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## DETERMINING THE QUALITY OF LIFE IN CHILDREN KYZYLORDA REGION

According to the results of the survey, sanitary and educational work is carried out at a low level and children are motivated to improve their dental health. The high dental morbidity was also influenced by the child's nutrition. We found out that the diet of children mainly consists of easily digestible and soft food. On the contrary, in the use of hard food, which requires careful chewing, there are difficulties in 86.0% of cases. Undoubtedly, the high incidence was influenced by bad habits in 54.0% of cases and somatic pathology in children of the studied region. When determining the quality of life, it turned out that the material and housing conditions of students' stay were partially satisfactory-34 (68.0%) and satisfactory - 15 (30.0%), there was not always hot water, toilets were outside the house, but 98.0% of cases almost had cold water in the house.

According to the results of the survey, the quality of life scores of children in the region were calculated, which amounted to 28.6 points for boys and 30.3 points for girls, which corresponds to a low level of quality of life. It follows from the above that it is necessary to carry out large-scale preventive work, which consists in observing and improving the basics of hygiene literacy among children and parents, increasing motivation to carry out therapeutic and preventive measures.

**Key words:** quality of life, dental morbidity, hygiene, housing and living conditions, nutrition.

### Introduction

#### *Relevance of the problem.*

The World Health Organization defines quality of life as «the perception by individuals of their position in life in the context of the culture and value systems in which they live, and in a state with their own goals, expectations, standards, and concerns» [1,2]. On the other hand, the «quality of life» is a set of traits and properties of the individual and society, living conditions, health, work, nutrition, recreation, and the state of the external environment [2,3,4,5,6]. Thus, the quality of life – this concept is subjective and multidimensional, covering physical and professional functions, psychological state, social interaction and somatic sensations [7, 8,9,10,11].

Currently, various indexes and questionnaires have been developed and widely used abroad to analyze and evaluate the state of quality of life and dental health of both children and adults. These indices are objective measurement tools that evaluate dental health in terms of its impact

on the quality of life. Each of these indices is designed to measure the frequency and degree of influence of dental problems on functional and socio-psychological well-being [1,3,6, 7, 12,13, 14].

In Kazakhstan, to date, the tools for assessing dental health have not been developed, and to solve this problem, we have developed a questionnaire to determine the quality of life of the child population in relation to dental health.

The purpose of our study was to study the influence of social and psychological factors of a person on the pathological state that occurs in the oral cavity in various dental diseases, which was the beginning of the development and implementation of various tools for measuring the quality of life in relation to dental health.

### Materials and Methods

The basis for the clinical material was the Children's Dental Clinic in Kyzylorda. Our group of researchers developed a questionnaire for the quality of life of a child, in which the answers to

the questions are built on the type of the Likert scale, ranked by 5 points, respectively, according to the answers: «never» – 0 points, «extremely rarely» – 1 point, «often» – 2 points, «very often» – 3 points, «constantly» – 4 points. The procedure for calculating the index involves summing up separately on the scales (per-scale indicators) and in general on the questionnaire (integral indicator OHIP-14 RU) (from 0 to 56 points).

The assessment of the quality of life corresponded to the following number of points: - 0-14 points – «good» quality of life; - 15-28 points – «satisfactory» quality of life; - 29-42 points – «unsatisfactory» quality of life; - 43-56 points – «poor» quality of life in accordance with the figure (Figure 1).

The questionnaire table includes age, gender, knowledge of how he spends his free time, and the state of his health, and this is a purely subjective indicator of objectivity (Table 1). We set the following requirements for the quality of life questionnaires: multi-dimensionality, simplicity

and brevity, acceptability, and applicability in various linguistic and social cultures. One of the important requirements in the study of children for the quality of life was the presence and assistance of parents in filling out the questionnaire, regardless of age, in order to monitor the degree of loss of dental health.

It should be noted that the questions concerned how problems in the mouth affect the physical well-being of the child, his ability to fully eat, communicate with other people, perform social functions. The assessment of the quality of life in this work was based on filling out special questionnaires. Correct and honest filling out of the questionnaire allowed us to make an objective picture of periodontal disease, as well as to find out the child's attitude to his health, the reasons that led to this pathology.

