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RELATIONSHIP BETWEEN FACTORS IN REGULATION OF CHILDREN'S BEHAVIOR AND THEIR DENTAL STATUS

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 A child's health is based on his upbringing. The child's behavior at the dentist's visit, the child's attitude to oral hygiene: all this reflects the behavior of parents in family relationships and their attitude to dental health in general. The pediatric dentist must take into account the peculiarities of the style of parental upbringing to achieve the aim of forming a positive attitude to the child's dental treatment in the future. The article presents the results of determining the dental status of children depending on the main forms of parenting style. According to the results of dental treatment, the choice of conditions for dental rehabilitation is substantiated and the influence of parenting style on the formation of dental health in children is studied.

**Key words:** children, oral hygiene, parenting style, dental caries, "parental love", "parental control".

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## ВЗАЄМОЗВ'ЯЗОК МІЖ ФАКТОРАМИ РЕГУЛЮВАННЯ ДИТЯЧОЇ ПОВЕДІНКИ ТА СТОМАТОЛОГІЧНИМ СТАТУСОМ ДІТЕЙ

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 В основі здоров'я дитини лежить її виховання. Поведінка дитини на стоматологічному прийомі, ставлення дитини до гігієни порожнини рота - все це відображає поведінку батьків у сімейних стосунках та їх відношення до стоматологічного здоров'я в цілому. Лікаря стоматологу дитячому необхідно враховувати особливості стилю батьківського виховання для досягнення мети у формуванні позитивного ставлення до стоматологічного лікування дитини в майбутньому. В статті представлені результати визначення стоматологічного статусу дітей залежно від основних форм стилю батьківської поведінки. За результатами стоматологічного лікування обґрунтовано вибір умов проведення стоматологічної санації та вивчено вплив стилю батьківської поведінки на формування стоматологічного здоров'я у дітей.

Ключові слова: діти, гігієна порожнини рота, стиль виховання, карієс, «батьківська любов», «батьківський контроль».

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The issue of dental health of the nation remains a topical issue today and fully depends on the dental health of children, especially their dental education.

The dentist's cooperation with children involves communication not only with the patient, but also with his parents (guardians), because they are the most important people for their children, especially in those years when the child's personality is still being formed. It is known that the dental status of the child,

his psycho-emotional state and his behavior at the dental visit to some extent reflect the psychological climate in the family and the interaction of family members (parenting style), which is a background for choosing conditions for oral rehabilitation. Therefore, in order to develop communication skills, a pediatric dentist needs to know not only the psychophysiological characteristics of children of different ages, but also to take into account the microclimate in the family [1, 5, 7, 8, 9].

Only with the help of a comprehensive approach that combines general pedagogical and psychological correction methods of working with children and their parents it is possible to achieve success in forming thinking about a healthy lifestyle in general, in particular – forming the idea of dental health [4, 11, 13].

The main factors in regulating children's behavior in the family are “parental love” and “parental control”.

“Parental love” is an expression of the warmth of a relationship in the form of praise, support for the child, or vice versa: criticism, punishment.

“Parental control” is the presence of parents' tendencies to prohibitions, control over the activities of the child, demanding to perform certain responsibilities.

The imbalance of these two components of upbringing is influenced by such factors as: the unconscious tendency to repeat the model of relations of their parents in their own family, the system of values of parents, level of culture and education (awareness of dental health), material wealth, features of the parents' personality type (emotional level), etc. [4].

Based on two factors influencing the child – “parental love” and “parental control”–, four styles of parenting behavior are distinguished (Diana Baumrind, 1975; Eleanor McCobby and John Martin, 1983). “Authoritative” type is characterized by a high level of “parental love” and “parental control”. A low level of “parental love” and a high level of “parental control” characterize “Authoritarian” type. A high level of “parental love” and a low level of “parental control” characterize a “Liberal” one. “Indifferent” type is characterized by a low level of “parental love” and “parental control” [3, 4].

**The purpose** of the study was to determine the dental status of children depending on the main forms of parenting style. Based on the results of dental treatment, justify the choice of conditions for dental rehabilitation and study the influence of parenting style on the formation of dental health in children.

