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# მედიცინისა და მენეჯმენტის თანამედროვე პრობლემები

საერთაშორისო, რეცენზირებადი, რეფერირებადი სამეცნიერო ჟურნალი

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მთავარი რედაქტორისაგან  
From the Editor-in-Chief



ძვირფასო კოლეგებო!

შემოთავაზებული სამეცნიერო ნაშრომთა ჟურნალი განკუთვნილია მედიცინის, ეკონომიკის, მენეჯმენტის, ფიზიკური მედიცინისა და რეაბილიტაციის დარგის სპეციალისტებისათვის.

ჩვენ ვიმედოვნებთ, რომ ავტორთა მიერ წარმოდგენილი ნაშრომები ხელს შეუწყობს სამეცნიერო პოტენციალის გაძლიერებას.

**მარინა ფირცხალავა**

ბიოლოგიურ მეცნიერებათა დოქტორი,  
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უნივერსიტეტ გეომედიის რექტორი

**Dear colleagues!**

**The proposed scientific journal is intended for specialists in medicine, management, physical medicine and rehabilitation, economics.**

**We hope that the works presented by the authors will help to strengthen the scientific potential.**

**Marina Pirtskhalava**

Doctor of Biological Sciences,  
Professor, Academician,  
Rector of University Geomedi

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## Effective treatment of gastroduodenitis in Georgia using mineral waters

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### Abstract

Due to the optimal composition of microelements, treatment with mineral waters "Vardzia" and "Zanavi" in patients suffering from gastroduodenitis led to positive dynamics of the clinical symptoms of the disease. The anti-inflammatory, analgesic and anti-toxic effect of mineral waters was revealed, the structure of the mucous membrane of the stomach and duodenum was significantly improved, which led to the normalization of the acid-producing function of the stomach and the growth of the surface epithelium of the gastric mucosa. The study of the relative effectiveness of treatment with mineral water showed us the priority value of mineral water "Vardzia" in chronic gastroduodenitis, which occurs due to a decrease in the acid-producing function of the stomach. And in the case of increased acid generating function, mineral water "Zanavi" proved to be effective. High efficiency, ecological purity allows these waters to be used both for treatment and prevention.

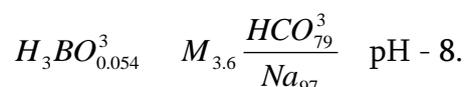
**Keywords:** gastroduodenitis, mineral waters: "Vardzia", "Zanavi".

**Introduction:** Georgia is rich in mineral waters, there are more than 730 types (quantity is indicated without unexplored waters) of mineral water (M.W.), which are used for balneological purposes [1].

In recent years, 50% of the working population of developed countries suffer from chronic gastroduodenitis. There is a real danger of this disease turning into an ulcer disease. A necessary condition for the normal functioning of the body is its stable chemical composition. In this case, the natural m.w. is a unique healing factor [2]; Because it is characterized by the increase of adaptive and reserve means and does not have negative effects.

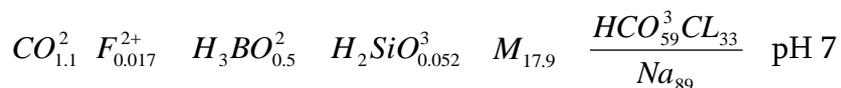
Presented review paper used modern internet generalizations and our previously published results [3; 4; 5]. Accordingly, depending on the relevance, future priorities are presented.

The purpose of the research: drinking m.s. Comparative scientific study of "Zanavi" and "Vardzi". M.W. "Zanavi" is located in Borjomi district, it is low mineralization (3.6 g/dm<sup>3</sup>), hydrogen carbonated sodium water rich in F, B, Ba, Fe trace elements and boric acid. MW. chemical composition according to Kurlov's well-known formula is as follows:  $F_{0.015}$



High mineralization (17.9 g/dm<sup>3</sup>) carbonic acid hydrocarbonate, chloride-sodium M.W. was

also studied. "Rose"; contains silicic acid, boric acid, rich in microelements F<sup>2+</sup>, Br, I, F; As it is known, it is located in Aspindze district. M.W. The chemical composition according to the above-mentioned formula of Kurlov is as follows:



**Material and methods:** The therapeutic effect of M.W. "Zanavi" was studied by us and continued on 48 patients suffering from chronic gastroduodenitis. Their age ranged from 38 to 60 years, and m. "Vardzia" was studied on 60 patients, their age was defined as 25-62 years. Chronic cholecystitis (25%), as well as spastic colitis (12%), iron deficiency anemia (2%), obesity (20%) and polyosteoarthritis (5%) were significant diseases.

Against the background of dietary nutrition, group I patients received during 24 days M.W. "Zanav", and of the II group - M.W. "Vardzia" (3.5 ml per 1 kg of body weight), three times a day, depending on the initial functional state of stomach acid.

Methods: In addition to general clinical-laboratory examinations, the secretory acid-generating function of the stomach was studied with enteric irritant in dynamic rows, using the fractional method of Leporsky; Gastroscopy was performed with a fiberscope from the Japanese company "Olumpus".

**Discussion of obtained results:** Before treatment, from group I patients suffering from chronic gastroduodenitis, who received M.W. "Zanav", about 40% had some pain in the epigastric area: from dyspeptic events: quite frequent burping in 50%, substantial loss of appetite in 40%, burning sensation in the epigastric area in 15%, unpleasant bitterness in the mouth in 10%, and in the case of almost a third (30%) of patients - swelling and pain in the large intestine. In the same number of patients, these complaints were manifested when the diet was violated. During objective examinations, plaque on the tongue was found in 70% of patients, and significant pain in the epigastrium - in 68%.

In patients of the II group, who received M.W. "Vardzia", in the beginning, periodic pain in the epigastrium area prevailed - 70%, from dyspeptic events: belching in 62%, loss of appetite in 50%, burning in the epigastrium in 20%, bitterness in the mouth in 12%; 12% of patients had bloating and pain in the colon. During objective examinations, swollen tongue was found in 65% of patients.

Discussion of the obtained results: before treatment, 60% of patients had a significant increase in gastric secretion, and 40% - a decrease. M.W. "Zanavi" monotherapy brought about positive changes in patients suffering from gastroduodenitis, which was reflected in the decrease of the increased parameters in terms of gastric secretion (in the stimulated phase): total acidity from 112.5 mmol/l to 92.5 mmol/l; Acidification products from 6.15 mmol/h to 5.75 mmol/h. The same positive dynamics were revealed in terms of free acidity and its debit, while indicators of reduced acid-forming function increased: total acidity from 34.7 mmol/l to 39 mmol/l.

M.W. "Vardzia" treatment had a beneficial effect on the clinical signs of the disease: from the

fifth day, a decrease in pain in the epigastrium area was noticed, and from the ninth day, a decrease in dyspeptic events was observed.

In group II patients who were treated with "Vardzia", 38% had an increase in gastric secretion, 40% - a decrease. After the treatment (in the stimulation phase) there was a significant increase in the decreased parameters in gastric juice from 20.9 mmol/l to 29.5 mmol/l ( $p < 0.001$ ), free acidity - from 10.1 mmol/l to 14.2 mmol ( $p < 0.001$ ), while the indicators of increased acid-producing function decreased slightly: total acidity from 74.5 mmol/l to 70 mmol/l ( $p < 0.001$ ), acidity product - from 5.54 mmol/l to 4.44 mmol/L ( $p < 0.001$ ). In group I patients with chronic gastritis, 60% had superficial gastritis before treatment, and 10% had focal atrophic changes in the antral part. After treatment, there was a significant reduction in hyperemia (56%) and edema (83.3%) in the mucosa of the stomach and duodenum. If before the treatment 30% of the patients had duodeno-gastric reflux, after the treatment it was removed in half of the patients. Along with the reduction of hyperemia of the mucous membrane, there was an increase in the height of the surface epithelium, which is very important and indicates on the reparative action of M.W. "Zanavi".

Before treatment, in patients with chronic gastroduodenitis who received Vardzia, 70% of patients had superficial gastritis, 8% - focal atrophic changes in the antral part. As a result of the treatment, there was a decrease in the mucous membrane (60%) and edema (88%), as well as an increase in the height of the surface epithelium, which indicates the stimulation of the reparative processes of the mucous membrane. If in the case of "Zanavi" water we obtained better results in patients with chronic gastroduodenitis, who had increased stomach acidity, in the case of "Vardzia" water, this advantage was revealed in chronic gastroduodenitis, which occurred in the case of decreased stomach acidity.

Among the patients who were treated with "Vardzia" water, 2% had iron-deficiency anemia at the beginning, the hemoglobin level was defined as 35 units; After treatment, it increased to 62 units and approached the lower limit of normal.

**Conclusions:** due to the optimal composition of microelements, the treatment by mineral waters "Vardzia" and "Zanavi" in patients suffering from gastroduodenitis led to positive dynamics of the clinical symptoms of the disease: the anti-inflammatory, analgesic and antitoxic effect of the mentioned waters was revealed; The structure of the mucous membrane of the stomach and duodenum was significantly improved, which led to the normalization of the acid-producing function of the stomach, as indicated by the growth of the surface epithelium of the gastric mucosa.

A comparative study of the effectiveness of the treatment of mineral waters has shown us the priority value of "Vardzia" mineral water in chronic gastroduodenitis, which occurs with a decrease in the acid-producing function of the stomach. And in the case of increased acid generating function, mineral water "Zanavi" proved to be effective. Taking the mineral water "Vardzia", which contains divalent iron in an ionized form, in anemic patients caused an increase in hemoglobin to the norm, which ensured a better supply of oxygen to the tissues.

Asthenovegetative syndrome was also removed from the II group patient; This "rose" in mineral water was caused by bromine ions.

High efficiency, availability, economy, ecological purity allow us to actively use both mineral waters in the treatment of patients with chronic gastroduodenitis, taking into account the acidity of the stomach. Compared to pharmaceuticals, they do not have negative effects, their ecological purity and variety of microelements allow us to use them both for treatment and prevention. This was caused by bromine ions in mineral water "Vardzia".

## გასტროდუოდენიტების ეფექტური მკურნალობა საქართველოს მინერალური წყლების გამოყენებით

ფირცხალავა მარინა,<sup>1\*</sup> ჭაბაშვილი ირინა<sup>2</sup>

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### აბსტრაქტი

გასტროდუოდენიტით დაავადებულების, მინერალური წყლებით, „ვარძია“ და „ზანავი“, მკურნალობამ, მიკროელემენტების ოპტიმალური შემადგენლობის გამო, განაპირობა დაავადების კლინიკური სიმპტომების დადებითი დინამიკა. გამოვლინდა მინერალური წყლების ანთების საწინააღმდეგო, ტკივილგამაყუჩებელი და ანტიტოქსიკური მოქმედება, მნიშვნელოვნად გაუმჯობესდა კუჭისა და თორმეტგოჯა ნაწლავის ლორწოვანი გარსის სტრუქტურა, რამაც განაპირობა კუჭის მჟავას ფორმირების ფუნქციის ნორმალიზება და კუჭის ლორწოვანი გარსის ზედაპირული ეპითელიუმის ზრდა. მინერალური წყლით მკურნალობის შედეგებითი ეფექტურობის შესწავლამ, დაგვანახა მინერალური წყლის „ვარძია“ პრიორიტეტული მნიშვნელობა ქრონიკული გასტროდუოდენიტის დროს, კუჭის მჟავას წარმომქმნელი ფუნქციის დაქვეითების შედეგად. ხოლო მჟავაწარმომქმნელი ფუნქციის გაზრდის შემთხვევაში, ეფექტურია ზანავის მინერალური წყალი. მაღალი ეფექტურობა და ეკოლოგიური სისუფთავე საშუალებას იძლევა ამ წყლების გამოყენებისთვის, როგორც სამკურნალო, ასევე პროფილაქტიკური დანიშნულებით.

**საკვანძო სიტყვები:** გასტროდუოდენიტი, მინერალური წყლები: „ვარძია“, „ზანავი“.

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## Healthcare and education problems of Georgia in terms of human capital development

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### Abstract

The human factor acquires a more essential role and importance in the aspects of management, monitoring and activation of socio-economic processes day by day. This is possible to achieve the effectiveness of the socio-economic development of the country, according to a number of indicators: by increasing the specific share of specialists with a high level of professionalism in all spheres of government, by increasing the specific share of highly qualified labor of workers, by raising their level of education and by making the most of the potential of those persons who are involved in the formation of human capital. They participate in the accumulation-use system. The purpose of the study is to analyze the human capital development opportunities in the health and education sectors of Georgia, the level of knowledge of the human resources in the sector, thus this is and will be a decisive factor in the development of the sector. **Since 2016, we have been studying and analyzing investment and management issues in both areas using the main elements of human capital as an example.**

In the era of globalization, the demand for human capital is increasing. Innovative development of the country and industries is a long process. Healthcare and education are key elements of human capital and the backbone of innovative development. Therefore, the formation and development of competitive human capital, as the main factor for the activation of innovative processes in the country and sectors, its strengthening for achieving an effective level of economic growth and competitiveness should be a priority.

**Keywords:** global innovation index, global competitiveness index, human capital.

**Introduction: The research problem** is the existing problems in the healthcare and education systems of Georgia in **terms of human capital development.**

In the globalization era, the topic is relevant, since the country's ranking, situation and development strategy, including in terms of sectors, are determined according to international global indices.

The **target** of our research is to study the dynamics of the health and education systems of Georgia according to international, global competitiveness and human development indices. A number of scientific publications, doctoral theses, materials of international conferences, since 2016, have been devoted to the research of the given problem by the authors, namely the state of the country's human capital and innovative development and existing problems based on the analysis of international, global competitiveness, innovative development and

human development indices. [6]

The efficiency of the country's socio-economic development can be achieved according to a number of indicators by increasing the specific share of specialists with a high level of professionalism in all aspects of management, by increasing the specific share of highly qualified workers, by raising their level of education and maximizing the potential of those persons, using those who participate in the human capital formation-accumulation-use system.

**Our goal** is to assess the level of human capital development in the health and education sectors of Georgia, because this is a decisive factor in the development of the sector.

Also, learn and understand investment and management problems in both fields, on the example of basic elements of human capital, health capital and knowledge capital. One of the essential features of the globalization process should be considered to be the realization of the "knowledge-oriented" economy and the promotion of the role of human capital as a special resource of competitiveness in modern economic systems. Due to the possession of a large resource of creativity and innovation, the demand for human capital is increasing.

Innovative development is a long process. But there are fields that represent the backbone of innovative development - medicine and education.

The formation of competitive human capital contributes to intensive economic growth, increases the employment of the population and its well-being, leads to large-scale development of innovative industries, etc.

Therefore, the development of human capital as the main factor for the activation of innovative processes and its strengthening in order to achieve an effective level of economic growth and competitiveness requires the following directions:

- to determine the essence of such economic categories as: "human capital" and "competitiveness", "competitive human capital", "innovative policy and strategy";
- To study the state of health capital and knowledge capital of basic structural elements at the stage of human capital formation-accumulation and use in Georgia;
- to study the quality level of human capital elements in the conditions of the development of the innovative economy based on international indices and search for ways to improve them;
- Determination of the role of human capital management at the state level.

In 2020, due to the pandemic, the Economic Forum did not publish a new rating. Accordingly, Georgia remained in 74th place (among 141 countries). According to the 2019 report, according to the Global Competitiveness Index, Georgia's position worsened by eight levels compared to last year. According to the 2019 report published by the World Economic Forum, Georgia ranks 74th among 141 countries. In the 2018 report, Georgia was in the 66th position. [10]

World Bank (WB) "Human Capital Index" In 2020, Georgia ranked 85th among 174 countries in the World Bank's Human Capital Index with a score of 0.57. [16]

Georgia is in 74th place among 141 countries with 60.6 points (maximum 100 points) in the rating. During the years 2010-2021, the dynamics and analysis of the financing of the two main components of human capital - education (knowledge capital) and health capital are interesting.

**Methodology.** For the research, we used the regression model, which is a very common method for reflecting the dependence of data on each other. Building a model allows us to make predictions and plans based on the results. Also, based on the regression analysis, management decisions can be made, which will be aimed at identifying the priority cause affecting the result.

The existing system of higher education financing cannot ensure the continuous institutional development of higher education institutions.<sup>1</sup> The main burden falls on households, which leads to the problem of access to higher education, especially for socially vulnerable groups. [2]

Science is an integral part of the sphere of education. The existing model of science funding does not create opportunities for the implementation of long-term research priorities, formation of clusters, strengthening and permanent institutional development.

**Figure 1. 2021 report published by the World Economic Forum [10]**

**Georgia's positions in the world rankings**



For this, let's analyze the level of investment in human capital with the following elements: health capital (state spending on healthcare, all levels) and education capital (state spending on education, all levels), the years 2010-2021 are taken for the research, the costs are given as the ratio of investments in the relevant sphere to GDP, by percent.

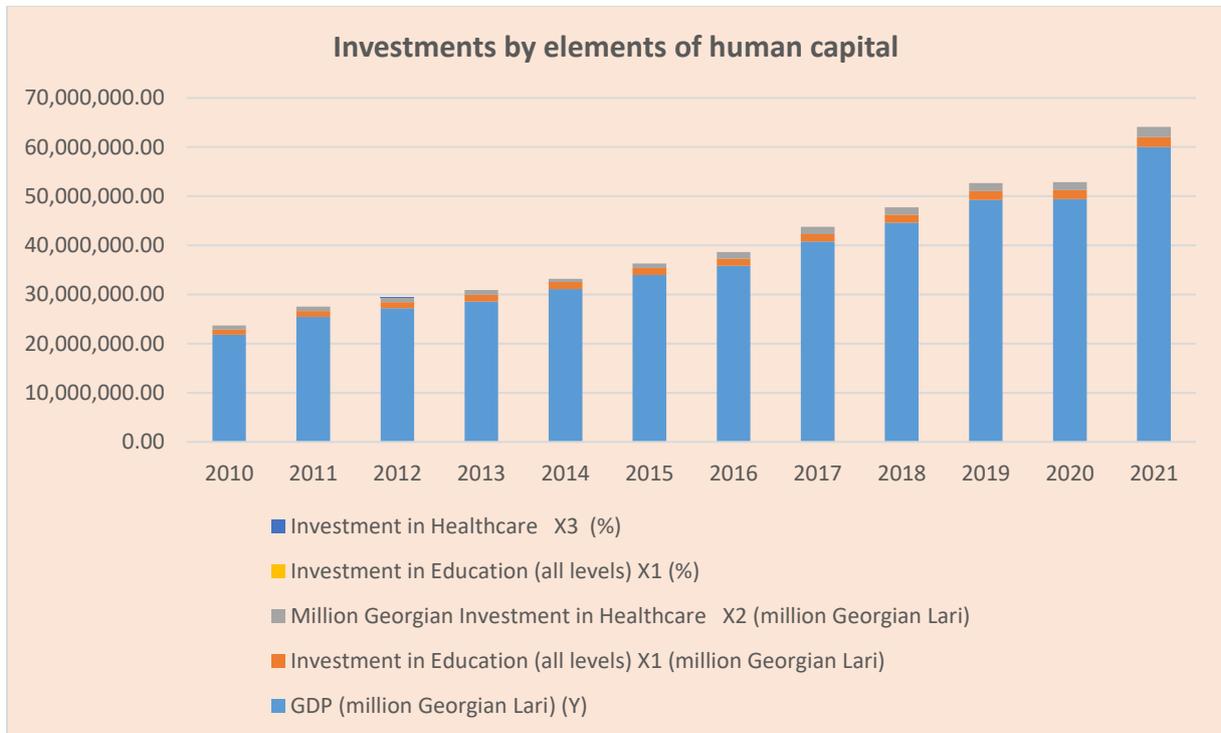
According to the data of 2010-2021, we can see that the dynamics of the GDP is increasing, logically, the investments in the fields of healthcare and education are increasing. We received forecast data according to the research conducted by us in 2016 and in accordance with the data obtained on the basis of the created regression model.

In our example, we consider the investments made by the state in the elements affecting the development of human capital (healthcare and education). The inclusion of each variable used in the model needs a theoretical justification.

**Table 1. Investments by elements of human capital [14]**

Years	GDP (million Georgian Lari) (Y)	Investment in Education (all levels) X1 (million Georgian Lari)	Million Georgian Investment in Healthcare X2 (million Georgian Lari)	Investment in Education (all levels) X1 (%)	Investment in Healthcare X3 (%)
2010	21,822,400.00	1,057,000.00	850,100.00	4.84%	3.90%
2011	25,479,000.00	1,134,500.00	942,300.00	4.45%	3.70%
2012	27,227,300.00	1,188,900.00	1,013,200.00	4.37%	3.72%
2013	28,593,400.00	1,332,500.00	1,013,000.20	4.66%	3.54%
2014	31,124,000.00	1,434,500.00	649,160.00	4.61%	2.09%
2015	33,935,000.00	1,459,100.00	910,940.00	4.30%	2.68%
2016	35,836,000.00	1,459,500.00	1,349,100.00	4.07%	3.76%
2017	40,762,000.00	1,523,300.00	1,460,600.00	3.74%	3.58%
2018	44,599,000.00	1,622,100.00	1,497,500.00	3.64%	3.36%
2019	49,263,000.00	1,764,800.00	1,641,900.00	3.58%	3.33%
2020	49,407,000.00	1,847,121.00	1,643,599.00	3.74%	3.33%
2021	60,000,000.00	2,017,922.00	2,125,042.00	3.36%	3.54%

**Figure 2. Investments by elements of human capital**



The results of the regression model proved that: the actual investments made by the state in 2016-2021 and, accordingly, the dynamics are sufficient, as indicated by the coefficient of determination R2 (in the case of a reliable model, it should be 0.8-1): in the case of investment

**Table 2. Data obtained on the basis of the regression model created in 2016 [15]**

Years	GDP (million Georgian Lari) (Y)	Predictive			
		Investment in Education (all levels) X1 (million Georgian	Investment in Healthcare X3 (million Georgian	Investment in Education (all levels) X1 (%)	Investment in Healthcare X3 (%)
20 16	33,900,000. 00	993,086.40	1,660,858.2 0	2.93%	4.90%
20 17	34,917,000. 00	1,145,658.50	1,725,082.4 0	3.28%	4.94%
20 18	35,964,510. 00	1,322,018.70	1,791,786.9 0	3.68%	4.98%
20 19	37,043,445. 30	1,525,960.79	1,861,095.7 2	4.12%	5.02%
20 20	38,154,748. 66	1,761,904.01	1,933,139.0 6	4.62%	5.07%
20 21	40,444,033. 58	2,035,000.98	2,008,053.6 6	5.03%	4.97%
20 22	41,657,354. 59	2,329,236.91	2,085,983.0 9	5.59%	5.01%
20 23	44,156,795. 86	2,667,057.51	2,167,078.0 7	6.04%	4.91%
20 24	45,481,499. 74	3,054,972.96	2,251,496.8 9	6.72%	4.95%
20 25	48,210,389. 72	3,500,468.57	2,339,405.7 5	7.26%	4.85%
20 26	49,656,701. 41	3,675,492.00	2,430,979.1 4	7.40%	4.90%
20 27	52,636,103. 50	3,859,266.60	2,526,400.2 8	7.33%	4.80%
20 28	54,215,186. 60	4,052,229.93	2,625,861.5 8	7.47%	4.84%
20 29	57,468,097. 80	4,254,841.42	2,729,565.0 3	7.40%	4.75%
20 30	59,192,140. 73	4,467,583.49	2,837,722.7 4	7.55%	4.79%

in education - R2 = 0, 59. On health care - R2 = 0.67, on social care R2 = 0.14, on cultural events R2 = 0.58, on scientific researches, innovations, inventions R2 = 0.52. In 2016, the

analysis of the forecast model prepared by us showed us that the economic progress of the country depends on the investments made in human capital elements, as a result of which growth (determination coefficient  $R^2 = 0.8-1$ ) it is possible to make a forecast of the growth rate and development.

