

Research of the Mental States of Anxiety of Fourth-Graders in Secondary Schools during the Progression of the COVID-19 Pandemic

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Abstract: The aim of the article is to study the mental states factors of primary school pupils' anxiety during the progression of the COVID-19 pandemic. The psychological factors of school anxiety and fears are theoretically substantiated. The methodological starting points of the empirical study are distinguished. The combination of psychological and physiological semantic parameters of the phenomenon is taken into account. Valid psychodiagnostic methods were used. The structure of mental states of pupils' anxiety, which consisted of five main factors F1-F5 ($\sum D = 76.371$; $V = 20.005$), was studied by factor analysis of ANOVA. It is established that the principal is the mental state F1 "School anxiety" ($D = 38.029$; $V = 9.962$), which is interrelated with the mental state F4 "Self-realization anxiety" ($D = 9.711$; $V = 2.544$) ($rs = -.443$; $p \leq .01$) and the mental state F2 "Emotional-expressive anxiety" ($D = 16.057$; $V = 4.206$) ($rs = .373$; $p \leq .01$). It was established and grounded that the mental state F5 "Isolation-physiological anxiety" ($D = 4.529$; $V = 1.186$) is suicidal. It is generalized that the obtained empirical results and theoretical substantiations will promote: realization of the decision of educational problems in primary school age; implementation of the obtained results in preventive and corrective-developmental work; will reduce anxiety and affect the formation of adequate behavior of fourth-graders of secondary education.

Keywords: *Pupil, anxiety, adaptation, fears, suicide, school spaciousness.*

How to cite: Popovych, I., Kokorina, Y., Pyslar, A., Palchynska, M., Pavliuk, M., Raievskaya, Y., & Torop, K. (2022). Research of the Mental States of Anxiety of Fourth-Graders in Secondary Schools during the Progression of the COVID-19 Pandemic. *Revista Romaneasca pentru Educatie Multidimensionala*, 14(1), 32-51.

<https://doi.org/10.18662/rrem/14.1/506>

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1. Introduction

The current epidemiological situation around the world has led to rapid socio-economic change. These changes were intense and directly affected the organization of educational work of secondary education, the psychological climate in the school classroom. Also, these transformations have modified the educational spaciousness, affected the psychological and mental health of pupils. The conditions of learning and self-realization of the pupil's personality have become more complicated. Modern learning is an information-laden variety of forms, methods and number of tasks. In addition, the progression of the COVID-19 pandemic has added supplementary fears and anxieties to the modern rhythm of school life. It is worth knowing that the global problem of migratory labor processes forces parents to look for better income to ensure a carefree life for the child. Sometimes such earnings end with the fact that they contribute to the formation of insecurity, various kinds of anxiety and fears of children (Blynova et al., 2020).

Undoubtedly, a pupil's education in a secondary school affects his intellectual and mental development. At school, the child, in addition to joy, surprise and self-confidence, also feels upset, anger, insecurity and fear. A prerequisite for maintaining the mental health of pupils is the full, comprehensive development of the emotional sphere of the child throughout school. The adaptation of the pupil to the environment, to the physical and social spaciousness, meets his needs or creates anxiety. Anxiety is a clear sign of a child's maladaptation. It negatively affects all spheres of life: education, leisure, health, general level of development. Fourth-graders are going through a special period, because they are graduates of primary school and are preparing for secondary school, where the number of subjects and teachers is increasing. The first State Final Attestation (SFA) is taking place. The excitement of teachers and parents is also passed on to students. All this is accompanied by the beginning of the adolescent crisis, which in boys and girls approximately begins at 10-11 years, and this corresponds to 4-5 grades. Therefore, the study of mental states of anxiety of fourth-graders in secondary education is extremely relevant and significant.

2. Science list review

Anxiety has a pronounced age feature. There are so-called "age peaks of anxiety" (Prikhozhan, 2007). These are periods in which anxiety acts as a non-constructive characteristic that causes a state of panic and despair,

especially in crisis periods of ontogenesis. The beginning of adolescence is such a period of crisis. A state of panic and despair can lead a student to doubt his strength and abilities. Anxiety as a complex mental phenomenon is both a constructive and destructive factor in the behavior of the individual in society (Kuzikova, 2015). Anxiety not only disrupts learning activities, it begins to destroy personal structures. Increased levels of anxiety can lead to the development of neuroses, emotional disorders and maladaptive behavior. Anxiety is the most important element of human existence and a natural response to uncertainty (Halian et al., 2020b; 2020c; 2021). The progression of the COVID-19 pandemic has created many problems for humanity and at the same time opened up new opportunities, forced to slow down the pace of life and rethink values (Khmiliar et al., 2020; Molchanova et al., 2020). Some modern studies have found that the lack of controlled spending of time by children in social networks during self-isolation exacerbates anxiety, apathy, encourages a sense of isolation from social reality (Hudimova et al., 2021).