**Materials and methods.** Oral cavity sanitation was carried out for 78 children of preschool age (3–6 years) on the basis of the Dental Medical Center of Bogomolets NMU. Groups of children were formed depending on the conditions of the oral cavity sanitation: the main group (I) consisted of children whose sanitation was carried out under general anesthesia (54 persons); control group (II) – children, which oral cavity sanitation was carried out without general anesthesia (24 persons).

The study of the dental status in children included an assessment of the dental caries prevalence and intensity in accordance with the recommendations of the WHO Expert Committee (2013), which was to determine the dental caries prevalence (in %) and the dental caries intensity by  $df$  and  $DMF+df$  indices. The state of oral hygiene was determined using the hygiene index according to Fedorov-Volodkina (1971) [10].

All children were given lessons in standard brushing, followed by controlled brushing. Oral hygiene care products were chosen individually, depending on the age and dental status of children [10, 12]. Oral cavity sanitation was performed according to the algorithms for the treatment of dental diseases [6].

In establishing the relationship in the «parents-children» family, we took into account both the attitude of parents to the child and the child's perception of the attitude of parents. Therefore, determining the characteristics of the personality type of parents in family relationships was carried out according to the actual questionnaire (tables 1, 2), taking into account the psychological portrait of family relations through the eyes of the child through his drawing (fig. 1) [3, 4]. The parents filled out the questionnaire together. The section on the child's dental status was filled by a dentist. Based on the results of testing, the style of parenting behavior was evaluated according to such criteria as “parental love” and “parental control” [3, 4].

| Psychological characteristics of the parent's attitude to the child |                                                                            |                                                                                                                                                                                                                                                |                       |
|---------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| No.                                                                 | Questions                                                                  | Answers                                                                                                                                                                                                                                        | Points                |
| 1.                                                                  | How many times a day does a child brush his teeth                          | I don't control it<br>I control it with a reminder (1 time per day)<br>I control it with a reminder (2 times per day)<br>I personally control the process itself (1 time per day)<br>I personally control the process itself (2 times per day) | 0<br>1<br>2<br>3<br>4 |
| 2.                                                                  | What are the sources of your knowledge about the oral hygiene of the child | From the media and from other parents by accident<br>From the dentist when visiting him as needed<br>Own experience with a previous child<br>We were interested and purposefully studied this topic                                            | 1<br>2<br>3<br>4      |
| 4.                                                                  | The first visit to the dentist                                             | If it is necessary<br>For the prevention purposes                                                                                                                                                                                              | 1<br>2                |
| 5.                                                                  | When they started brushing their teeth                                     | After visiting the dentist as needed<br>After visiting the dentist for prevention purposes<br>From the first tooth independently                                                                                                               | 1<br>2<br>3           |
| 6                                                                   | How a child brushes his teeth                                              | By himself<br>I control it with a reminder<br>I personally control the process itself                                                                                                                                                          | 1<br>2<br>3           |
| 7                                                                   | Do you remind your child about oral care                                   | No<br>Yes                                                                                                                                                                                                                                      | 1<br>2                |
| 8                                                                   | How often do you visit the dentist                                         | If it is necessary<br>For prevention purposes 2 times a year<br>For prevention purposes – on a doctor's advice                                                                                                                                 | 1<br>2<br>3           |
| 9                                                                   | Do you miss a visit to the dentist by appointment                          | Yes<br>No, only for good reasons                                                                                                                                                                                                               | 1<br>2                |
| <i>To be filled in by a doctor</i>                                  |                                                                            |                                                                                                                                                                                                                                                |                       |
| 10                                                                  | Dental caries intensity                                                    | Compensated<br>Subcompensated<br>Decompensated                                                                                                                                                                                                 |                       |
| 11                                                                  | Predominant form of caries                                                 | Acute forms<br>Chronic forms                                                                                                                                                                                                                   |                       |
| 12                                                                  | Prevailing caries/its complicated forms                                    | Dental caries<br>Pulpitis<br>Periodontitis                                                                                                                                                                                                     |                       |
| 13                                                                  | % of extracted teeth due to complicated caries                             | ≤10 %<br>10 %-30 %<br>≥30 %                                                                                                                                                                                                                    |                       |

