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**ABSTRACT**

of the dissertation for the degree of Doctor of Philosophy

**THE CORRECTION WAYS OF DENTAL STATUS  
OF CHRONICALLY MENTAL PATIENTS**

Speciality: 3226.01 - Dentistry

Field of scienc: Medicine

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## GENERAL DESCRIPTION OF WORK

**Actuality of the problem:** The organs and tissues of the oral cavity inflammatory diseases are often the first clinical sign of pathology (neuroendocrine, hematopoietic, digestive, cardiovascular systems, etc.). The quality of inpatient and outpatient care for patients with mental disorders remains low, due to the lack of certain standards and specifics of dental care for this group of patients despite modern advances in the development of new methods for diagnosing and treating dental diseases <sup>1,2,3</sup>.

Some causative factors in this contingent of patients (lack of oral care, especially when the course of mental illness worsens, negative changes in the composition of saliva and its acidity) significantly increase the risk of exacerbation of odontogenic foci of infection, thus contributing, especially against the background of a worsening course of mental illness and long-term use of psychotropic drugs, the spread and aggravation of the pathological process in various organs and tissues of the oral cavity <sup>4,5</sup>.

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1. Kumar, PS From focal sepsis to periodontal medicine: A century of exploring the role of the oral microbiome in systemic disease. *J Physiol.* -2017. № 595. p 465-476.
  2. Spector A, Postolache TT, Akram F, Scott AJ, Wadhawan A, Reynolds MA. Physiological stress: A predisposing and exacerbating factor in periodontitis. *Curr Oral Health Rep* – 2020. № 7. p 208-215.
  3. Warren, KR et al. Role of chronic stress and depression in periodontal diseases. *periodontol.* - 2014. № 2000(64). p 127-138.
  4. Cademartori, MG, Gastal, MT, Nascimento, GG, Demarco, FF & Corrêa, MB Is depression associated with oral health outcomes in adults and elders? A systematic review and meta-analysis. *Clin. Oral Invest.* - 2018. № 22. p 2685-2702.
  5. Kohn, JN et al. Differing salivary microbiome diversity, community and diurnal rhythmicity in association with affective state and peripheral inflammation in adults. *Brain Behav.Immun.* - 2020. № 87. p 591-602.

The so long-term use of tranquilizers, antidepressants, anticonvulsants causes the disorders of the endocrine, autonomic nervous system, metabolic processes, salivation, etc. in patients. Thus drawing the attention of modern science. The study of the essence of the genesis of many dependent diseases of the organs and tissues of the development of complex and effective therapeutic and preventive measures against this background. Continues to occupy an important place in practical dentistry.

**Object of study:** Patients with mental disorders (schizophrenia and other mental disorders) who are on inpatient treatment in the Psychiatric Hospital of the Ministry of Health of the Republic of Azerbaijan.

**The aim of the study:** to increase the efficiency of diagnosis, prevention and treatment of major dental diseases in patients with chronic mental pathology.

**Research objectives:**

1. To determine the incidence of caries in patients with chronic mental illness who are in hospital.
2. To conduct a comparative structural analysis of the severity of pathological processes in the hard and soft tissues of the oral cavity in patients with chronic mental illness, depending on the duration of the course of the underlying disease and the intake of psychotropic drugs.
3. To determine the severity of the underlying mental pathology, as well as the effect of potent drugs used in the treatment on the intensity of the spread of caries and inflammatory diseases of periodontal tissues.
4. To be based on the determination of the required volume and type of dental care for patients with chronic mental disorders to develop measures to increase the level of their dental rehabilitation.

**Research methods:**

- measurement of salivation rate
- pH measurement of saliva
- microbiological and biochemical examination of saliva

- clinical examination of patients, also using the OHIP-14 questionnaire
- statistical processing of the received data

**The main provisions of the dissertation submitted for defense:**

- The duration of the course and the severity of mental illness is the main reason that affects the prevalence and intensity of the main dental diseases - dental caries and periodontal disease.
- The dental status of patients with schizophrenia is characterized by a high index of prevalence and intensity of dental caries and the presence of a large number of carious and extracted teeth.
- The hygienic condition of the PHP oral cavity in patients with schizophrenia was assessed as unsatisfactory.
- A decrease in the rate of salivation, a shift in the pH of saliva to the acid side, and an increase in the viscosity of the oral fluid contribute to the development of a high level of intensity of dental caries and inflammatory periodontal diseases in mental patients.
- The higher the daily dose of potent drugs, the higher the viscosity of the oral fluid and the lower the rate of saliva.

**Scientific novelty of the study:**

- assessed the clinical and epidemiological situation, studied and assessed the prevalence of major dental diseases in people with chronic mental illness treated psychiatric hospitals.
- based on the study of the structure of dental pathologies (the state of periodontal tissues and oral mucosa, the presence of caries and non carious lesions of the teeth), as well as defects in the dentition and deformities of the dentoalveolar system, an assessment was made of the need of the examined mental patients in various types of dental care.
- measures have been developed to improve the level of dental rehabilitation of patients with chronic mental disorders who take psychotropic drugs for a long time.

