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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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STUDY OF ORAL HEALTH AND SUPPORTIVE STRUCTURES FOR PROSTHETIC RESTORATIONS IN METHADONE MAINTENANCE THERAPY BENEFICIARIES AND DRUG USERS

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Abstract.

Introduction: Methadone Maintenance Therapy (MMT) is commonly used to treat opioid addiction but can cause significant oral health issues, including poor oral hygiene, dental caries, periodontal disease, and bone resorption. These issues can negatively impact on overall quality of life, leading to both aesthetic and functional concerns.

Aim of the Study: This research compares the oral health of individuals in methadone maintenance treatment (MMT) with those starting MMT. It examines the correlation between methadone use, illicit drug use, and oral health, focusing on the condition of supportive structures for future prosthetic restorations. The study also explores how prosthodontic interventions can improve oral health.

Materials and Methods: This study was conducted at the Center for Mental Health and Prevention of Addiction in Tbilisi, Georgia, involving 276 patients (138 initiating Methadone Maintenance Therapy (MMT) for the first time and 138 MMT beneficiaries with at least six months of treatment). Stratified random sampling was used based on the duration of opioid addiction and length of MMT enrollment. A questionnaire was used to assess participants' dental health perceptions, oral hygiene habits, and experiences with prosthetic treatments. A dental chart was employed, including the Kennedy Classification, Prosthetic Diagnostic Index (PDI), Eichner Index, and Robert H. Griffiths' guidelines for temporomandibular disorder assessment. Additionally, the Oral Hygiene Index Simplified (OHI-S), DMFT index, Dental Health Index (DHI), and Periodontal Index were used to evaluate overall oral health and supportive structures for future prosthetic treatment. Data were analyzed using SPSS version 23, with statistical significance set at $p < 0.05$. Participants provided informed consent in accordance with ethical guidelines.

Results: Group I (first-time MMT) showed higher caries experience (DMFT >13.9) compared to Group II (MMT beneficiaries), with 89.1% vs. 71.7%, respectively ($p = 0.001$). Poor oral hygiene was observed more in Group I (24.6%) than Group II (17%) ($p = 0.000$). The PDI revealed severely compromised edentulous areas in 32.6% of Group I and 39.1% of Group II ($p = 0.0492$). Tooth mobility was more common in Group I (71.7%) vs. Group II (40.6%) ($p = 0.000$). The remaining roots were found in 50% of Group I and 30.4% of Group II ($p = 0.001$). Dry mouth complaints were higher in Group I (67.4%) vs. Group II (50.5%) ($p = 0.003$). Significant edentulism and dissatisfaction with dentures were reported, especially in Group I. However, 54.3% of Group I felt their oral health stabilized with MMT ($p = 0.000$).

Conclusion: As a result, we can conclude that both groups have a high need for prosthetic rehabilitation. However, the condition of abutment teeth and periodontal tissues is not suitable, requiring adjunctive therapy. Methadone maintenance therapy (MMT) beneficiaries show slightly better conditions of these structures, but they also have a lower number of abutment teeth and significant bone resorption.

Key words. Oral health, Methadone Maintenance Therapy (MMT), Prosthodontic treatment, Illicit drug addiction, Bruxism, Xerostomia.

Introduction.

The medical community's recognition of addiction as a medical issue has fluctuated over time [1]. Illicit drug use is a widespread problem, not only in low-income and developing countries but also in developed nations [2].

Drug addiction has detrimental effects on oral health, including severe tooth decay, periodontal disease, and tooth loss. Chronic substance abuse often leads to bone resorption, dental erosion, xerostomia (dry mouth), and bruxism, all of which further compromise oral health. These conditions not only impair dental function but also significantly reduce overall quality of life. This article explores the impact of drug addiction on oral health and the challenges in addressing these detrimental effects.

Individuals with opioid dependence exhibit poor oral health, characterized by an unhealthy periodontium, the presence of calculus, deep periodontal pockets, and bleeding. Additionally, dentate patients within this group often lack a healthy periodontium. there will be a need for prosthetic rehabilitation [3].

