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## Social factors of uneasiness the younger schoolboy

*For today many authors mark growth at younger schoolboys of socially caused infringements of psychological health. «Physiological cost» educational activity thus raises. A research objective – revealing of laws of interrelation between socially-psychological and physiological indicators of adaptation of children to training conditions in initial classes. The most informative are defined for an estimation school absence of adaptation at pupils of elementary grades factors of a questionnaire of school uneasiness of Phillips. It is established that the risk of formation of school uneasiness is connected with status position in student's collective, good progress in the basic subjects and diligent behavior of the child. – A physiological marker of a functional condition of psychological pressure at these children is the cortisol maintenance in saliva tests.*

*The index variation of heart rate is sensitive concerning a psychological overstrain at children isolated in student's collective with the expressed displays of a behavioural component of school difficulties. Expedient use in the conditions of comprehensive school of the psychophysiological battery of techniques for revealing of groups of risk of uneasiness therefore is represented.*

**Key words:** *educational activity, psychological pressure, uneasiness, social status in a class, singularity of behavior, concentration of a cortisol, simpato-adrenalovj a tone.*

Last ten years to training representatives of different scientific disciplines pay to a problem of the adaptation of children attention: doctors, physiologists, psychologists, teachers, etc. [2, 10, 11]. According to statistics, at 20 % of schoolboys socially caused pathology grows, and nervously-mentally healthy children form 68,4 % from total of pupils of initial classes [6, 11, 24, 30, 34]. Also a number of experts speaks about negative influence of modern, innovative forms of teaching on a psychosomatic condition of the schoolboy [5, 11, 14]. Therefore the problem of adaptation of the child to school demands the system, interdisciplinary approach [10, 13, 21, 22, 23].

Usually at absence of adaptation younger school age it is shown in the form of difficulty of the child in educational activity. However happens that an external marker is, for example, the extravagant, unusual behavior of the child which as a result becomes not so much symptom, how many actually the adaptation form (psychological protection).

And what battery of diagnostic techniques will work at mass school? In a role интегративного a health indicator have well proved parameters of variability of a rhythm of heart, that is indexes variation of heart rate (HRV) [3, 7, 8, 9, 12, 18, 31, 33, 35]. The



raised index of pressure testifies about high «physiological cost» educational activity [15, 16, 17, 28]. Other physiological indicator of adaptation of the person – concentration of a cortisol in saliva tests [13, 21, 22, 23].

Thereupon by us it has been spent research of pupils of the elementary grades, which purpose – revealing of laws of interrelation between socially-psychological and physiological indicators of adaptation of children to training conditions at younger school.

The research object in view has defined its priorities:

7. On a basis researches to define the psycho-physiological indicators most sensitive to a condition absence of adaptation at schoolboys of elementary grades.
8. On the basis of the correlation analysis to reveal the socially-psychological indicators most interfaced to physiological indicators of a psychological overstrain at schoolboys of elementary grades.

#### **Materials and methods**

For an estimation of psychological pressure psychological and physiological techniques are used: a questionnaire of school uneasiness of Phillips, a scale of obvious uneasiness for children CMAS, social status in a class – the test in A.JA. Kaplan's updatings, HRV. Also we investigate concentration of a cortisol in tests of a saliva at the pupils included in experiment (school 1). Gain scores of children are taken from class teachers on mathematics, russian (without the aid of teacher's magazine) and singularity of behavior (the reason in behavior of the pupil, instead of in its informative abilities).

140 younger schoolboys took part in ours inspection (taking into account 5 repeated researches) 1996 and 1997 year of birth. The doctor-endocrinolog participated in research of hormonal function from Institute of age physiology of the Russian Open Society.

#### **Results of research and their discussion**

##### **Groups of risk of school uneasiness under factors of a questionnaire of Phillips and their stability during training at elementary school**

By results of inspection by means of Phillips's questionnaire it is visible that in different classes uneasiness levels under factors are various. We will show on an example of the comparative analysis of classes A and V schools 2. Distinctions between classes A and V are statistically significant under the factor 5 – Fear of a situation of examination ( $p < 0,001$ ), under the factor 1 – the General uneasiness at school and under the factor 8 – Problems and fears in relations with the teacher ( $p < 0,05$ ) [1]. The difference on a scale 4 – Fear of self-expression and on a scale 7 – Low physiological resistibility to stress comes nearer to the significant.