**The practical significance of the study:**

1. Evaluation of the impact of psychotropic drugs on the state of organs and tissues of the oral cavity will make it possible to make

timely adjustments to the prevention of major dental diseases in patients with chronic mental disorders.

2. Determination of the degree of influence of the psychological characteristics of patients on the attitude to ongoing therapeutic and preventive measures will allow us to evaluate the effectiveness of various methods and means of conservative therapy in the provision of specialized dental care to patients with chronic mental disorders who have been taking psychotropic medications for a long time.
3. Increasing the effectiveness of complex therapy based on the combined use of professional oral hygiene, sanitation and effective anti-inflammatory hygiene products will improve the dental status, improve the quality of life, the level of rehabilitation and social adaptation of patients with chronic mental illness.

**Approbation of the study results:** The main provisions of the dissertation were reported and discussed at the conferences: "Azərbaycanda anatomiya məktəbinin banisi Əməkdar Elm Xadimi prof.Kamil Əbdül-Salam oğlu Balakışiyevin anadan olmasının 110 illik yubileyinə həsr olunmuş Beynəlxalq elmi konfrans" 2016; "Eurasian Scientific Association" Effective Research of Modernity XXXII International Scientific Conference, 2017; Materials of the All-Ukrainian scientific-practical conference of young scientists, "medical science in the practice of health care" Poltava, 17 leaf fall of the year, 2017.

The dissertation materials were discussed at an extended meeting of the Department of Orthopedic Dentistry with the participation of employees of other specialized departments of the Azerbaijan Medical University (27.01.2022, protocol No. 30), a scientific seminar operating under the Dissertation Council ED 2.05 (18.03.2022, protocol No. 14).

**Implementation into practice:** The results of this study have been introduced into the educational practice of the AMU Dental Clinic, as well as the Psychiatric Hospital of the Ministry of Health of the Republic of Azerbaijan.

**Name of facility where the research was implemented:** The research work was carried out on the basis of the Dental Clinic of the AMU, as well as the Psychiatric Hospital of the Ministry of Health of the Republic of Azerbaijan, and also the Research Center of the AMU.

**Publications.** On the topic of the dissertation, 10 scientific papers were published, in publishing houses recommended by the Higher Attestation Commission, of which 7 articles and 3 theses, including 4 articles and 2 theses in foreign journals

**The volume and structure of the dissertation.** The dissertation is presented on 175 pages of computer text (218115 characters) and consists of an introduction (9760 characters), a literature review (40360 characters), a description of the material and research methods (11632 characters), chapters of the results own research and their discussion (117118 characters), conclusion, conclusions and practical recommendations (39285 characters), a list of scientific literature (22 pages) containing 192 authors, both domestic and foreign. The dissertation includes 25 tables, 23 graphs.

## **THE MATERIAL AND THE METHOD OF STUDY**

For the purpose of a comprehensive clinical study (assessment of dental, somatic and psychological status), optimization of therapy methods and determination of the main directions for organizing specialized dental care for patients with mental illness:

This study was conducted from 2016 to 2018 on the basis of the AMU Dental Clinic, where practically healthy individuals without general somatic pathology were selected, who made up the control group, and the Psychiatric Hospital of the Ministry of Health of the Republic of Azerbaijan, where patients with schizophrenia and patients with other mental disorders were examined. At the first stage, a group of adult (20-45 years old) patients was identified by a continuous non-selective method in the departments of the above hospital, who were provided with specialized dental care.

Examination methods: a conversation and dental diagnostics were conducted with patients to increase the level of knowledge and

skills in hygienic oral care, hygienic and periodontal indices were used to assess the hygienic state of the oral cavity and periodontal tissues, according to the criteria for the international classification of diseases ICD-10, according to which patients the diagnosis of "schizophrenia, schizotypal and delusional disorders" or various types of borderline mental disorders, as well as epilepsy, congenital dementia, was established. The study of mental status using clinical and psychological methods (scales for assessing the level of reactive and personal anxiety Spielberger-Khanin (1970), the prevalence and intensity of inflammatory-destructive periodontal diseases, caries (DMF index).

The state of periodontal tissues was assessed using the Silness-Loe hygienic index to determine the amount of plaque in the gingival region and the Russell index (PI) to determine the intensity and prevalence of the inflammatory reaction of the periodontal tissues. To determine the prevalence and intensity of periodontal tissue damage by inflammatory processes and to identify the need for the examined patients in complex treatment, the CPITN index was used. processed by the method of variation statistics.

To characterize a group of homogeneous units, their arithmetic mean values (M), its standard error (m) and the range of changes (min-max) were determined.

For statistical data processing, a non-parametric U test (Wilcoxon-Mann-Whitney) and a parametric Student's t test were used as a method for assessing differences in indicators. Statistical difference between groups was considered significant at  $p < 0.05$ . Statistical processing of the obtained data was carried out on a personal computer using modern software - the Microsoft Excel 2007 spreadsheet editor and the Statistica 7.0.