Table 2

**Interpretation of the results of the assessment of the psychological characteristics of the parent's attitude to the child's dental health**

| Points | Assessment of parent's attitude |
|--------|---------------------------------|
| 15-23  | “Parental control”              |
| 9-15   | “Parental love”                 |
| 0-9    | “Indifference”                  |

The child was asked to draw the family on their own, without the help of parents (fig. 1). Family relationships (love, indifference, aggression towards each family member, in particular towards the child by one of the parents/or both) and the psychological comfort of the child were assessed according to the Lüscher's color test [3, 4].



Fig. 1 Examples of children's drawings

Statistical processing of the obtained data was performed using a personal computer and a package of statistical programs R-Statistics (2001). The reliability of the obtained results was evaluated using the Student's t-test and Mann-Whitney U-test,  $\chi^2$  [2].

**Results of the study and their discussion.** According to the results of a psychological study, it was found that 78 % of parents did not have a complete idea of oral care for children. Among parents with “Authoritative” style of behavior, this percentage was 12 %, with “Authoritarian” – 26 %, “Liberal” – 24 %, “Indifferent” – 38 %.

Of the entire cohort of parents: 64 % – were unaware of the importance of treating temporary teeth, 68 % – were unaware of the peculiarities of oral hygiene (48 % – were not even aware of the importance of proper oral care).

74.07 % of all children, who underwent oral sanitation under general anesthesia, were children whose parents had “Liberal” and “Indifferent” parenting behaviors (fig. 2).

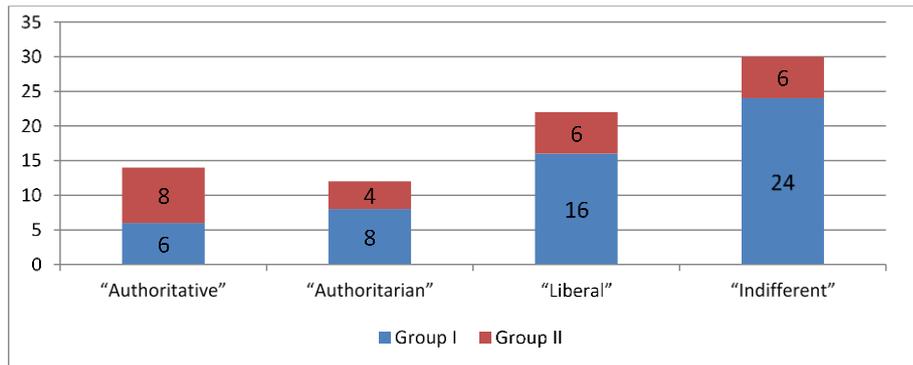


Fig. 2. Distribution of children of groups I and II at different styles of parenting behavior in the “parents-children” relationship

It should be noted that at “Liberal” style of behavior, general anesthesia was chosen as a priority at the request of parents in 89 % of cases in order to preserve the emotional and psychological sphere of the child at the dental visit.

According to the results of dental examination, a high level of dental caries intensity was established ( $df=5.4\pm 1.01$ ) (table 3). We noted a significant difference in this index in groups I and II ( $p\leq 0.01$ ). Dental caries intensity in group I corresponds to a high level, in group II – to an average level of caries ( $df=6.4\pm 1.23$  and  $4.41\pm 0.79$ , respectively).

There was a significant difference in the caries intensity in children of groups I and II in the “Liberal” and “Indifferent” styles of parenting behavior. In the “Liberal” style of behavior, children of group I had  $df=8.31\pm 1.31$ , which corresponds to a very high level of caries, in children of group II –  $df=4.69\pm 1.09$ , which corresponds to a high level of caries ( $p\leq 0.01$ ). In the “Indifferent” style of behavior, children of group I had  $df=9.03\pm 2.01$  (very high level of caries), children of group II –  $df=6.27\pm 1.23$  (high level of caries).