The difference of pictures of uneasiness in a class A and a class V, especially statistically significant distinctions under the factor 8 – Problems and fears in relations with the teacher, partly can speak that for three years in a class A schools 2 4 teachers were replaced. Therefore the general level of uneasiness here it is essential above the specification [1].



Thus, average indicators on separate scales in classes A and V are various. It is possible to assume: the factor 5 – Fear of a situation of examination is important for an estimation of level of school uneasiness.

On purpose to allocate children of group of risk of school uneasiness we have divided samples of four surveyed classes of two schools under the factor 5 – Fear of a situation of examination > 40 and <40 points. It is interesting that similar structures of levels of uneasiness under factors of a questionnaire of Phillips in all four classes were designated. For an estimation of level of school uneasiness is possible to recognize as the most informative factors of a questionnaire of Phillips: 1 – the General uneasiness at school, 5 – Fear of a situation of examination and 7 – Low physiological resistibility to stress.

Following the results of the subsequent measurements has proved to be true validity factors Phillips's 5 and 7 questionnaires for allocation disturbing pupils and children of group of risk. Under the factor 5 – the Fear of a situation of examination stably is included into risk group about 35 % of pupils.

Thus, the factor 5 – Fear of a situation of examination of a questionnaire of school uneasiness of Phillips it is possible to recognize as the most informative for a level estimation absence of adaptation pupils of elementary grades.

Concentration of a cortisol in saliva tests as a physiological marker of school uneasiness.

So, there is a group of risk of school uneasiness and absence of adaptation, revealed by means of Phillips's questionnaire. And what its physiological indicators? Concentration of a cortisol in saliva tests can be one of such indicators. In our research correlations for results of psychological tests and level of concentration of a cortisol in a saliva are found out. Significant correlation of level of concentration of a cortisol in a saliva and values on a scale of obvious uneasiness CMAS (a class A schools 1) is revealed low, but. The factor of correlation of Spirmen is equal 0,46 at  $p < 0,05$ . In the same class (A schools 1) considerable degree of communication practically under all factors of a questionnaire of Phillips (including total number of discrepancies with a key under all test) with measurements of scale CMAS was designated. For example,  $r = 0,83$  at  $p < 0,01$  for the factor 1 and CMAS,  $r = 0,76$  at  $p < 0,01$  for the factor 7 and CMAS.

In connection with presence of strong communications between variables of two psychological techniques, we consider possible to consider the correlation received at inspection of B class of school 1. Total number of discrepancies with a key on Phillips's questionnaire as a whole has appeared is connected with level of concentration of a cortisol in saliva tests: the factor of correlation of Spirmen is equal 0,65 at  $p < 0,09$ .

Thus, concentration of a cortisol increases in tests of a saliva of children at an actual condition of school uneasiness. Than such condition is caused? Perhaps, specificity of interpersonal mutual relations in student's collective?

Significant correlations for level of concentration of a cortisol in a saliva and indicators social status an index the Demand ( $r = 0,68$  are found out at  $p < 0,05$ ) and the Status ( $r = 0,62$  at  $p < 0,05$ ) in a class A schools 1 (factor of correlation of Spirmen).



Indexes show the Demand and the Status, how much the child is popular among contemporaries: whether want to share the same desk, invite with it to holidays, to be on friendly terms. It turns out, popular children in a class, at the same time, show presence of the high maintenance of a cortisol in a saliva. The last as we already saw, increases at the raised uneasiness. – Hence, the group of risk which can be characterized as follows has proved: children are popular among schoolmates and possess the raised school uneasiness. A physiological marker for this group of risk is concentration of a cortisol in saliva tests.

There is no saying, whether the raised uneasiness depends on status position in a class. Probably, this communication has difficult character and is mediated, in particular, by progress in the basic subjects – to mathematics and russian. High claims of the person create constant intense aspiration to success [25]. Such aspiration becomes emotional loading and within the limits of psychosomatic unity finds high physiological "price".

