ASSESSMENT OF THE EPIDEMIOLOGICAL PICTURE OF DENTAL ANOMALIES AND DEFORMATIONS IN CHILDREN

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Article history:		Abstract:
		the analysis of the results of cephalometric examinations of 801 patients under the age of 18, who were diagnosed with teeth-jaw anomalies and deformities, is presented.

INTRODUCTION: Large-scale scientific research is being conducted worldwide to determine the prospects for early prediction of anomalies and deformities of the dentofacial system in children during orthodontic treatment, as well as to improve the effectiveness of diagnosis, treatment, and preventive measures (Bril V.E., Shitova A.V., Tishenko V.N. 2013). Scientific research is being conducted to develop an approach to early diagnosis and treatment of dentofacial anomalies, achieve a stable aesthetic outcome in the treatment of orthodontic patients, and reduce the number of relapses (Averyanov S.V. 2016). However, existing diagnostic methods are insufficient, which creates a strong need for additional research methods (Aleshina O.A. 2020). Among these methods, cephalometric examination is crucial for the correct assessment of anomalies and deformities, as well as for their diagnosis and treatment.

THE PURPOSE OF THE STUDY is to investigate the medico-social aspects of dentofacial anomalies and deformities in children of different ages and to develop a new approach to their primary prevention.

MATERIALS AND METHODS: Children's anomalies lead to facial deformities, disharmony in the development of facial skeleton, and negatively affect facial aesthetics. Pathological conditions encountered in sick children were studied using kefolametric methods.
Currently, the cephalometric method of studying facial skeleton and soft tissues is widely used. This allows for the most reliable identification not only of the structural features of the area under study, but also of the most characteristic changes in the maxillofacial region, accompanied by pathological processes.
The primary function of cephalometry is to comparatively study changes in the face of sick children, its width, symmetry, length, lip junction, chin shift, and determine the degree of changes.
Clinical material included data from 801 children under 18 years of age diagnosed with dentofacial anomalies and deformities.
Of the 801 patients examined, 361 (45.1±1.8%) were boys and 440 (54.9±1.8%) were girls.