## **THE RESULTS AND THE DISCUSSION**

Serious disorders that occur in the presence of favorable conditions in the oral cavity, often due to the formation of odontogenic foci of chronic infection and a decrease in the immunological

reactivity of the body, have a negative impact on the course of the general organism pathology itself. In this scientific and practical field of modern medicine, specialists of various profiles are of particular interest in studying the mechanisms of development and course of inflammatory diseases of the oral cavity, in particular, various forms of periodontal disease and caries in patients with various mental disorders. Long-term use of psychotropic drugs (tranquilizers, antipsychotics, antidepressants) in the study group of patients have a side effect on the functional state of some vital organs and body systems, causing destructive changes in the autonomic nervous system, metabolic processes, in the endocrine system, simultaneously against the background of changes in the immunological status of the patient recorded deep pathological changes in the oral cavity. Pathological changes in the oral cavity in mental patients are more often noted due to poor care and prolonged treatment and being in specialized medical institutions, that is. psychiatric hospitals. At the same time, the severity of the main dental diseases is significantly affected by the severe course of general somatic pathology. pronounced clinical manifestations and negative symptoms, that is, against the background of a more pronounced decrease in immunological reactivity, dental pathologies are even more pronounced. Examination, diagnosis and treatment of such patients by a dentist. A visit by these patients to a dentist, which is always accompanied by increased anxiety, which is one of the most striking examples of emotional stress that complicates the implementation of therapeutic and preventive measures and various medical manipulations, enhances and exacerbates the already existing neuropsychiatric disorders. When comparing the statistical data on the prevalence and intensity of various forms of inflammatory-destructive diseases of periodontal tissues, it was found that in a sample of patients with mental disorders, chronic generalized periodontitis of moderate severity compared with a mild form occurs much more often ( $p < 0.001$ ) (table 1).

An almost similar picture was observed in the frequency of detection of periodontopathies of the most severe degree, which are

characterized by the presence of deep pathological periodontal character pockets.

Severe periodontitis occurs in patients with chronic mental disorders significantly more often than in the control group. In the group of patients with the studied mental disorders, a significantly very low incidence of a mild form of pathological changes in the soft and hard periodontal tissues of periodontitis was found (1.80.90%, respectively).

**Table 1.**

**The occurrence of different degrees of severity of periodontitis**

Indicators	Frequency occurrence of group (n=220)	
	abs.	%
Severe degree	30	13,6±2,31 (p<0,001)
Average degree	42	19,1±2,65 (p<0,001)
Mild degree	4	1,8±0,90

**Note:** p is the level of significance of the difference relative to mild degree

The obtained statistical data testified to the high level of need of the examined somatic patients, who use potent chemicals in basic therapy, in therapeutic dental care, and also revealed serious shortcomings and errors in its provision by the time of these studies. In the course of clinical observations in the main group, a rather high need for orthopedic treatment, that is, in various types of prosthetics, was also recorded in the main group, since the sum of the elements characterizing the number of extracted teeth averaged a very high figure for all examined. In general, the obtained indicators differ in the age aspect by sufficient heterogeneity. Below are data on the prevalence and intensity of inflammatory-destructive periodontal diseases, digital values of the DMF index and its various components in patients with schizophrenia, with borderline mental disorders and healthy individuals (graph 1).

An instrumental examination of the oral cavity showed the presence of intense deposition of dental plaque in the first two groups, where the teeth of the mentally ill were covered with abundant soft and hard plaque. In the analysis of the hygienic state and index evaluation in patients of the main group and the comparison group, an "unsatisfactory" hygienic status was noted, which confirms the state of persistent manifestations of physiological stress and serious disturbances in the homeostasis of the oral cavity.

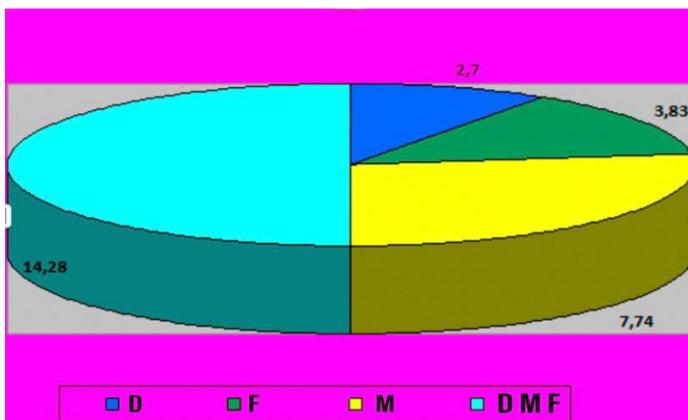
The main reasons for all of the above, in our opinion, were the frequent use of tobacco by heavy smokers, who are among this contingent of the population burdened with such a severe organismal pathology. during the exacerbation of which, due to poor hygienic care, the overall "ecological situation" in the oral cavity worsens even more.

The average value of the DMF index in terms of the prevalence of carious disease in the examined patients with the studied mental disorders and in healthy individuals in the control group differed somewhat from each other.