The survey involved children from 7 to 13 years old, a total of 50 children. Of these, by gender: 27 (46.0%) boys and 23 (54.0%) girls, according to the figures (Figure.1).

**Table 1** – Questionnaire (corresponds to the table EXELL) OHIP-14 RU

1. numbering
2. inspection day
3. month of inspection
4. Gender 1-male 2-female
5. birthday
6. month of birth
7. year of birth
8. How often do you visit the dentist in the last three years
1. never
2. extremely rare
3. often
4. very often
5. constantly
9. How often do you eat soft food?
1. constantly
2. very often
3. often
4. extremely rare
5. never
10. If there are concomitant diseases, how often do they bother you?
1. constantly
2. very often
3. often
4. extremely rare
5. never
11. How often do you brush your teeth?
1. Never
2. extremely rare
3. often
4. very often
5. constantly

12. Do you use a mouthwash?

1. Never
2. extremely rare
3. often
4. very often
5. constantly

13. Do teeth bleed when brushing?

1. constantly
2. very often
3. often
4. extremely rare
5. never

14. Is there any pain in the teeth?

1. constantly
2. very often
3. often
4. extremely rare
5. never

15. Are there any difficulties when eating?

1. constantly
2. very often
3. often
4. extremely rare
5. never

16. Is there any difficulty in eating hard food

1. constantly
2. very often
3. often
4. extremely rare
5. never

17. Have you noticed the following habits: sucking your fingers, biting your nails, pens, etc.

1. constantly
2. very often
3. often
4. extremely rare
5. never

18. Is there bad breath?

1. constantly
2. very often
3. often
4. extremely rare
5. never

19. What are your material and housing conditions?

1. nedovl
2. partially satisfied
3. udovl
4. good news
5. excellent results

20. Does he often drink carbonated drinks

1. constantly
2. very often
3. often
4. extremely rare
5. never

21. Does he often drink national drinks (kumis, shubat, saumal)?

1. never
2. extremely rare
3. often
4. very often
5. constantly

22. How often do you do any sport?

1. Never
2. extremely rare
3. often
4. very often
5. constantly

23. Is there a lack of adequate nutrition?

1. constantly
2. very often

- 3. often
- 4. extremely rare
- 5. never
- 24. Do parents have a paid job?
  - 1. Do not have
  - 2. seasonal
  - 3. from time to time
  - 4. 9-10 months a year
  - 5. permanent
- 25. Does the house/apartment have cold tap water?
  - 1. never
  - 2. extremely rare
  - 3. often
  - 4. very often
  - 5. constantly
- 26. Does he often consume dairy products?
  - 1. Never
  - 2. extremely rare
  - 3. often
  - 4. very often
  - 5. constantly
- 27. Do you have difficulty pronouncing consonants and vowels?
  - 1. constantly
  - 2. very often
  - 3. often
  - 4. extremely rare
  - 5. never
- 28. Is there a feeling of constraint in communicating with peers?
  - 1. constantly
  - 2. very often
  - 3. often
  - 4. extremely rare
  - 5. never