Former addicts showed a notable rise in DMF, with significantly more missing and decayed teeth, and fewer filled ones. Their periodontal health also indicated poor condition. It seems that prolonged heroin addiction either directly leads to deteriorated oral health [4].

Additionally, periodontal issues are common among illicit drug users, and effectively managing these conditions presents significant challenges in this population. The overall health quality of illicit drug users is considerably lower compared to the general population [5]. Because of this, oral health and appearance are crucial for these individuals. The study found that the oral health of former heroin users is worse than that of the general population, making improved dental care essential for their well-being [6].

Due to the high need for dental treatment among illicit drug users and MMT beneficiaries, there are many barriers on both sides—both for dentists and patients [7]. Most MMT beneficiaries and illicit drug users are often stigmatized as

individuals with criminal behavior and are associated with communicable diseases such as HIV and hepatitis C. Because of this stigma, patients may avoid disclosing their conditions to their dentists, leading to inadequate treatment and an increased risk of spreading infections [8].

Dental professionals find it difficult to treat drug users due to issues like dental fear, challenges in keeping appointments, poor adherence to preventive measures, and a disconnect between the treatments considered essential and the expectations of drug users, which are some of the factors that hinder them from receiving proper dental care [9].

Drug users begin the methadone maintenance program immediately after quitting drug use, raising the question of whether poor oral health is linked to illicit drug use or the MMT treatment itself [10].

Methadone maintenance therapy (MMT) is a highly effective treatment option that provides significant benefits, including notable improvements in quality of life across physical, psychological, social, and environmental domains. Factors like being married and having a job were linked to these improvements. Also, the amount of alcohol consumed and criminal activity, both of which were decreasing, were also connected to these improvements. Overall, the MMT program is considered successful in enhancing the quality of life for individuals undergoing treatment [11,12].

In Georgia, over 13,000 people are receiving methadone maintenance therapy, highlighting the need to address their oral health needs. The high number of individuals using methadone shows the importance of creating dental care plans that meet the specific challenges they face. Communicating with and assessing methadone maintenance or drug-addicted patients is challenging due to their psycho-emotional status, which is why their oral health is often not investigated.

Many conditions are associated with drug addiction and methadone maintenance therapy. Studies indicate a strong connection between oral health and quality of life, especially for individuals who inject drugs. In this group, poor oral health can lead to a range of mental health challenges, including depression and other psychological issues. Ultimately, the impact of inadequate oral health extends beyond physical health, significantly affecting mental and emotional well-being [13].

But at the same time patients receiving methadone maintenance treatment often experience an increased occurrence of severe tooth decay, xerostomia and inadequate oral hygiene [14].

Also, the prevalence of temporomandibular disorders (TMD), as well as sleep bruxism and awake bruxism, is notably higher among individuals receiving methadone maintenance treatment [15].

MMT patients do not visit the dentist frequently. A significant difference in the Decayed-Missing-Filled (DMFT) index was observed between individuals who visit the dentist at least once a year and those who visit less than once per year [16].

The link between opiate use and the development of a preference for sweet tastes exists and is examined along with its further connection to dental issues [17]. And it also leads to a high risk of plaque accumulation and an increased risk of caries.

The sugar-based version of methadone syrup is commonly used for the treatment of drug addiction, and patients with poor hygiene are at an increased risk of caries prevalence [18].

The route of drug administration plays a significant role. The concentration of methadone in plaque was observed to be lower after oral consumption, possibly due to contamination from the mouth (e.g., syrup or pill), in contrast to instances where methadone was thought to be injected. As a result, the methadone-to-plaque concentration ratio could potentially indicate the method of drug administration [19].

Aim of Study.