Thus, the incidence of dental caries was significantly higher in the main group and in the comparison group. compared with the data in the control group. With schizophrenia, the number of patients who were diagnosed with damage to the hard tissues of the teeth, as well as their opponents in the comparison group. was 100%, while in the third group the number of such patients was determined within 91.8 1.90 %.

As for the intensity of carious disease and the components of the studied DMF index, in the group of patients with schizophrenia, the indicators for the number of extracted teeth turned out to be maximum.

Thus, an assessment of the structure of the DMF index for all important components showed a relatively high level of need of the examined patients with mental illness in all age and sex groups in dental care and revealed certain current shortcomings in its organization and implementation.



**Graph 1. Comparative indicators of the DMF index in patients with schizophrenia and in the control group.**

When analyzing the results obtained in the course of clinical trials, a very low level of oral hygiene was revealed in patients with chronic mental disorders, which in turn led to the frequent diagnosis of pathological changes in the hard and soft tissues of the dental system. Unsatisfactory can be characterized by the prevalence and intensity of dental caries in this contingent of patients, which were almost 1.5 times higher than in the control group, which consisted of practically healthy individuals.

Based on the results obtained, the level of prevalence of the main dental diseases among patients with schizophrenia was determined, and on this basis it was possible to develop for them an algorithm for organizing and implementing effective therapeutic and preventive measures in all age and sex groups. Summarizing all the digital indicators of clinical studies and the results of the survey, we can come to the conclusion that the level of prevalence and intensity of carious disease, non carious lesions of hard dental tissues in the form of wedge-shaped defects, pathological abrasion and the severity of these pathological changes prevail in the main group of patients with schizophrenia and further among people with other mental disorders.

There is a fact of the presence of a large number of sextants on the upper and lower jaws with signs of the development of periodontal diseases of moderate and severe severity in the main group and in the comparison group, where patients with other borderline mental disorders were examined. Pronounced distinguishing features were recorded in a comparative assessment of data on the number of healthy sextants for both groups of people with mental disorders.

Sextants in which no pathological changes were diagnosed were more often found in the comparison group, that is, in persons with other mental disorders, where the data obtained averaged  $0.87 \pm 0.06$  sextants. Whereas in the main group of patients with schizophrenia this indicator turned out to be lower and was determined at a value equal to  $0.37 \pm 0.04$  sextants, that is, it decreased by almost 2.5 times.

The number of healthy sextants and sextants with bleeding gums in patients with mental disorders, as much lower than in the control group; and the number of sextants with tartar and other etiopathogenetic factors that predetermine an increase in the intensity of the formation of dental deposits and retain them on the surface of the teeth and in the area of the marginal gum, on the contrary, turned out to be higher in patients with schizophrenia, compared with the control group; Significant differences were found in the frequency of occurrence of clinical manifestations of more severe forms of inflammatory periodontal diseases, that is, in the number of sextants, where pathological periodontal pockets with a depth of 4-5 mm and 6 mm or more were diagnosed (table 2).

The main group patients of with destructive processes in the periodontal tissues were characterized by more frequent registration of sextants with pockets compared to healthy individuals -  $1.62 \pm 0.08$  and  $0.60 \pm 0.05$  sextants with periodontal pockets 4-5 mm and with pockets 6 mm deep and more, respectively.

With an expert analysis on the development and course of diseases of the oral cavity, it depends on the level of intake of potent chemical drugs, as well as the lack of timely and proper hygienic care in general for the oral cavity, which is the main cause of dental burden.

**Table 2.**

**The intensity of periodontal disease in different age groups in patients with schizophrenia (CPITN index)**

Groups ages	Nom ber of exam	Average number of sextants				
		Healthy periodon	Bleedinf	Calculus	Periodontal pockets	
					4-5 mm	6 mm ≤
20-25	65	0,68±0,10	1,49±0,14	1,94±0,15	0,98±0,12	0,51±0,09
26-34	80	0,40±0,07	1,25±0,11	1,85±0,13	1,54±0,12	0,64±0,09
35-45	75	0,13±0,04	1,03±0,11	2,12±0,14	1,60±0,13	0,65±0,09
Total	220	0,37±0,04	0,86±0,06	1,64±0,08	1,62±0,08	0,60±0,05

When assessing the CPITN index in patients of the main group, index criteria were identified for their need for complex periodontal treatment, training in rational oral hygiene, professional oral hygiene with the removal of supra- and subgingival dental plaque, closed and open curettage, while complex treatment in in some cases, it should be supplemented with patchwork operations and subsequent orthopedic treatment and prosthetics.

The obtained statistical data indicate a sufficient number of extracted teeth and an insufficient volume and level of dental care necessary and specialized specifically for this kind of patients, regarding a particularly poor hygienic condition of the oral cavity and periodontal care in all examined age groups of patients with schizophrenia.