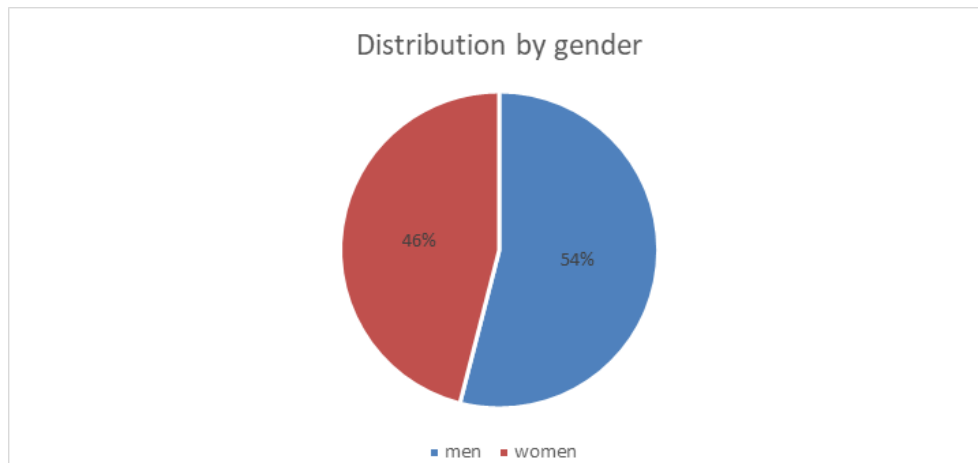


Figure 1 – Distribution of children by gender

### Results and Discussion

The study provided answers to the following questions in accordance with Table 2. According to the results of the questionnaire, the question: «How often do you visit the dentist in the last three years?» in 42% of cases, children did not visit the dentist,

because of fear of dental manipulations, extremely rarely visited the doctor-22% of children.

At the same time, 34% of children visited the dentist's office «often» and «very often». We believe that the region is conducting low-level sanitary and educational work, there is no motivation for oral cavity sanitation either for parents or children.

**Table 2** – Questions and answers asked

№	Questions	Never	Extremely rare	Often	Very often	Constantly
1	How often do you visit the dentist in the last three years	21 (42,0%)	11 (22,0%)	17 (34,0%)	1 (2,0%)	
2	How often do you eat soft food?	6 (12,0%)	40 (80,0%)	4 (8,0%)		
3	If there are comorbidities, how often do they bother you?	4 (8,0%)	2 (4,0%)	37 (74,0%)	7 (14,0%)	
4	How often do you brush your teeth?	3 (6,0%)	38 (76,0%)	9 (18,0%)		
5	Do you use a mouthwash?	45 (90,0%)	5 (10,0%)			
6	Do teeth bleed when brushing?		13 (26,0%)	23 (46,0%)	14 (28,0%)	
7	Is there any pain in the teeth?		23 (46,0%)	8 (16,0%)	19 (38,0%)	
8	Is there any difficulty in eating?	9 (18,0%)	11 (22,0%)	23 (46,0%)	7 (14,0%)	
9	How often do you eat hard food		11 (22,0%)	32 (64,0%)	7 (14,0%)	
10	Have you noticed the following habits: sucking your fingers, biting your nails, pens, etc.	4 (8,0%)	10 (20,0%)	13 (26,0%)	21 (42,0%)	2 (4,0%)
11	Is there bad breath?	4 (8,0%)	27 (54,0%)	12 (24,0%)	7 (14,0%)	
12	What are your material and housing conditions?	1 (2,0%)	34 (68,0%)	15 (30,0%)		
13	Does he often drink carbonated drinks		3 (6,0%)	22 (44,0%)	25 (50,0%)	
14	Does he often drink national drinks (kumis, shubat, saumal)?	32 (64,0%)	13 (26,0%)	5 (10,0%)		
15	How often do you do any sport?	19 (38,0%)	25 (50,0%)	6 (12,0%)		
16	Is there a lack of adequate nutrition?	30 (60,0%)	11 (22,0%)	9 (18,0%)		
17	Does the house/apartment have cold tap water?	1 (2,0%)	22 (44,0%)	26 (52,0%)	1 (2,0%)	
18	Does he often consume dairy products?	15 (30,0%)	22 (44,0%)	13 (26,0%)		
19	Do you have difficulty pronouncing consonants and vowels?			11 (22,0%)	39 (78,0%)	
20	Do you have a feeling of constraint in communicating with your peers?		5 (10,0%)	29 (58,0%)	16 (32,0%)	

The diet at the present stage has excessive softness, and the children of the studied region often use boiled, fried, cutlets, stewed food, buns, which are easier to chew and digest, from the words of the children it was clear that they prefer everything soft in 100 % of cases, answering the question: «How often do you eat soft food?», affirmatively («constantly», «very often», «often»). In turn, often when eating soft food, the teeth are not cleaned naturally and everything remains in the interdental spaces, causing tooth

decay. It is well known that crushed and soft food does not give a full load on the dental system of the child, including on the periodontal tissue.