Table 3

**Caries index in children of I and II groups with different styles of parenting behavior in the “parents-children” relationship**

| Groups of children | Parenting style  |                |                  |                  | Total value in group |
|--------------------|------------------|----------------|------------------|------------------|----------------------|
|                    | Authoritative    | Authoritarian  | Liberal          | Indifferent      |                      |
| Group I            | $3.01\pm 0.68^*$ | $5.27\pm 0.91$ | $8.31\pm 1.31^*$ | $9.03\pm 2.01^*$ | $6.4\pm 1.23$        |
| Group II           | $2.32\pm 0.13^*$ | $4.36\pm 0.73$ | $4.69\pm 1.09$   | $6.27\pm 1.23^*$ | $4.41\pm 0.79$       |
| Mean value         | $2.66\pm 0.4^*$  | $4.81\pm 0.82$ | $6.5\pm 1.2$     | $7.65\pm 1.62^*$ | $5.4\pm 1.01$        |

Note: \*reliability of results relative to the total value in the group ( $p\leq 0.01$ ).

High intensity of caries is associated with poor oral hygiene (fig. 3). There is a close relationship between the caries intensity and oral hygiene before the oral cavity sanitation and hygienic training and education and in 3 years.

According to the results of determining the state of oral hygiene, we did not find a significant difference between the Fedorov-Volodkina index in children before treatment and after treatment (long-term results in 3 years). Before oral sanitation, the Fedorov Volodkina index was  $2.71\pm 0.79$  (poor oral hygiene), after treatment –  $2.0\pm 0.48$  (satisfactory oral hygiene). In group I, the Fedorov-Volodkina index before dental treatment was  $3.11\pm 0.87$  (poor oral hygiene), after treatment –  $2.11\pm 0.51$  (unsatisfactory oral hygiene) ( $p\leq 0.05$ ). In group II, there was no significant difference in Fedorov-Volodkina index: before dental treatment this index was  $2.31\pm 0.72$  (unsatisfactory hygiene), after treatment –  $1.9\pm 0.45$  (unsatisfactory hygiene).

After analyzing this index in subgroups of different styles of parenting behavior, we found a significant difference in children whose parents have a “Liberal” and “Indifferent” style of behavior (fig. 3).

In the subgroup with the “Liberal” style of parenting behavior, the hygiene index before treatment was  $3.18\pm 0.9$  (poor hygiene), after treatment –  $1.82\pm 0.26$  (satisfactory hygiene) ( $p\leq 0.01$ ). This trend is

preserved in both the first and second group of children. In group I, before treatment, the hygiene index was  $3.69 \pm 0.88$  (very poor hygiene), after treatment –  $1.98 \pm 0.21$  (satisfactory hygiene) ( $p \leq 0.01$ ). In group II, this index was  $2.67 \pm 0.92$  (poor hygiene) and  $1.67 \pm 0.32$  (satisfactory hygiene), respectively. This situation can be explained by the advantage of “parental love” in parents who care about the psychological health of the child and do not want to repeat the experience of treating caries and its complications.