This research aims to examine and compare the oral health and conditions of individuals in methadone maintenance programs with individuals were initiating MMT for the first time as part of their treatment for opioid addiction. Specifically, the study seeks to investigate the correlation between the duration of methadone treatment and its impact on oral health outcomes, as well as the amount of illicit drug use and its effect on oral condition. People who are involved in methadone programs already have a history of illicit drug use, and we need to determine which factor is more adverse. Additionally, the study will assess the relationship between poor oral hygiene habits in both groups and their overall dental health. Furthermore, this research will focus on optimizing prosthetic dental care for both populations, exploring how targeted prosthodontic interventions can improve their oral health and quality of life. The findings from this study will provide valuable insights into the dental care needs of these populations and help develop more effective, personalized treatment strategies. The main purpose is to compare the needs for prosthetic rehabilitation and the conditions of supportive structures for prosthetic restorations in both groups.

Materials and Methods.

At the Center for Mental Health and Prevention of Addiction in Tbilisi, Georgia, a dental examination was conducted on 276 patients, with approval from the Ethics Committee. This study uses comparative research method to compare the dental health of two groups: 138 individuals were initiating MMT for the first time as part of their treatment for addiction, while the remaining 138 participants were beneficiaries of methadone maintenance therapy (MMT), having been enrolled in the program for at least six months. All participants provided written informed consent before participating in the study, in accordance with ethical guidelines.

Stratified random sampling was used to include participants from different subgroups based on the following criteria: age (19–35, 36–45, 46–55, 56–65, and 65 years or older), the duration of opioid addiction (less than 1 year, 1–3 years, 3–5 years, 5–10 years, and 10 years or more), and the duration of enrollment in the methadone maintenance program (less than 1 year, 1–3 years, 3–5 years, 5–10 years, and 10 years or more). After stratification, participants were assigned to one of two groups: Group 1: First-Time Methadone Maintenance Program Group and Group 2: Methadone Maintenance Beneficiaries Group.

In this study, the questionnaire was designed according to established guidelines for dental research, with a focus on evaluating key aspects of dental health. The questionnaire aimed to assess the duration of addiction or involvement in the methadone maintenance program. It also sought to understand

patients' perceptions of how drug addiction and methadone maintenance therapy impact their dental condition, as well as gather information on participants' oral hygiene habits and their experiences with prosthetic treatments.

According to our dental chart, the examination includes the use of the Kennedy Classification and the Prosthetic Diagnostic Index (PDI) to assess the location and extent of the residual ridges, the condition of the abutment teeth, and the occlusal scheme. The Eichner Index is employed to evaluate masticatory ability and identify the main occluding areas in patients with reduced occlusal support. Additionally, we follow the guidelines of Robert H. Griffiths for the clinical examination of temporomandibular (TM) disorders. To assess overall oral health and the condition of supportive structures for future prosthetic treatment, we also utilize the Oral Hygiene Index Simplified (OHI-S), the DMFT index (Decayed, Missing, and Filled Teeth), the Dental Health Index (DHI), and the Periodontal Index.

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS), version 23. The statistical significance of differences between variables was assessed at a significance level of $p < 0.05$. The data were systematically organized into tables and analyzed using descriptive statistics.

The assessment of oral health was performed using artificial light and a disposable dental examination kit, which included a tray, mouth mirror, probe, tweezers, cotton rolls, and bibs, along with the WHO CPI periodontal probe.

Results.

The high level of caries experience, as indicated by a DMFT >13.9, was 89.1% in Group I and 71.7% in Group II, and 9.0-13.9 was 8.7% in Group I and 21.7% in Group II, with a p-value of 0.001.

The high level of caries experience, as indicated by a DMFT >13.9, was also recorded in 53.6% of patients with more than 10 years of illicit drug use experience, while only 10.8% of patients with less than 1 year of illicit drug use experience had a high caries level ($p = 0.003$).

According to the Oral Hygiene Index (Simplified), poor hygiene (3.0-6.0) was observed in 24.6% of Group I and 17% of Group II, while good hygiene (0.0-1.2) was observed in 9.4% of Group I and 22.5% of Group II, with a p-value of 0.000.

