

**PECULIARITIES OF INDEXES OF HEART RATE VARIABILITY
INSTITUTIONALIZATION CHILDREN IN THE PERIOD FROM 1.5 TO 3.5 YEARS**

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Many studies, aimed at the analysis of behavioral development of children having an experience of institutional rearing accompanied by different deprivation conditions,

indicate a delay in their physical development [3] and reduce their adaptive capacity [4]. Deviations of mental development, including speech and language disorders, disorders of attention, memory and thinking problems of autistic nature are typical for such children [6, 8, 11]. In most cases, these negative anomalies of development create difficulties for the formation of adequate interpersonal relations of the subject [12]. In numerous works the most responsive link in the adaptive reactions of the body is the circulatory system and heart rate variability (HRV) best reflects the voltage change of activities of regulatory systems in the various States and assessment of HRV can be used as an indicator of stress [15]. Analysis of the available literature revealed a paucity of publications devoted to the research of development peculiarities of vegetative regulation of cardiac rhythm (CR) with orphan children of early and preschool age [23]. In this regard, the aim of the present research was the study of the autonomic regulation of children-orphan in a period from 1.5 to 3.5 years living in the child's Home in the city of Simferopol Crimea Republic.

The study involved children aged from eighteen months to three and a half years: 48 children living in families aged from 17 to 38 months (30 boys and 18 girls, mean age of 28.7 ± 7.8 months) were in the control group and 51 children living in the orphanage "Yolochka" (Simferopol) aged 18 to 43 months (31 boys and 20 girls, mean age of 32.6 ± 5.8 months) – the main group. For a detailed analysis of the influence of social conditions on the process of age-related rearrangements of the autonomic effects was used a factorial plan for two independent variables and two levels (2×2). The two-factor analysis of variance (ANOVA) was conducted using the independent variables of "conditions of education" ("orphans" and "family") and "age" ("under 2 years" and "over 2 years"). The parameters of HRV were obtained by recording the R-R intervals using EEG "Mitsar-EEG". During the tests, subjects were in a state of relative rest in the sitting position with eyes open, in a situation of sustained visual attention corresponding to the functional state of relative peace.

With the aim to reveal the peculiarities of vegetative regulation of CR in children aged 1.5 to 3.5 years, living in different social conditions, a comparative analysis of HRV indexes has been carried out. It was revealed that orphaned children compared to children in the control group significantly ($p=0,043$) is lower by 13,6% indicator value standard deviation values of the normal R-R intervals, and the total power spectrum by 23,5 % ($p=0,026$). In this regard, the functional state of the studied orphans is assessed as deficient, perhaps because of the deprivation conditions in terms of institutionalization.

A more detailed analysis of autonomic regulation of CR in children of the studied groups we were conducting with age differences. Analysis of variance allowed to establish a statistically significant interaction effect of the variables "age" and "conditions of education" on the values of heart rate, the mode, the strain index. The institutionalization children compared with children in families, have signs of disontogenesis of vegetative regulation of cardiac rhythm that occur in the predominance of suprasedgmental centers of the autonomous regulation of heart rate over the sympatho-parasympathetic.

Keywords: autonomic regulation, heart rate variability, orphans.

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