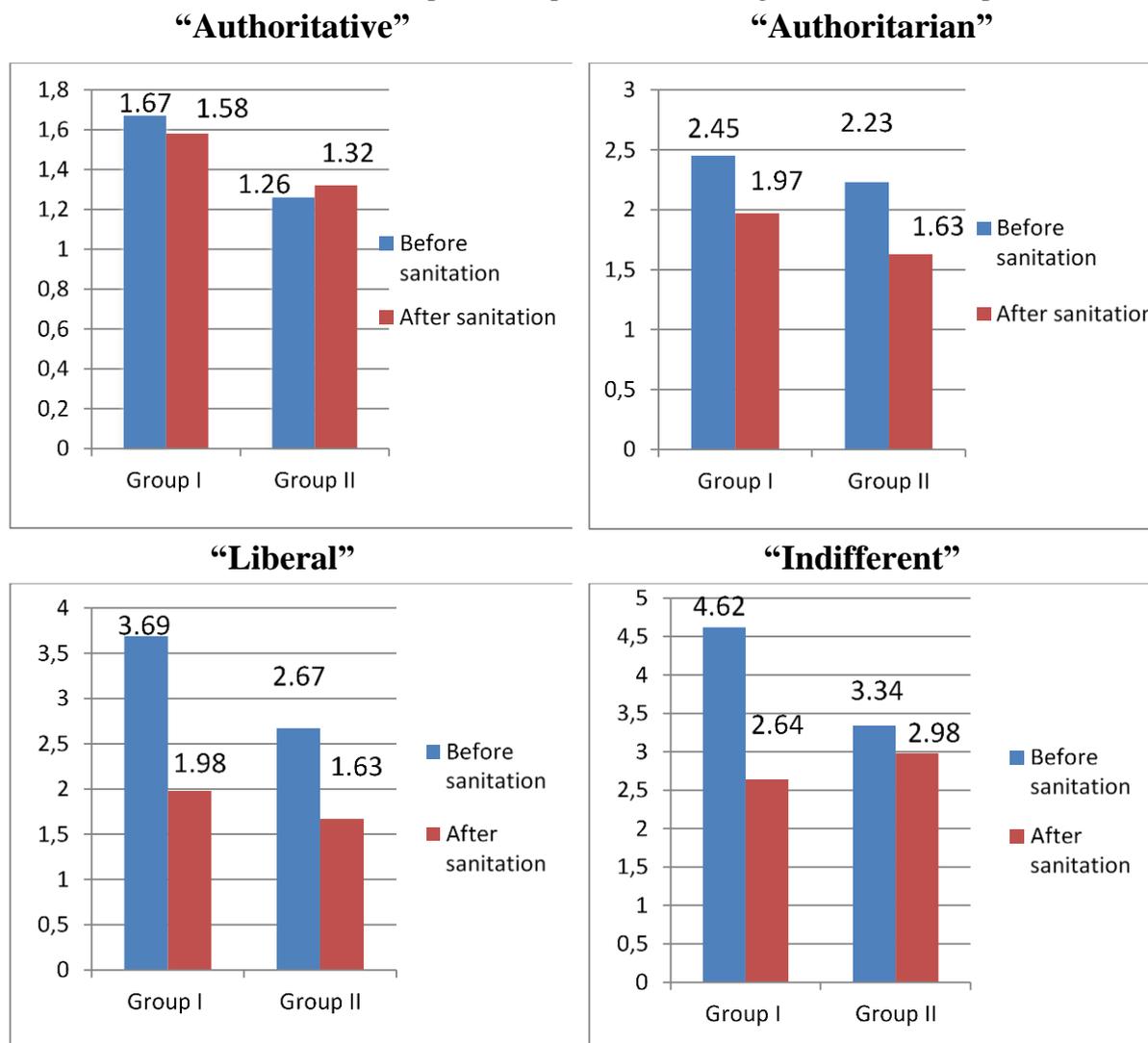


Fig. 3. Assessment of oral hygiene in children of groups I and II with different styles of parenting behavior (Fedorov-Volodkina index): before treatment and after treatment (in 3 years).

In the subgroup with the “Indifferent” style of parenting behavior, the hygiene index was significantly lower before treatment, and amounted to  $3.98 \pm 1.32$  (very poor hygiene). After treatment, this index corresponded to  $2.81 \pm 0.79$  (poor hygiene) ( $p \leq 0.05$ ). In this subgroup of children, the reliability of the difference in the oral hygiene index was revealed mainly due to the results in group I. In group I before treatment, the hygiene index was  $4.62 \pm 1.44$  (very poor hygiene), after treatment –  $2.64 \pm 0.71$  (poor hygiene) ( $p \leq 0.01$ ). In group II, this index was  $3.34 \pm 1.2$  (poor hygiene) and  $2.98 \pm 0.88$  (poor hygiene), respectively. In the subgroup with the “Indifferent” style of parental behavior, oral cavity sanitation in conditions of general anesthesia was carried out at a very high intensity of caries (table 3). Children of this subgroup deliberately refused hygienic care before dental treatment, as complicated forms of caries prevailed among untreated teeth.