The material is the results of the examination of the examined children, the width (zy-zy) and height (n-me; n-sn; sn-me) of the front of the face were calculated, as well as the morphological facial index (MFI).
The average face width was 110.2±0.3, the average height was 111.3±0.3 for n-me, 55.3±0.5 for n-sn, and 56.7±0.2 for sn-me. Considering that the face is narrow with an MFI of 104 or more, medium with 97 to 103, and wide with a MFI of 96 or more, the study showed that the width of the patients' faces was average, with an average MFI of 101.6±0.3.
When the patient's face was examined from the front (fas), it was symmetrical in the majority of them (83.9±1.3%, n=672), while the face of 129 patients was asymmetrical (16.1±1.3%), respectively. The ratio of symmetrical and asymmetrical faces was 1:5.21, which favored the symmetrical face. The chin position is also important in assessing facial posture, therefore the position of the chin was also measured. A total of 738 (92.1±0.9%) patients had a normal chin position, 35 (4.4±0.7%) had a right chin shift, and 28 (3.5±0.6%, n=28) had a left chin shift. It turned out that no changes in chin arrangement were found in the majority of the subjects examined.
The expression of the face on the beard fold was also measured, allowing for the identification of the front of the face. It was found that 495 (61.8±1.7%) of the examined sick children exhibited this expression, while 306 (38.2±1.7%) of the sick children did not exhibit it on the beard fold of the face. The 1.62 times difference between them showed that this parameter is diagnostically significant, allowing for the evaluation of the anterior side of the patient's face in the studied pathology.
One of the features characterizing the appearance of the anterior side of the face was the confluence of the lips, which was observed in 82.4±1.3% (n=660) of sick children, while the absence of confluence of the lips, which manifested as a pathological feature, was found in 141 (17.6±1.3%) patients. In this case, the normal manifestation was found to be 4.68 times more common than the pathological manifestation (Fig. 1).
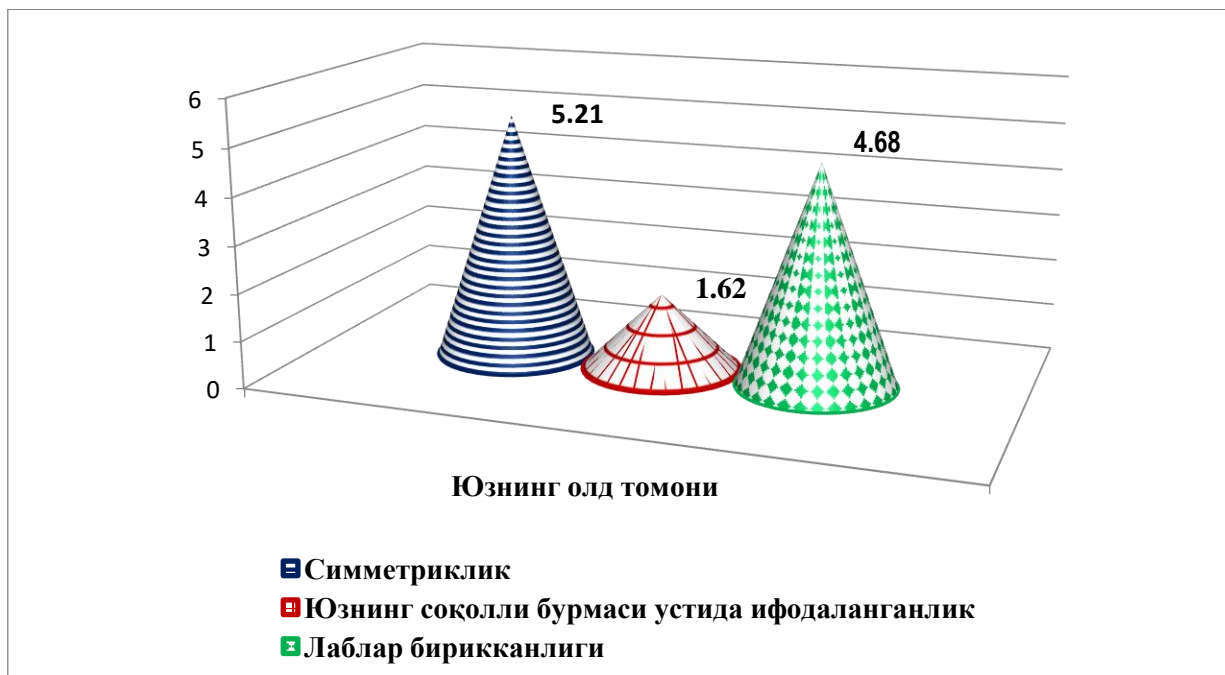
The ratio of differences in the appearance of the anterior face (fas) from normal indicators of pathological conditions, times.

Thus, according to the results of cephalometry in children diagnosed with dentofacial anomalies and deformities, the width of the face (zy-zy) and its height (n-me; n-sn; sn-me) were within the normal limits, no sharp changes were detected, while the MFI was 101.6±0.3, corresponding to the average width of the face, with facial symmetry impaired in 16.1% of sick children, chin shift to the right (4.4%) and left (3.5%) in a small number of children,

Therefore, pathological manifestations of facial appearance disturbances were not clearly expressed.

Along with the frontal aspect of the face (fas), its lateral aspect (profile) was determined and measured using standard methods, individual indicators for each sick child were entered into maps and taken into account when conducting therapeutic measures. It was found that the side of the face was straight, protruding, and sunken. In our case, the right side of the face was observed in 351 (43.8±1.73%) children, while the protruding side was observed in 131 (16.4±1.3%) children.

It is noteworthy that more than half (56.2%) of the patients examined showed deviations from normal profile type indicators, which was assessed as the impact of the studied pathology on these children. This revealed the diagnostic significance of cephalometry and its role in determining therapeutic measures.