It should be noted here that according to the results of PISA, Georgia ranks 70th out of 78 countries according to the total score of reading comprehension, mathematics and science. And the World Bank's "Human Capital Index" shows that the expected productivity of Georgian schoolchildren is the lowest compared to the region and developed countries. [16]

**Results.** As for the problems and challenges of the healthcare system, according to forecast data, in relation to the gross domestic product, 4.98% should have been implemented in healthcare in 2016-2021, but 3.94% was actually implemented, which is a significantly lower rate.

The new coronavirus has radically transformed the perceptions of people, society and state institutions, approaches to the importance of health policy. The pandemic has brought the issues of healthcare and its effective management back into the public and political sphere with a new intensity. In parallel with this and in response to the challenges, various types of reform were announced at the state level, which include strengthening primary care, increasing funding for the medical field, and upgrading infrastructure. The 21st century is the century of global epidemics. The modern globalized world has brought a lot of good things, human migration and travel have increased. If in the past, epidemics involved only individual countries, in the modern, globalized world, the challenges posed by infectious, communicable diseases transcend national borders. Given that the fight against infectious diseases is primarily a public good rather than a private, individual service, the era of infectious disease epidemics increases the regulatory role of the state in the health sector, the importance of cooperation between the state and the private sector, and the priority of public health. The best way to solve these problems is transnational actions and solutions based on coordinated cooperation between different countries of the world.

For the development of healthcare in Georgia, this is necessary to:

1. Development of existing human resources in the healthcare system, taking into account the challenges of pandemics;
2. Transfer of international experience in health system management and monitoring;
3. Equipping and improving the physical infrastructure of primary care and modern innovative medical equipment;
4. Development/improvement of the information system of the healthcare sphere.

As for the field of education, according to forecast data, 3.94% of the GDP should have been spent on education in 2016-2021, but 3.69% was actually spent.

If we compare the forecast data obtained for 2016-2021 with the real data available today, the following conclusions can be drawn:

1. To analyze the investments made in the field of education, the forecast and actual data are

Not significantly different from each other, but the actual result differs from the expected result. The quality of education has not improved in the education system. And in 2020, as a result of the pandemic, the introduced online learning mode has definitely worsened the quality of education at all levels;

2. As we mentioned, the financing of education and healthcare systems increases every year, and the mentioned indicators of the state budget have increased this year as well. But, despite the trend of increasing investments from the budget in the education and healthcare systems, we do not receive the appropriate quality of education and quality services of the healthcare system in these systems. Therefore, Georgia's place in the international rankings is relevant;

3. According to the 2019-2021 international rankings, Georgia's slow positional decline and the high regression experienced in some areas threaten both the country's international investment image and the country's long-term economic development perspective. According to international assessments, the main challenge for Georgia is less stability of the macroeconomic environment, high inflation in the country, low level of rule of law, lack of a fair court, high level of corruption, infrastructural challenges and low indicators of innovative development;

4. Since the effective work of the education and healthcare systems, the country's innovative development and high ranking in international indices are determined by the high level of human capital, investments in the elements of human capital development, in particular in the fields of healthcare and education, should be a priority for the country.

## საქართველოს ჯანდაცვისა და განათლების პრობლემები ადამიანური კაპიტალის განვითარების ჭრილში

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### აბსტრაქტი

ადამიანური კაპიტალის ფაქტორი უდიდეს მნიშვნელობას იძენს სოციალურ-ეკონომიკური პროცესების მონიტორინგის, მართვისა და გააქტიურების თვალსაზრისით. ქვეყნის სოციალურ-ეკონომიკური ზრდისა და ეფექტიანი მდგრადი განვითარების მიღწევის დონე, შესაძლებელია, მაჩვენებლების კომპლექსით შეფასდეს, მათ შორის მაღალი დონის სპეციალისტების დაკომპლექტებით მმართველობით ყველა რგოლში და მათი პოტენციალის საუკეთესო გამოყენებით. ადამიანური კაპიტალის ფორმირება-დაგროვება-გამოყენების მწვავედ საჭირო კორპორატიულ სისტემას მხოლოდ ამგვარი მიდგომით მივიღებთ. კვლევის მიზანს წარმოადგენდა საქართველოს ჯანდაცვისა და განათლების ქვესექტორებში ოპერირებადი ადამიანური კაპიტალის განვითარების შესაძლებლობებისა და ხარისხის შეფასება. შემუშავებული საპროგნოზო მოდელის თანახმად, გაკეთდა საჭირო ანალიზი ინვესტი-

ციების ორთავე მიმართულებით - ჯანდაცვისა და ცოდნის კაპიტალების მაგალითზე. გლობალიზების ერაში, კორპორაციების ადამიანური კაპიტალი წარმატების ერთ-ერთი უმთავრესი ფაქტორია. ფაქტია, რომ ქვეყნისა და მისი ეკონომიკური დარგების ინოვაციური განვითარება მეტად ხანგრძლივი პროცესია. ამასთან, ადამიანური კაპიტალის საკვანძო ელემენტებსა და ინოვაციური განვითარების ხერხემალს ჯანდაცვისა და განათლების სექტორები წარმოადგენენ. გამომდინარე, კონკურენტუნარიანი ადამიანური კაპიტალის ჩამოყალიბების პროცესი და შემდგომი განვითარება, როგორც ქვეყნისა და მისი ეკონომიკური ნახტომის განმაპირობებელი ფაქტორის განსაზღვრა, პრიორიტეტს უნდა წარმოადგენდეს, ეკონომიკური ზრდისა და კონკურენტუნარიანობის მაქსიმალურად ეფექტიანი მაჩვენებლების უზრუნველყოფისათვის.

**საკვანძო სიტყვები:** გლობალური ინოვაციის ინდექსი, გლობალური კონკურენტუნარიანობის ინდექსი, ადამიანური კაპიტალი.

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## The impact of the Coronavirus (COVID-19) on the menstrual cycle and mental health of young Georgian women

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### Abstract

The Coronavirus (COVID19) damages various systems and organs and can directly affect the reproductive system. Coronavirus infection affects not only physical health but also causes a significant threat to mental health.

**Objective of the study** was to investigate the impact of the coronavirus infection and vaccination against coronavirus infection on the menstrual cycle and mental health of young Georgian women and establish the relationship between them.

**Methods:** A cross-sectional study was conducted by administering online questionnaires to young women (18-25 years) in Georgia. Through questionnaires, we determined the characteristics of the menstrual cycle, the psychological state of the participants before being infected with the coronavirus, in the period 3-6 months after the infection and after the vaccination against the coronavirus infection.

**Results:** 48.2 % of participants reported significant changes in their menstrual cycle after the coronavirus infection. Participants' mean menstrual cycle length significantly increased after 3 months of coronavirus infection,  $p < 0.05$ . Participants' mean menstrual cycle length before, and 6 months after the coronavirus infection did not differ significantly. Duration of menstruation before the pandemic was significantly shorter than after 3 and 6 months of infection,  $p < 0.05$ . The prevalence of premenstrual symptoms components and dysmenorrhea was significantly increased after 3 and 6 months of the coronavirus infection,  $p < 0.05$ .

Changes in the menstrual cycle within 3 months after vaccination were found in 58.8% of cases, the severity of which significantly decreased 6 months after vaccination,  $p < 0.001$ . Women noted a significant increase in low mood, poor concentration, anxiety, poor sleep, loneliness after COVID-19 and vaccination,  $p < 0.05$

**Conclusions:** Coronavirus infection causes significant changes of the menstrual cycle and mental health in Georgian young women. The study indicated a link between the COVID-19 pandemic-induced anxiety, stress, depression, and menstrual cycle irregularity.

**Keywords:** COVID-19; coronavirus infection, menstrual cycle; depression; stress.

## **Introduction**

The coronavirus infection (COVID-19), due to its contagiousness and severe complications, has caused great damage to humanity [1,2]. At the beginning of the pandemic, the main focus was on treating organ system disorders that cause death. Later, when the mechanism of action of the coronavirus became clear, studies in other directions became relevant. Coronavirus infection affects not only physical health but also causes a significant threat to mental health [2,3,4,5].

The coronavirus pandemic resulted in stress, anxiety, and depression [2-5]. It is known that long-term stress can affect the hypothalamic-pituitary-ovarian axis, which is responsible for regulating the menstrual cycle. The main consequences of that are disruptions of hormone secretion and the menstrual cycle [4-6].

In addition, COVID-19 can directly affect the reproductive system. The entry of the coronavirus into the target cell occurs through its binding to the angiotensin-converting enzyme (ACE 2), which is not only an enzyme but also a functional receptor on cell surfaces [7,8]. Through ACE 2, SARS-CoV-2 enters host cells and initiates upregulation of ACE2 expression. SARS-CoV-2 induces ACE/ACE2 imbalance and activation of renin-angiotensin-aldosterone system (RAAS), which ultimately contributes to the progression of COVID-19 [7-9]. As it is known, ACE 2 is not only the main component of the regulation of the renin-angiotensin system, but also plays an important role in the female reproductive function. Recent studies have shown that ACE 2 is expressed in the ovaries, uterus, vagina, and placenta. ACE 2 is involved in the regulation of follicle development, ovulation, and regression of the corpus luteum. It also affects the transformation of the endometrium [7-10]. To sum up, coronavirus infection, depending on its pathogenesis, may be the cause of reproductive dysfunction.

Presently, studies on the impact of the coronavirus infection and vaccination against the coronavirus infection on the female reproductive system and the psychological state of patients are of great interest. The subject of discussion is the relationship between psychological stress and menstrual cycle disorders. Despite the fact that the coronavirus infection is the most studied disease in the last 3 years, its impact on various systems has not yet been fully established. The last period is characterized by a worsening of the epidemiological situation in various regions with an increase in cases of coronavirus infection, and we still cannot announce the end of the epidemic

Taking into consideration the fact that the impact of the coronavirus infection on women's health is different depending on the population, and the results of studies related to coronavirus infection are contraindicated, it should be considered appropriate to continue research in this direction, involving population characteristics.

**Objective of the study was** to investigate the impact of the coronavirus infection and vaccination against coronavirus infection on the menstrual cycle and mental health of young

Georgian women and establish the relationship between them.

**Material and methods:** A cross-sectional study was conducted by administering online questionnaires to young women (18-25 years) in Georgia, from 8th to 28th June 2022. The questionnaires were designed by a gynecologist, a psychotherapist and clinical epidemiologist.

Online questionnaires were sent to female students of different Universities in Georgia. The questionnaires were anonymous and their results were used only in a generalized form. The Ethics Committee of the Center for Reproductive Medicine “Universe” agreed to conduct the study [Approval code: 12/22].

Through the questionnaire, we determined the characteristics of the menstrual cycle, the psychological state of the participants before being infected with the coronavirus, in the period 3-6 months after the infection and after the prophylactic vaccination against the coronavirus infection.

The number of questions in the questionnaire was 60. The first part of the free-part questionnaire included demographic characteristics of the participants, the conditions of education and job, physical characteristics, medical and reproductive history. The second part of the questionnaire was related to the history of infections of the coronavirus, diagnostic methods, type and quantity of the vaccine, the peculiarities of the menstrual cycle before and after 3-6 months of the coronavirus infection and vaccination. The third part describes the general condition, activity, emotional state of women before the pandemic and after infection with COVID 19 and also after vaccination.

Criteria for inclusion in the study:

- Age 18-25 years
- Having had regular menstrual cycle during 1 year before pandemic
- During the last 6 months women should not have taken a drug containing sex hormones.
- Agreeing to participate in the study

Criteria for exclusion from the study:

Women who were pregnant, postpartum, or breastfeeding, taking hormone medication, with irregular menstrual cycles or with other somatic diseases that could affect their menstrual patterns.

**Statistical analysis:**

Statistical analysis was done using office software MS excel 2021 and Statistical Package for the Social Sciences, version 24.0 (SPSS 24.0, Chicago, IL, USA). A p-value of 0.05 or lower is considered statistically significant. Data were shown as means±SD for continuous variables or frequency (N). Categorical variables were expressed as a percentage of the total. Changes before and after COVID-19 were evaluated with a paired sample t-test and chi-square test. A Pearson correlation test was used to show the relationships between variables [11,12].

**Results:** 850 participants completed the questionnaire, and 310 were excluded because they did not match the inclusion criteria for the study.

The analysis of the menstrual cycle and psychological state before and after infection with coronavirus in 420 young women was carried out.

Pre- and post-vaccination changes in menstrual cycle and mental health were assessed in 285 female students vaccinated with  $\geq 2$  doses.

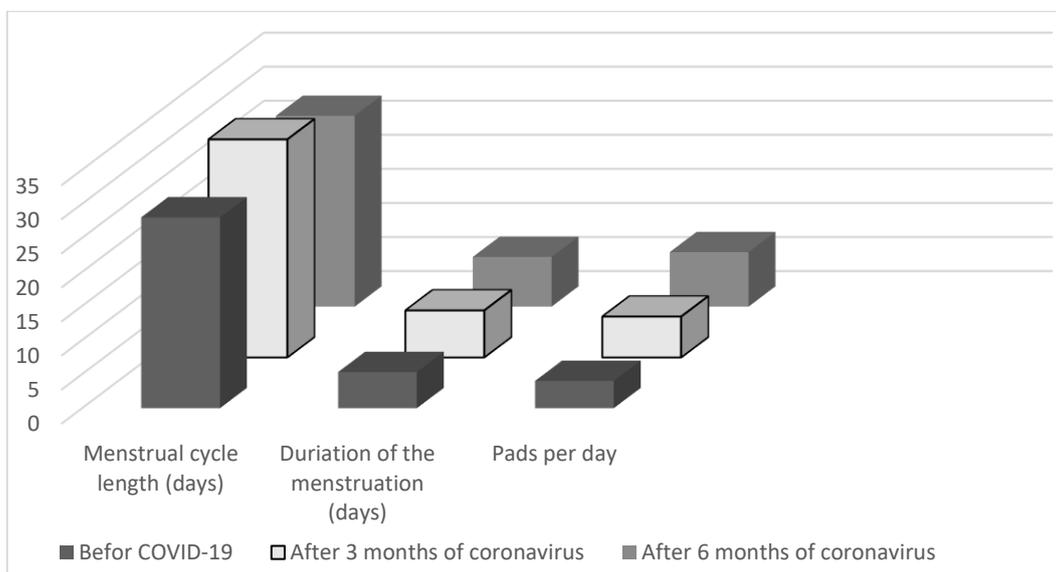
The percentage of smokers was 1.5%. 63.6% (n267) of the participants were single, 28.3% (n119)-married and 1% (n8)-divorced.

The average age of the participants was  $22.5 \pm 2.5$  years (18–25). The average Body Mass Index (BMI) is  $21.5 \pm 5.5$ .

48.2 % of participants reported significant changes in their menstrual cycle after 3 and 6 months of the coronavirus infection. These included changes in menstrual cycle length (48%), the duration of menses (34%), and changes in premenstrual symptoms (25%). Table 1. Delay in menstruation after 3 months of coronavirus infection detected in 20.7% and 6 months later – in 20.95%. Shortening of the menstrual period after 3 months of coronavirus infection was detected by 1.7% and after 6 months – by 5.7% Table 1.

Participants' mean menstrual cycle length significantly increased after 3 months of coronavirus infection,  $p < 0.05$ . Participants' mean menstrual cycle length before the pandemic was  $28.8 \pm 5.5$  days, and after 3 months of coronavirus infection  $-32 \pm 6.5$ . Participants' menstrual cycle length before and 6 months of coronavirus infection ( $28.2 \pm 5.8$  days) did not differ significantly. Diagram 1.

**Diagram 1. Menstrual cycle characteristics in study participants before infection and 3 and 6 months of coronavirus infection**



Duration of menstruation before the pandemic ( $5.3 \pm 2.6$  days) was significantly lower than after 3 months of infection ( $6.9 \pm 3.1$  days) and - after 6 months ( $7.3 \pm 2.1$ ),  $p < 0.05$ . The duration of menstruation after 3- and 6- months of coronavirus infection did not differ significantly. An increase in the duration of menstruation was noted in 7.86% after 3 months transmission of coronavirus infection and in 10.95% after 6 months of coronavirus infection. Decrease duration of the menstruation after 3 months of transmission of coronavirus infection

detected in 6.2% of participants and in 6.4% after 6 months Table 1.

The prevalence of premenstrual symptoms (PMS) components and dysmenorrhea was significantly increased after covid infection compared with before,  $p < 0.05$ . Table 1.

Worsening of premenstrual symptoms after 3 months of the coronavirus infection was noted in 5.24% and after 6 months – in 8.8%. The reduction in premenstrual symptoms after 3 months of coronavirus infection was noted in 0.5% of participants, and in -1.2% after 6 months Table 1.

More painful menstruation after 3 months of coronavirus infection was detected in 8.8% and after 6 months – in 10.5% of participants. Less painful menstruation was noted in 3.6% after 3 months of the coronavirus infection and in 3.3% after 6 months of participants Table 1

**Table 1. Menstrual cycle characteristics after 3 and 6 months of coronavirus infection and vaccination**

The peculiarity of the menstrual cycle	After 3 months of COVID19 (n 420)	After 6 months of COVID19 (n 420)	After 3 months of vaccination (n285)	After 6 months of vaccination (n285)
Changes of menstrual cycle characteristics	48.1% (n202)	58.3% (n245)	58.9 % (n168)	27%(n77)
Delay in menstruation	20.7% (n 87)	20.95% (n 88)	20.3% (n 58)	11.9% (n 34)
Shortening of the menstrual period	1.7% (n7)	5.7% (n24)	4.9% (n14)	1.7% (n5)
Decrease duration of the menstruation	6.2% (n26)	6.4% (n27)	9.8% (n28)	4.9% (n14)
Increase duration of the menstruation	7.86% (n33)	10.95% (n46)	11.2% (n32)	6.5% (n 16)
More painful menstruation	8.8% (n37)	10.5% (n44)	8.8% (n25)	3.1% (n 9)
Less painful menstruation	3.6% (n15)	3.3% (n14)	4.2% (n12)	2.8% (n 8)
Worsening of premenstrual symptoms	5.24% (n22)	8.8% (n37)	7% (n 20)	6% (n17)
The reduction in premenstrual symptoms	0.5% (n2)	1.2% (n5)	3.5% (n10)	1.7% (n5)

78% of participants report various changes in their psychological state after COVID-19 infection. Women detected a significant increase in low mood, poor concentration, anxiety, poor sleep, loneliness, poor appetite, binge eating after 3 and 6 months of coronavirus infection,  $p < 0.05$ . Table 2.

Positive correlations between COVID-19-associated mental health disorders and changes of the menstrual cycle, dysmenorrhea severity and PMS were observed,  $p < 0.05$ . The multiple linear regression model revealed that dysmenorrhea severity, PMS symptoms, and changes of the menstrual cycle were associated with worsening of depression and aggravation of anxiety.

The majority of participants received Pfizer-BioNTech (43.5%; n124); Sinopharm (25.6%; n73), and AstraZeneca (1%; n3), Moderna (1%). The majority (86.5%) received two doses. 4.2% do not remember exactly the name of the vaccine and 3.9% of participants were vaccinated with one of the listed + booster. 32.14% of study participants were not vaccinated. Changes associated with the menstrual cycle within 3 months after vaccination were noted

in 58.8% of cases, the severity of which significantly decreased after 6 months of after vaccination and occurred in 27% of cases ( $p<0.001$ ). Table 1.

The characteristics of the change in the menstrual cycle after vaccination in women with and without COVID-19 in anamnesis did not differ significantly. The type of vaccine did not affect significantly on the incidence of symptoms.

73% of participants report various changes in their psychological state after COVID-19 vaccination. Women detected a significant increase in low mood, poor concentration, anxiety, poor sleep, loneliness, poor appetite, binge eating after 3 months of vaccination against coronavirus infection,  $p<0.05$ . Table 2.

Changes in mental health of participants, which were noted 6 months after the transmission of the coronavirus infection and vaccination, compared to the data after 3 months, are significantly reduced, as well as the frequency of menstrual cycle disorders. Table 2.

**Table 2. Mental health status after 3 and 6 months of coronavirus infection (n 420) and vaccination (n 285)**

The changes of the mental health	After 3 months of COVID19 (n 420)	After 6 months of COVID19 (n 420)	After 3 months of vaccination (n285)	After 6 months of vaccination (n285)
Poor concentration	71.6% (n301)	65.2% (n274)	48.8% (n139)	27% (n77)
Depression	28.8% (n121)	20% (n83)	27.4% (n 78)	20.3% (n58)
Poor sleep	69% (n290)	71.4% (n300)	41% (n117)	33% (n94)
Loneliness	23.6% (n99)	17.9% (n75)	21% (n60)	15.8% (n45)
Low mood	83% (n350)	25.2% (n106)	43.5% (n124)	23.5% (n67)
Anxiety	48% (n202)	25% (n105)	43.5% (n124)	13% (n37)

#### **Discussion:**

Regular menstrual cycle is an indicator of a woman's health. Menstrual cycle disorders are associated not only with reproductive health problems, but also with other pathologies and a decrease in the quality of life [13,14].