During the oral cavity sanitation, complicated forms of caries in most cases were excreted, so the procedure of caring for the cavity after treatment was painless.

As can be seen from the table 4, at repeated examination of children (in 3 years), the average level of caries intensity was established ( $DMF+df=3.75 \pm 0.74$ ), which is significantly higher than this index before treatment ( $df=5.4 \pm 1.01$  – high level of caries intensity) ( $p \leq 0.05$ ).

Significant changes in the rate of caries intensity were found in families with a “Liberal” style of behavior. The intensity of caries before treatment corresponded to a high level ( $df=6.5 \pm 1.2$ ), after treatment – to a low level ( $DMF+df=2.43 \pm 0.96$ ) ( $p \leq 0.01$ ). This trend persists in both groups of children. In group I, the intensity of caries before treatment corresponded to a very high level ( $df=8.31 \pm 1.3$ ), in 3 years after

treatment – to a low level of caries (DMF+df=2.67±1.02) ( $p \leq 0.01$ ). In group II, the intensity of caries before treatment corresponded to a high level (df=4.69±1.09), in 3 years after treatment – to a low level of caries (DMF+df=2.2±0.9) ( $p \leq 0.01$ ).

Table 4

**Long-term results (3 years) of caries intensity (DMF+df) in children of I and II groups with different styles of parenting behavior in the “parents–children” relationships**

| Groups of children | Parenting style |               |            |             | Total value in group |
|--------------------|-----------------|---------------|------------|-------------|----------------------|
|                    | Authoritative   | Authoritarian | Liberal    | Indifferent |                      |
| Group I            | 1.5±0.32*       | 4.32±0.91     | 2.67±1.02* | 7.79±1.89   | 4.07±0.78*           |
| Group II           | 2.15±0.9        | 3.09±0.73     | 2.2±0.9*   | 6.3±1.3     | 3.43±0.71            |
| Mean value         | 1.82±0.61       | 3.7±0.82      | 2.43±0.96* | 7.04±1.09   | 3.75±0.74*           |

Note: \*reliability of results relative to the initial value ( $p \leq 0.01$ ).

In general, the results of our study are consistent with the results of other authors [8, 11].

According to our results, it can be argued that the dentist needs to understand the children's style of parenting behavior in the «parents-children» relationships in order to predict the dental status of the child with various methods of oral sanitation and the formation of a positive attitude towards dental health in the future. Family relations reflect not only the attitude to dental health, but also justify the choice of conditions for dental sanitation of children's oral cavity. Thus, 74.07 % of all children who underwent oral sanitation under general anesthesia were children whose parents had “Liberal” and “Indifferent” behaviors. In the “Liberal” style of parenting behavior, the choice of the oral cavity sanitation in general anesthesia, as a priority, was chosen at the request of parents in 89 % of cases – in order to preserve the emotional and psychological sphere of the child at the dentist visit.

Also, the role of parents in predicting treatment outcomes should not be underestimated, in terms of their responsibility for timely visits to the dentist and from their control over the individual oral hygiene of children. According to the results of the examination, a significant difference in the state of oral hygiene according to the Fedorov-Volodkina index in children whose parents had “Liberal” and “Indifferent” behavioral styles was established (before and after treatment in 3 years of follow-up) [1, 5, 7, 8].

In the subgroup with “Liberal” parenting style, the Fedorov-Volodkina index before dental treatment and visits to the dentist was 3.18±0.9 (poor hygiene), after treatment – 1.82±0.26 (satisfactory hygiene) ( $p \leq 0.01$ ).

In the subgroup with the “Indifferent” parenting style, Fedorov-Volodkina index was significantly higher and amounted to 3.98±1.32 (very poor hygiene). After treatment, this index corresponded to 2.81±0.79 (poor hygiene) ( $p \leq 0.05$ ).

In further studies we plan to determine the tactics of behavior of the doctor at the dental visit based on methods of raising children depending on their personality type and parenting style.

## Conclusion

The pediatric dentist needs to understand the parenting style of the parent-child relationship in order to predict the child's dental status and develop a positive attitude toward dental health. Parenting behavior plays a major role in the treatment of a child at the dental visit.