One of the other indicators reflecting the appearance of the face of sick children from the side is the assessment of the position of the upper and lower lips. The upper lip is swollen, sunken, or straight. It has been proven that changes in the lips are observed in dentofacial anomalies and deformities. Therefore, it is important to assess the degree of lip changes in this pathology, which is based on identifying changes in the facial profile.

A study of the condition of the upper lip revealed that 307 children (38.3±1.7%) had a correct condition during the examination period, with no pathological manifestations, however, in 360 children (44.9±1.8%) it was swollen, and in 134 children (16.7±1.3%) it was deep, both cases showed asymmetry of the upper lip. Thus, practically 2/3 of the children had a pathological condition on the upper lip.

A similar kefalametric study was conducted on the condition of the lower lip. The results obtained showed that the changes in these parameters were identical to the trend of changes in the upper lip parameters, but differed in the intensity of changes (Fig. 2).

Another facial profile indicator is the position of the chin. In this case, the correct location was found in 49.4±1.0% of sick children (n=396), while progenia was significantly lower than the correct position by 2.98 times (16.6±1.3%, n=133, P<0.001). Retrogenia was observed somewhat more frequently, however, it was found to be statistically significantly less common by 1.45 times compared to the correct case (34.0±1.7%, n=272, P<0.05).
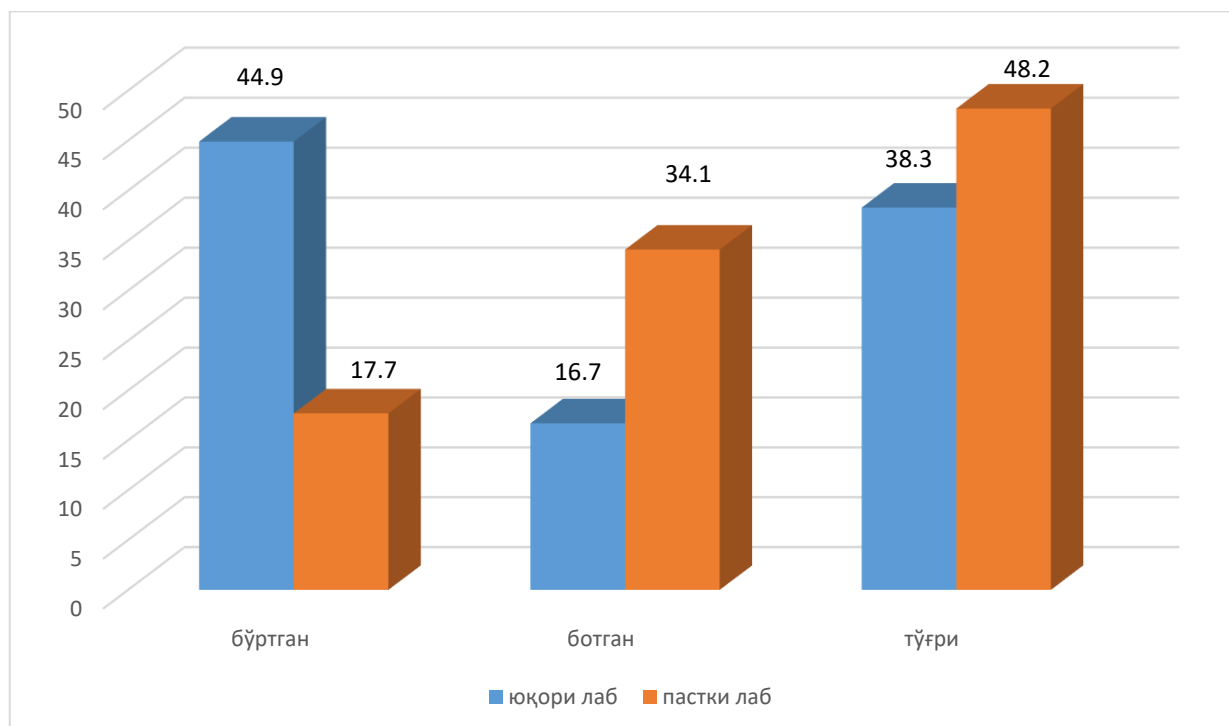
Figure 2. Comparative indicators of the frequency of upper and lower lip positions on the facial profile in children with dentofacial anomalies and deformities, %

