0.000
Likelihood Ratio	110.807	6	0.000
Linear-by-Linear Association	5.012	1	0.025

The significance level equals to 0.000. It is also less than 0.05 in this case. Thus, we can conclude that there is a significant statistical difference in dental costs by age groups.

Based on our research, there are also some interesting results. About a one third of the respondents (31.4%) consult a doctor for

preventive purposes. Dentist’s consultation is mainly due to urgent need. However, some population cannot afford to visit a dentist even in case of urgent need due to very low income. 30.0% of respondents do not consult a doctor in case of oral diseases, the main reason of which is lack of money for treatment.

**Conclusions**

Dental expenditures are quite small in the conditions of wide spread of oral diseases in Georgia. The share of dental care expenses in the structure of consumer expenses of the population is about 0.5%. And the share of dental expenditures in healthcare costs is about 5%.

17.0% of respondents spend up to 100 GEL on dental services, 56.3% spend between 100 and 500 GEL, 12.0% spend between 500 and 1000 GEL, and 14.7% spend more than 1000 GEL.

Expenditures for dental care vary significantly by gender, age, region, and the employed and unemployed persons.

About a third of the surveyed population

cannot afford to visit a dentist for prevention or treatment due to low income.

The final recommendations can be formulated as follows:

- Appropriate policies should be implemented in the direction to increase the income of the population, which increases the expenses on dental services and every resident will have the opportunity to improve their oral health;
- Appropriate policies should be implemented in the direction to increase the number of employees, which is a source of increasing income;
- Appropriate policies should be implemented in the direction of reducing and eliminating the causes of oral diseases.



## მოსახლეობის მიერ სტომატოლოგიურ მომსახურებაზე გაწეული ხარჯები საქართველოში

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### აბსტრაქტი

სტომატოლოგიურ დაავადებათა მზარდი რაოდენობა დღევანდელ პერიოდში მათი მკურნალობის ხარჯების ზრდას მოითხოვს. თუმცა განვითარებად ქვეყნებში, მათ შორის საქართველოში, სადაც მოსახლეობის უმრავლესობა დაბალშემოსავლიანია ან უმუშევარი, სტომატოლოგიურ მომსახურებაზე გაწეული ხარჯები ძალიან მცირეა. წლების განმავლობაში მოსახლეობის სამომხმარებლო ხარჯების სტრუქტურაში ჯანმრთელობის დაცვის ხარჯების წილი 10 %-ის ფარგლებში მერყეობს, სტომატოლოგიური მომსახურების ხარჯების წილი კი დაახლოებით 0,5 %-ია. რაც შეეხება ამ უკანასკნელის წილს ჯანდაცვის ხარჯებში, ის დაახლოებით 5 %-ს შეადგენს.

გამოკითხულთა 17.0 % -ის დანახარჯები სტომატოლოგიურ მომსახურებაზე 100 ლარამდეა, 56.3 %-ის ხარჯები 100-დან 500 ლარამდეა, 12.0 %-ის ხარჯები 500-დან 1000 ლარამდე, ხოლო 14.7 %-ის დანახარჯები 1000 ლარზე მეტს შედგენს.

სტომატოლოგიურ მომსახურებაზე გაწეული ხარჯები მნიშვნელოვნად განსხვავდება სქესის, ასაკის, რეგიონულ ჭრილში, ასევე დასაქმებულთა და უმუშევრების მიხედვით.

გამოკითხული მოსახლეობის დაახლოებით მესამედი დაბალი შემოსავლის გამო ვერ ახერხებს სტომატოლოგიურ ვიზიტს პროფილაქტიკისა თუ მკურნალობის მიზნით.

**საკვანძო სიტყვები:** სტომატოლოგიური მომსახურების ხარჯები, სტატისტიკური გამოკვლევა.

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