It should be noted that a number of scientific studies have been devoted to determining the impact of adverse environmental factors on the child's body in the Aral Sea region. These studies were conducted in 4 major independent research centers in Sweden, Luxembourg, Germany and Japan [8]. The studies included a comprehensive examination of

the children of the Kyzylorda region: general clinical, functional, and enzymological studies of urine, assessment of physical development and puberty, determination of hormone levels, determination of immunity indicators, accounting for small developmental abnormalities, and study of the gene apparatus. Also, many researchers have established «rejuvenation of pathology», i.e. the presence of such diseases as atrophic gastritis, urolithiasis, chronic bronchitis, which are not typical for young children. Thus, it was found that there are no healthy children in this region, and 89 % of children have several chronic diseases at the same time [8,10]. And so it is not surprising that the question: «If there are concomitant diseases, how often do they bother you?» was answered in almost 86% of cases as follows: «constantly» – 4 (8.0%), «very often» – 2 (4.0%), «often» – 37 (74.0%) and «only» extremely rarely «in 7 (14.0%) cases.

Among the diseases of a somatic nature, according to parents, diseases of the organs of vision, hearing, gastrointestinal tract, hypertension syndrome are noted. This factor is undoubtedly one of the reasons contributing to the development of many dental diseases, including periodontal diseases.

Oral hygiene is the basis for the prevention of caries and periodontal diseases. And to the next question: «How often do you brush your teeth?» children of this region 3 children answered that they do not like to brush their teeth at all, and in 76.0% of cases they «extremely rarely» brush their teeth, which explains the high prevalence of caries and its complications, periodontal diseases.

According to our survey results, mouth-washers are a «curiosity» for children of the studied region, because 90% of children answered «never» to the question: «Do you use a mouthwash?», and only 5 children of teenagers «extremely rarely» use it. This also indicates a low level of sanitary and educational work.

One of the first symptoms of periodontal diseases is bleeding when brushing your teeth, when eating. And to the question: «Do teeth bleed when brushing?» in 72% of cases, they answered: «very often» – 13 (26.0%), «often» – 23 (46.0%). A common cause of bleeding was: poor oral hygiene, improperly applied filling. The danger of periodontal diseases lies in the fact that it is asymptomatic.

According to the results of the answer to the question: «Is there any pain in the teeth?» in 62% of cases, children answered in the affirmative, which is associated with a high prevalence of caries and its complications, especially complicated forms of caries. Pain in the teeth also explains the fact that children are not interested in brushing their teeth.

The question «Is there any difficulty in eating?» was answered positively by 86% of children. This issue was associated with the presence of carious cavities, periodontal diseases, and dental anomalies.

It should be noted that the results of our research have established the prevalence of sub- and decompensated forms of caries, and especially the deplorable condition in the Aral Sea region with the first and second permanent teeth. Caries damage to these teeth begins at the age of 7 and is 61%, then after 10 years, the incidence of caries of these teeth is 100%. Starting from the age of 14, children begin to lose these teeth in 46.4% of cases. The absence of chewing teeth or the presence of pain in these teeth causes difficulty eating.

One of the ways to prevent periodontal diseases, we consider the mandatory use of hard food, which requires careful chewing. Such as carrots, apples, cabbage, kurt, meat with bones, greens. As a result of active chewing movements of the maxillofacial area, the surface of the teeth is cleaned, there is a rush of blood to the dentoalveolar papillae, which provides nutrients and oxygen, thereby strengthening the entire dental apparatus. But the children of this region, according to the results of the survey, experienced difficulties in eating hard food in 86% of cases, and were limited only to soft and easily digestible food.

A lot of scientific research works are devoted to the harm of bad habits. They contribute to the development of parafunction of the muscles that surround the tooth and dentition, cause violations of the position of groups and individual teeth, displacement of the lower jaw, and changes in the bite. They also subsequently cause the development of periodontal diseases. It should be noted that with age, these habits are fixed to automatism and involuntariness. Therefore, the elimination of these habits is a difficult task, it requires a very long patience on the part of parents and dentists. To the question: «Have you noticed the following habits: sucking fingers, biting nails, pens, etc.» our respondents answered in the affirmative in 54.0% of cases, which indicates a high risk of changes in the dental apparatus during the growth of the child. They mostly noted: finger sucking, sucking and biting their lips, biting their nails and pens, chewing on one side, sleeping with their mouth open.