Similar results were found for this indicator to the above 3 parameters. To optimize the assessment of facial profile, the ratio of all identified pathological conditions to the correct picture was studied in comparison and presented

Thus, an analysis of facial profile indicators in children diagnosed with dentofacial anomalies and deformities showed that pathological conditions were observed depending on the type of profile, the position of the upper and lower lip, the position of the chin (external swelling, internal penetration, progenia, retrogenia), which were significantly more frequent than the correct appearance. The obtained results show that pathological conditions were more common in the majority of facial profile indicators than in the correct condition, which is explained by the significant negative impact of the studied pathology on the facial profile of sick children.

Thus, an analysis of facial profile indicators in children diagnosed with dentofacial anomalies and deformities showed that pathological conditions were observed depending on the type of profile, the position of the upper and lower lip, the position of the chin (external swelling, internal penetration, progenia, retrogenia), which were significantly more frequent than the correct appearance. These changes were 1.10-2.67 times in the profile language, 1.17-2.19 times in the upper lip position, 1.41-2.72 times in the lower lip position, and 1.45-2.98 times in the chin position (P<0.05 - P<0.001).

Although the trend of these changes was essentially the same, the intensity of their changes varied. A similar trend and intensity of changes were observed in facial appearance. Therefore, the studied pathology negatively affects the cephalometric parameters of the face and leads to pathological changes, which is clearly manifested in the anterior (face) and lateral (profile) manifestations of the face. It has been established that such aesthetic and morphological changes lead to functional changes, manifesting as a factor that reduces the quality of life of children.

As part of the cephalometric examination, along with changes in the anterior and lateral sides of the face, the condition of the oral cavity in sick children was also studied. It visually examined the condition of the upper and lower lip, tongue, tongue, and mucous membrane. When assessing the condition of the bridle, its normality, shortness, width, and condition of attachment were studied. It was established that 324 (40.5±1.7%) children with normal upper lip curvature remained significantly elevated compared to other changes (P<0.001). The number of children with short bridles during visual examination was 120, which constituted 15.0±1.3% of all sick children. Extensive bridle condition was observed in 138 children (17.2.2±1.3%).

Low bridle attachment was also observed in 219 sick children (27.3±1.6%). As can be seen from the obtained results, the degree of these changes in the

upper lip is significantly lower than the normative parameter by 2.70, 2.35 and 1.48 times, respectively (P<0.001), which is reflected.

Similar studies were conducted on the condition of the lower lip cuff. In this case, the trend of changes was similar to the above indicator, but differed in the intensity of changes, i.e., the indicators were deeper than the normative parameters. If the number of children with a short position of the lower lip cuff was significantly lower by 5.17 times compared to children with a normal position (P<0.001), then the number of children with a wide position of the lower lip cuff was even lower - the difference was 5.2 times (P<0.001), a similar difference was observed in the number of children with a high position of the lower lip cuff (3.36 times, P<0.001)

As can be seen from the obtained results, deviations from the norm in the positions of attachment of the upper and lower lip are significantly less common than normal values, which is clearly evident in Figure 3.