Our study results showed that the coronavirus infection causes significant changes in the menstrual cycle and mental health in young Georgian women. These included changes in menstrual cycle length, the duration of menses, and changes in premenstrual symptoms. Similar findings were confirmed by other studies [5,15,16], but some authors, however, were in contrast with our findings [5,17].

When we compared the average menstrual cycle length in the participants before and after the coronavirus infection, we found that it significantly increased after 3 months infection, but returned to initial levels 6 months after infection. The menstrual cycle length in the participants before the pandemic and after 6 months of the coronavirus was not significantly different. This result suggests that various types of menstrual cycle changes may be transitory, last for a short time and are associated with various factors, such as stress, and do not cause deep disorders. However, it will be interesting to conduct future studies after the end of the pandemic, based on which it will be assessed whether the parameters of the

menstrual cycle will return to the pre-pandemic state.

Our study showed that duration of menstruation before the pandemic was significantly lower than 3 and 6 months after coronavirus infection. Some studies found similar outcomes; however, others did not find a significant association between the coronavirus and duration of menstruation [5,18,19].

Dysmenorrhea and PMS are considered not only a medical problem, but also a condition that significantly reduces quality of life. Previous studies have shown that dysmenorrhea in female students is directly correlated with reduced academic performance and socialization [20]. Our study results showed that the prevalence of premenstrual symptoms (PMS) components and dysmenorrhea and severity of this symptom was significantly increased after COVID-19 infection compared with before. This was found to be consistent with information in the literature [2,18]. Some studies did not find the association between dysmenorrhea, PMS and coronavirus [5].

The coronavirus is considered a neuro-infection, it affects certain segments of the central nervous system, which is manifested by loss of smell and taste [21,22]. Some studies considered that it can affect the psychological state, mental and cognitive abilities, memory and sleep. However, in many cases, all this is not irreversible, and in dynamics it is possible to reduce the symptoms [2,5,22]. Other studies did not confirm this association [23]. The result of our study indicated that about 78% of participants report various changes in their psychological state after COVID-19. Participants noted a significant increase in low mood, poor concentration, anxiety, and depression after coronavirus infection.

It is known that just as stress can cause menstrual irregularities, menstrual dysfunction can affect a woman's psychological well-being, causing long-term complications and a reduced quality of life [6,23]. Our study showed a significant positive association between anxiety, stress, depressive symptoms, and menstrual cycle changes in young Georgian women caused by the COVID-19 pandemic. This relationship is also indicated by the fact that, according to our data, 6 months after the transmission of a covid infection, compared with the data after 3 months, both various changes in their psychological state and the frequency of menstrual cycle disorders simultaneously decrease. Literature data on this issue are diverse and heterogeneous [4,24,25].

The study showed a possible link between the COVID-19 vaccine and menstrual abnormalities that have impacted their quality of life. As a result of this study, significant changes associated with the menstrual cycle and mental health were detected within 3 months after vaccination, however, it should be noted that after 6 months, the manifestations of fatigue significantly decreased, which once again indicates the possible influence of mental health (psychological moods) on nature of the menstrual cycle. The type of vaccine did not significantly affect the frequency of symptoms. Literature data on this topic are heterogeneous [24,25,26].

The limitations of our study are that the study is based on a questionnaire and therefore

cannot have face-to-face communication with participants, which would lead to a more accurate detection of changes in reproductive and mental health. It would also be interesting to conduct future studies after the end of the pandemic to assess whether menstrual cycle parameters and mental health changes will return to pre-pandemic states.

**Conclusions:**

Coronavirus infection causes significant changes of the menstrual cycle and mental health in young Georgian women.

The study indicated a link between the COVID-19 pandemic-induced anxiety, stress, depression, and menstrual cycle irregularity among young Georgian woman.

The study showed a link between the COVID-19 vaccine and menstrual abnormalities and changes of the mental health in young Georgian woman.

**კორონავირუსული ინფექციის გავლენა მენსტრუალ ციკლზე და მენტალურ ჯანმრთელობაზე ახალგაზრდა ქართველ ქალებში**

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**აბსტრაქტი**

კორონავირუსული (COVID19) ინფექცია აზიანებს სხვადასხვა სისტემებსა და ორგანოებს და პირდაპირ გავლენას ახდენს რეპროდუქციულ სისტემაზე. კორონავირუსული ინფექცია მოქმედებს არა მხოლოდ ფიზიკურ ჯანმრთელობაზე, არამედ მნიშვნელოვან საფრთხეს უქმნის ფსიქიკურ ჯანმრთელობასაც.

**კვლევის მიზანი:** კორონავირუსული ინფექციის და ვაქცინაციის გავლენის დადგენა მენსტრუალ ციკლზე და მენტალურ ჯანმრთელობაზე ახალგაზრდა ქართველ ქალებში და მათ შორის კავშირის გამოვლენა.

**კვლევის მეთოდი:** კროსსექციური კვლევა ჩატარდა საქართველოში ახალგაზრდა ქალებში (18-25 წლის) ონლაინ კითხვარების ადმინისტრირებით. კითხვარების მეშვეობით კვლევის მონაწილეებში დავადგინეთ მენსტრუალური ციკლის ხასიათი, ფსიქოლოგიური მდგომარეობა კორონავირუსით დაინფიცირებამდე, დაინფიცირებიდან 3-6 თვის შემდგომ პერიოდში და კორონავირუსული ინფექციის საპროფილაქტიკო ვაქცინაციის შემდეგ.

**კვლევის შედეგები:** კორონავირუსული ინფექციის გადატანის შემდეგ შემთხვევათა 48.2% აღინიშნებოდა მენსტრუალური ციკლის სარწმუნო ცვლილებები. მონაწილე-

თა საშუალო მენსტრუალური ციკლის ხანგრძლივობა მნიშვნელოვნად გაიზარდა კოროვირუსული ინფექციის გადატანიდან 3 თვის შემდეგ,  $p < 0.05$ . მონაწილეთა მენსტრუალური ციკლის საშუალო ხანგრძლივობა პანდემიამდე და ინფიცირებიდან 6 თვის შემდეგ სარწმუნოდ არ განსხვავდებოდა. მენსტრუაციის ხანგრძლივობა პანდემიამდე იყო სარწმუნოდ ხანმოკლე, ვიდრე ინფიცირებიდან 3 და 6 თვის შემდეგ,  $p < 0.05$ . პრემენსტრუალური სიმპტომების და დისმენორეის სარწმუნო გაუარება აღინიშნებოდა კორონავირუსის ინფექციებიდან 3 და 6 თვის შემდეგ,  $p < 0.05$  ვაქცინაციიდან 3 თვის განმავლობაში მენსტრუალური ციკლის ცვლილება აღინიშნა შემთხვევების 58.8%-ში, რომლის სიმძიმე სარწმუნოდ შემცირდა ვაქცინაციიდან 6 თვის შემდეგ,  $p < 0.001$ . ქალებმა აღნიშნეს დაქვეითებული გუნება-განწყობის მნიშვნელოვანი ზრდა, კონცენტრაციის გაუარესება, შფოთვა, ცუდი ძილი, მარტოობის შეგრძნება კორონავირუსული ინფექციის და ვაქცინაციის შემდეგ,  $p < 0.05$ .

**დასკვნა:** კორონავირუსულმა ინფექციამ იწვევს მენსტრუალური ციკლისა და მენტალური ჯანმრთელობის მნიშვნელოვან ცვლილებებს ქართველ ახალგაზრდა ქალებში. კვლევამ აჩვენა კავშირი COVID-19 პანდემიით გამოწვეულ შფოთვას, სტრესს, დეპრესიას და მენსტრუალური ციკლის დარღვევებს შორის.

**საკვანძო სიტყვები:** COVID-19, კოროვირუსული ინფექცია, მენსტრუალური ციკლი, დეპრესია, სტრესი.

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## Epidemiological features of Meningococcal infection in Tbilisi

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### Abstract

Aim of the study was to identify of epidemiological features of meningococcal infection in Tbilisi in two reporting periods (1992-1999yy and 2017-2021yy). In 1992-1999, the incidence rate reached its maximum in 1993 (2.3 per 100,000 population), and in 2017-2021 it did not exceed one. In the second reporting period in 2020, the maximum rate was recorded in the conditions of the coronavirus pandemic (0.36), which should be due to the prolonged interaction of children with healthy carriers. The age index in both reporting periods is for children aged 0-4 and was 21.4 and 8.81, respectively. Seasonality occurs in winter-spring in the second reference period, although in the first reference period it occurs at all times of the year, which can be explained by the failure of preventive measures in the 90s. The rate of lethality in the first reporting period is almost three times less than in the second reporting period, which may be the reason for not registering deaths in the 90s. We consider it appropriate to introduce vaccination in risk groups.

**Keywords:** Meningococcal infection, Epidemiological features, Vaccination.

### Introduction

Meningococcal infection is an acute, worldwide distributed infectious disease of bacteriological etiology. Distribution of this disease is different in different regions of the world. There are 500,000-1,200,000 new cases and 50,000-135,000 deaths worldwide each year [1,2].

To date, distribution of the disease in Europe, North America and Australia ranges from 0.3 to 3 cases per 100,000 population [3], whereas in some African countries it can reach 10-1000 cases/100,000 population during epidemics.

Meningococcal infection is characterized by high case fatality rate. 50-80% of untreated cases [4] and 10-15% of treated cases end in death [5].

As in many countries, meningococcal infection is sporadic in Georgia. The prevalence of meningococcal infection in Georgia has decreased dramatically since 2010 and reached a minimum (0.11 per 100,000 population) in 2021 [6].

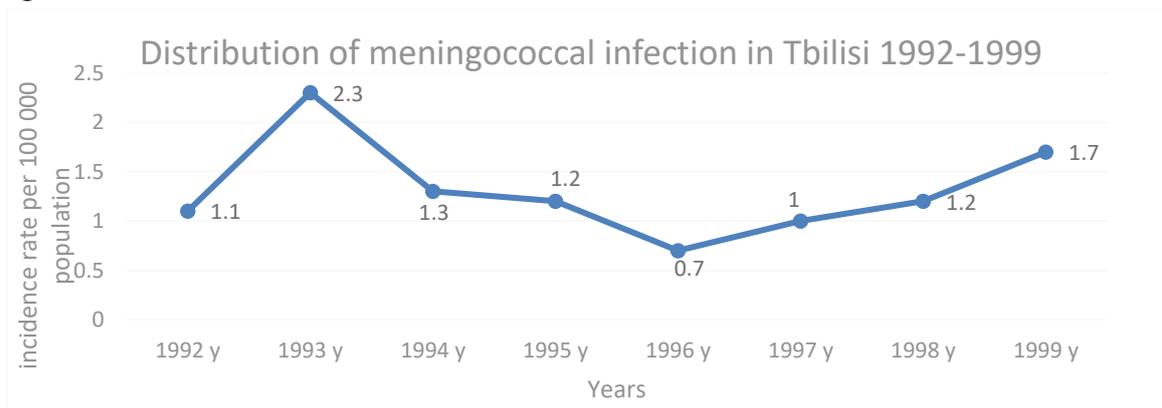
Despite the downward trend, this disease continues to be a major global public health problem. There is also an effective vaccine, although vaccination against meningococcal infection is not carried out in Georgia, that is why this disease is still relevant for our country.

**Materials and methods:** The data of the National Center for Disease Control and Public

Health and the Tbilisi Municipal Center for Epidemic Surveillance and Control of Communicable Diseases were taken as the research material. The retrospective epidemiological method was used to process the data. The materials for two reporting periods (1992-1999yy and 2017-2021yy), were processed.

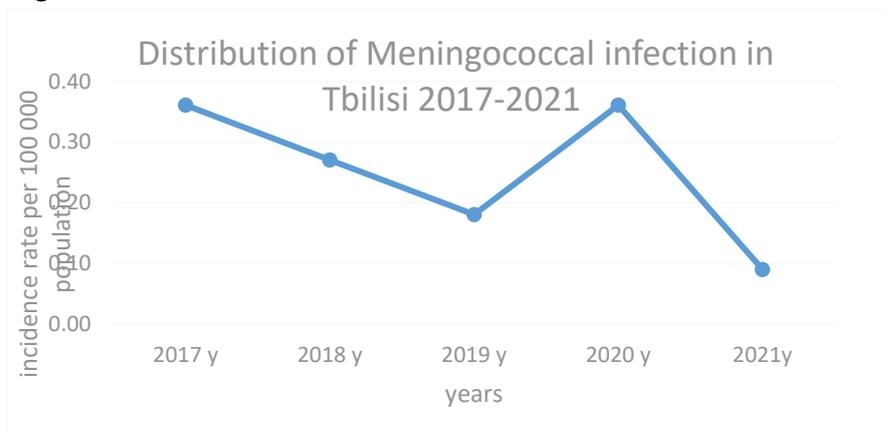
**Results:** The incidence of meningococcal infection ranged from 0.7 (1996) to 2.3 (1993) in the period 1992-1999, in Tbilisi. A downward trend was recorded in 1993-1996, and since 1997 the rate has been increasing again, which can be explained by improved diagnostics (Figure 1).

Figure 1



In the second reporting period, 2017-2021, the incidence rate of meningococcal infection did not exceed 1 per 100,000 population (Figure 2).

Figure 2



In this reporting period the maximum incidence rate was observed in 2017 (0.36). Also in 2020 the rate of meningococcal infection increased to 0.36 per 100,000 population. Against the background of the introduction of regime - restrictive measures (observation, quarantine, etc.), the increase of this rate should be caused by the increase in healthy carriers, since the majority of sick people are children under the age of 5, and during the pandemic, it was the prolonged relationship with healthy carriers that should have caused the children to become sick, thus increasing the rate.

With the easing of measures in 2021 (observation and quarantine were removed), the rate of the disease has decreased (0.09 per 100,000 population). But, mandatory preventive measures

such as social distancing and wearing a mask were observed. Which likely led to a reduction not only in the prevalence of meningococcal infections, but also in respiratory infections in general. This measure reduced not only distribution of meningococcal infection, but also respiratory infections in general.

If we look at the age distribution, we will see that in both reporting periods, the maximum distribution was registered in the age group of 0-4 years and was 21.40 (1996-1999) and 8.81 (2017-2021) per 100,000 population, respectively. It is significantly less in other age groups, in the second reporting period there were no cases in the age groups of 20-49 years, and the minimum rate was observed in the age group over 50 years (Figure 3).

If we consider the seasonality of the disease, we will see that in the second reporting period it exactly repeats the seasonality characteristic of meningococcal infection and reaches its maximum in winter-spring seasons (Figure 4), although in the first reported period it occurs at all times of the year, which can be explained by the reduction of preventive measures in the 90s.

Figure 3

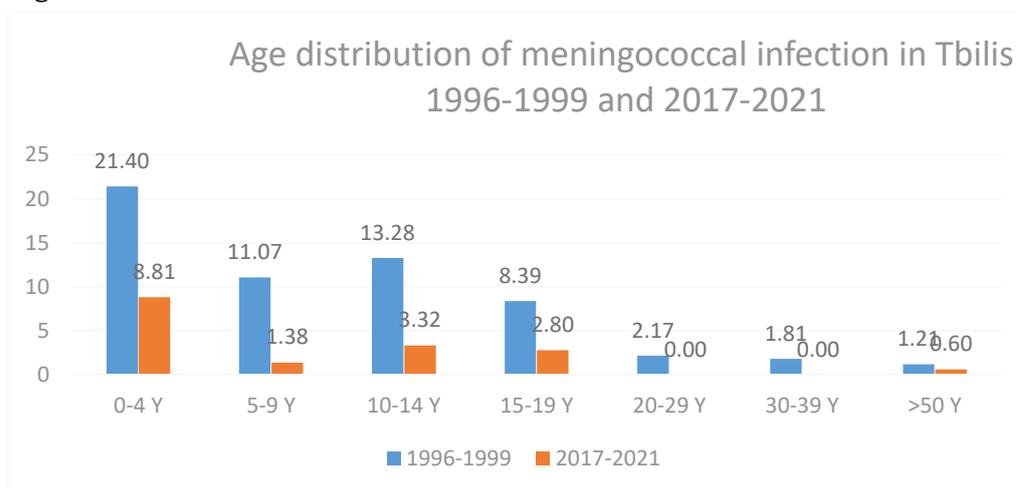
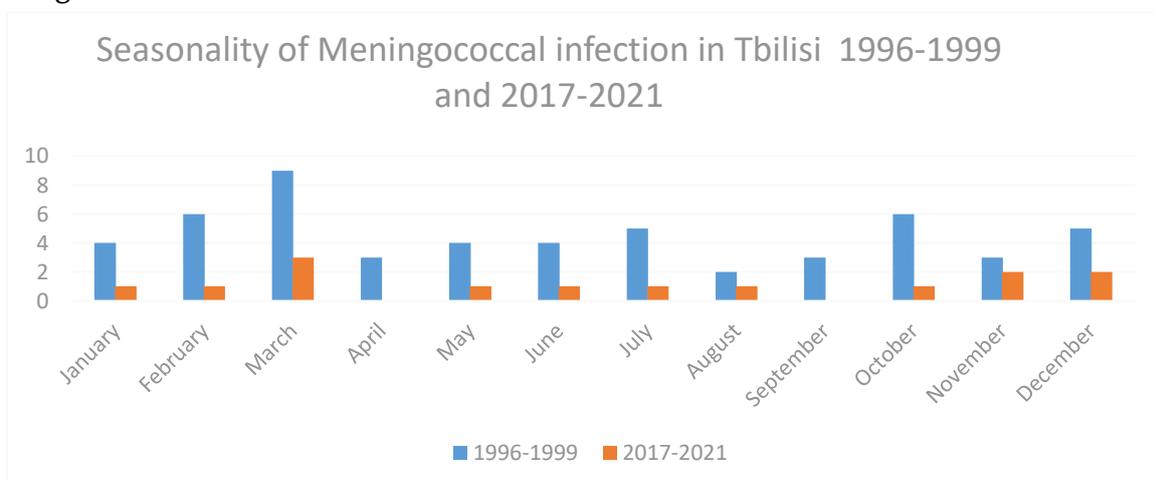


Figure 4



Meningococcal infection case-fatality rate in Tbilisi is noteworthy. In 1996-1999, it was 7.4%, and in 2017-2021, it almost tripled and reached 21.4%. These figures seem unusual in an era

of improved surveillance and treatment, but may be due to underreporting of deaths in the 1990s. In the second reporting period, 67% of deaths occurred in people aged 50 and older.

**Conclusion:** The obtained results were an attempt to describe the epidemiologic characteristics of meningococcal infection in Tbilisi. This issue needs deeper research.

**Recommendations:** Despite the sporadic distribution of the disease in the country, we consider it advisable to introduce vaccination in risk groups - in children group and in the elderly group.

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## მენინგოკოკური ინფექციის ეპიდემიოლოგიური თავისებურებები

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## აბსტრაქტი

კვლევის მიზანს შეადგენდა ქ. თბილისში მენინგოკოკური ინფექციის ეპიდემიოლოგიური თავისებურებების შესწავლა ორ საანგარიშო პერიოდში. 1992-1999 წლებში ინციდენტობის მაჩვენებელმა მაქსიმუმს 1993 წელს მიაღწია (2.3 100 000 მოსახლეზე), 2017-2021 წლებში კი არ აღემატებოდა ერთს. მეორე საანგარიშო პერიოდში 2020 წელს, კორონავირუსის პანდემიის პირობებში მაქსიმალური მაჩვენებელი დაფიქსირდა (0.36), რაც განპირობებული უნდა იყოს ბავშვთა გახანგრძლივებული ურთიერთით ჯანმრთელ მტარებლებთან. ასაკობრივი მაჩვენებელი ორივე საანგარიშო პერიოდში 0-4 წლის ასაკის ბავშვებშია და შესაბამისად, შეადგინა 21.4 და 8.81. სეზონურობა

მეორე საანგარიშო პერიოდში ზამთარ-გაზაფხულზე მოდის, თუმცა პირველ საანგარიშო პერიოდში იგი წლის ყველა დროს გვხვდება, რაც შეიძლება ავხსნათ 90-იან წლებში პროფილაქტიკური ღონისძიებების გაუმართაობით. ლეტალობის მაჩვენებელი, პირველ საანგარიშო პერიოდში, თითქმის სამჯერ ნაკლებია, მეორე საანგარიშო პერიოდთან შედარებით, რისი მიზეზიც, შესაძლებელია, 90-იან წლებში სიკვდილის შემთხვევების დაურეგისტრირებლობა იყოს. მიზანშეწონილად მიგვაჩნია ვაქცინაციის შემოღება რისკის ჯგუფებში.

**საკვანძო სიტყვები:** მენინგოკოკური ინფექცია, ეპიდემიოლოგიური თავისებურებები, ვაქცინაცია.



## Sectional and Morphological features of dislocation process during the temporal lobe tumors

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### Abstract

**Background:** Dislocation is the terrible complication of the temporal lobe tumors. The tumors of the temporal lobe are characterized by high rate of dislocation. Topographically nearest of medio-basal part of temporal lobe to Pachion hole ensuring the formation of dislocation syndrome and preponderate of local symptoms over common cerebral symptoms.

**Aim:** The aim of our research is to study a structural correlation and morphological features of dislocation process during temporal lobe tumors for definition optimal surgical treatment.

**Methods:** We studied 85 dislocation cases of sectional material during temporal lobe tumors (53 males and 32 females). All material of tumors were based on the microscope, macroscope and electro-microscope examination of operative and sectional material and were verified by many frontal and sagittal incisions of the brain.