The Prosthetic Diagnostic Index (PDI) was compared according to the location and extent of the edentulous areas. Severely compromised edentulous areas were found in 32.6% of Group I and 39.1% of Group II, while moderately compromised edentulous areas were more common in Group I (20.3%) compared to Group II (10.1%), with a p-value of 0.0492. Severely compromised abutment teeth were observed in 33.3% of Group I and 24.3% of Group II, while ideal or minimally compromised abutment teeth were found in 11.6% of Group I and 27.9% of Group II, with a p-value of 0.002. Table 1. More severe conditions are observed at the beginning of the program, with improvement over time Table 2 however, at the same time, the number of abutment teeth decreases (Figure 1).

Severe occlusal schemes (Class II, Division 2, and Class III molar and jaw relationships) were present in 30.4% of Group I and 36.2% of Group II, with a p-value of 0.0375. The

Table 1. *Patient characteristics for Group I and Group II.*

Group 1	First-Time Methadone Maintenance Program patients
Group 2	Methadone Maintenance Beneficiaries

Table 2. *Prevalence and severity of the abutment teeth in both groups according to the Prosthetic Diagnostic Index (PDI).P value= 0.002.*

PDI-Condition of the abutment teeth		
	Group I	**Group II**
Ideal or minimal Compromised	11.60%	27.90%
Moderately Compromised	21.70%	29.70%
Substantially Compromised	33.30%	18.10%
Severely Compromised	33.30%	24.30%

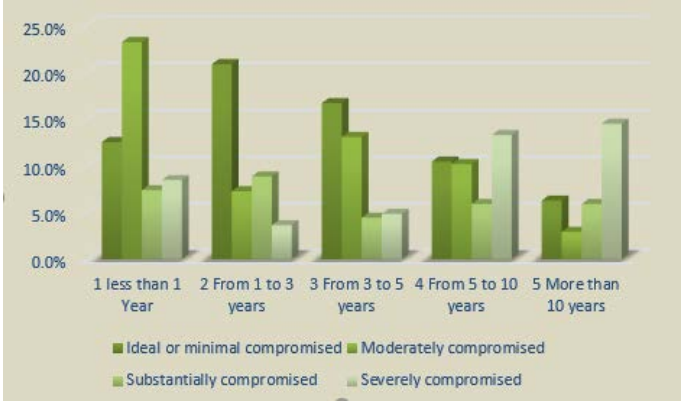

Figure 1. *Correlation between involvement in the methadone maintenance program and the condition of abutment teeth.*

reestablishment of the entire occlusal scheme, including changes in the occlusal vertical dimension, was necessary in 36.4% of Group I and 44.2% of Group II, with a p-value of 0.086 (not statistically significant).

According to the Eichner classification, Class A1 was found in 23.9% of Group I and 16.3% of Group II, and Class C1 was found in 31.2% of Group I and 39.9% of Group II, with a p-value of 0.0375.

Remaining roots were observed in 50% of Group I and 30.4% of Group II, with a p-value of 0.001 but among patients using illicit drugs for more than 10 years, 47.7% had remaining roots, while only 1.8% of patients receiving MMT for more than 10 years had remaining roots. Tooth mobility was present in 71.7% of Group I and 40.6% of Group II, with a p-value of 0.000. Complaints of dry mouth were reported by 67.4% of Group I and 50.5% of Group II, with a p-value of 0.003.

Severe periodontal conditions (CEJ beyond 11.5 mm) were observed in 37.0% of Group I and 12.6% of Group II. Completely edentulous mandibles were found in 6.5% of Group I and 23.9% of Group II, and completely edentulous maxillas were found in 12.3% of Group I and 24.6% of Group II, with a p-value of 0.000.

Among patients wearing maxillary complete dentures, only 1.8% of Group I and 5.6% of Group II had them, with a p-value of 0.000. Regarding mandibular complete dentures, 5.6% of Group I and 23.9% of Group II wore them, with a p-value of 0.000.