Therefore, the study of the oral cavity in children diagnosed with dentofacial anomalies and deformities showed that they have different positions of the upper and lower lip cuffs, which differ from normal appearance. It was found that changes such as short, wide, upper, and lower joints of the upper and lower lip cuffs differed from normal manifestations in both cases. This difference was 2.70, 2.35, and 1.48 times for the upper lip, respectively (P<0.001), while for the lower lip, the difference between these parameters was even deeper - 5.17, 5.21, and 3.36 times, respectively (P<0.001). The first aspect is that all indicators statistically significantly differ from each other, while the trend of changes is the same, and the intensity of their changes is different. All changes were interpreted as the impact of the studied pathologies.
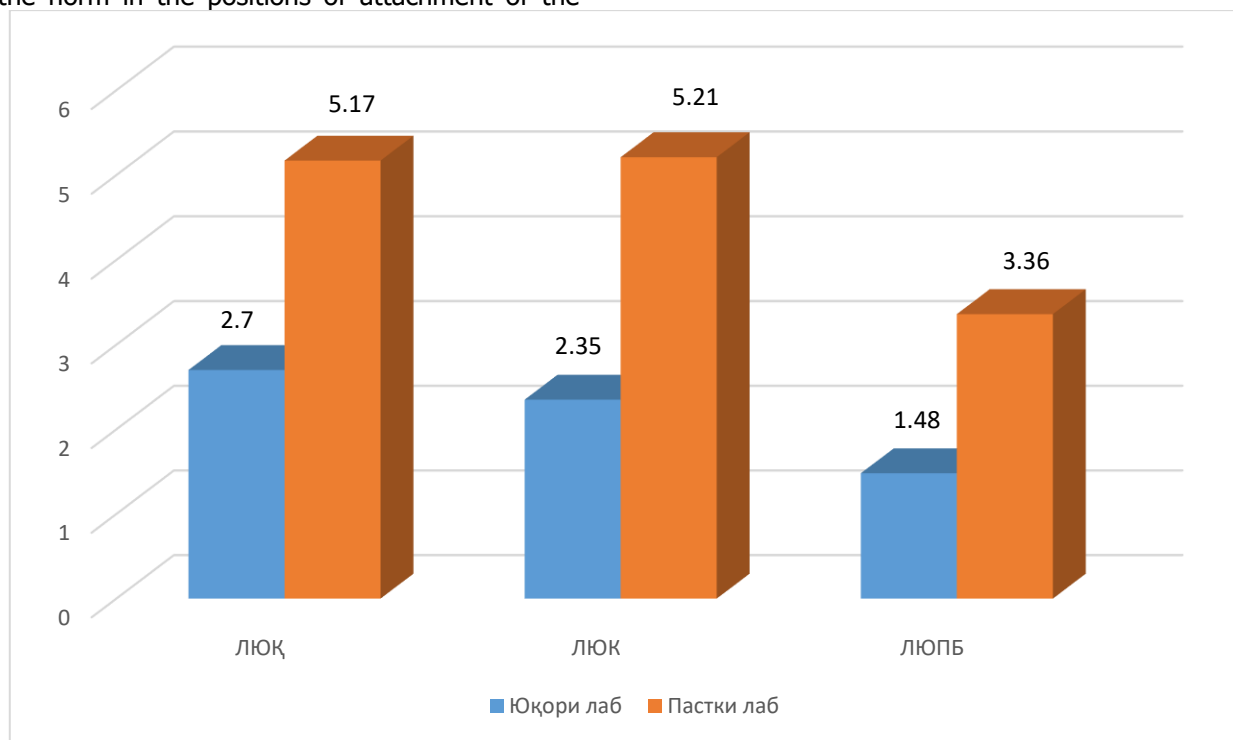
Figure 3. The ratio of changes in the loops of the upper and lower lip in children with anomalies and deformities of the dentoalveolar system to the degree of change relative to the norm, times (LUQ-lobular loops are shorter, LUQ-lobular loops are wider, and LUPU-lobular loops are lower).

Other indicators that allow for the assessment of the oral cavity in the examined children include the position of the tongue, tongue, and oral mucosa. Table 3 below shows the frequency of these indicators in numbers.
As can be see, the frequency of occurrence of all pathological symptoms was similar to that of the **upper and lower lip cuffs, which determine the condition of the oral cavity.**

The shortness and width of the tongue bridle were found to be 3.03 and 4.13 times less frequent than normal parameters, respectively (P<0.001), and their detection was assessed as an impact of the studied pathology.

Two indicators requiring attention were assessed during the examination of the tongue of sick children, while if macro-gnatia was detected in 66 children (8.12±1.0%), then microglassia was even less frequent by 7.19 times - in 10 children (1.13±0.4%) - P<0.001. Despite the large number of changes in the COPD, they were observed in a small number, with hyperemia and edema predominating among them - 25.5±1.5% (n=204) and 20.6±1.4% (n=165), respectively. The remaining parameters were within the range of 0.9-6.9% and were considered unrelated to the studied pathology.