Halitosis (bad breath) in children of the studied region was determined in 86% of cases, the causes of which are waste products of bacteria that multiply in the mouth, nasopharynx and gastrointestinal tract. The main etiological factors for the development of halitosis in children of this region were: poor oral

hygiene, caries and its complications, periodontal diseases, rhinitis, sinusitis, frequent consumption of carbohydrates, etc.

The material and housing conditions of students ' stay play an important role in dental health. Unfavorable living conditions lead children to a depressive state, an increase in the risk of developing dental caries and periodontal disease, when there are no conditions even for simple oral hygiene. To the question: «What are your material and housing conditions?» there were the following answers: partially satisfactory-34 (68.0%) and satisfactory-15 (30.0%), total -98% of students. This question included: what is the area of the apartment (house), whether there is hot and cold water in the apartment (house), whether there is a sewer, whether the child has his own desk, etc. According to the responses of the respondents, it was possible to judge that the apartment (house) did not always have hot water, the toilets were outside the house. And only in 2 % of cases there was a small area of the dwelling and they had to bring or buy cold water.

It is well known that carbonated drinks contain dyes, a large amount of sugar, artificial sweeteners (aspartame), which cause allergic conditions, headaches, depressive states, diabetes and constant use causes tooth decay. According to many researchers, carbonated drinks were the cause of obesity in 20% of children in the United States [ 10,15]. According to our research, the attitude to carbonated drinks in all children of the studied region is positive. In 6.0% of cases, it is consumed constantly, in 44.0 % - they drink these drinks «very often». Half of the students surveyed answered «often», meaning drinking drinks 4-5 times a week. It should be noted that this is also one of the factors of the high spread of caries in the region, as sweet drinks disrupt the pH balance in the oral cavity, microorganisms that are located in the thickness of the plaque absorb carbohydrates and secrete acid, which aggressively acts on the unformed tooth.

National drinks (kumis, shubat, saumal) have healing properties. Many studies have proven that they contain 10 times more vitamins than cow's milk. Among them-vitamins A and E, vitamins B and C, calcium, phosphorus, folic and pantothenic acids. This product contains 2 times less protein and 1.5 times less lactose. These drinks increase the immune system, strengthen teeth and bones, improve blood circulation, thanks to the thiamine in the drink-strengthens the nerves, improves the functioning of the gastrointestinal tract (due to pantothenic acid), normalizes the growth and development of the body. According to our research estimates, 64%

have never drunk it, 26% use it once a week, and only 10% of children use it «often». Although national drinks, we think it is necessary to introduce a set of preventive measures for dental diseases.

The impact on the dental health of children of engaging in any kind of sport is not always clear. Currently, in the country, the attendance of any sports sections is put on a paid basis, which is not available to many children. This explains that 38% of children do not play sports at all, in 50% of cases - «extremely rarely» and only 12% of schoolchildren attend some kind of sports activities. But as practice shows, those children who play sports develop in the character of the child responsibility, perseverance, and, accordingly, the habit of oral hygiene and mandatory sanitation.

To the question: «Is there a lack of adequate nutrition» the answer was «constantly» in 60.0% of cases and in 40% of children, the nutritional value of the diet was often reduced. The question reflects the level of quality of life of schoolchildren, the consumption of the main food groups, the nutritional and energy value of diets. The analysis showed that children are more likely to consume bread products, potatoes, sugar and confectionery. There is a restriction on the consumption of vegetables, fruits, herbs, fish, etc. Perhaps this is due to low income in the family budget and low dental culture. At the same time, a variety of high-quality food contributes to the physical and mental development of the child.