**Results:** In medio-basal localization of tumors we didn't meet any benign tumors. In 6 (7%) of cases morphological compensation was so high, that we couldn't find any connection between tumor and dislocation. Some cases gyrus hippocampus and cingula were not pinched. During the dislocation process caused by temporal lobe tumors herniating of tonsilla in the foramen Magna happens late, at the end, when in the cerebellum hemisphere may not happened rude morpho-logical changes. The factor of secondary ischemia of the brain may be considered. The herniation in the foramen Magna caused the ruin of vital functions in the stem, which is the reason of quick death.

**Conclusions:** Dislocation mostly occurred in the group of malign glioms of high grade, mainly localized in the medio-basal part of the temporal lobe. The realization of dislocation besides tumors pathobiological action is the factor of brain secondary ischemia, which is caused by the pressure of tumors on the main trunk and branches of the middle cerebral artery. From our point of view the reason of quick death is the herniation in the hole of Bisha.

**Keywords:** temporal lobe, tumor, dislocation.

### Introduction

Dislocation is the terrible complication of the temporal lobe tumors. The tumors of temporal lobe are characterized by high rate of dislocation. During the dislocation caused by the temporal lobe tumors, unlike the tumors of subtentorial localization, local symptoms advantages over the common cerebral symptoms. Epileptic seizures can be one of the most important local symptom for diagnostic of dislocation process during the temporal lobe tumors (5). The volume of dislocation part of brain depend on the tumor mass and swelling

of herniation area (3). The knowledge of dislocation process is very important for optimal neurosurgical treatment. Depending on the topography of the temporal lobe in dislocation more important is primary intralobular localizations of tumors in limits of temporal lobe share. So, for example, anteriorly located tumors displaced forward departments of hippocampus and posteriorly located back parts of gyrus hippocampus. The aim of our research is to study a structural correlation and morphological features of dislocation process during temporal lobe tumors for definition optimal surgical treatment.

**Material and Methods:** We studied 85 dislocation cases of sectional material during temporal lobe tumors – 53 males and 32 females. The localization and histological characterization of tumors were based on the microscope, macroscope and electro-microscope examination of operative and sectional material and were verified by many frontal and sagittal incisions of the brain (1). All investigations were supplemented by modern rentgenocontrast (CT, MRI and Angiography) researches. For examination of dislocation process, depending on the temporal intralobular localisation, our material we divided into four groups: tumors of temporal polus localization, middle area localization, post area localization and medio-basal localization. All these cases took place in the Neurosurgical Clinic of Tbilisi First Clinical Hospital.

**Discussion of obtained results:** Topographilly nearest of medio-basal part of temporal lobe to Pachion hole ensuring the formation of dislocation syndrome and preponderate of local symptoms over common cerebral symptoms difference to other supratentorial tumors. In medio-basal localization of tumors we didn't meet any benign tumors.

Medio-basal tumors against other parts of temporal share seldom accompanied with epileptic seizures. At increasing of intracranial pressure the epileptic attacks faded quickly or disappeared giving place to general cerebral and stem symptoms. They are extremely rare in terminal and dis-location stage of disease. There weren't any morphological changes at cerebellum and stem incisions. Some cases gyrus hippocampus and cingula were not pinched. The degree of dislocation depends on exhaust of brain's compensatory reserves caused by pathological process. The volume of moving brain depend on tumor mass, its neighbouring to the wedge area and perifocal swelling. *In some cases brain swelling caused by growth of cerebral hemisphere often surpass swelling caused by tumor. In dislocation very important role give the swelling of cingula with its displacement on the different degree under the falx.* We note herniation of cerebellar tonsil in the foramen Magna in 15 (18%) of cases. Sometimes, when the cerebellar hemispheres were symmetric and capsula limpid, still there was a strangulation line on the tonsils (5 cases). In 6 (7%) of cases "morphological compensation" was so high, that we couldn't find any connection between tumor and dislocation. At this moment because of quickly developing death may never be time for wedging in the foramen Magna. During the dislocation process caused by temporal lobe tumors herniating of tonsila in the foramen Magna happens late, at the end, when in the cerebellum hemisphere may not happened the formation of rude morphological changes (4).

The factor of the secondary ischemia of the brain may be considered. When the dislocation developed quickly, with pinching on three levels, whereas the reason of death is caused by tumor's herniation in the hole of Bisha (2). Because of sudden death there might never be time for herniation in the level of foramen Magna, as herniation of tonsils in the foramen Magna happens on the final stage. The reason while tonsil strangulation led sudden death is that herniation of cingula under the falx and hippocampus in the foramen Bisha had happened consistently. After tonsil strangulation because come quick death, that sequencely still had happened wedging of cingula under falx and hippocampus in the foramen of Bisha. Herniation of gyrus cingula under falx took place in 20 cases from here in 7 cases there was its isolate herniation and in 13 cases its combination with gyrus hippocampus. The herniation in the foramen Magna caused the ruin of vital functions in the stem, which is the reason of quick death. From our point of view the reason of quick death is the herniation in the hole of Bisha. In the development of dislocation very important is compression or damage stem and oblong brain by tumor, where are situated respiratory and vascular centres.

**Conclusions:** The development of dislocation process depended on the intralobular localization and histological features of temporal lobe tumors (6). Dislocation mostly occurred in the group of malign glioms of high grade. At medio-basal localization of tumors (basically they are malignant tumors) the dislocation is observed more often than in the other parts of temporal lobe.

The realization of dislocation syndrome besides tumors pathobiological action is the factor of brain secondary ischemia, which is caused by the pressure of tumors on the main trunk and branches of the middle cerebral artery. The dislocation depends on the tumor's localization, histology, rate of tumor's growth and swelling of herniation area.

## საფეთქლის წილის სიმსივნეებისას დისლოკაციური პროცესის სექციურ- მორფოლოგიური მახასიათებლები

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### აბსტრაქტი

**გამოცდილება:** დისლოკაცია წარმოადგენს საფეთქლის წილის სიმსივნეების მეტად მრისხანე გართულებას. საფეთქლის წილის სიმსივნეები ხასიათდებიან დისლოკაციის მაღალი სიხშირით, რასაც განაპირობებს მისი მედო-ბაზალური მიდამოს ტოპოგრა -ფიული სიახლოვე პახიონის ხვრელთან.

**მიზანი:** ჩვენი კვლევის მიზანს წარმოადგენს საფეთქლის წილის სიმსივნეებისას განვითარებული დისლოკაციური პროცესის სტრუქტურული კორელაციების და მორფოლოგიური თავისებურებების შესწავლა ოპტიმალური ქირურგიული მკურ-

ნალობის განსაზღვრსათვის.

**მეთოდები:** ჩვენ შევისწავლეთ საფეთქლის წილის სიმსივნეებისას განვითარებული დისლოკაციური პროცესის სექციური მასალის 85 შემთხვევა, რომელთაგან მამაკაცი იყო 53, ხოლო ქალი 32. ყველა მონაცემი ემყარებოდა ოპერაციული და სექციური მასალის მაკროსკოპიულ, მიკროსკოპიულ და ელექტრონულ-მიკროსკოპიული გამოკვლევების მონაცემებს და დასტურდებოდა თავის ტვინის მრავალი ფრონტალური და საგიტალური განაკვეთების წარმოებით.

**შედეგები:** სიმსივნეთა მედიო-ბაზალური მიდამოში ლოკალიზაციისას არ შეგვხვედრია არც ერთი კეთილთვისებიანი სიმსივნე, ყველა იყო ავთვისებიანი. 6 (7%) შემთხვევაში მორფოლოგიური კომპენსაცია“ იყო იმდენად მაღალი, რომ საერთოდ ვერ იქნა ნანახი რაიმე კავშირი სიმსივნეს და დისლოკაციას შორის. რიგ შემთხვევებში ჰიპოკამპალური და სარტყლისებრი ხვეულები ჩაჭედდებიდა კი არ იყო. საფეთქლის წილის სიმსივნეებით განპირობებული დისლოკაციური პროცესებისას ნათხემის ტონზილების ჩაჭედვა დიდ ხვრელში ხდება ყველაზე ბოლოს, როდესაც ნათხემის ჰემისფეროებში ვერც კი ესწრება უხეში მორფოლოგიური ცვლილებების ჩამოყალიბება. აღნიშნულიდან გამომდინარე, პროცესის სიმძიმეს განაპირობებს მეორადი იმემიური დარღვევები. დიდ ხვრელში ჩაჭედვა იწვევს სასიცოცხლო ფუნქციების მოშლა-დარღვევას ღეროში, რომელიც არის კიდევ უეცარი და სწრაფი სიკვდილის მიზეზი.

**დასკვნები:** საფეთქლის წილის სიმსივნეებისას დისლოკაცია უხშირესად გვხვდება მედიო-ბაზალურ მიდამოში ავთვისებიანი სიმსივნის ლოკალიზაციისას. დისლოკაციური სინდრომის რეალიზაცია სიმსივნის პათობიოლოგიური აქტიობის გარდა უნდა აიხსნას მეორადად ტვინის იმემიური ფაქტორით, რასაც განაპირობებს სიმსივნური კვანძის კომპრესია ტვინის შუა არტერიის ძირითად ღეროზე და მისგან გამომავალ ტოტებზე. ჩვენი აზრით უეცარი-სწრაფი სიკვდილის მიზეზი არის ბიშას ხვრელში ჩაჭედვა.

**საკვანძო სიტყვები:** დროებითი წილი, სიმსივნე, დისლოკაცია.

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## The importance of typological characteristics in the realization and socialization of athletes

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### Abstract

The practice of sports shows that in the sports of high athletic achievements, the result of the wrong choice of sports has a serious impact on the socialization process of the athlete. The wrongly chosen sports cause the indifferent attitude of young athletes to sports, which in turn results in a large number of children and long-term abandonment, which leads to their Stopping the growth of individual sports achievements.

The relevance of the work is determined by the insufficient development of the question of the influence of personal characteristics on the choice of a sport, there are no theoretically justified methods for determining the character and personal characteristics of adolescents involved in sports, and their inclination to a particular sport. Also, the importance of typological characteristics in the realization and socialization of athletes is less studied.

**Keywords:** Typological characteristics, selection, realization of athletes, socialization, somatotype, psycho-social characteristics, anthropometric data.

### Introduction

The practice of sports shows that in the sports of high athletic achievements, the result of the wrong choice of sports has a serious impact on the socialization process of the athlete. The wrongly chosen sports cause the indifferent attitude of young athletes to sports, which in turn results in a large number of children and long-term abandonment, which leads to their Stopping the growth of individual sports achievements.

The wrong choice of a sport harms the child's psyche, leads to a large loss of the potential contingent of athletes or to the complete cessation of training, does not improve the quality of sports training for a significant part of young athletes.

It is important, first of all, to help everyone who wants to choose the type of sport that best suits their individual characteristics. This is the essence of sports orientation.

Success in the initial stage of sports training largely depends on the readiness to choose the type of sport. Therefore, it should be organically included in the structure of sports orientation.

Sports activities are different for different people. On the one hand, it can be associated with the attractiveness of sports, the athlete's status in society, on the other hand, with clear motivation and level of knowledge.

In general, the process of choosing a type of sport occurs spontaneously or as a result of the influence of parents, friends and coaches, which ensures the maximum realization of a

person's abilities in sports activities. In addition, it is necessary to focus not only on prestigious sports, but also on other sports that correspond to the specific characteristics of the child, his needs and abilities. [3]

The relevance of our work is determined by the insufficient development of the question of the influence of personal characteristics on the choice of a sport, there are no theoretically justified methods for determining the character and personal characteristics of adolescents involved in sports and their inclination to a particular sport. Also, the importance of typological characteristics in the realization and socialization of athletes is less studied.

Based on this fact, we have developed a system for identifying the psycho-social abilities of adolescents and identifying their typology, based on the research of typological characteristics. The obtained results are important from the point of view of practical application and provide an opportunity to compare the typological characteristics of individual (wrestling) and team and team (basketball, rugby) sportsmen of different ages and sports qualifications with the standard parametric data obtained as a result of the research, and in a short period of time, high Reliability to determine, on the one hand, the quality of his current sports performance, and on the other hand - future sports results.

**Material and methods:** The aim of our research was to determine the social characteristics of the selection of athletes in different sports. Examination of the problems related to properly organized selection in sports, the elimination of which is necessary for the development of sports in general. Achieving success for an athlete Depending on many factors, properly organized sports selection based on scientific data is the basis for the training of highly skilled athletes. In the paper, there will be a discussion on the identification and determination of the causal problems related to the research topic, in particular, the selection, which affects the effective conduct of the selection process, and the ways of solving the problems will be outlined.

In the research process, I will use both the quantitative method ranking approach and qualitative research triangulation methods 1) focus group, 2) in-depth interviews with experts and system representatives and 3) document analysis. Quantitative research methods (such as: mass survey, content analysis) aim at the frequency of this or that social event, the structure of this method is highly structured and formulated, and the results obtained by this method are representative.

**Discussion of obtained results:** Morphological-physiological aspects in the selection of athletes. The methods used for determining sports orientation and selecting types for trainers are divided into: pedagogical (testing with special exercises), psychological and medical-biological (including morphological form) forms: for example, when testing non-exercising children, some may show unique sports qualities in speed, strength, etc. Sometimes their data is even close to the data of trained athletes.

In general, we believe that the task of selection should be solved if there is a data model of Trained athletes in a given field, that is, a set of properties. This gives different images in

different ways.

Sportsman's model is a set of various characteristics, the quality of which determines the success of a given person in the type of sport employed. When creating a model of an athlete, it is necessary to consider the benchmark characteristics of successful individuals in this type - to determine what would be recognized as a normative athlete. There are many such signs. There are signs that are not genetically determined and do not obey either the will of the coach or the wishes of the athlete.

The sign of the first group, unlike the second, is slightly determined by the genetic program of the person, and significantly by environmental conditions. e.g. Mass data almost does not depend on the hereditary trait, while body length is predominantly a carrier of this trait. The coach can adjust the mass of the athlete by reference when the height changes do not obey his will and determination, especially if the issue concerns an adult. They believe that it is possible to create two models of an athlete: 1. The first model contains high diagnostic signs, which are hardly subject to the training process and are considered hereditary signs; 2. The second model is determined by the determination of the athlete's condition on a given day and by which they judge him as a selection-determiner for participation in the competition.[7]

The signs of the first group allow selection among athletes according to genetic markers (data), even if they are not yet fully revealed in the process of individual development. This can be called genetic selection. In such a case, the somatotype or constitution of the person must be taken into account.

From the morphological signs for sports selection, as a rule, total body dimensions (first of all, height), body proportions, mass composition should be taken into account. Here, special importance is given to somatotype as a characteristic of a person's morphological condition. [6][A. Elerdashvili short course of human anatomy and sports morphology, part two, Tbilisi 2001, p. 207.]

The problem of the stability of athletic talent is related to heritability, since almost all stable characteristics are under significant genetic control. In recent years, many papers have been published, which gave rise to the scientific characterization of the selection and prediction system in sports. According to them, the selection of sports oriented children is still far from perfection. Currently, the registration of morphological signs has a great significance in the selection of children in sports sections and in predicting the process of growth of sports performance in young athletes. According to literary data, the majority of morphological characteristics are difficult to adapt to the influence of sports, that is, they are genetically determined.

We know that sports and sports activities are a specific socio-cultural institutionalized field of social relations and actions aimed at achieving great victories and high results.

Specific sports activities require certain, strictly selected personal qualities. In turn, only

highly professional personal qualities can ensure the implementation of a specific sports combination of actions. In this case, we should not forget that human behavior is "significantly oriented" and subject to certain individual motives. Action can be considered social when there is a process of interrelationship of mutual expectations, goals, and means that are perceived as adequate to achieve goals ("purposive rational action") [3]. Personal qualities are formed as a result of hard work. Moreover, currently physical, functional loads have reached the limit in volume and intensity, many hours of daily training has become a common practice not only among adults, but also among young athletes.

The main thing in sports is a person who consciously regulates body movements, purposefully moves in space with his own efforts and, if necessary, with special devices, such as a sports pole. For this, he develops physical (strength, speed, endurance, agility and flexibility) and cognitive (intelligence, intuition, independence, criticality, quick wit, analytical) qualities, improves mental skills and abilities. He learns his control in various extreme situations, develops general and special technologies of actions necessary for successful implementation of physical and mental readiness.

Sports have a strong socializing power. Sport, as an important social phenomenon of modern life, is closely related to many value categories that it collects, develops and transmits. Sport, as a certain way of activity, is manifested not only in behavior, but also in other symbolic, symbolic, verbal, ideal, material forms. It includes norms, values, a system of social roles and institutions. That is why the victory in the competition, which is perceived both as going beyond the limits of one's own abilities, and in general as the realization of human potential to a level that no one has ever risen to, is experienced as acutely emotional.

In modern sports, there is a fierce competition between professional athletes, the goal of which is to achieve high sports results, to win the love and recognition of fans, to increase not only personal authority, but also the prestige of the state. In each sport, an athlete must have a set of personal qualities as a conscious need for the full implementation of sports activities. Self-demand and masculinity, perseverance and determination, self-criticism and adherence to principles, the highest level of knowledge, skills and abilities - these are just a few of them. Sports training is aimed at forming those personal qualities that ensure the achievement of maximum sports results.

The qualities of a winning athlete are generalized, the most stable objective and subjective qualities, intellectual, voluntary, moral and communicative characteristics of thinking and behavior, which determine the social connections and relationships of individuals, which allow them to win in sports. at any level. These properties should be understood as an integrated model of subjective characteristics, stable properties and subjective properties, which reflect the range of individual differences and help to increase the effectiveness of athletes of different levels in different situations.

Sport, in addition to affecting the body and psyche of athletes, actively affects their mental abilities, intelligence, not indirectly, but most directly. Physical exercise not only helps to

keep in shape, but also improves the work of gray cells, and this, in turn, allows you to achieve good results in work and studies. According to many studies, physically active people think better than those who prefer not to do sports, the better the body is developed, the more flexible the brain becomes and the better the thinking and psychological state [4].

When summarizing the role and importance of sports in the socialization of the young generation, it is necessary to emphasize the indisputable truth: sports have a strong influence on people's thinking, consciousness, and behavior. So, sports can be considered as a unifying national idea of development and prosperity of the nation. Sports play an important role in personality formation. In the process of sports activities, many social situations are played out, which allows the athlete to accumulate life experience, to create a special system of values and objectives.[5] Coming to sports, a young athlete meets a new social sphere: coaches, referees, sports team - they are new agents of socialization, concrete people, responsible for upbringing and education, ensuring the assimilation of cultural norms and exemplary behavior, new social norms, in which the young athlete finds himself. Primary socialization is especially important for each person, when the foundation is laid on the basic psychophysical and moral qualities of the person. The social institution of physical culture and sports is involved in the primary socialization of the athlete along with the family and schools. Among the agents of primary socialization, not all play the same role, nor do they have equal status.

Research results: socialization in sports has a special content, which is determined by certain stereotypes of idealized "professional athletes" [1]. They are determined by a number of values: personal success, activity and hard work, efficiency and utility, success and recognition as a sign of well-being, sport morally and ethically develops a person, comprehensively develops a person. Studies have shown that socialization is a continuous process. It is carried out most intensively through sports, it is manifested in the change of modes of thinking and concretization of basic value orientations.[2] In the process of socialization, athletes evaluate and assimilate norms of behavior. Sports play an important role in personality formation. Many social situations develop in sports activities, which allow the athlete to acquire his own life experience, to build a special system of values and attitudes. After empirical studies, we can formulate the following main theoretical and practical conclusions. Today, there are many different personality typologies that allow us to determine the most important, leading personality traits and predict human behavior using them. Taking into account the typology of the athlete's personality, his individual features, it is possible to fully develop and effectively use his abilities.

In the psychological support of sports activities, a special place is occupied by motivation, which encourages a person to engage in sports.

A successful combination of temperament, motives and character contributes to the development of capabilities, their effective implementation.

When orienting and selecting different types of sports activities, taking into account talents

and abilities, it is reasonable and appropriate to start the selection with psychological and pedagogical tests determined by psychological and physiological criteria.

Thus, we can say that the success of sports activities is largely determined by the degree to which the type of sport chosen by the subjects corresponds to their inclinations, interests, motives, abilities and psycho-physiological structure of the person.

The results of empirical research have shown that children involved in individual sports activities are referred to as "individualists", and children involved in team sports are referred to as "collectivists". Thus, the hypothesis raised in this thesis: we assume that athletes involved in different sports have different personal characteristics - has been confirmed.

Therefore, the goal set by us in this work has been fully achieved.

### **Conclusions**

The results of the research made it possible to formulate the following recommendations for sports managers and coaches:

1. Selection of athletes and prediction of results should not be done on an intuitive level, but using evidence-based methods (testing, observation, questioning, etc.).

2. The main characteristics, which are based on the realization and socialization of athletes in sports, are typological and psychosocial characteristics (temperament, character).

3. Based on the position that typological and psycho-social characteristics are formed in adolescence, we recommend that it is at this age that athletes are selected, results are predicted and the implementation program is carried out.

4. Typological and based on typological and psychosocial characteristics, an experienced coach will be able to individualize the training process, selection, attitude of athletes to responsible games, correct choice of motivation. Also to plan the sportsman's career and plan the socialization process of a successful sportsman after the end of his career, taking into account the psycho-somatic characteristics.

5. During sports selection, it is also necessary to pay attention to the morphological indicators of athletes: body length, thigh and lower leg, shoulder circumference, thickness of skin-fatty folds under the shoulder blade, abdomen and lower leg, muscle and fat mass indicators, constitutional somatotype.

6. When predicting sports results and selecting an athlete, the physical, psychological, mental qualities of athletes, character traits, which can be determined using psycho-social informational tests, should also be taken into account.

7. As a result of research, we have developed methodological principles for diagnosing sports abilities according to the morphological, constitutional typology and psycho-social characteristics of athletes.

8. We developed a selection and prediction model for individual (wrestling) and team (basketball, rugby) sports.

**ტიპოლოგიური მახასიათებლების მნიშვნელობა სპორტსმენტა რეალიზაციასა და სოციალიზაციაში**

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**აბსტრაქტი**

სპორტის პრაქტიკა აჩვენებს, რომ მაღალი სპორტული მიღწევების სპორტში, სპორტული სახეობების არასწორი არჩევანის შედეგი სერიოზულ გავლენას ახდენს სპორტსმენტის სოციალიზაციის პროცესზე. არასწორად შერჩეული სპორტის სახეობა იწვევს ახალგაზრდა სპორტსმენტების ინდეფერენტულ დამოკიდებულებას სპორტის მიმართ, რაც, თავის მხრივ, შედეგად, ბავშვების დიდი რაოდენობისა და ხანგრძლივად მიტოვებას განაპირობებს, საბოლოოდ კი, მათი ინდივიდუალური სპორტული მიღწევების ზრდის შეჩერებას ვიღებთ.