CONCLUSION: Thus, the frequency of occurrence of oral cavity status indicators in children diagnosed with dentofacial anomalies and deformities showed that changes in the tongue bridle, tongue position, and oral mucosa were observed in an average of 1/4 of sick children, ranging from 0.9±0.3% to 25.5±1.5%. The main changes were explained by the shortness (21.0±1.4% n=168) and width (15.4±1.3% n=123) of the tongue bristle, hyperemia (25.5±1.5% n=204) and edema (20.6±1.4% n=165) of the oral mucosa. The remaining changes were detected in 0.9-8.2% of cases. Therefore, despite the identical trend of changes in all indicators of the oral cavity condition, they were characterized by varying intensity, and it was also shown that not all of them were related to the studied pathology.

LIST OF REFERENCES

1. 1.Аверьянов С.В. Распространенность и интенсивность кариеса зубов, заболеваний пародонта и зубочелюстных аномалий у детей города Уфы // Современные проблемы науки и образования. – 2016. – № 2. – С.114-118.
2. 2.Аверьянов С.В., Гараева К.Л., Исаева А.И. Зубочелюстные аномалии у детей города Уфы // Проблемы развития современной науки. – 2016.– № 4. - С. 232-235.
3. 3.Аверьянов С.В., Зубарева А.В. Этнические особенности распространенности и структуры зубочелюстных аномалий у студентов города Уфы // Стоматология детского возраста и профилактика. – 2012. – Т. 11. – № 4. – С. 69-72.
4. 4.Азимов М., Дусмухамедов Д., Юлдашев А. окклюзион аномалияларнинг гнатик шакллари бўлган беморларни жарроҳлик даволашнинг узоқ муддатли натижаларини баҳолаш // Стоматология. – 2018. - Вол. 1. - №. 4 (73). - 33-35 б.
5. 5.Аверьянов С.В., Чуйкин О.С. Распространенность и структура зубочелюстных аномалий у детей крупного промышленного города // Dental Forum. – Общество с ограниченной ответственностью "Форум стоматологии", 2009. – № 2. – С. 28-32.
6. 6.Алешина О.А. Оценка состояния ортодонтической помощи населению в аспекте междисциплинарного подхода лечения пациентов с зубочелюстными аномалиями // Медико-фармацевтический журнал «Пульс». – 2020. – Т. 22. – № 6. – С.31-34.
7. Богдан В.Е., Щитова А.В., Тищенко В.Н. Профилактика зубочелюстных аномалий и ортодонтическое лечение в раннем возрасте // Главный врач Юга России. – 2013. – № 6 (37). – С. 4-6.
8. 8.Бриль Е.А., Смирнова Я.В. Структура зубочелюстных аномалий и деформаций у подростков г. Красноярска // Фундаментальные исследования. – 2014. – № 10-7. – С. 1280-1283.
9. 9.Вологина М.В., Маслак Е.Е., Гоменюк Е.В. Распространенность и потребность в лечении зубочелюстных аномалий среди 12-15-летних детей по данным эстетического дентального индекса // Вестник Волгоградского государственного медицинского университета. – 2016. – №. 4 (60). – С. 63-65.
10. 10.Фозилов У.А. Болаларда тиш-жағ анамалияларини эрта ташхислаш ва ортодонтик даволаш усулларини такомиллаштириш. Автореф. Тиббиёт фан. докт.-Бухоро.2024.-76 б.
11. 11.Aldhorae K.A. Prevalence and distribution of dental anomalies among a sample of orthodontic and non-orthodontic patients: A retrospective study // Journal of International Oral Health. – 2019. – Т. 11. – N 5. – P. 309-312.
12. 12.Borrie F., Bearn D., Innes N., Iheozor-Ejiofor Z. Interventions for the cessation of non-nutritive sucking habits in children // Cochrane Database of Systematic Reviews. - 2019. - Vol. (3). - P. 86-94.