In many ways, the quality of life of a child is determined by the level of wages of parents, i.e. how well they can improve the standard of living of their children. All parents of the children surveyed have some kind of job, but only 10.0% of parents have a permanent job. In 56.0% of cases, parents have seasonal work, 34% of parents said that they work «from time to time». More than half of parents have an average income level [6].

The presence of tap water in the house is one of the priority social tasks and the answer to the question: «Does the house/apartment have cold tap water?» was very important. The survey revealed that in more than half of the cases (54.0%), cold tap water flowed in the house, in 44% of cases the water supply was limited, and only in 2% of cases there was no tap water in the house/apartment. Consequently, most of the children were able to maintain oral hygiene.

It is known that dairy products contain protein, fats, carbohydrates, including calcium, amino acids, phosphorus, potassium, vitamins D, A, B12, B1, which are necessary for a growing body. According to the survey, 30.0 % of children do not like to

consume dairy products at all, 44.0% - consume it in small quantities, and only 26% of children have dairy products in their daily diet. This may be due to the quality of the dairy products produced, low motivation of parents in the consumption of dairy products by children, increased sensitization of the children's body to kozein, etc.

Difficulties in the pronunciation of consonants and vowels were «often» experienced in 22.0% of cases and «extremely rarely» - in 78.0% of cases in children of this region. The share of such difficulties was accounted for by children of primary school age. We believe that this was due to the age characteristics of the child, the presence of small anomalies in the development of the oral mucosa, in particular the short frenulum of the tongue. It is well known that the formation of sound pronunciation occurs gradually and some complex sounds in terms of articulation appear later.

The answer to the question: «Is there a feeling of constraint in communicating with peers?» is yes in 68.0% of cases. The main reasons for embarrassment in communicating with peers were: bad breath, swallowing some sounds, stuttering, missing some teeth, bleeding teeth, etc. From a psychological point of view, the lack of communication creates a feeling of dissatisfaction with life, such children become timid and withdrawn. Increasingly, shyness prevents children from demonstrating their cognitive abilities. We believe that the solution to this problem in half of the cases lies in improving dental culture.

### Conclusion

Thus, according to the results of the survey, sanitary and educational work is carried out at a low level in the region, there are problems with the psycho-emotional state of children in this region, since in 42 % of cases they do not visit the dental office due to a negative attitude to dental manipulations. Also at a low level is the motivation of children in relation to oral hygiene, because in 76.0 % of cases it is extremely rare to brush their teeth.

The high dental morbidity was also influenced by the child's nutrition. We found out that the diet of children mainly consists of easily digestible and soft food, which does not give a full load on the dental system of the child, including on the periodontal tissue, carbonated drinks. On the contrary, in the consumption of hard food, which requires careful chewing, there are difficulties in 86.0% of cases. In relation to national drinks, 64.0 % of cases do not drink at all. According to the survey, 30.0 % of children do not like dairy products at all, 44.0% - use it in small quantities. The basic role in the spread of dental diseases, including periodontal diseases, is played by the use of food products, the nutritional and energy value of which is low. Together, these factors lead to halitosis in 86.0% of cases.

Undoubtedly, the high incidence was influenced by bad habits in 54.0% of cases and somatic pathology in children of the studied region. Therefore, there were high rates of symptoms of the disease, for example, in 72.0% of cases they had bleeding when brushing their teeth and in 62.0% of cases there were pain when eating.

When determining the quality of life, it turned out that the material and housing conditions of students' stay were partially satisfactory - 34 (68.0%) and satisfactory - 15 (30.0%), there was not always hot water, toilets were outside the house, but 98.0% of cases almost had cold water in the house. Consequently, most of the children were able to maintain oral hygiene.

All parents of the children surveyed have some kind of job, but only 10.0% of parents have a permanent job. In 56.0% of cases, parents have seasonal work, 34% of parents said that they work «from time to time».

According to the results of the survey, the quality of life scores of children in the region were calculated, which amounted to 28.6 points for boys and 30.3 points for girls, which corresponds to a low level of quality of life. It follows from the above that it is necessary to carry out large-scale preventive work, which consists in observing and improving the basics of hygiene literacy among children and parents, increasing motivation to carry out therapeutic and preventive measures.

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