ნაშრომის აქტუალურობა განისაზღვრება სპორტის სახეობის არჩევანზე პიროვნული მახასიათებლების გავლენის საკითხის არასაკმარისი განვითარებით. არ არსებობს თეორიულად დასაბუთებული მეთოდები სპორტში ჩართული მოზარდების ხასიათისა და პიროვნული მახასიათებლების კონკრეტული სპორტისადმი მიდრეკილების დასადგენად. აგრეთვე, ნაკლებადაა შესწავლილი ტიპოლოგიური მახასიათებლების მნიშვნელობა სპორტსმენტა რეალიზაციასა და სოციალიზაციაში.

**საკვანძო სიტყვები:** ტიპოლოგიური მახასიათებლები, შერჩევა, სპორტსმენტების რეალიზაცია, სოციალიზაცია, სომატოტიპი, ფსიქო-სოციალური მახასიათებლები, ანთროპომეტრიული მონაცემები.

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## Exploring the Relationship between Self-Management Skills and Demographic Factors among Managers in Kathmandu-based Organizations

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### Abstract

**Background:** Self-management skills (SMS) are vital for all managers to increase managerial performance and Well-Being (WB), yet few studies have been conducted in Nepal regarding this topic.

**Purpose:** The main aim of this paper is to explore the relationship between Self- Management Skills (SMS) and Demographic Factors (DF) among managers in Kathmandu- based organizations.

**Methods:** The study utilized a convenience sampling approach and a cross-sectional method with respondents (n=429)- managers, employing online questionnaires due to COVID-19. The study was tested for reliability and validity. SMS questions with five-point scales were used, resulting in 50 Self-Management Skills Scores (SMSS). A score of > 25 indicated a high score, while <25 indicated below-average scores. Descriptive and regression analyses were used to analyze the data.

**Findings:** The results revealed that 63.1% of the managers had Self-Management Skills Scores (SMSS) below the average level. Demographic factors such as age, gender, and SMS training were correlated with SMS.

**Research limitations/Practical Implications:** There are limitations with self-reported data, single data collection, and unknown total population. According to the study, managers' SMS competence is influenced by their SMS training, age, and gender. Organizations should invest in training and development to improve managerial skills, especially in the healthcare sector. Diversity, Equity, and Inclusiveness (DEI)-related initiatives and improved hiring practices should be given primary priority.

**Originality/Value:** This research explores a deserved need to learn how SMS can help create a person's nurturing personality.

**Keywords:** Demographic Factors (DF), Manager, Organization, Self-Management Skills(SMS)

**Article Type:** Research paper

### Backgrounds

Effective SMS is crucial for individual working in any professional situation. Managers, in

particular, require strong SMS to accomplish their job duties successfully, such as time management, responsibility, self-control, self-motivation, self-commitment, self-responsibility and self-adaptability. In the context of Kathmandu-based organizations, where the work environment may be complex and challenging, SMS are vital. This study aims to explore the relationship between SMS and DF among managers. Demographic features, such as age, gender, education, and previous training, may influence a person's SMS. Considerate the relationship b/t SMS and demographic features can support organizations strategy effective preparation programs to improve managers' skills. Moreover, exploring the relationship between SMS and DF among managers in Kathmandu-based organizations can deliver understanding into the unique challenges faced by professionals in this context. This study may also encourage a larger body of study on SMS and its influence on job performance in different work settings.

Every institute is searching for ways to accomplish organizational quality to better serve their clients and survive in this competitive era. Competition among administrations creates an innovation war. To survive, administrations seek excellence by empowering workers to self-manage. Well-managed workforces are more devoted and involved, leading to success. This study resonates with literature on the positive association between self-management and organizational quality (Ghali et al., 2018). In essence, effective SMS, which entails taking charge of one's actions and activities, are a vital managerial competency. The worry is that managers without accomplished SMS may have adverse effects on the business (Steyn & Van Staden, 2018). However, research findings showed that SMS has a greater positive impact on both the quantity and quality of individual output (Palvalin, van der Voordt, & Jylhä, 2017). Additionally, the optimum levels of self-esteem, self-efficacy, and societal connectivity significantly affect the relationship between contribution and WB (Brown, Hoyer, & Nicholson, 2012).

### **Self-Regulation Skill (SRS)**

Self-Regulation Skill (SRS) is a critical skill that allows individuals to control their thoughts, feelings, and desires while pursuing their long-term goals. It involves being mindful of one's emotions and using appropriate coping strategies to deal with difficult situations. The ability to regulate one is essential for success in various life domains, including work. A study conducted by Madrid et al., (2020), showed that affect-improving emotion regulation was positively associated with positive feelings even though working, increasing the probability of positive results towards the job and the organization. However, fatigue in the office involves both physical and mental aspects and is high among doctors globally. A study conducted in China showed that 950 doctors had recorded a mean score of fatigue as high as 8.02 (SD=3.39)(Liu et al., 2018). In addition, self-control is a valuable resource. A meta-analysis of 83 studies found a significant effect on task performance (Hagger et al., 2010). It has also been shown that SRS are correlated with job performance and demographic factors including age, gender, and educational attainment. Gender has also been shown to be related

to SRS, with a meta-analysis of 36 studies proposing that men and women contrast in their use of cognitive emotion regulation strategies. Men have a tendency to use these strategies less often than women. Women have a tendency to use confident emotions to a greater extent for reconsideration of negative emotions (McRae, K., Ochsner, K. N., Mauss, I. B., Gabrieli, J. J., & Gross, 2008). Finally, education has been found to be positively related to SRS. A study found that individuals with a higher level of education had better skills for SRS than those with a lower level of education. This may be due to the fact that education provides individuals with more opportunities to learn and develop SRS. In conclusion, SRS is essential for success in various life domains, including work. Demographic features such as age, gender, and education level have also been revealed to be associated with SRS among managers. Future research could discover how organizations can help managers ripen their SRS, regardless of their demographic characteristics.

### **Self-Motivation Ability (SMA)**

The review also emphasized the significance of managerial enactment, job fulfillment, and organizational success overall in terms of SMA skills. The study offers necessary evidence to indicate that managers and administrations may utilize to realize the role that SMA plays in increasing one's career and professional growth. In this regard, one study conducted by Aloysius (2012) examined the association between SMA for accomplishment, job satisfaction, and job performance among 62 school teachers from six primary schools. The results indicated that there is a positive association between SMA for attainment and job satisfaction as well as job enactment. Another study model offers that three classes of factors—psychological states, job features, and individual characteristics—interrelate to create internal motivation in persons for effective job performance. The model was confirmed on 658 employees employed in 62 jobs in a small institute, and its validity was supported (Hackman & Oldham, 1976). A study by Odanga (2018) that measured a people of 113,314 students found that endorsing self-discipline, goal orientation, integrated extrinsic motivation, time management, and an autonomous supportive culture environment can grow SMA. Likewise, another study by Davies et al. (2017) measured SMA in 7,571 persons and discovered gender differences in motivation and values and their influence on women's sharing in administration roles. The study revealed that women differ suggestively from their male peers. Additionally, this study associated the educational motivation and professional decidedness of university scholars based on gender, years of study, and academic accomplishment. The outcomes showed that educational motivation had a positive result on professional decidedness (Koyuncuoglu, 2020). Overall; these studies deliver a valuable understanding of the association between SMA and DF among managers and emphasized the status of SMA in increasing individual and administrative performance.

### **Self-Responsibility Ability (SRA)**

Self-Responsibility Skill (SRA) is a thought of modern eras; though, it has origins going back to ancient eras (Maier, 2019). The relationship between SRA and DF among managers has been

the focus of several studies (King, 2010; Maier, 2019; Mukhlynina et al., 2016). A study demonstrates the need for a cohesive understanding of personal responsibility in reasoned action theory and offers valuable suggestions for cultivating wisdom (King, 2010). Likewise, employees who take responsibility for their professional duties, learn how to implement them, are accountable for them, and tend to have higher productivity (Mukhlynina et al., 2016). Similarly, the study suggested that individuals who exhibited a higher level of SRA and SMS had better JP and JS (Mukhlynina et al., 2016). However, corporations can yield greatly from ensuring self-responsible leaders and well-informed employees. According to a study with 512 participants that involved EE and support programs, responsible leadership and information sharing had indirect effects on JP (Lin et al., 2020). Overall, these studies suggested that SRA and SMS are crucial for managers' success and can be enhanced through appropriate training and development programs. Self-responsibility skill is about executing own duties with integrity and caring about the results (Maier, 2019).

### **Commitment Ability (CA)**

Commitment is a vital characteristic of effective managers. Commitment denotes to the aptitude of an individual to commit to their goals and strategies without any exterior pressure. The drive of this literature review is to discover the relationship between Commitment Skills (CA) and DF among managers. Numerous studies have analyzed the relationship between CA and DF among managers. For instance, the study conducted among Nepal Telecom employees involving 322 respondents assessed Organizational Commitment (OC) and its effects on DF, such as age, gender, and work experience. The study outcome revealed that age and work experience are significantly connected with employee commitment, though the high and low working years of employees show differences (Jain & Lamichhane, 2020). Similarly, studies on school teachers show a managerial role in the lecture theater, institute, and the broader community. Their CA is crucial for attracting the abilities, information, and intelligence of the school community. Likewise, another study showed on 352 nurses establishes that OC facilitated the relationship b/t organizational support and JS with the quality of care delivered and that, the observed work setting was found to have an influence on JS and the quality of care (Ahmad et al., 2022). In general, the literature advises that age, gender, education level, and years of work experience have revealed important relationships with CA in some studies, while in others, these factors did not show significant relationships. These results can contribute to organizations in deciding on and increasing managers who own strong CA abilities, which can increase their actions and eventually contribute to the accomplishment of the institute.

### **Adaptability Ability (AA)**

Adaptability Ability (AA) has grown to immense significance in the modern business setting due to their character in coping with change and challenges in the work setting. The existing literature discovers the association between AA and DF such as age, gender, training, and education among managers. Adaptability is a dynamic ability for managers as it empowers

them to change to changing circumstances. This paper observes comments, learning opportunities, and leader types associated with AA. The literature advises that AA is inclined by criticism, cognitive abilities, and community capabilities (Zaccaro et al., 2009). In addition, the improvement of AA is vital for managerial success and survival. This article reviews research on training techniques for increasing AA, with observed diversity and strategic evidence delivery. It discovers their usage in proper preparation, progressive work practices, and self-development, along with cross-cultural compliance (Nelson et al., 2010). According to the study's findings, an organization's strategic goals ought to include lifelong learning. The necessity for career development is a crucial stage of future career AA must be shared by both people and companies. Their ability to adapt to changes in technology, legislation, and procedure in their workplace is crucial (Li, 2022). For managers it allows them to adapt to changes in their working background. Many studies have observed the association between AA and DF. A study conducted by Thapa et al. (2023) found that one of the top soft skills, AA, provides privileges for both personal and professional life, such as SMS. The establishment of an employee's own ability is influenced by several DF, and data has suggested that work experiences, marital status, training, and education play an important role. In conclusion, AA, in particular, is a critical skill for managers in today's speedily shifting business situation. The researchers suggested that DF features such as age, gender, education, and training can affect the change of AA among

**Questions:**

This study aimed to answer two research questions;

- 1) What is the extent of self-management skills (SMS) among managers?
- 2) Is there a correlation between certain demographic factors (DF) such as age, gender, marital status, education level, and training with SMS among managers?

**Hypothesis (H1):** There is a significant relationship between selected demographic factors (DF), including age, gender, marital status, education level, and training, and self-management skills (SMS) among managers in selected enterprises.

Figure 1- Design Methodology of the Study

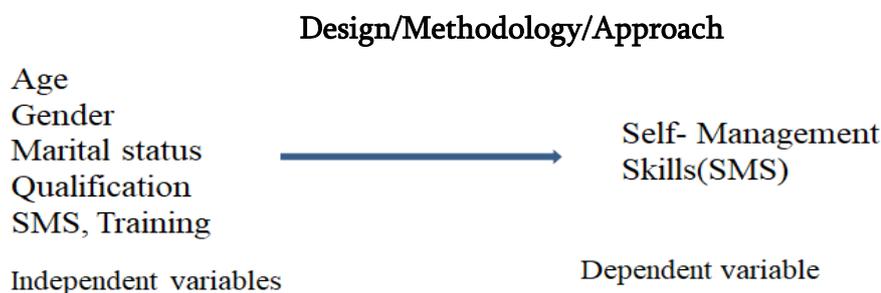


Fig. 1 shows that selected demographic factors, including age, gender, marital status, education level, and training, affect managers' self-management skills(SMS).

**DESIGN/METHODOLOGY/APPROACH**

A list of all types (Small, medium, and large) of businesses in Kathmandu, Nepal, are included in the sampling frame for this research project. For this study, the research population was

determined using Cochran's Formula. Researchers use this tool to determine sample size in organizations with a population that is unknown. It was challenging to gather data from businesses; in the current study, as the researcher was unable to obtain employee information due to a lack of access to employee database. The study used convenient sampling based on the aforementioned criteria. All levels (Junior to seniors) of managers who participated in the study were asked about their use of social networking platforms such as WhatsApp, Viber, LinkedIn, and Messenger. Each respondent received a message that explained the study's objectives and specified that the information gathered would only be used for educational reasons.

**Instruments:** The SMS questionnaire consisted of ten statements on a modified Likert scale with a maximum of five points on a scale from "always" to "never." A total of 50 self-management skills score (SMSS) statements were included. A score of >25 indicated a high score for the SMS, However, <25 was seen to be below average.

**The reliability test:** For ascertaining the reliability, it was found that; Cronbach's Alpha was 0.81, as the value of Cronbach's alpha is more than 0.7 then it is concluded that all the variables fit in the reliability test (Steyn & Van Staden, 2018).

**Content validity:** Content validity was obtained to conform to the validity for the study. The final calculated relevance of each question was determined by dividing the total number of experts who chose "very relevant," "relevant," and "somewhat relevant" by the sum of experts. Questions with CVI of 70% or more are acceptable, while those with less than 70% should be rethought or eliminated (White, 2007).

**Construct validity:** Construct validity is the key indicator of the effectiveness of measuring tools in research and determines how well a questionnaire might measure the things it was designed to evaluate (Strauss & Smith, 2009). The best way for determining intellectual validity is a CFA. It was carried out to statistically examine the construct's reliability. In this investigation, CFA generated a result of 0.86, which is higher than the desirable cut-off value of 0.50.

To achieve the study's objectives, researchers used SPSS, descriptive statistical, and a regression analysis model.

**Ethical consideration:** The study examines aspects of workplace or organizational success and is conducted in situations in which participants are not at risk while maintaining participant confidentiality. The participants were informed about the data, the completion date of the study, and the window for providing feedback. Participants had the right to revoke their participation at any time.

**FINDINGS** In this study, researchers observed into the prevalence of SMS among managers and the associated DF using the SPSS program for descriptive analysis and the Pearson correlation coefficient. Even though the validity and reliability tests were examined by the researchers, both found that this study had significant dependability.

According to Table 1, the majority of the 28.7% of managers in this study are between the

**Table 1. Socio-Demographic Factors (DF) of the managers**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Age (years)</b>		
20- 30	52	12.1
30-40	94	21.9
40-50	123	28.7
50- 60	113	26.3
above60	47	11
<b>Gender</b>		
Male	312	72.7
Female	117	27.3
<b>Education Qualification</b>		
Bachelor	84	19.6
Master	210	49
M.phil	12	2.8
PhD	123	28.7
<b>Marital Status</b>		
Unmarried	96	22.4
Married	333	77.6
<b>Self-Management Skill (SMS) training</b>		
No	332	77.4
Yes	97	22.6

ages of 40 and 50, the majority of managers (72.2%) are men, the majority of managers (49%) have master's degrees, the majority of managers (77.6%) are married, and the majority of participants (77.4%) have not received SMS training.

**Table 2. Illustration of Self-Management Skills (SMS) among Managers**

Statement	Never %	Rarely %	Sometimes %	Often %	Always %
1. Self-Regulation Skills(SRS)	0.2	1.2	28.3	50.9	1.4
2. Self-Motivation Ability (SMA)	0.7	10.3	65.5	10.0	13.5
3. Self-Responsibility Ability (SRA)	0.5	0.7	27.7	67.6	3.5
4. Self- Care	0.9	1.9	42.7	52.4	2.1
5. Pause under Pressure	0.2	2.3	30.8	63.4	3.3
6. Decision intelligence	0.2	0.5	17.9	79.0	2.3
7. Professionalism	0.5	11	10.0	75.5	2.8
8. Adaptability Ability(AA)	0.2	2.3	27.0	35.4	35.0
9 Self Responsibility	0.2	0.9	20.0	40.0	35.3
10. Self -Trust	0.2	1.9	16.1	79.4	2.3

Table 2 presents the outcomes of the descriptive data study of SMS among managers. The majority of participants specified that SRS was 'often' practiced (50.9%), while SMA skill was indicated as 'sometimes' practiced by 65.5% of the respondents. Regarding SRA, the majority (67.6%) reported practicing them 'often.' For self-care, the majority (52.4%) reported practicing it 'often.' When under pressure, the majority (63.4%) reported taking a pause 'often,' and 79.0% reported using decision intelligence 'often.' Regarding professional behavior, 75.5% reported showing it 'often,' while 35.4% reported 'often' about AA, and 40.0% frequently reported practicing it 'often.' The majority (79.4%) reported practicing self-trust 'often.'

**Table 3. Level of Self-Management Skills (SMS) among leadership**

Level	Frequency	Percentage
<25	270	63.1
>25	158	36.9

Researchers conducted a descriptive analysis to examine the frequencies and percentages of levels of self-management skills (SMS) among managers. The results showed that 63.1 percent of managers had SMSS that were below average, while only 36.9 percent of managers

had high-level SMSS.

**Table 4. Effects of Demographic Factors (DF) on Self- Management Skills (SMS) among managers**

Model	UC		SC	t	LLCI		Sig
	B	SE	Beta		ULCI	ULCI	
(Constant)	3.736	0.062		60.426	3.615	3.858	0
Age	0.005	0.014	0.02	0.358	-.022	.031	0.72
Gender	0.023	0.033	0.035	0.699	-.041	.087	0.485
Education level	-0.004	0.014	-0.017	-0.326	-.031	.022	0.745
Marital status	-0.023	0.038	-0.033	-0.605	-.098	.052	0.545
SMS Training	0.003	0.035	0.004	0.083	-.065	.071	0.934

Dependent Variable: MEAN-Self-Management Skills (SMS)

\*UC-Unstandardized Coefficients; SC- Standardized Coefficients; LLCI, ULCI Lower Level and Upper Level [Confidence Interval]; SE- Std. Error

Table 4 illustrates the association of DF with SMS. A summary of the regression analysis findings for the correlations between DF and SMS, including odds ratios, 95% confidence intervals, and p-values, is presented. The results showed that age was not significantly associated with SMS, but the beta coefficient for SMS (Beta=0.02, t=0.358; 95% confidence interval [-.022-.031], p=0.72) was positive.

The findings indicated that there was a significant association between gender and SMS. The beta coefficient for gender was 0.035, t=0.69; odds ratio (OR), 95% confidence interval [-0.041-0.087], p=0.48. Managers who were male had a positive relationship with SMS, and the p-value suggested significance, which was less than 0.05. However, the Beta coefficient was positive.

There was no evidence of a significant correlation between managers' educational qualifications and their SMS. The beta coefficient was -0.017, t=-0.32, with a 95% confidence level of [-.031-.022], p=0.74. The p-value was greater than 0.05, and the beta value was negative, indicating no significant relationship.

Marital status among managers also showed no significant relationship with SMS. The beta coefficient was -0.033, t=-0.605, with a 95% confidence level of [-.098=.052], p=0.54. The p-value was not less than 0.05, and the beta value was negative.

Regarding SMS training, the beta coefficient was 0.004, t=0.08, with a 95% confidence level of [-.065-.071], and the p-value was 0.93. The findings suggested no significant information,

as the p-value did not show any significant relationship, and the beta value was positive.

## **DISCUSSION**

The study's results shed light on the influence of DF on managers' ability to effectively manage within organizations, while the importance SMS is widely recognized, the influence of DF on SMS remains understudied. This research investigates how factors such as age, gender, marital status, education level, training, and experience related to SMS. The study is particularly relevant as the previous study has emphasized the significance of demographic variables in SMS among managers. The research indicates that DF forms the essential building blocks for managers and professionals seeking to enhance their own SMS. This includes developing SMS such as SRS, SMA, SRA, CA, AA, and regulation, which are vital for effective administration. Additional study displays that SMS has an encouraging impact on managers' performance, supporting positive emotions, adaptableness, empathy, and ethical behavior. The research study highlights that age, gender, and training are all positively related to managers' SMS, actually enhancing their self-esteem, SMA, and AA. By focusing on these critical components, organizations can adopt effective services and SMS to increase their general performance.

### **Extent of Self- Management Skills (SMS)**

To examine the level of SMS, Researchers applied descriptive statistical analysis and the evidence revealed that; the majority (63.1%); of managers in this study had SMSS that were below average. The majority of managers had poor self-management skills, despite the fact that self-management skills are significant and crucial for everyone, especially for managers. Self-management qualities include SRS, SMS, SRA, CA, AA, and OC. The outcomes presented in Tables 2 and 3 are consistent with earlier research studies that have discovered SMS among managers. For instance, a research study by Thapa et al. (2023) found that management is a skill that connects both personal and professional competencies. Self-management skill (SMS) is a personal skill that has been shown to have a positive relationship with leadership, eventually helping to raise performance at work. Though, it is worth observing that the outcomes of the present study advise that the majority of managers have below-average SMS levels. This outcome is concerning since earlier research studies have revealed that management skills are vital for effective management performance. For instance, a research study by Ghali et al. (2018) found that the management skills of employees pay to administrative success in a positive way. Likewise, another study's outcomes proposed that management skills serve as a vital managerial competency, involving taking accountability for one's activities and behaviors (Steyn & Van Staden, 2018). In conclusion, the present study's results highlight the importance of management skills for effective management however, the study result found that the majority of managers may have below-average SMS levels. It is crucial for organizations (Ghali et al., 2018; Steyn & Van Staden, 2018; Thapa et al., 2023) to invest in training and development programs to enhance manager SMS, which can lead to better performance, job satisfaction, and job performance (Alebiosu et al., 2022;

Ghali et al., 2018; Steyn & Van Staden, 2018).