Picture of interrelation of measurements social status and level of school uneasiness have compared size social status-indexes of pupils of two schools and their successes in the basic subjects at high and low uneasiness. It has turned out, disturbing children are more claimed in collective. From references it is known that in "star" elementary grades, as a rule, are successful in study and show "diligent" behavior [27]. Therefore we have compared structures of interrelation of indicators on russian, mathematics and singularity of behavior for not disturbing and disturbing children – they too have appeared are similar against each other. Disturbing children study is better and show unusual behavior less.

According to opinion A.M. Prihogan, in elementary grades the authority of the teacher is high (2009). In our research value of progress of pupils for the teacher proves to be true conversations with class teachers and representatives of administration of educational institutions. Proceeding from the aforesaid, it is possible to assume: at pupils of elementary school uneasiness is connected with the received estimation of knowledge.

Size social status-indexes the Status significantly above at disturbing children. We will illustrate with B class (schools 1) dynamics of communication of position in collective and uneasiness (factor of correlation of Spirmen) (tab. 1, 2).

Table 1

**Results of the correlation analysis of factors of school uneasiness of a questionnaire of Phillips and social status-indexes the Status and the "Egoism" in dynamics in B class schools 1**

Measurement №	Communication Ph1 and the Status	Communication Ph2 and the "Egoism"	Communication Ph7 and the "Egoism"
Measurement 1	n.s.	$r = 0,41$ $p < 0,07$	$r = 0,38$ $p < 0,09$
Measurement 2	$r = 0,46$ $p < 0,03$	$r = 0,54$ $p < 0,01$	$r = 0,44$ $p < 0,05$
Measurement 3	$r = 0,76$ $p < 0,01$	n.s.	n.s.



Also at the third inspection of B class of school 1 there would be following significant correlations (tab. 2).

Table 2

**Results of the correlation analysis of factors of a questionnaire of Phillips and the test social status at the third inspection of B class schools 1**

Social status-indexes	Ph2	Ph7
Demand	$r = 0,66$ $p < 0,02$	$r = 0,71$ $p < 0,01$
Disconnexion	$r = -0,67$ $p < 0,02$	$r = -0,63$ $p < 0,03$
Status	$r = 0,71$ $p < 0,01$	$r = 0,66$ $p < 0,02$
Intensity	$r = -0,7$ $p < 0,01$	$r = -0,69$ $p < 0,01$

From the point of view of socially-psychological sense indexes the Demand and the "Egoism" are close to the Status. Apparently following the results of three consecutive testings of pupils of B class schools 1, the Status and the "Egoism" are dynamically connected with indicators of factors of school uneasiness of Phillips: the General uneasiness at school (Ph1), Experience of social stress (Ph2), Low physiological resistibility to stress (Ph7). Possibly, popular children in a class react to any development of social contacts, first of all, with coevals more sharply. Besides, "stars" possess the features of the psychophysiological organization reducing an adaptability to stressful situation.

Researchers mark, sociability and calmness, good abilities and progress are peculiar to status pupils; to girls – nice appearance [27]. Our polls of teachers testify – usually for them such children are attractive and comfortable. The requirements of the adult shown in concrete social group, define position of the pupil in system of interpersonal relations. For adverse position following claims are characteristic: remarks of the class teacher, bad progress and misconduct. However the status of the child depends not on any separate display of its individuality, and from their original combination [27].

Thus, the group of risk of successful children claimed in collective is steady in time. A physiological marker for this group of risk is concentration of a cortisol in saliva tests.

**Interrelation social status-indexes and indicators of behavior and progress of younger schoolboys. Index HRV – a physiological indicator disadaptation at children isolated in a class with excentric behavior**

In our work attempt to correlate level of psychological pressure of children with efficiency of their training and singularity of behavior becomes. We consider also social factors of the raised psychological pressure. Communication of high Disconnexion and unusual behavior (factor of correlation of Spirmen) exists in dynamics in four of five surveyed classes of two schools. For example, in a class A schools 2 at measurement 2  $r = 0,53$  at  $p < 0,01$ , and in a class A schools 1 at measurement 3  $r = 0,59$  at  $p < 0,01$ .