It is important to note that in persons of the main group, weighed down by a mental illness, the indicators for the number of sextants with healthy intact periodontium were statistically significantly lower than in the control group. And as for the direct data for the first, second and third age groups, this indicator turned out to be significantly higher in patients of a relatively young age, but was determined in significantly lower values compared to healthy people. In almost all patients with the studied background general somatic pathology, along with pathological tooth abrasion, which was recorded in  $74.5 \pm 2.94\%$  of cases, chips and cracks of tooth crowns were often observed - 100%.

The above signs, along with other diagnosed pathological changes, such as gum recession, impressions of the surface of the teeth of the upper and lower jaws on the inner surface of the mucous membrane of the cheeks and tongue along the line of their closure, chips of available orthopedic structures, can be considered as a kind of markers of a low level or in general, the complete absence of specialized dental care in the examined mental patients.

At the initial stage of research in patients burdened with mental pathology, the level of reactive and personal anxiety was studied according to the Spielberger-Khanin scale, which is a method for diagnosing self-esteem and is, in turn, a reliable and informative way to determine the level of anxiety at a given point in time reactive anxiety, and personal anxiety as a stable characteristic of the patient.

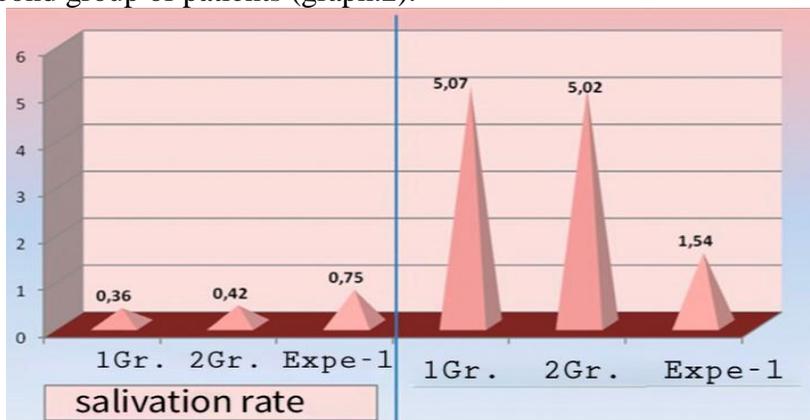
The indicator of reactive anxiety in patients with schizophrenia in the first main group was  $50.1 \pm 0.72\%$ , while the data of their opponents in the second control group of practically healthy individuals were significantly lower and were determined at an average value of  $31.6 \pm 0.57$  ( $p < 0.001$ ). It should be noted that in the group of patients with other mental disorders, almost similar indicators were recorded, which were determined in the value of  $5.02 \pm 0.038$ .

According to the results of the analysis of the statistical data of our studies, it was possible to find out that in patients with schizophrenia, xerostomia or a feeling of dry mouth occurs, and a further deterioration in the state of the salivary glands and a decrease in salivation during basic therapy and taking medications. The presence of discomfort in the oral cavity associated with the presence of the above problem, that is, dry mouth, was noted by more than half of patients with mental disorders, and the absence of complaints of decreased salivation was recorded only in a very small number of patients examined.

However, during the study, we also found that the feeling of dryness in the oral cavity with relatively viscous and foamy saliva manifests itself periodically and for a certain period of time, during which patients with mental disorders were prescribed potent drugs to

treat background pathology. The amount of unstimulated oral fluid in patients of the main group, which was collected in special test tubes 15 minutes before eating on an empty stomach, fluctuated within the following average values of  $0.36 \pm 0.023$ , which turned out to be the lowest among all the examined groups.

The amount of secreted saliva obtained in a similar way in the second group, which consisted of patients with other mental disorders, ranged from  $0.42 \pm 0.029$ , which was significantly higher than in the previous group of patients with schizophrenia. The most favorable trend in changing the functional state of the salivary glands of the oral cavity was observed in the control group, where people who were not subject to any general somatic pathology were examined, that is, they were practically healthy people. The rate of salivation in this group of subjects reached the maximum values and was recorded in digital values, averaging  $0.75 \pm 0.018$ , which is almost two times higher than in the first group and 1.5 times more than the data recorded in the second group of patients (graph.2).



**Graph 2. Rate of salivation in patients with schizophrenia.**

Well, as for the digital data verified in the third group of people without mental pathology, there was a very favorable dynamics in the state of unstimulated and stimulated saliva, which differed in these people in lower viscosity, which, in turn, has a positive effect on its buffer capacity and protective properties. In patients with schizophrenia with a feeling of dry mouth, certain difficulties were

identified in assessing the rate of saliva release, which was associated with its increased viscosity. So it was in this group that the highest values were recorded for the above factor, for the degree of viscosity of the oral fluid -  $5.07 \pm 0.047$ .

It should be noted that in the group of patients with other mental disorders, almost similar indicators were recorded, which were determined in the value of  $5.02+0.038$ . Well, as for the digital data verified in the third group of people without mental pathology, there was a very favorable dynamics in the state of unstimulated and stimulated saliva, which differed in these people in lower viscosity, which, in turn, has a positive effect on its buffer capacity and protective properties.