### **Effect of Demographic Factors (DF) on Self - Management Skills (SMS) among managers**

The outcomes of the present study suggest that age, gender, and SMS training are main factors in influential managers' management skills in a selected institute. The positive correlation b/t age, gender, and training advised that as managers get older, they may develop more skilled at handling people and resources efficiently. This outcome is steady with earlier research, which has shown that understanding is a vital factor in developing management skills.

In this present study, age is also measured as one of the indicators that can raise the competencies of managerial skills. As people age, they have additional chances to gain understanding and cultivate the ability to efficiently employ available resources to handle diverse situations. Earlier studies have also revealed a positive relationship b/t age and management skills (Bailey et al., 2020; Jain & Lamichhane, 2020). Similarly, a study found that senior managers exhibited higher levels of self-regulation than younger managers in a study. This may be the case because older people have more experience dealing with difficult situations and have developed better-coping mechanisms and also indicating from the study adds to the body of research supporting the idea that as people age, they become more prosocial and are better equipped to create a culture that values the contributions of senior citizens as reported by (Bailey et al.,(2020 ).In addition older adults reportedly experience less distress in response to interpersonal conflicts than younger adults (Charles & Carstensen, 2009)

The positive suggestion b/t gender and management skill is also remarkable in this current study as it advises that women may be just as skilled as men in rising effective management skills. This result is in difference to some earlier research(Thapa et al., 2023), which has proposed that women face further barriers to career growth in administration roles. Though, it should be illustrious that the present study did not search the intention for this positive suggestion b/t women and managerial skills and that further study is needed to recognize this correlation fully.

The positive relationship between SMS training and management skill is perhaps the most predictable finding of the current study. The status of training and increase in improving management skills has been well proven in the leading sector(Li, 2022; Pudashini et al., 2023; Thapa, Konnur, et al., 2022). The researchers proposed that endowing in management training packages could be a meaningful deal for administrations looking to progress their management performance.

In general, the outcomes of this study have significant suggestions for administrations observing to develop their SMS. The positive relationship between age, gender, and training advises that organizations should reflect these factors when preparation organization development programs. The study also highlighted the significance of supplementary research into the link between gender and management skills, mainly in accepting the responsive association revealed in this current study.

## **Limitations**

It is important to take into account the limitations of the current research study. The study's primary methodology was a convenient sampling approach, which might not be representative of all managers in Kathmandu-based organizations as a whole. Secondly, the study only collected data at a single point in time, limiting the ability to categorize changes over time, and it is dependent on self-reported information, which may have contributed to the social appeal. Finally, the study addressed issues with employee data retrieval that may have impacted the sample's representativeness.

## **PRACTICAL IMPLICATION**

Practical implications could be drawn from the present study on exploring the relationship between SMS and DF among managers in Kathmandu-based organizations in Nepal. The current study's outcomes showed that most managers have poor SMS score, regardless of the significance of these skills for effective working performance. Age, gender, and SMS training were established to be the key factors that influence managers' management skills. Hence, organizations must invest in the preparation and development packages to improve managers' management abilities, considering these aspects. Additionally, further studies are necessary to fully examine the positive relationship between women and management skills.

This current study used all dimensions of organizations, from small to large and comprised managers at all levels, from junior to senior. It can be useful to apply in particular industries such as the healthcare industry, where the shortage of nurses and other healthcare workforces is becoming a challenge due to COVID-19 (Pudashini et al., 2023). This study could also be helpful for other skilled-based occupations, as most occupations require capable managers. Furthermore, there are diverse groups of individuals employed in organizations, as well as diversity, equality, and inclusivity (DEI), and administrations should attention on supporting gender inequality in leadership positions (Gallup Global Emotions 2022, 2022).

Furthermore, it is suggested to progress hiring and recruitment practices. Adults and and qualified persons can have developed performance levels, and administrations must consider other factors such as emotional intelligence, wellbeing, organization support (Thapa et al., 2022) and personality traits when hiring and employing managers. It is vital to provide constant care and improvement opportunities for managers to improve their SMS. Administrations could deliver training, mentoring, and other improvement opportunities to support managers' advancement of their SMS over time.

## **CONCLUSION**

In conclusion, this study provides important insights into the relationship between SMS and DF among Kathmandu-based organizations in Nepal. According to the findings, gender, age, and training are important predictors of SMS levels; however, SMS mean was not correlated with educational level, married status, or SMS training. The bulk of managers in Kathmandu-based organizations have poor SMS levels, highlighting the necessity of investing in training and development programs to increase their managerial capabilities. The findings of this

study are applicable to a wide range of professions, including healthcare and other professions requiring specialized skills. When it comes to hiring and recruitment procedures, organizations must consider emotional intelligence (EI), well-being (WB), and organization support (OS) with an emphasis on diversity, equality, and inclusiveness (DEI) in leadership positions. This is essential for managers to have constant opportunities for development and care for their SMS. In general, this study emphasizes the significance of SMS for efficient managerial performance and provides insightful information for organizations seeking to enhance the management skills of their managers.

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#### **Abbreviations**

SMS= Self- Management Skills

SMSS=Self-Management Skills Scores

SRS=Self-Regulation Skill

SMA=Self-Motivation Ability

SRA=Self-Responsibility Ability

CA=Commitment Ability

AA=Adaptability Ability

DF=Demographic factors

JP = Job performance

JS= Job satisfaction

EE= employee engagement

OC=Organizational Commitment

WB=Wellbeing

მენეჯერული თვითმართვის უნარებსა და დემოგრაფიულ ფაქტორებს შორის ურთიერთობის კვლევა კატმანდუში დაფუძნებული ორგანიზაციების მართვაში

პრამილა პუდასაინი ტაპა<sup>1\*</sup>, ბენა გირიდჰარანი<sup>2</sup>, ჯოსანა ხანალი<sup>3</sup>, კუბერ ადიკარი<sup>4</sup>

<sup>1</sup>ცხოვრების უნარების განათლების ინსტიტუტები/იეტის ჯანმრთელობის მეცნიერებათა აკადემია, ნეპალი.

<sup>2</sup>ჰუმანიტარული და ჯანდაცვის მეცნიერებათა ფაკულტეტი, კურტინის უნივერსიტეტი, მალაიზია.

<sup>3</sup>საზოგადოებრივი ჯანდაცვის დეპარტამენტი (პურბანჩალის უნივერსიტეტი), კატმანდუ, ნეპალი.

ინტეგრირებული ჯანმრთელობისა და კვების მენეჯერი ლაოსის სახალხო-დემოკრატიული რესპუბლიკის გლობალური ხედვის საერთაშორისო ცენტრში  
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### აბსტრაქტი

**გამოცდილება:** თვითმმართველობის უნარები სასიცოცხლო მნიშვნელობისაა ყველა მენეჯერისთვის, რათა გაზარდოს მართვის შედეგიანობა და კეთილდღეობა, თუმცა ნეპალში ამ თემაზე მხოლოდ რამდენიმე კვლევაა ჩატარებული.

**მიზანი:** ამ ნაშრომის მთავარი მიზანია კატმანდუში დაფუძნებული ორგანიზაციების მენეჯერებს შორის თვითმართვის უნარებისა და დემოგრაფიული ფაქტორების ურთიერთობის შესწავლა.

**მეთოდები:** კვლევამ გამოიყენა მოხერხებული შერჩევის მიდგომა და ჯვარედინი მეთოდი რესპონდენტებთან (რაოდენობა 429) - მენეჯერებთან, რომლებიც იყენებენ ონლაინ კითხვარებს COVID-19-თან დაკავშირებით. კვლევა შემოწმდა სანდოობისა და ვალიდობისთვის. გამოყენებული იქნა კითხვები ხუთბალიანი სკალებით, რის შედეგადაც მიღებულია თვითმართვის უნარის 50 ქულა. ქულა > 25 მიუთითებს მაღალ შედეგს, ხოლო < 25 მიუთითებს საშუალოზე დაბალ ქულებზე. მონაცემების გასაანალიზებლად გამოყენებული იქნა აღწერილობითი და რეგრესული ანალიზი.

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## Prevalence of oral diseases and availability of their treatment in Georgia

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### Abstract

Oral diseases are widespread diseases in the modern world. This problem is quite relevant in Georgia, where 94.2% of the population suffers from some kind of oral disease. 93.7% of interviewed women and 95.3% of men have symptoms of oral diseases. The rate of prevalence of oral diseases in different age groups also varies within 90-95%. It varies from 91.2% to 95.8% by regions. Therefore, its treatment and prevention are important nowadays. However, the majority of the population (44.9% of people with oral diseases) cannot afford to visit a dentist due to low income. According to the survey, when asked to respondents, what is the main reason for not visiting to the dentist, they answer the lack of money needed for treatment. 8.9% of respondents believe that dental services are fully accessible in Georgia, 14.4% think that they are more accessible than inaccessible; 25.7% believe that there is an average level of accessibility; 34.2% consider it more inaccessible than accessible and 16.8% think it is fully inaccessible.

**Keywords:** Oral diseases, accessibility of dental services, statistical survey.

**Introduction:** The prevalence of oral diseases and determining the availability of their treatment is very relevant in Georgia today. However, there are no exact statistics in this direction. There are only partial studies (some studies are limited only to the adult population, and some are only to the city of Tbilisi), and they are mainly presented in dissertations. This is what led us to conduct a comprehensive study in Georgia, which included all regions and all age groups in the country as a whole.

Georgia is among one of the low-income countries. The majority of the population does not have access to dental services. Poverty and low incomes are also reflected in the inability to receive proper treatment for oral diseases.

**Materials and methods:** The purpose of the survey was to determine the prevalence of oral cavity diseases (dental caries, gum disease, etc.) and the availability of their treatment in Georgia.

We used the following methods in the research: statistical observation method (the method of sample survey), statistical grouping, frequency distributions (relative and cumulative frequency), crosstabulation, statistical graphs, non-parametric statistical criterion for testing of hypotheses (chi-square criterion).

The research was conducted in May 2023. 1023 respondents were interviewed in the survey.

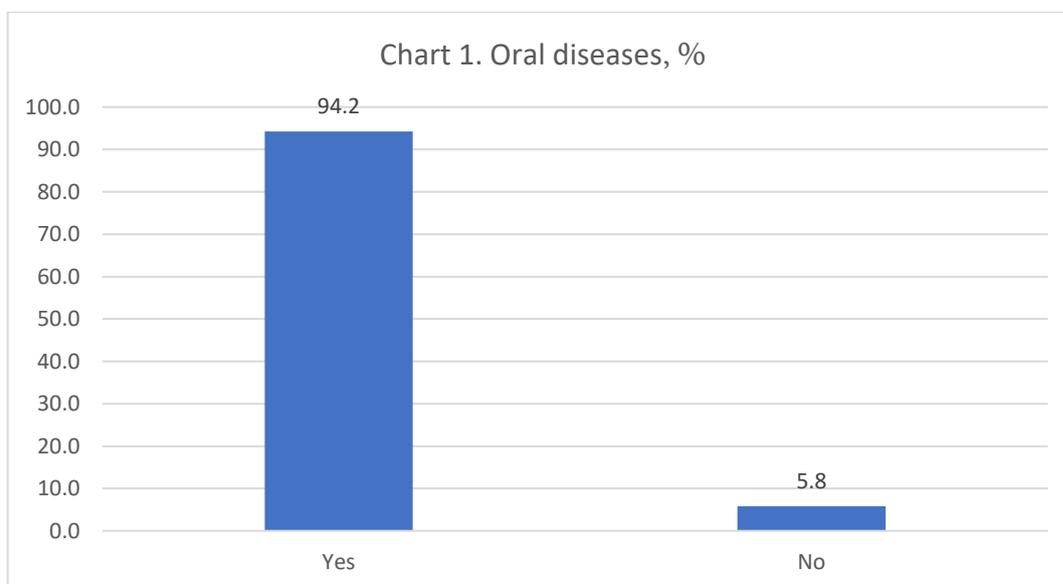
The survey covered the population of all ages and sexes of all regions of Georgia. Data were processed in the statistical software package IBM SPSS Statistics 26.

### Discussion of obtained results

As a result of the research, it was revealed that 94.2% of the population of Georgia has some kind of oral cavity disease. When asked if you have any kind of oral disease, 964 people answered "yes" and 59 people answered "no".

Table 1. Oral diseases

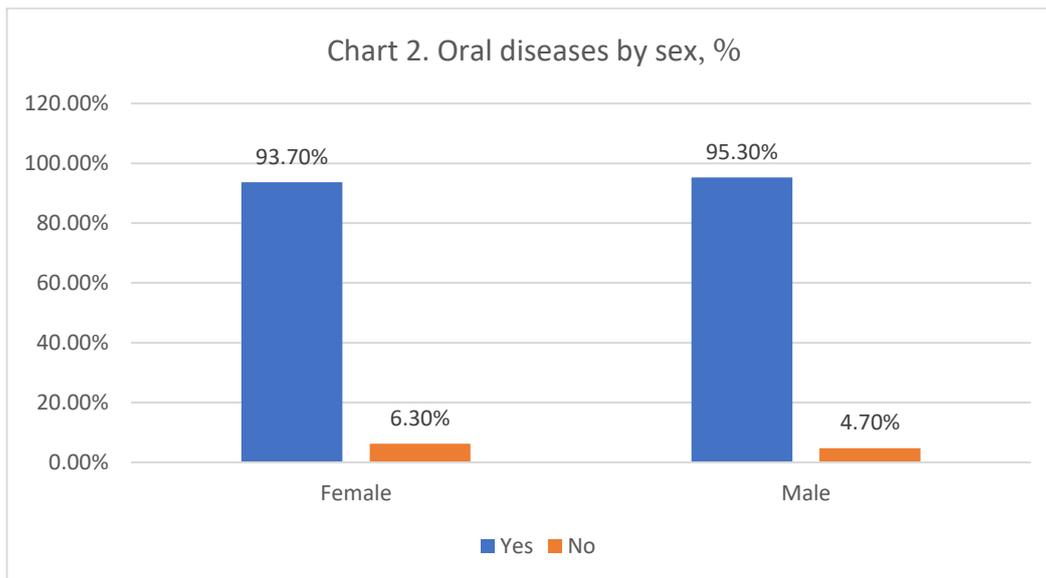
		Frequency	Percent	Valid Percent	Cumulative Percent
No	Yes	964	94.2	94.2	94.2
	No	59	5.8	5.8	100.0
	Total	1023	100.0	100.0	



Oral diseases are about equally common in women and men. 93.7% of the interviewed women have symptoms of the disease, while the figure for men is 95.3%. The table and graph below confirm the above.

Table 2. Oral diseases by sex

		Oral diseases		Total
		Yes	No	
	Female	93.7%	6.3%	100.0%
	Male	95.3%	4.7%	100.0%
Total		94.2%	5.8%	100.0%



According to the results of the survey, the spread of oral diseases by regions is almost similar to each other (despite slight differences) and can be presented as follows:

- Tbilisi - 95.8%
- A.R. of Adjara - 94.7%
- Guria - 91.3%
- Imereti - 92.9%
- Kakheti - 93.5%
- Mtskheta-Mtianeti 91.2%
- Racha-Lechkhumi and Kvemo Svaneti - 92.5%
- Samegrelo-Zemo Svaneti - 93.6%
- Samtskhe-Javakheti - 91.7%
- Kvemo Kartli - 94.8%
- Shida Kartli - 93.2%

According to age groups, the prevalence of oral cavity diseases is as follows: under 20 years - 92.1%, 21-45 years. - 94.5%, and 46 years and above - 95.8%.

The results of the survey are also interesting from the point of view of access to dental services. The question “how accessible dental services are in Georgia”, the answers are as follows:

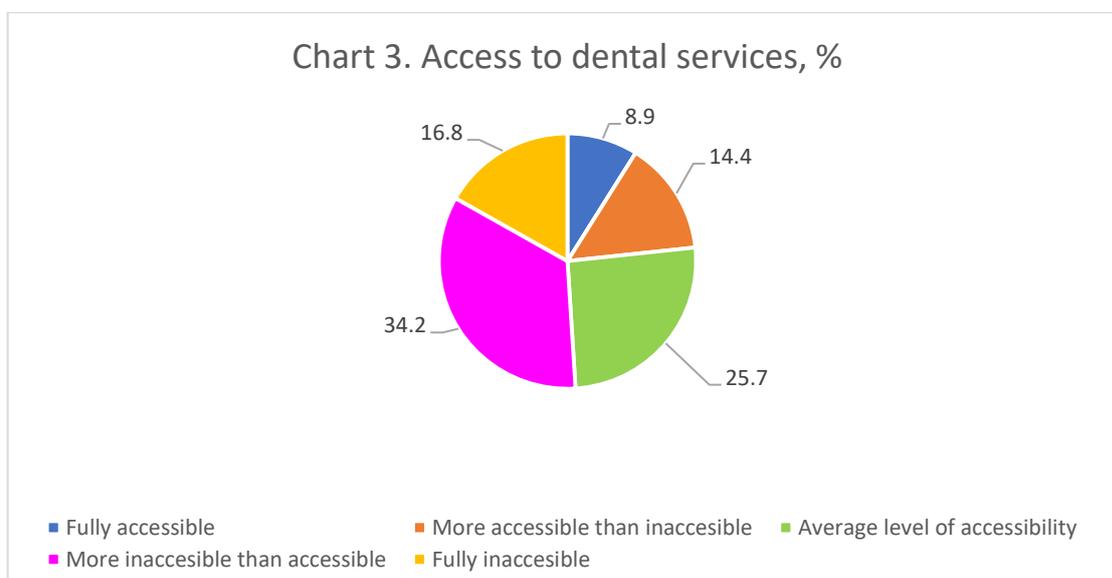
- Fully accessible - 8.9%
- More accessible than inaccessible - 14.4%
- Average level of accessibility - 25.7%
- More inaccessible than accessible - 34.2%
- Fully inaccessible - 16.8%

The table shows that, more than half of the population does not have access to these services and remains without treatment.

The availability of dental services is made more visible by the chart below.

Table 3. Access to dental services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fully accessible	91	8.9	8.9	8.9
	More accessible than inaccessible	147	14.4	14.4	23.3
	Average level of accessibility	263	25.7	25.7	49.0
	More inaccessible than accessible	350	34.2	34.2	83.2
	Fully inaccessible	172	16.8	16.8	100.0
	Total	1023	100.0	100.0	



Dental services are available mainly to the employed, but remain largely unaffordable to the majority of the unemployed. This is confirmed by our survey data.

Table 4. Accessibility of dental services by employed and unemployed

	Accessibility of dental services	Total
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	Fully accessible	More accessible than inaccessible	Average level of accessibility	More inaccessible than accessible	Fully inaccessible	
employed	14.8%	24.1%	25.9%	25.9%	9.3%	100.0%
unemployed	1.0%	1.3%	25.6%	36.4%	35.7%	100.0%
Total	10.2%	16.5%	25.8%	29.4%	18.1%	100.0%

To confirm whether there is a statistically significant difference in access to dental services between the employed and the unemployed, we used the chi-square test of hypotheses (Table 5).

Table 5. Chi-square test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	182.829 <sup>a</sup>	4	.000
Likelihood Ratio	217.461	4	.000

As can be seen from the table, the significance level  $\alpha$  is equal to 0.000, which is much less than the preselected significance level of 0.05. Thus, we can conclude that there is a significant statistical difference in the availability of dental services between the employed and the unemployed.

### Conclusions

The final conclusion is as follows: The prevalence of oral diseases in Georgia is quite high. 94.2% of the population is suffering from this disease. 93.7% of women and 95.3% of men have symptoms of oral cavity disease. The rate of prevalence of oral cavity diseases in different age ranges also varies within 90-95%. It varies from 91.2% to 95.8% by regions of Georgia. Therefore, its treatment and prevention measures are important. However, the majority of the population (44.9% of patients) cannot afford to visit a dentist due to low income.

8.9% of respondents believe that dental services are completely available in Georgia; According to 14.4%, it is more accessible than unavailable; 25.7% believe that there is an average level of accessibility; 34.2% consider it more inaccessible than accessible and 16.8% think it is completely inaccessible.

Finally, recommendations can be formulated as follows:

- Appropriate policy should be implemented in the direction of reduction of oral diseases;
- Improve access to dental services in Georgia.

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## პირის ღრუს დაავადებების გავრცელება და მათი მკურნალობის ხელმისაწვდომობა საქართველოში

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### აბსტრაქტი

პირის ღრუს დაავადებები თანამედროვე მსოფლიოში ფართოდ გავრცელებული დაავადებებია. აღნიშნული პრობლემა განსაკუთრებით აქტუალურია საქართველოში, სადაც მოსახლეობის 94,2 % რაიმე სახის პირის ღრუს დაავადებითაა დაავადებული. გამოკითხული ქალების 93,7%-ს აღნიშნება პირის ღრუს დაავადების სიმპტომები, ხოლო მამაკაცებში აღნიშნული მაჩვენებელი 95,3 %-ია. 90-95 %-ის ფარგლებში მერყეობს ასევე პირის ღრუს დაავადებების გავრცელების მაჩვენებელი სხვადასხვა ასაკობრივ ჯგუფში. რეგიონების მიხედვით კი - 91,2%-დან 95,8%-მდე დიაპაზონში თავსდება. შესაბამისად, მისი მკურნალობისა და პროფილაქტიკის ღონისძიებები მნიშვნელოვანია. თუმცა მოსახლეობის უმრავლესობა (დაავადებულთა 44,9 % ) დაბალი შემოსავლის გამო ვერ ახერხებს სტომატოლოგთან ვიზიტს. ისინი ექიმთან არმისვლის ძირითად მიზეზად ასახელებენ მკურნალობისათვის საჭირო ფულის არქონას. გამოკითხულთა 8,9% მიიჩნევს, რომ სტომატოლოგი -ური მომსახურება საქართველოში სრულიად ხელმისაწვდომია, 14,4%-ის აზრით, უფრო

ხელმისაწვდომია, ვიდრე ხელმიუწვდომელი; 25,7% თვლის, რომ ხელმისაწვდომობის საშუალო დონეა; 34,2% მიიჩნევს, რომ უფრო ხელმიუწვდომელია, ვიდრე ხელმისაწვდომი და 16,8 %-ის აზრით, სრულიად ხელმიუწვდომელია.