Disconnexion or "isolation" in student's collective is characterized by neglect from schoolmates. By methods of supervision and diagnostic interview it is shown that the schoolboy emotionally endures the mutual relations with coevals [1, 27]. Such situation conducts to formation of an inadequate, astable self-appraisal that finds expression in behavioural difficulties [29]. In social group experts coordinate displays of a behavioural component of school difficulties (SD) to an isolation problem at disturbing children. And, a behavioural component define as regular demonstration of unusual behavior at the child in school environment [31].

Results of the statistical analysis have shown four most stable relations of position in a class and progress-behavior of younger schoolboys on all sample (factor of correlation of Spirimen).

Significant negative communications of popularity in collective and expressiveness of unusual behavior of the child are found out low, but. In particular, for B class schools 2  $r = -0,61$  at  $p < 0,01$ . Low, but significant positive correlations are received for an index the Status and successes of the schoolboy on the mathematician. For example, for B class in schools 2  $r = 0,43$  at  $p < 0,03$ . In hierarchy of motives of the teacher one of the first places is occupied with high progress and discipline of its pupils. Therefore the class teacher throughout 4th years of elementary school forms value of high progress and diligent behavior at the wards. Hence, influence of the teacher on interpersonal preferences and relations in a class is great enough. Possibly, therefore index the Status in our research above at those children who well study and don't behave defiantly.

Thus, pupils of group of risk on school uneasiness – claimed in collective, diligent, well in time children are revealed. Physiological marker of a functional condition of psychological pressure at these schoolboys is the cortisol maintenance in saliva tests.

In each of five classes of two schools it is possible to observe the pupils isolated in collective at whom the teacher stably marks the expressed unusual behavior (tab. 3). Throughout all time of training at elementary school these children form about 4 % from number of all sample. We will pay attention to extreme values HRV (the specification 200) [9].

Table 3

**Average indicators of an index variation of heart rate and pulse for children strongly isolated in social group**

The pupil	Pulse	Index HRV	Social status-index Disconnexion (0–1)	Behavior Estimation (1–3)
1	107	727	0,68	3
2	105	479	0,78	3
3	98	308	0,46*	3
4	100	400	0,43	2
5	90	232	0,89	3

\*в this class the great value of an index disconnexion 0,46.



The psychological anamnesis collected by us, materials of testing and data of the included supervision allow so to describe the given pupils: "derelicts" in the class, often behave inadequately situations (for example, loudly sing during a lesson), aren't included in games of contemporaries. That is, we see displays of a behavioural component of SD. But by results of diagnostics by means of Phillips's questionnaire "outcast" not disturbing. Probably, hiding alarm from associates and from itself, the child develops powerful, but primitive, rough ways of protection. As non-standard, excentric behavior aggression, indifference to current events, the excessive pensiveness, the exaggerated laziness, etc. can act [20]. Many authors interpret such phenomenon as an uneasiness kind, and as a matter of fact – psychological protection [26].

Thus, the index variation of heart rate is sensitive concerning a psychological overstrain of children isolated in social group with bright displays of a behavioural component of SD.

### Conclusions

1. Factors of a questionnaire of Phillips are revealed informative for an estimation of school uneasiness at pupils of elementary grades: 1 – the General uneasiness at school, 5 – Fear of a situation of examination, 7 – Low physiological resistibility to stress.
2. The most informative for an estimation of school uneasiness at pupils of elementary grades is the factor Phillips's 5 questionnaires – Fear of a situation of examination.
3. Children of group of risk on formation of school uneasiness in elementary grades are revealed. The risk of formation of school uneasiness is connected with status position in student's collective, good progress in the basic subjects and diligent behavior.
4. Level of concentration of a cortisol in saliva tests is a physiological indicator of a psychological overstrain at younger schoolboys of group of risk on formation of school uneasiness.
5. The index HRV is sensitive concerning a psychological overstrain at children isolated in student's collective with the expressed displays of a behavioural component of school difficulties.

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