The parenting style determines the choice of conditions for oral sanitation in children. 74.07 % of all children who underwent oral sanitation under general anesthesia were children whose parents had “Liberal” and “Indifferent” behaviors. At “Liberal” style of behavior the choice of sanitation in the conditions of the general anesthesia as a priority was chosen at the request of parents in 89 % of cases in order to preserve the emotional and psychological sphere of the child at the dental visit.

The ratio of “parental love” and “parental control” in parents significantly affects the dental status of the child and his motivation for satisfactory oral hygiene. In the subgroup with the “Liberal” style of parenting behavior, the hygiene index before treatment was 3.18±0.9 (poor hygiene), after treatment – 1.82±0.26 (satisfactory hygiene) ( $p \leq 0.01$ ).

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## HYGIENIC CHARACTERISTICS OF THE SPECIFIC CONDITIONS IN MODERN MILITARY PILOTS' PROFESSIONAL ACTIVITIES

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On the basis of the systems analysis the paper highlights the complex as such and suggests the comparative characteristics of the organizational, climatic, psychogenic, socially and politically stipulated factors, and determines their importance for the particular categories of military pilots of the Peacekeeping Forces and Joint Forces Operation. According to the data of the meteorological surveillance the assessment of the climatic conditions in the area of Robertsfield (Liberia) aerodrome are made and their distinctions as compared to the places of permanent deployment on the territory of Ukraine are presented. It has been established that it is not the persistently high indices of the air temperature which are within the boundaries of the comfort temperature sensing, but the absence of traditional variations during the day, high indices of the air humidity and the considerable amount of precipitations that affect the bodies of the peacekeepers most negatively. The level of perception of vital hazards by military pilots proves considerably lower and less significant as compared to that if the military pilots of the Joint Forces Operation. As a result, the adaptation of peacekeepers to the existing conditions of their professional activities lasts 2,4 times longer, though much more successful, as compared to that of the flight crew of the Joint Forces Operations.

**Key words:** conditions of professional activities, climatic factors, vital hazard, adaptation, military pilots.

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## ГІГІЄНИЧНА ХАРАКТЕРИСТИКА СПЕЦИФІЧНИХ УМОВ ПРОФЕСІЙНОЇ ДІЯЛЬНОСТІ СУЧАСНИХ ВІЙСЬКОВИХ ЛЬОТЧИКІВ

У статті на основі системного аналізу виділено комплекс і подано порівняльну характеристику організаційних, кліматичних, психогенних, соціально та політично зумовлених факторів, а також визначено їх значимість для окремих категорій військових льотчиків миротворчого контингенту та операції Об'єднаних сил. За даними метеорологічного спостереження оцінено кліматичні умови в районі аеродрому Робертсфілд (Ліберія) та їх відмінності в порівнянні з місцем постійної дислокації на території України. Встановлено, що найбільший негативний вплив на організм миротворців мають не стабільно високі показники температури повітря, вони знаходяться у межах сприйняття температурного комфорту, а відсутність звичних для українців перепадів цієї температури протягом доби, високі показники вологості повітря та значна кількість опадів у сезон дощів. Рівень сприйняття вітальної загрози військовими льотчиками миротворчого контингенту є суттєво нижчим та менш значимим у порівнянні з військовими льотчиками операції Об'єднаних сил. Як наслідок, адаптація миротворців до існуючих умов професійної діяльності проходить у 2,4 рази довше, однак більш успішніше, у порівнянні з льотним складом операції Об'єднаних сил.

**Ключові слова:** умови професійної діяльності, кліматичні фактори, вітальна загроза, адаптація, військові льотчики.

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The most important hygienic characteristic feature of work of contemporary military pilots (MP) of Ukraine's state aviation is the necessity of taking into account the possibility of appearance of the specific conditions and character of their professional activities under the conditions of their being employed for conducting the UN International Peacekeeping Operations (IPO) and Joint Forces Operation (JFO). First and foremost, it is stipulated by the long-term and intensive effects of the entire complex of