**საკვანძო სიტყვები:** პირის ღრუს დაავადებები, სტომატოლოგიური მომსახურების ხელმისაწვდომობა, სტატისტიკური გამოკვლევა.

## **Interactive nature of „communication“ and its linguopragmatics to consider in management practice**

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### **Abstract**

As our research showed, responses' classification has to be based on their categorical features. Answer is a verbal response on causator induced by question. In case of similar interpretation of responses, we will have an opportunity to distinguish direct and indirect meanings of speech act. The given approach makes it possible to single out “the answer” from other types of “response reaction” that may be expressed by different kinesics means and even by more complicated communicative action – i.e. a deed. We have to remind that forms of “response reaction” are not always caused by question that is another factor related to the specificity of responses. Ontological features of the latter are a speech form of reaction that differs it from semiotic equivalents (nod of the head, gesture, communicative silence etc.). It should be noted that taxonomisation of semiotic equivalents of responses is of great importance for foreigners in language learning process. Unfortunately, within the limits of the present study we have no possibility to discuss in more detail the given problem, since it creates a risk of deviation from the basic subject. While representing the part of dialogue integrity, responses, as it was mentioned before, are closely connected to interrogative part. The specificity of linkage revelation in dialogue text has its peculiarities and depends on number of factors: on balance of relationship containing subjective and objective factors and determining communication strategy of respondents, as well as on semantic and formal sides of causation (on interrogative sentence).

**Keywords:** Communication, linguopragmatics, management practice.

### **Main Text**

As it was mentioned, “relationship balance” that contains communicants' social and psychological coordination aspects, is one of the most important factors of dialogue interaction. Despite the fact that interrogative part plays a role of causing factor in the dialogue interaction type interesting for us, the addressee in many cases acts as completely independent person, who initiates or don't initiate contact with the addressant depending on his/her wish.

There can be many situations, when the addressee may withdraw from giving the answer, and motivation is necessary not in every instance. We think that motivation in similar situations can be assessed as a special form of response reaction. Based on the character of the latter, the following situations can be singled out: 1) complete disregard or ungrounded refusal to cooperate; 2) motivated refusal.

Repeated question, change in topic can be considered as peculiar tactical motives of cooperation. Cases, when the addressee meaningfully falsifies information, derides the addressant, recurses to irony etc. may be considered as cooperative according to form, but non-cooperative in fact.

The cases of complete integration are primarily related to such occurrences, when the addressant and the addressee either don't know each other, or are in strained relations. Addressee may be irritated due to addressant incorrectness (indiscretion) of familiarity (not ceremoniousness). Disregard may be associated with unwillingness to release information etc. Ungrounded refusal to give an answer in most cases can be assessed as violation of politeness code. On the other hand, ungrounded refusal can be considered in most cases as a peculiar form of protest and can express disrespect, aggrievance. In some cases, such disregard can be related to state of mind of the addressee.

Intermediate place between "answers" and "non-answers" is taken by cases of motivated refusal to answer. Different cases of following types are possible here: "it is a secret", "you don't need to know", "you will learn, when getting older", "unfortunately, I can't say", "sorry, but I'm in a hurry", "I don't want to deal with you", "I have no right" and so on.

From the viewpoint of per locution efficiency, the response to question may rest on different strategies of response reaction: compassion, absence of compassion, disregard. We dealt with the latter category above, but it may have other nuances of meaning within new paradigm. We mean such forms of disregard as "indifference". The latter is a peculiar response to question, which expresses addressee's viewpoint regarding causation and opposes positively-(compassion) or negatively-colored (absence of compassion) reactions. In other words, such indifference can be called "cooperative disregard".

As is known, the concept of "indifference" ranks among "semantic primitives" consisting the vocabulary of "mental language". As S.A. Golubtsov notices: "Indifference is capable to play the role of operator of both axiological appraisal logics and feeling logics" ...

In regard to our material this means that such response may belong to both erotetic act and addressant.

E. Topuria shows that indifference indices create several groups in Georgian language:

a) functional class of indifference towards selection of modal alternative;

b) the group with absence of emotional response on object in the subject;

c) thematic group of "weak indifference". Author considered here a "grey stripe", i.e. events belonging to mediocrity. Indices with neutral modality are used in self-evaluation function.

We touched on "indifference" problem in regard to the problem of interaction balance and opposed it to such categories, as "compassion" and "absence of compassion".

We considered the category of "indifference" as zero category of interaction, against the background of which the positive ("compassion") and negative ("absence of compassion") attitudes are manifested.

Sympathetic attitude toward addressant is revealed in the fact that addressee gets in touch with him/her. "Voluntariness" of such contact can be inhomogeneous. Besides true desire of addressant to give an answer on question, there are cases, when he/she does it under the

influence of different factors: influenced by etiquette standards, social status, fear etc. Respectively, the veracity of response reaction during such “voluntary cooperation” is not always absolute and is a reason of misinformation in some cases.

Under reaction correct on its form, quite negative attitude towards addressant may hide. In other words, responses may have indirect speech meanings, too, that can be confirmed by specific examples (see third chapter).

We considered the cooperative back round of interaction (communication), which includes four tactics of response reaction: 1) compassion; 2) absence of compassion; 3) disregard; 4) indifference.

When formulating the question addressant foresees expected reactions of addressees and uses different communication strategies according to forecast: stimulates answer in compliance with etiquette standards, recurses to appeal towards emotional and intellectual factors, tries to have an impact on addressant using “strong position” etc. As we noticed, the interaction balance includes three tactics of response reaction based on: 1) addressant’s personality; 2) form of address and 3) information itself.

All three factors can lay the foundation for responsive definition, though according to classic ideas, the answer is the third option. Attitude towards addressant’s personality determines selection of cooperative register of interaction, while the form of address to a significant extent influences addressee’s desire to get or not to get in touch and contains reaction on the tactics, by means of which the addressant is going to reach a desirable response reaction.

**Attitude towards question content** is implemented within the reaction on four-element model of question. Analysis of the specific material enabled us to reveal different meanings of responsivenesses.

Responsive-informatives represent information around question raised, and are implemented via structures specific for responsivenesses: according to yes/no form, i.e. incomplete sentence, that we consider as normative option of responsivenesses, i.e. as sentences containing mirror-like response on the structure “to whom”.

Among reactions on indirect pragmatic meanings of questions the most typical are reactions on indirect requests, advices, commands etc. Interesting that the response reaction tactics has specific nature in similar cases and differs from the tactics of “responsive-informatives”. If the reaction on typical “classic” types of questions has a fixed linguistic standard, then causators expressed in interrogative form, have their specificity.

Through analysis of possible answers on pragmatic options of questions given in the above-mentioned E. Topuria’s work we came to conclusion that the addressee associates answer’s nature not with linguistic form, but with pragmatics of interrogative part. For instance, respondents have unequivocal reaction on the command: “Can you answer me?”. They react on it as on the command. The respective reaction is induced by the threat given in interrogative form: “Can you wait for me?”, or warning “Do you know, what I’d like to say?” [1-6].

### **Conclusions:**

Interrogative construction “Can you please keep quiet?” also keeps the meaning of request. We will not stop on other examples (they will be given in the next chapter), and just note

that the response reaction on indirect interrogative speech acts is associated with targeted interpretation implemented by the addressant and, as a rule, it represents a reaction on corresponding intention. We are planning to check all-purposeness of this provision on comparison (translation) material, but prior to moving to the mentioned task, let us to briefly summarize the results of present chapter.

1) Communication theory development and its impact on dialogue study sphere made it possible to use the achievements of speech act theory in order to take a new look on the essence of question-answer-type communication;

2) Interrogative part of dialogue causes the response reaction that necessitated the consideration of its pragmatic peculiarities. While determining the specificity of interrogative (erotative) speech acts, we differentiated direct and indirect meanings of interrogative construction and revealed their main pragmatic meanings;

3) Attempt to determine the specificity of responsive speech acts in speech act system lead us to conclusion that based on their pragmatic meanings, it is possible that the meaning of “verbal-communicative reactions” will intersect verdictives, exersitives, commissives, behabitives and even expositives (among which we have to rank “answers”, as well, in J. Austin’s opinion) that complicates the final solution of issue and necessitated distinction between direct and indirect meanings of responsives.

4) Logicians, who elaborated original classification of “responses”, came nearest to the interpretation of “verbal-communicative reactions”. Unfortunately, this classification based on veracity scale is unusable for classification of those nuances of human relations that are reflected in real communication.

5) Analysis of specific material enabled us to single out constructive elements of responsives:

a) responsives represent verbal response on causing stimulus;

b) answers represent not a passive response on causing source (beginning), but include respondent’s (the person, to whom the question is raised) attitude towards information itself and addressant, that is reflected in addressee’s possibility to come or not to come into communication and select subjectively correct register of interaction;

c) answers have specific linguistic structures: yes/no constructions, i.e. “incomplete sentences” that represent such normative units in response function, which don’t need any filling etc. This fact provides a basis for us to confirm that “responsives” have whole package of specific characters that makes it possible to classify their special diversity as that of speech acts. They have specific illocutive target (verbal response on causing linguistic stimulus), as well as intentional freedom associated (but not determined) with causing part, and specific plane of expression, which includes typical responsive structures.

d) the role of provoking part of dialogue unity of question and answer may be played by erotatives, which have different pragmatic meanings that gives rise to non-uniform answers on interrogative constructions monotypic from structural viewpoint.

The asymmetry of interrogative form and not-interrogative meaning quite frequently causes non-uniformity of information perception, especially if it refers to not-native speakers.

e) the specificity of response reactions is determined by interaction (communication)

balance that includes subjective and objective factors defining respondent's communication strategy. Interaction balance is reflected on cooperative background, which includes three tactics of response reaction: 1) compassion; 2) absence of compassion; 3) disregard (indifference).

Response reaction tactics are determined by the addressee's attitude towards:

- a) addressant personality (along with his/her social-psychological parameters);
- b) form of address (compliance/non-compliance with etiquette standards accepted in his/her culture);
- c) information itself.

Depending on causing information aspect of response reaction verbal-communicative reaction may be perceived or not perceived as direct answers on question. Despite this, response reaction tactics is interesting by itself, since it represents one of the most important forms of communication interaction, knowledge of which plays enormous role in intercultural communication process in general, and in translation activity, in particular;

d) the analysis of specific material shows that cohesion category in the dialogue complex of question and answer may manifest itself in linkage of information transmitted by addressee with question content itself, and the form of address and addressant's personality.

Comparative (contrastive) analysis (one of varieties of which is represented by translation) will give us an opportunity to discover the peculiarity of linguistic strategy of answer and will assist us to distinct all-purpose and national specific characteristics of the phenomenon interesting for us. Let us try to verify our observation on specific empirical material.

### **„კომუნიკაციის“ ინტერაქციული ბუნება და მისი ლინგვოპრაგმატიკა მართვის პრაქტიკაში გასათვალისწინებლად**

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#### **აბსტრაქტი**

რესპონსივების კლასიფიკაციას საფუძვლად უნდა დაედოს მათი კატეგორიული ნიშნები. პასუხი წარმოადგენს სამეტყველო რეაქციას შეკითხვით გამოწვეულ კაუზატორზე. რესპონსივების მსგავსი ინტერპრეტაციისას ჩვენ გვექმნება შესაძლებლობა გავმიჯნოთ სამეტყველო აქტის პირდაპირი და ირიბი მნიშვნელობები. მოცემული მიდგომა შესაძლებელს ხდის „პასუხი“ გამოვარჩიოთ „საპასუხო რეაგირების“ სხვა ტიპებისაგან, რომლებიც შეიძლება გამოხატული იყოს სხვადასხვა კინესიკური საშუალებებით და უფრო რთული საკომუნიკაციო ქმედებითაც კი - ანუ საქციელით. უნდა შეგახსენოთ, რომ „საპასუხო რეაგირების“ ფორმები ყოველთვის არ კაუზირდება შეკითხვით, რაც კიდევ ერთი ფაქტორია, რომელიც რესპონსივების სპეციფიკასთან არის დაკავშირებული. ამ უკანასკნელთა ონტოლოგიურ ნიშან-თვისებას წარმოადგენს რეაგირების სამეტყველო ფორმა, რომელიც მას სემიოტიკური ექვივალენტებისგან (თავის დაქნევა, ჟესტი, საკომუნიკაციო დუმილი და სხვ.)

განასხვავებს. უნდა აღინიშნოს, რომ რესპონსივების სემიოტიკური ექვივალენტების ტაქსონომიზაციას დიდი მნიშვნელობა აქვს უცხოელთათვის ენის სწავლების პროცესში. სამწუხაროდ, წინამდებარე კვლევის ფარგლებში ჩვენ არ გვაქვს საშუალება უფრო ვრცლად გავჩერდეთ მოცემულ პრობლემაზე, ვინაიდან ეს ძირითადი თემისგან გადახვევის რისკს ქმნის.

წარმოადგენენ რა დიალოგური მთლიანობის ნაწილს, რესპონსივები, როგორც აღნიშნული იყო, მჭიდროდ არიან დაკავშირებულნი კითხვით ნაწილთან. დიალოგურ ტექსტში ბმულობის გამოვლენის სპეციფიკას თავისი თავისებურებები აქვს და რიგ ფაქტორზეა დამოკიდებული: ურთიერთობის ბალანსზე, რომელიც სუბიექტურ და ობიექტურ ფაქტორებს მოიცავს და რესპონდენტის კომუნიკაციურ სტრატეგიას განსაზღვრავენ, აგრეთვე კაუზაციის აზრობრივ ან ფორმალურ მხარეზე (კითხვით წინადადებაზე).

**საკვანძო სიტყვები:** კომუნიკაცია, ლინგვოპრაგმატიკა, მენეჯმენტის პრაქტიკა.

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## Why healthcare management should be special

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### Abstract

For serious thinking of international political and scientific circles, we consider, that any helpless ill person is the most wanting and inadequate from people, therefore such needy human is not able to pay the necessary money for treatment from own pocket or to obtain a basic donation if He does not have the necessary money. Naturally, everyone will agree with me that the entire progressive society of humanity is developing in the direction of humanism and with the corresponding ideology, and let's think very seriously about how humane this is when a seriously sick person is asked to pay money. Therefore, we call on progressive international political and scientific circles to try to improve health management as much as possible. By observing the mean-square deviation and variation of the expected random economic parameters, using the “fish-bone” multi-factor analysis, perspective prognostic extrapolation and Delphi methods, we came to the conclusion that in the near future of georgian healthcare, 2% of the population's taxable income will be completely sufficient to provide the population with free qualitative primary emergency care.

**Keywords:** Healthcare management, healthcare financing, life expectancy.

### Introduction

If the seriously ill person has no money to pay and this is regulated and controlled by a tariff set at the global level, some extortionist "doctors" will not be able to prolong the treatment process, will not refer the patient to unnecessary expensive surgical manipulation, which may cause additional harm.

During the Covid-19 pandemic, the United States of America has shown an unforgettable humanitarian mission to selflessly save humanity by providing necessary vaccines and other medicines. Traditionally, the attitude of the US Medicare and Medicaid (Achou 2023) to the population is exemplary. Even my country - Georgia, despite the difficulties of the first years of economic independence, is trying its best to organize a universal health care system, the best examples of Great Britain and Germany are also in this regard, but neither the above-mentioned nor any other individual country can create universal perfection in the world health care, if we fail to make a united effort.

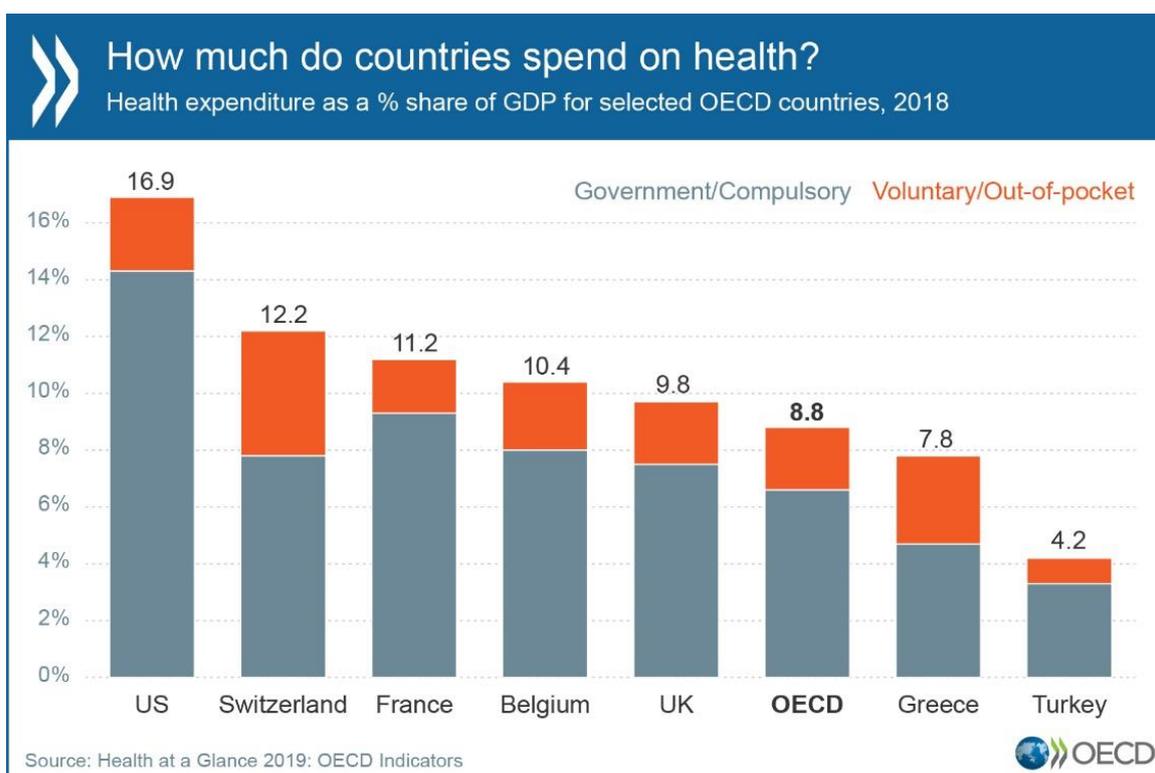
### Main Part

I think, all countries should support to the World Health Organization and, like Lord Beveridge's model (Physicians for a National Health Program 2010), should develop a unified method for accumulating tax revenues in the first stage for the needs of the emergency

medical care system of the population. As an already quite experienced economist, I am convinced by multifactorial calculations that this will not be an insurmountably large interest rate - a maximum of 2% of taxable income from income tax will be quite sufficient to fully implement the set humanitarian goals. In order to make the mentioned conclusion, we can be convinced of the really exemplary example of Georgia: if we spend 20% of the GDP on health care - like the best caring American model (Figure 1) and, according to the latest data (Table 1), the national income of the population in the gross domestic product is about 94% (National Statistics Office of Georgia 2018-2021), and the ratio of population services with primary emergency assistance to the number of referrals to doctors in ambulatory-polyclinic institutions is close to 8% (National Statistics Office of Georgia 2010-2021, Figure 2-3), we will need at least  $0.2 \times 0.94 \times 0.08 = 0.015$  that is 1.5% of the population's income on free emergency assistance (2% marked with permissible error). I am confident, that when a person in the developed world pays even more than 40% income tax (Figure 4), no one will refuse to use at least 2% of these percentages for vital health needs.

In the case of the introduction of a comprehensive global health care system, aesthetic medicine, elite dental care or other types of non-emergency medical services may retain full freedom of pricing and reimbursement for services. We oppose in every way such excessive "social" mechanisms, when a certain segment of the population gets used to helplessness and lives on the state's satisfaction, and at the same time, corruption and inertia are given way, and the processes of economic decline are accompanied.