According to the removable Denture Satisfaction Questionnaire (DSQ), 33.3% of Group I patients were strongly dissatisfied

with complete dentures, compared to 10.3% in Group II. In contrast, 4.8% of Group I patients were satisfied with removable dentures, compared to 17.2% in Group II.

In addition, 35.51% of Group I patients complained about pain and discomfort from wearing fixed prosthetic restorations, compared to 18.1% in Group II (p = 0.001). 40.6% of Group I patients reported issues with fixation problems, compared to 27.5% in Group II (p = 0.012).

47.83% of Group I patients without prosthetic restorations complained about missing teeth and the mobility of existing teeth, while the result for Group II was 28.3% (p = 0.001).

There was a high prevalence of edentulous maxilla in Group I patients with a history of illicit drug use for more than 10 years 44.9%, compared to 68.6% in Group II (p = 0.025). Additionally, edentulous maxilla was more common in patients with illicit drug use experience for more than 10 years, as well as in MMT program beneficiaries for more than 10 years (28%) (p = 0.000).

45.7% of patients in Group I complained about bruxism, compared to 25.4% in Group II (p = 0.000).

In our questionnaire, most of the Methadone maintenance therapy (MMT) patients (54.3%, P=0.000) reported that their oral health condition had become more stabilized and that the therapy had a positive influence (Figure 2).

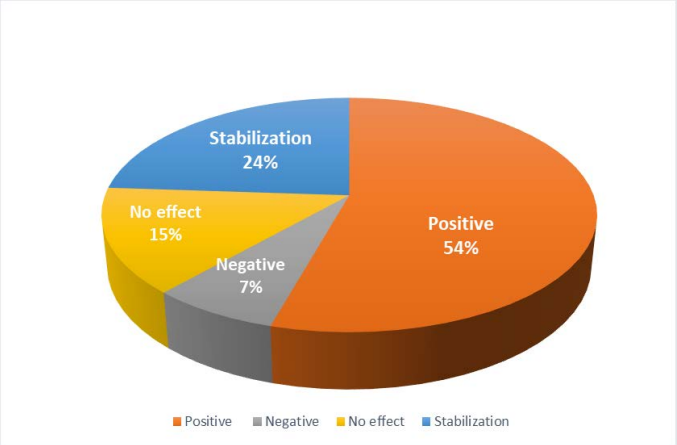

Figure 2. *Patients' evaluations of the influence of the methadone maintenance program on dental health. P value=0.000.*

The high level of caries experience, as indicated by a DMFT >13.9, was 55.9% in Group I and 44.1% in Group II (P = 0.002). The highest caries rate, according to age, was observed in both groups in the 45-55 years age range, with a prevalence of 31.5%.

The percentage of edentulous patients was 23.8% in Group I and 76.2% in Group II (P = 0.001). Additionally, the prevalence of edentulous mandible was 31.0% in both groups for the 55-65 years age range, and 4.8% of patients aged 19-35 had an edentulous mandible (P = 0.000).

Discussion.

The oral health of both groups was significantly compromised, and there is a substantial need for prosthetic rehabilitation. Many individuals in both groups experienced functional and aesthetic issues that must be addressed to improve their future social integration and overall quality of life [12].

Individuals initiating methadone maintenance therapy (MMT) for the first time as part of their addiction treatment exhibited more remaining roots and mobile teeth. Their oral hygiene was notably poorer compared to those who had been enrolled in the MMT program for a longer duration. Additionally, the prevalence of severe periodontal disease and untreated oral conditions was much higher in the first-time MMT group.

There was also significant resorption of the alveolar bone on both jaws, leading to changes in the lower third of the face. Additionally, TMJ disorders caused facial asymmetry, both of which affected aesthetics, resulting in a distinct appearance for the patient. Prosthetic rehabilitation will improve their aesthetics, which will be one of the major components of their socialization.