Statistical data for the control group determined the degree of saliva viscosity in the practically healthy individuals studied by us in this group, who do not suffer from any pathologies, on average  $1.54 \pm 0.020$ , which is almost 3.5 times lower than in the other two groups (table 3). The pH value fixed in the main group and in the comparison group at various stages of clinical trials, including the stages of hospitalization and basic general therapy indicates some disturbances in acid-base balance, in the functional state of buffer systems and metabolic processes in organs and oral tissues.

In the most favorable statistical range, data were recorded on the dynamics of changes in the acid-base balance in the mixed saliva of people in the control group, which was formed depending on the general condition of the body of the examined persons, that is, they all had to be practically healthy and not have a history of general somatic morbidity.

And it was in this group that the pH values were recorded within the normal range, that is, mostly intact indicators were detected. According to the final statistical data of the clinical, instrumental and laboratory studies, the acidity of the oral fluid in patients of the first main group of patients with schizophrenia was reached in the same way as in the comparison group, the minimum negative values, indicating a very pronounced side effect of the

background pathology on the functional state of the protective systems of organs and tissues oral cavity.

**Table 3**  
**Dependence of indicators of the rate of salivation and the viscosity of the oral fluid on the daily dose of neuroleptic**

Groups	Minimum daily dose of an antipsychotic		Average daily dose of an antipsychotic		Maximum daily dose of an antipsychotic	
	v,ml/ min	viscosity	v,ml/ min	viscosity	v,ml/ min	viscosity
1 group	0,44± 0,011*	3,75± 0,057*	0,32± 0,005*	4,04± 0,049*	0,22± 0,006*	4,65± 0,038*
2 group	0,48± 0,016*	3,28± 0,029*	0,37± 0,011*	3,98± 0,042*	0,24± 0,029*	5,40± 0,049*
Control group	Salivation rate			oral fluid viscosity		
	0,75 ± 0,018			1,54 ± 0,020		

**Note:** \* - $p < 0.001$  relative to the control group

In both groups of patients with previously diagnosed mental disorders, the pH of the oral fluid was almost the same and turned out to be significantly ( $p < 0.001$ ) lower than in the control group of practically healthy individuals. In both groups of patients with previously diagnosed mental disorders, the pH of the oral fluid was almost the same and turned out to be significantly ( $p < 0.001$ ) lower than in the control group of practically healthy individuals.

Thus, according to the study, patients with schizophrenia and other mental disorders in the first and second groups at all stages before the start of dental treatment and preventive measures showed a pronounced shift in saliva pH to the acid side, as evidenced by the obtained digital indicators  $6.38 \pm 0.033$  and  $6.11 \pm 0.030$  respectively in the main group and in the comparison group.

The minimum values for the studied factor was recorded in the second group of examined mental patients, compared with saliva pH in the control group and their opponents in the first main group.

The indicator 7.02±0.041, was found in the control group, showed the presence of a slightly alkaline reaction in the oral cavity of healthy individuals (table 4).

The saliva pH values differed statistically significantly ( $p < 0.001$ ) in patients of all examined groups of the first, second and third groups. The dependence of the state of the salivary glands and changes in the indicators of the rate of salivation, the viscosity of the oral fluid on the daily dose of prescribed drugs, in particular neuroleptics, was studied from a scientific and practical point of view.

**Table 4**  
**Average values of saliva acidity in examined patients (pH)**

pH		
Gr-1	Gr-2	Control
6,38±	6,11±	7,02±
0,033*	0,030*	0,041*

**Note:**\* -  $p < 0.001$  relative to the control group

So, the rate of oral fluid secretion from the salivary glands, which also differed in normal activity in the absence of severe general somatic pathology, was very high and fixed at an average value equal to according to the results of a statistical analysis of the data obtained for this group

It is important to note that at all stages of clinical and laboratory studies, with an intergroup comparative assessment of the data obtained during these periods, the differences turned out to be statistically significant. Certain results indicated that, after the completion of intensive therapeutic and preventive measures using the average daily dose of drugs, the viscosity of saliva increased significantly compared to the results of previous studies, which negatively affects the cleansing ability of the oral fluid and its buffer capacity.

With ongoing therapeutic measures and an attempt to use the maximum daily dose of a neuroleptic in traditional therapy and in the absence of effective drugs used to stimulate salivation the reaction of

the salivary glands turned out to be significantly underestimated, that the volume of secreted mixed saliva was characterized by a pronounced inhibition of background and stimulated salivation, which ing practically did not change and remained at a very low level throughout the observation period.

The foregoing indicates pronounced disorders and inhibition of the excretory function of the salivary glands in the presence of mental pathology. With its prolonged course, an increase in the severity, excessive loads on the body of the background pathology, significant disturbances in the functional state of the organs and tissues of the oral cavity.

The main criteria for choosing an orthopedic structure and material should be the durability of the structure taking into account their pronounced decrease in patients with schizophrenia.

This fact will have a positive effect on their emotional state, as well as economic availability.