**Figure 1**  
**Healthcare expenditure in GDP**



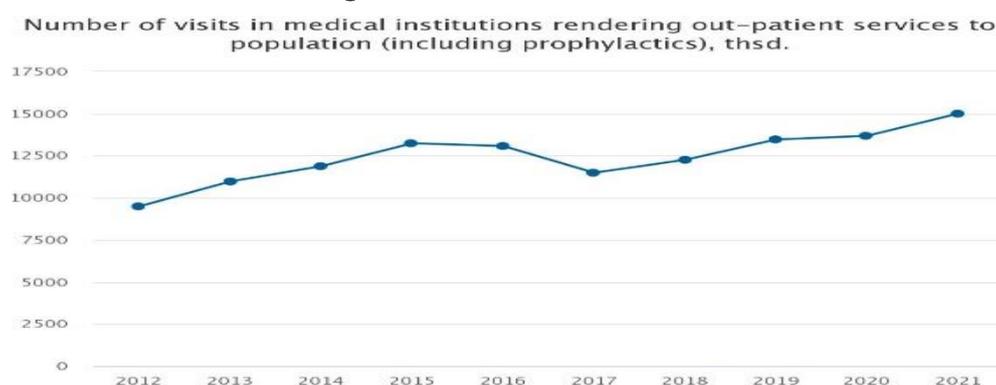
Source: [https://www.oecd.org/newsroom/HAG2019\\_NR\\_EN-01.jpg](https://www.oecd.org/newsroom/HAG2019_NR_EN-01.jpg)

**Table 1. Some Indicators of Georgian Economy and Health Care**

Indicators	2021	%
Gross Domestic Product at current prices. Source: <a href="https://www.geostat.ge/en/modules/categories/23/gross-domestic-product-gdp">https://www.geostat.ge/en/modules/categories/23/gross-domestic-product-gdp</a>	8.6 Billion USD	100
Gross National Income. Source: <a href="https://www.geostat.ge/en/modules/categories/24/gross-national-income-gni">https://www.geostat.ge/en/modules/categories/24/gross-national-income-gni</a>	7.5 Billion USD	94
Number of visits in medical institutions. Source: <a href="https://www.geostat.ge/en/modules/categories/54/healthcare">https://www.geostat.ge/en/modules/categories/54/healthcare</a>	15.0 million	100
Emergent medical care, number of patients. Source: <a href="https://www.geostat.ge/en/modules/categories/54/healthcare">https://www.geostat.ge/en/modules/categories/54/healthcare</a>	1.2 million	8

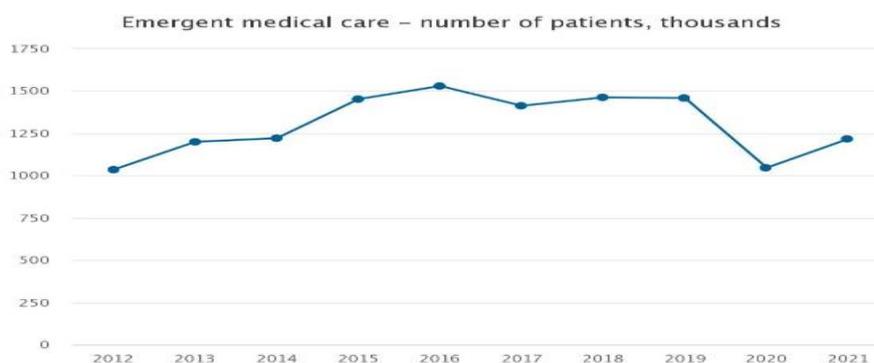
**Figure 2**

**Number of Visits in Georgian Medical Institutions**



**Figure 3**

**Emergent Medical Care in Georgia**



Source: <https://www.geostat.ge/en/modules/categories/54/healthcare>

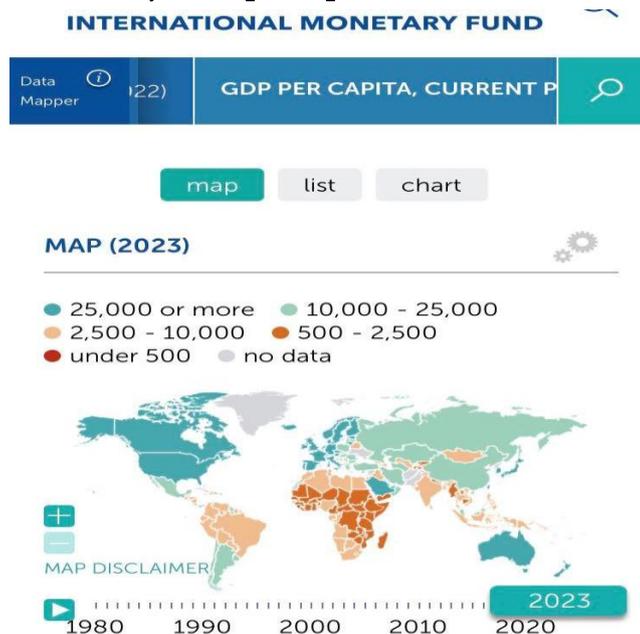
**Figure 4**  
**Income Tax by Countries**



Source: <https://images.app.goo.gl/eujyPGZvbEsTTMrZ8>

According to the data of the International Monetary Fund, it is revealed that in the territories where more funding is provided for health care, they live better economically. It is clearly visible that the regions with the best diverse health care system (in the United States, Western Europe, Japan and Australia) are also distinguished by the standard of living (Figure 5) - the GDP per capita in the dark colored areas already exceeds 25 thousand US dol

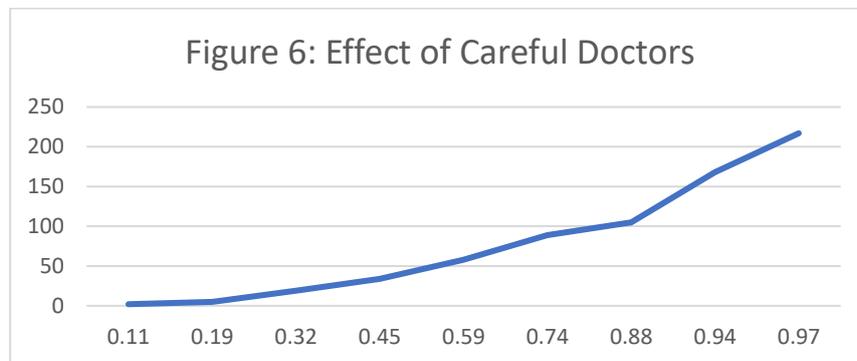
**Figure 5**  
**Countries by GDP per capita**



Source: <https://www.imf.org/external/datamapper/NGDPDPC@WEO/OEMDC/ADVEC/WEOORLD>

For the best example, in the United States, as we mentioned, priority is given to improving the services of the retired population (Achou 2023), health care financing as a percentage exceeded 16.7% of GDP (World Bank 2019), therefore, life expectancy reached 77 years (World Bank 2020) and the level of gross domestic product per head of the population for a country of this size was a record 78.42 thousand US dollars (International Monetary Fund 2023). In addition, as some friendly advice to Americans, I should point out that some of the lag in life expectancy is not due to poor management, but to the proliferation of fast food items with refined baked goods and trans fats, which should be replaced with fruit and vegetable items maximally.

In addition, by multifactorial analysis of the data obtained by own experience (1650 visits and contacts to doctors, with 98-% level of recovery), it was unequivocally established that those doctors who treat the patient humanely and selflessly, more often and sooner achieve appropriate results in the recovery of people than extortionist "specialists". When treating family members, statistical data accumulated over a 33-year period (1990-2023), finally, we assumed that the intellectual potential of doctors with the longest training is approximately equal, and I grouped them according to the dependence of two parameters (Figure 6) using Delphi method (Dalkey and Helmer 1963) - rating the caring nature of doctors on a 0-1 scale interval and the degree of recovery of patients with a 250-point system. As a result, it was revealed that the more caring the doctor is, the more uncorrupted he is and the faster the patients heal.



Source: Author's calculations.

The risk assessment with the mean square deviation showed that the probability of fulfilling the above mentioned is quite high and the fluctuation variation does not exceed 6.2%. Promisingly, forecast extrapolation reveals that by 2050, the expected improvement in selfless care trends is unquestionably evident.

We have made some adjustments in classical economic theory by the issues of assessing competition and substitutability of goods and services, which was used to work out my so called "Management by Abilities" (Lordkipanidze 2021) instead of famous "Management by Objectives" and was evaluated in the global Wikipedia encyclopedia (Lordkipanidze 2022). For example, in medicine, profitability goals should be minimized as much as possible and

mechanisms of perfect soft control to cost of delivering the outcomes and permanent lean accounting should be used (Table 2). Such American health care management is as close as possible to such perfection, where the main part of healthcare objects is represented by non-profit organizations and some government structures.

**Table 2: Exemplary Porter’s Framework and Lean Accounting**

Value Table	Health outcomes		
Cost of Delivering the Outcomes	<i>Decrease</i>	<i>Stay the Same</i>	<i>Improve</i>
<i>Increases</i>	decrease in value	decrease in value	?
<i>Stays the Same</i>	decrease in value	no change in value	Increase in value
<i>Decreases</i>	?	Increase in value	Increase in value

Source: <https://www.iecodesign.com/blog/2016/2/10/value-in-healthcare-porters-framework-and-lean-accounting>

It is very cruel that during a pandemic, some "managed" to earn stolen money and therefore, soft control is always needed. In our opinion, due to wise control, it is necessary to minimize costs as much as possible, but this does not spoil the quality of medical services.

Our proposed skills-oriented management by abilities (MBA) in health care (Lordkipanidze 2023), naturally, along with humane care, should be as intelligent as possible, with the willingness to mutually beneficial (constructive) cooperation with state and international organizations. Despite many positive factors, effective management mechanisms are sometimes delayed, and the main reason for this is improper attitude to learning processes. When the youth learns that more than a formal attitude to learning, a sincere love of the profession and innovative approaches are needed, the situation will become much more adequate in relation to modern great scientific jumps.

### **Conclusion**

The research confirmed our earlier position that healthcare management should not be focused on profit and extracting money from sick patients, which was supported by the position that patients recover faster in an environment of caring selfless doctors. As a result, with united international efforts and reasonable financing mechanisms, we must achieve that health care is increasingly freed from the interests of enrichment at the expense of the sick. Based on approximate expert assessments on the example of the Healthcare of Georgia, it was concluded that 1.5 percentage points (2% with permissible error) from income tax would be sufficient to maintain quality emergency medical care. To this, for the first time, we applied the definition of "careful doctors" and our calculations showed that in the conditions of such caring specialists, patients recover faster.

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**აბსტრაქტი**

საერთაშორისო პოლიტიკური და მეცნიერული წრეებისათვის სერიოზული საფიქრალია, რომ უმწეო, შეურაცხადი ავადმყოფი ყველაზე გაჭირვებული და არაადეკვატურია ადამიანებს შორის, შესაბამისად, არ ძალუძს თავისი ჯიბიდან მკურნალობისთვის აუცილებელი ფული გადაიხადოს ან მოიპოვოს ელემენტარული დონაცია, თუ მას საჭირო თანხა არ გააჩნია. ბუნებრივია, ყველა დამეთანხმებით, რომ კაცობრიობის მთელი პროგრესული საზოგადოებრიობა ჰუმანიზმის მიმართულებითა და შესაბამისი იდეოლოგიით ვითარდება და დავფიქრდეთ ძალიან სერიოზულად, რამდენად ჰუმანურია, როცა მძიმე ავადმყოფს ფულის გადახდა მოეთხოვება. ზემოაღნიშნულიდან გამომდინარე, ვთხოვთ გაითვალისწინონ პროგრესულმა საერთაშორისო პოლიტიკურმა და სამეცნიერო წრეებმა, რომ მაქსიმალურად ვსრულყოთ ჯანდაცვის მენეჯმენტი. მოსალოდნელი შემთხვევითი ეკონომიკური პარამეტრების საშუალო-კვადრატულ გადახრასა და ვარიაციაზე დაკვირვებით, “ფიშ-ბოუნ” მრავალფაქტორული ანალიზის, პერსპექტივის პროგნოზული ექსტრაპოლირებისა და დელფის მეთოდების გამოყენებით, მივედით შედეგებამდე, რომ მოსახლეობის პირველადი სასწრაფო-გადაუდებელი დახმარების უფასოდ სარისხიანი უზრუნველყოფისათვის, საქართველოს ჯანდაცვის უახლოეს მომავალში, მოსახლეობის დასაბეგრი შემოსავლების 2% სრულიად საკმარისი იქნება.

**საკვანძო სიტყვები:** ჯანდაცვის მენეჯმენტი, ჯანდაცვის დაფინანსება, ცხოვრების ხანგრძლივობა.

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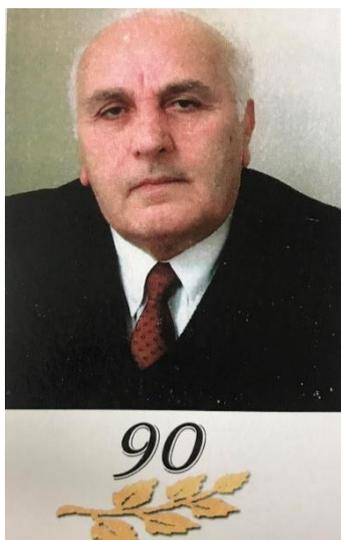
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University Geomegy congratulates  
Professor **Durmishkhan Chitashvili** on his 90th birthday



Durmishkhan Chitashvili, doctor of biological sciences, professor, academician of the Academy of Ecological Sciences, honored sports worker, knight of the Order of Honor, turned 90 years old.

His whole way of life was related to raising young people, standing by them, improving their intelligence, faith and future life.

In the seventies of the 20th century, both abroad and in the Soviet Union, during training, almost no attention was paid to the athlete's health, the compatibility of physical training and body data. As a result of physical overload, too many athletes got sick or died - that's why Mr. Durmishkhani's main research interest was sports physiology, In order to investigate and determine from the point of view of health and body functioning, with what specificity and what kind of load can be exercised, so that the athletes achieve success without damaging the body.

Many athletes have maintained their health as a result of Durmishkhan Chitashvili's scientific research and recommendations, not only in Georgia, but everywhere where his scientific findings and recommendations have been implemented in the training of athletes.

The young generation should know who raised us, who served Georgia and the world.

With his scientific works, he made a great contribution to the development of sports, to the physical education of athletes and young people, to their training.

We congratulate Mr. Durmishkhan on his 90th birthday and wish him health and longevity.

**პროფესორ დურმიშხან ჩიტაშვილს**

უნივერსიტეტი გეომედი ულოცავს 90 წლის იუბილეს

ბიოლოგიის მეცნიერებათა დოქტორს, პროფესორს, ეკოლოგიურ მეცნიერებათა აკადემიის აკადემიკოსს, სპორტის დამსახურებულ მუშაკს, ღირსების ორდენის კავალერს - დურმიშხან ჩიტაშვილს 90 წელი შეუსრულდა.

მთელი მისი ცხოვრების წესი დაკავშირებული იყო ახალგაზრდების აღზრდასთან, გვერდში დგომასთან, მათი ინტელექტუალობის, რწმენის და მომავალი ცხოვრების გაუმჯობესებასთან.

მე-20 საუკუნის სამოცდაათიან წლებში, საზღვარგარეთ და საბჭოთა კავშირშიც, ვარჯიშების დროს, თითქმის არ აქცევდნენ ყურადღებას სპორტსმენის ჯანმრთელობას, ფიზიკური მომზადებისა და ორგანიზმის მონაცემების

ურთიერთთავსებადობას. შედეგად, ფიზიკური გადატვირთვის გამო, ძალიან ბევრი სპორტსმენი დაავადდა ან გარდაიცვალა - სწორედ ამიტომ გახდა ბატონი დურმიშხანისათვის კვლევის ძირითადი ინტერესი სპორტის ფიზიოლოგია - რათა გამოეკვლია და განესაზღვრა ჯანმრთელობისა და ორგანიზმის ფუნქციონირების თვალსაზრისით, რა სპეციფიკით და როგორი დატვირთვით შეიძლება ვარჯიშები, რომ ორგანიზმის დაუზიანებლად მიაღწიათ სპორტსმენებს წარმატებები. ბევრმა სპორტსმენმა შეინარჩუნა ჯანმრთელობა დურმიშხან ჩიტაშვილის სამეცნიერო კვლევებისა და რეკომენდაციების შედეგად არა მარტო საქართველოში, არამედ ყველგან, სადაც მისი სამეცნიერო მიგნებები და რეკომენდაციები დანერგეს სპორტსმენტა მომზადებაში.

ახალგაზრდა თაობამ უნდა იცოდეს ვინ გვზრდიდა, ვინ ემსახურებოდა საქართველოს და მსოფლიოს. დიახ, მსოფლიოს. მან თავისი სამეცნიერო შრომებით უდიდესი წვლილი შეიტანა სპორტის განვითარებაში, სპორტსმენებისა და ახალგაზრდების ფიზიკურ აღზრდაში, მათ წვრთნაში.

ვულოცავთ ბატონ დურმიშხანს 90 წლის იუბილეს და ვუსურვებთ ჯანმრთელობას და დღეგრძელობას.

## ავტორთა საყურადღებოდ!

1. ნაშრომი შესაძლებელია წარმოდგენილი იყოს როგორც ქართულ ენაზე (სრული ინგლისური თარგმანით), ასევე ინგლისურ ენაზე (ქართულ რეზიუმეს რედაქცია უზრუნველყოფს), ელექტრონული სახით, მეცნიერების შესაბამისი დარგის სპეციალისტის რეცენზიასა და ანტიპლაგიატის პროგრამაში შემოწმების პასუხთან ერთად. ჟურნალში გამოქვეყნებული სტატიის ავტორი ან ავტორთა ჯგუფის ხელმძღვანელი (corresponding author) შეიძლება იყოს მეცნიერების დოქტორი ან დოქტორანტი.
2. ნაშრომში დაცული უნდა იყოს შემდეგი თანმიმდევრობა:
  - ა) ნაშრომის სათაური, ავტორ(ებ)ის გვარი და სახელის ინიციალი, მონაცემები ავტორ(ებ)ზე - ქვეყანა, საფოსტო ინდექსი, სამუშაო ადგილი, ელექტრონული ფოსტა.
  - ბ) გამოყოფილი - აბსტრაქტი, საკვანძო სიტყვები (არაუმეტეს 300 სიტყვა).
  - გ) ტექსტი: შესავალი, მასალები და მეთოდები, მიღებული შედეგების განხილვა, დასკვნები, გამოყენებული ლიტერატურა. ფოტომასალა (JPG, TIFF ფორმატში - მინიმუმი რეზოლუციით 300 DPI), ცხრილები, სურათები, ნახაზები, გრაფიკები, სქემები და დიაგრამები - დასათარებელი და დანომრილი; ფორმულები უნდა აღინიშნოს Microsoft Equation - ში.
3. ნაშრომის მოცულობა არ უნდა აღემატებოდეს 10 გვერდს, აბსტრაქტისა და გამოყენებული ლიტერატურის ჩათვლით.
4. ნაშრომი უნდა შესრულდეს Microsoft Word-ში Sylfaen შრიფტით.
5. ფურცლის ზომა A4, ველები: ზედა-2.0 სმ, ქვედა-2.0 სმ, მარცხენ -2.0 სმ, მარჯვენა-2.0 სმ; შრიფტის ზომა -12, ინტერვალი -1,15.
6. სამეცნიერო ნაშრომში დამოწმებული წყაროებისა და ლიტერატურის მითითების წესი: Chicago Manual of Style's "Author-Date": <https://www.chicagomanualofstyle.org/tools/citationguide/citation-guide-2.html>. გამოყენებული ლიტერატურის სია უნდა მოიცეს ანბანური თანმიმდევრობით, მათ შორის ყოველი ავტორი აღინიშნოს გვარითა და სახელით, გვარის მძიმით გამოყოფით სახელისგან, რომლის შემდგომ აღინიშნება შრომის დასახელება და წიგნის ან ჟურნალის სტატიის რეკვიზიტები. მაგალითად: Keng, Shao-Hsun, Chun-Hung Lin, and Peter F. Orazem. 2017. "Expanding College Access in Taiwan, 1978–2014: Effects on Graduate Quality and Income Inequality." Journal of Human Capital 11, no. 1 (Spring): 1–34. <https://doi.org/10.1086/690235>. შესაბამისად, ციტატები ტექსტში უნდა აღინიშნოს, როგორც (Keng, Lin, and Orazem 2017, 9–10).
7. სამეცნიერო ნაშრომი მიიღება ელექტრონულ ფოსტაზე journal@geomedi.edu.ge და ექვემდებარება სავალდებულო რეცენზირებას (peer review). თითოეული მიმართულებისათვის სარედაქციო კოლეგია არჩევს მინიმუმ ორ სპეციალისტს.
8. ნაშრომის გამოქვეყნების ან უარის შესახებ გადაწყვეტილება, ავტორს ეცნობება ნაშრომის წარდგენიდან არაუგვიანეს 5 სამუშაო დღის განმავლობაში.
9. ნაშრომში გამოქვეყნებულ მასალაზე პასუხისმგებელია ავტორი.
10. გამოქვეყნებულ ნაშრომზე ყველა ავტორს გადაეცემა შესაბამისი სერტიფიკატი.
11. ნაშრომის გამოქვეყნების საფასური 50 ლ-ია, სხვა ქვეყნის მოქალაქეებისათვის - 50 აშშ დოლარის ექვივალენტი ლარი. ქართველი და სხვა ქვეყნის ავტორების ერთობლივი ნაშრომის შემთხვევაში კი - 50 ლარი. უნივერსიტეტი აფილირებული აკადემიური პერსონალის სტატიების განსახილველად მიღება უფასოა. პუბლიკაციასთან დაკავშირებული ხარჯებს აფინანსებს უნივერსიტეტი.
12. უნივერსიტეტი იტოვებს უფლებას პლაგიატის აღმოჩენის შემთხვევაში იმოქმედოს უნივერსიტეტის „პლაგიატის აღმოჩენისა და რეაგირების წესის“ შესაბამისად.

### **Paper submission Guideline**

1. The paper can be presented both in Georgian (with a full English translation) and in English (with a Georgian summary, which is provided by the editorial office), in electronic form, together with a review by a specialist in the relevant field of science and with an answer to the check in the anti-plagiarism program. The author of the article published in the journal or the head of the group of authors (corresponding author) can be a doctor of science or a doctoral candidate.
2. The following order should be observed in the paper:
  - a) Title of the work, last name and initial of the author(s), data on the author(s) - country, postal code, place of work, e-mail.
  - b) allocated - abstract, key words (no more than 300 words).
  - c) Text: introduction, materials and methods, discussion of obtained results, conclusions, used literature. Photographs (in JPG, TIFF format - minimum resolution 300 DPI), tables, images, drawings, graphs, charts and diagrams - titled and numbered (if there is one unit of this type of insert in the text, numbering is not required); Formulas should be noted in Microsoft Equation.
3. The length of the paper should not exceed 10 pages, including the abstract and references.
4. The paper should be written in Microsoft Word with Sylfaen font.
5. Sheet size A4, fields: top - 2.0 cm, bottom - 2.0 cm, left - 2.0 cm, right - 2.0 cm; Font size -12, spacing -1.15.
6. The method of citing verified sources and literature in a scientific work: last name and initials of the author/authors, title, title of the book/journal, place of publication, year, book/journal no. In the text, in square brackets, you should indicate the corresponding number of the author(s) according to the reference list.
7. The scientific paper is received by email at [journal@geomedi.edu.ge](mailto:journal@geomedi.edu.ge) and is subject to mandatory peer review. The editorial board selects at least two specialists for each direction.
8. The author will be notified of the decision to publish or reject the paper no later than 5 working days after the submission of the paper.
9. The author is responsible for the material published in the paper.
10. All authors will receive a certificate for the published paper.
11. The fee for publication of the work for citizens of Georgia is 50 GEL, for citizens of foreign countries - 20 USD in Georgian Lari equivalent. The person wishing to publish the paper must pay the fee to the university bank account, through non-cash payment, after receiving approval for the publication of the paper. The university provides free of charge publication of the article from the affiliated academic staff of LLC "The Teaching University Geomedi". The expenses related to the publication are financed by the university.
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