According to the DMFT index, a higher prevalence of caries was observed in Group I, with a DMFT >13.9, affecting 89.1% of the group, but the number of filled teeth was very low. According to our questionnaire, most of our patients emphasized that they cannot visit a dentist due to financial issues: 43.5% in Group I and 69.6% in Group II (P value = 0.000). Additionally, both illicit drugs and methadone have some analgesic effects, and in cases of tooth pain, patients do not experience significant pain [20].

The condition of abutment teeth was also worse in the first-time MMT group. In contrast, the condition of abutment teeth in MMT beneficiaries was generally better; however, the average number of abutment teeth was too low to be directly compared with the first-time MMT group.

Most of the totally edentulous patients were not using removable dentures. In Group I, the most common reasons were pain, discomfort, and problems with fixation. In Group II, pain and discomfort were less prevalent, with fixation being the main issue. Additionally, in Group I, more severe conditions of the periodontal tissues were observed. The residual ridge and gingival tissues were highly compromised, making them unsuitable for supporting a full denture. In contrast, the main issue in Group II was resorption of the bone, and the residual ridge was also compromised; however, the soft tissues were more reliable for supporting dentures [21].

In Group I more patients with fixed and implant-supported restorations were suffering from periodontal problems. According to Eichner's classification, the most prevalent severe form was characterized by minimal occlusal contacts in the posterior region, which has an adverse effect on overall health [22].

For individuals initiating methadone maintenance therapy (MMT) for the first time as part of their addiction treatment, oral health conditions were more severe and active, and, depending on the duration of their experience, these conditions tended to worsen. Similarly, many of the addicted patients also felt that their oral health was deteriorating. However, individuals who had been in the program for up to three years showed some stabilization in their oral health. Most patients who had been in the MMT program for more than five years, however, reported a positive impact on their oral health, noting that their conditions were no longer worsening.

Our research focused on individuals initiating methadone maintenance therapy (MMT) for the first time as part of their addiction treatment, as well as long-term MMT beneficiaries. All MMT beneficiaries have a history of illicit drug use. In both groups, oral conditions were significantly compromised. However, we observed less active oral health issues in the MMT beneficiaries, especially those who had been involved in the program for a longer period of time. This trend was particularly noticeable in patients who had been in the program for an extended duration. After participating in the MMT program, the rate at which oral health problems worsened decreased, leading to a greater stabilization of their condition.

As previously discussed, illicit drug use has a more significant adverse effect on dental health compared to methadone. Patients who join MMT generally experience improvements in their quality of life and better oral hygiene. Additionally, MMT patients tend to have fewer impacted teeth compared to illicit drug users. However, the number of remaining teeth in MMT patients is lower, which indirectly suggests that more teeth have been extracted as part of their treatment. This highlights the need for further studies to explore these trends more deeply.

Conclusion.

As a result, we can conclude that both groups have a high need for prosthetic rehabilitation. However, the condition of abutment teeth and periodontal tissues is not suitable, requiring adjunctive therapy. Methadone maintenance therapy (MMT) beneficiaries show slightly better conditions of these structures, but they also have a lower number of abutment teeth and significant bone resorption.

Our study recommends enhancing oral health education, encouraging regular dental check-ups, prioritizing prosthodontic rehabilitation, managing dry mouth, monitoring bone resorption, and integrating dental care into methadone maintenance treatment plans. Additionally, preventive care will help maintain healthy oral structures for future prosthetic rehabilitation, which will support social adaptation for these patients.

Limitations of the study.

Our research, conducted at the Center for Mental Health and Prevention of Addiction in Tbilisi, Georgia, rather than in a dental clinic, did not include access to detailed dental histories or the quantity of dental treatments of MMT patients. Additionally, communication with these patients was challenging due to their mental and psychological conditions, preventing us from clarifying specifics about their prior dental care. However, most patients reported that their poor dental health is linked to illicit drug use, and after involvement in MMT, most of them experienced continued dental health challenges.

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