It is important to note that some types of dentures, including clasp dentures and cast non-removable structures, providing greater functionality, strength, have a high degree of adaptation of patients with mental disabilities to these prostheses.

The expediency of using the above structures in persons with mental disorders is also explained by the well-polished surface of the cast metal frame of the prosthesis, which creates certain difficulties for the adhesion of pathogenic and opportunistic microorganisms of the oral cavity, which is very important for the implementation and maintenance of a proper individual oral hygiene. of the mouth of the examined group of patients and the adaptive capabilities of the body of prostheses to prostheses.

The positive effect of this technique in the presence of pronounced psychoemotional disorders is due to the duration of the use of prostheses, a reduction in the number of repeated visits to the dentist.

It should be noted that, in the treatment groups, where the patients with mental disorders were selected, the inflammatory process was diagnosed in a mild degree. Mostly mild forms of chronic

catarrhal gingivitis and periodontitis of mild severity are presented, when there is no need for the use of surgical methods of treatment (table 5).

**Table 5**

**The state of hygiene of the oral cavity and periodontal tissues in patients with schizophrenia**

	Gr. 1	Gr. 2	control gr.
IG (Green-Vermillion) before/after	2,21±0,054/ 0,52±0,024 *	1,23±0,057/ 0,64±0,032 *	1,02±0,027/ 0,40±0,022 *
PI (Russel) before/after	1,38±0,029/ 0,87±0,025 *	0,94±0,043/ 0,78±0,026 *	1,30±0,029/ 0,89±0,021 *

The tendency of a slight decrease in the value of the periodontal index in all three groups after the start of the use of rinses with a herbal medicinal product is also determined.

The stages of the implementation of optimal therapeutic and prophylactic agents are characterized by a slight increase in the functional reserve of the oral organs and a significant decrease in the indices of the studied index, the values of which, for example, in the main group after the completion of maintenance therapy after treatment decreased to the level of  $0.87 \pm 0.025$  points, against  $1.38 + 0.029$  points, index values before its beginning ( $p < 0.01$ ).

A similar picture in the positive dynamics of changes in the digital data of the periodontal index and the improvement in the condition of the organs and tissues of the oral cavity was also observed in other groups of observations after the use of the proposed natural medicines. It is very important, at the same time, to study the issues of prescribing antiseptic agents with a clear indication of restrictions on their use based on data on the effect of all agents used on the microflora of the oral cavity. This will improve the quality of recommendations and the validity of prescribing the optimal treatment and preventive care products for a particular group of patients and improve the state of oral hygiene and periodontal tissues.

In the study of microbiocenosis of the oral cavity in persons of the main and control groups, the total indicator for all types of pathogenic and opportunistic microorganisms was significantly higher than the data on the microbial presence in logarithmic terms before the start of treatment. The microbiocenosis of the oral cavity before the start of the course of basic therapy in all three groups of patients with mental disorders and before the study of the effectiveness of the use and therapeutic effect of various antiseptic agents was characterized by the diversity of representatives of certain types of microorganisms inhabiting it.

Gram-positive coccal forms of microbes (bacteria of the genus *Streptococcus* spp) predominated in the oral cavity of the mentally ill subjects. Species composition of bacteria *Streptococcus* spp. represented by representatives such as *Streptococcus. mutans* and *Streptococcus. Sanguis* and *Streptococcus.salivarius*, which are characterized by high adhesion to the surface of the teeth and biotopes of the gingival mucosa. Statistical analysis of data on the study of the qualitative composition of microbiocenosis showed that in the oral cavity of mentally ill patients, after the implementation of the necessary therapeutic measures with the use of both traditional and biologically neutral drugs, the number of gram-positive cocci decreased, with a simultaneous decrease in the frequency of inoculation of rod-shaped cells in varying degrees by groups. bacteria (*Actinomyces* spp., *Fusobacterium*, *Prevotella*) and gram-negative cocci.

A more detailed analysis of the data obtained revealed that the most pronounced positive changes in the qualitative composition of the microflora of the oral cavity already at the initial stage after the use of antiseptic agents were observed in the respondents of the main group, where, along with toothpastes, patients were prescribed irrigation with a herbal medicinal product.

Thus, in the study of the dental status of the examined persons with mental disorders, the severity of damage to the organs of the oral cavity, its soft and hard tissues during an objective examination of the patient is determined, their development is revealed due to behavioral

characteristics, manifestations of the background pathology itself, as well as the impact of biochemically prescribed drugs taken by patients. active drugs.

It is especially important to note that when choosing and prescribing dental drugs for the safety of manipulations performed in the oral cavity, one should take into account the features of the pharmacological interaction of these drugs with psychotropic drugs that were prescribed to treat the background pathology itself.

Since the potent psychotropic drugs used in psychiatric practice can enhance the effects of painkillers that have long been used in practical dentistry, and against this background, a sharp decrease in blood pressure, the development of hemorrhagic syndrome and convulsive seizures are possible, and at the same time, an increase in toxic-allergic actions of certain pharmacological agents.

Taking into account the peculiarities of the interaction of chemically active drugs, in patients with mental disorders, it is quite reasonable, in our opinion, to use biologically neutral drugs of plant or animal origin, because, regardless of the course of the pathological process and the methods used for basic and maintenance therapy, patients with mental disorders and psychological problems almost constantly violate the treatment plan developed specifically for them, which cannot but affect the achievement of a good result in the organization of effective and highly qualified dental care.

## **CONCLUSION**

1. The level of pathological processes occurring in the hard tissues of the teeth and the multiplicity of the development of its possible complications in the form of pulpitis and apical periodontitis occurring without a pronounced pain syndrome is 100% [8,10]
2. The inflammatory phenomena of moderate and severe severity were characteristic for the examined patients with chronic generalized (periodontitis and concomitant mental pathology) [6].
3. The presence and severity of background mental pathology, as well as the potent drugs used in their treatment, are the main etiopathogenetic factors affecting the prevalence and intensity of

caries and its complications, as well as severe forms of inflammatory diseases of periodontal tissues [3, 5].

4. A high level of need of the surveyed mental patients in teaching oral hygiene, periodontal treatment, and complex therapy with elements of surgery was revealed. [1,9].

## **PRACTICAL RECOMMENDATIONS**

1. The dentists should identify and take into account the risk factors that cause these diseases, when developing and further implementing optimal programs for the treatment and prevention of major dental diseases for mental patients.
2. It is necessary to teach hygienic care of the oral cavity of mental patients in a timely and high-quality manner and be sure to regularly monitor its implementation.
3. The high prevalence and intensity of dental diseases in people with mental disorders necessitates the organization of urgent measures for dental health screening and regular examination of the oral cavity in specialized medical institutions, where these patients undergo basic therapy and rehabilitation
4. The use of biologically neutral drugs that stimulate salivation is recommended as a therapeutic and prophylactic agent taking into account the peculiarities of the course of inflammatory periodontal diseases and dental caries, the occurrence and development of which is also associated with a violation of the functional activity of the salivary glands.

## The list of papers published on the topic of the dissertation:

1. Герайбейли Г.Ч., Мамедов Р.М., Оруджев А.В., Расулова М.А. Состояние и коррекция стоматологического статуса у психических больных с разработкой и внедрением патогенетически обоснованных лечебно-профилактических мероприятий/ *Azərbaycan Təbabətinin Müasir Nailiyyətləri*, - 2015,- № 3,- Səh. 157-161.
2. Məmmədov R.M., Rəsulova M.A. Psixomatik pozğunluqlar zamanı paradont toxumalarında baş verən dəyişikliklər /“Azərbaycanda anatomiya məktəbinin banisi Əməkdar Elm Xadimi prof.Kamil Əbdül-Salam oğlu Balakışiyevin anadan olmasının 110 illik yubileyinə həsr olunmuş Beynəlxalq elmi konfrans” materiallarının toplusu. Bakı-2016,- səh. 81.
3. Мамедов Р. М., Гасанов В. М., Архмамедов А.М., Ниязова Г. А., Расулова М. А. Особенности состояния органов и тканей полости рта у психически больных /“Sağlamlıq” elmi-praktik jurnal, Bakı- 2017,- № 5,- səh.117-122.
4. Алиева Э. Р., Расулова М. А. Психические нарушения как фактор риска развития стоматологических заболеваний / «Евразийское Научное Объединение» Эффективные исследования современности XXXII Международная научная конференция, октябрь, - 2017,- № 10(32), - стр. 92-94.
5. Расулова М. А. Частота встречаемости воспалительных заболеваний пародонта у психических больных / «Биомедицина» ежеквартальный научный журнал, -2017,- № 3,- стр. 46–51.
6. Мамедов Ф. Ю., Архмамедов А.М., Гасанов В. М., Расулова М. А. Частота встречаемости воспалительных заболеваний пародонта у психических больных / *Azərbaycan Tibb Jurnalı*, elmi-praktik jurnal, Bakı – 2017,- №4, -səh. 105–110.

7. Ахмедов С. И., Гусейнова Р. Н., Расулова М. А. Стоматологический статус у лиц с хронической патологией /Матеріали все української науково-практичної конференції молодих учених, «медична наука в практику охорони здоров'я», Полтава, -17 листопада 2017 року. -стр.17.
8. Расулова М. А. Негативное воздействие соматических патологий на состояние органов и тканей полости рта / «Вісник стоматології», Науково-практичний журнал, Одеса-2019, - № 4,- стр.16-24
9. Мамедов Ф. Ю., Алиева Е. Р., Мамедов Р. М., Расулова М. А. Определение основных направлений организации стоматологической помощи для пациентов с психическими заболеваниями / «East European Science Journal», East European Scientific Journal Wschodnioeuropejskie Czasopismo Naukowe, - 2019, - № 1(41), - p.37-41.
10. Мамедов Р.М., Расулова М.А. Стоматологический статус пациентов с психическими расстройствами / Казанский медицинский журнал -2019,- № 3,- том 100, стр.434-438.

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