Given its comprehensiveness and ubiquity, existential anxiety is so natural to man that it almost becomes his/her own impetus for life. The personality is able to cling, consume, appropriate, claim, turn anything into a means to achieve this and avoid anxiety (Spielberger, 2013). Anxiety is the primary basic and deepest diffuse undifferentiated emotional response to danger. Anxiety is a vague fear and must be clearly distinguished from fear, which is a reaction to a specific danger. It is characterized by a sense of helplessness in the face of danger and is the embodiment of uncertainty (Yalom, 1980).

Of interest in the scientific context is the view of Carl Rogers (1999), who explored anxiety as an emotional reaction that is caused by contradiction and is a kind of conflict between the self – real and the self – ideal. The researcher interprets anxiety as a mental state and the experience of tightness, shyness, insecurity, constant tension. Usually, the causes of this condition are unconscious to the individual (Rogers, 1999).

The key is the source that motivates the individual to anxiety. Scientist C. Izard (2007) researched and substantiated the dependence of the mental state in which a person is with his/her dominant activity. Thus, the progression of the COVID-19 pandemic has brought uncertainty to all spheres of pupils' life and those who organize educational work. There are a number of studies that have found that personality traits have the ability to transform into mental states (Popovych et al., 2020b; Prokhorov et al., 2015).

It is of scientific interest to study the mental states of pupils' expectations in educational and professional activities, the separation of factor structure, the interdependence of factors and properties that accompany mental states (Popovych et al., 2020a). I. Striletska (2017) studied anxiety as a factor that reduces work capacity and causes difficulties in communication and relationships with peers. The researcher found a significant link between anxiety and social intelligence. It is noted that a person's psycho-emotional state depends on the integrative system of cognitive and emotional activity of his/her psyche. An integrative system of cognitive and emotional activity is able to control human communication processes and social behavior (Striletska, 2017). The positive experience of Romanian researchers Bochis and Sandra (2018) related to the effective implementation of an intervention program to reduce the level of test anxiety in a primary school class in the urban environment is noteworthy. The developed program was introduced in the second grade of the city primary school. The results showed a reduction in pupil's anxiety (Bochis & Sandra, 2018).

The study of anxiety in primary school pupils encourages a scientific view of fear and aggression. Sometimes they are the causes and protective mechanisms of the student to external pressures, requirements and social expectations of the environment (Khmil & Popovych, 2019).

Researcher Kuzikova (2015) argued that the mental state of anxiety is accompanied by a combination of emotions that are dominant and alternate. Dominant mental states of anxiety affect the semantic components of pupils' relationships, their somatic state, determine behavior.

Each pupil is an individual and his/her source of anxiety has completely different emotional and mental properties and states. It has been determined that fear is the most important emotion in a person's experience of anxiety (Kuzikova, 2015). It is grounded that most often children of primary school age have an increased level of general anxiety in the learning process, fear of self-expression, fear of not meeting the expectations of those around them, discomfort in relationships with teachers. Frustration with the need to succeed and low physiological resistance to stressful situations are less common (Kovalevska, 2010).

In the context of interconnection between the phenomena of anxiety and aggression, the concept of Berezin (1988) attracts attention. The author empirically studied and theoretically substantiated the existence of a series of anxieties. These affective phenomena alternately, in a certain pattern, prevail as anxiety arises and grows. The researcher determines a series of anxieties in the following formulation: "*Feelings of internal tension – hyperesthetic reactions –*

anxiety – fear – a sense of inevitability of a catastrophe – anxiety-fearing disorders” (Berezin, 1988, p. 184).

Thus, according to Prikhozhan (2007), anxiety is an emotional – personal formation that combines emotional, cognitive and operational components. A certain level of anxiety of primary school pupils, which is normal, is common to all school children. This level is necessary for optimal human adaptation to social reality (Halian, 2020a). It is stated that the formation of persistent anxiety as the dominant mental constitution is already evidence of a deviation in the personal development of the pupil. When the level of anxiety is significant, it already has a negative effect on performance. Anxiety as a dominant mental state is due to the fact that the leading sociogenic needs are not met. In turn, the needs of one’s own “Self” become deficient (Prikhozhan, 2007).

We understand the mental states of anxiety of fourth-graders in secondary education during the progression of the COVID-19 pandemic as an integral combination of dominant properties that affect the semantic psychological parameters of students, on which depends the effectiveness of their intellectual and mental development. Establishing the dominant properties, mental states of anxiety, will help to establish as accurately as possible the causes of increased anxiety in pupils.

Hypothesis

We believe that the study of anxiety of fourth-graders of secondary schools during the progression of the COVID-19 pandemic are important components of the organization of their educational process. The application of the research results will contribute to the construction of a quality educational spaciousness. The proposed theoretical and empirical complex will have significant scientific facts, the application of which will contribute to preventive, corrective and developmental work, reduce anxiety and influence the formation of adequate behavior of fourth-graders of secondary schools.

Aim

The aim is to study the mental states of anxiety of fourth-graders of secondary schools during the progression of the COVID-19 pandemic.

3. Methodology of research

The author’s methodology of research of mental states of anxiety of respondents is offered. The essence of the methodological initial dispositions was a combination of psychological and physiological semantic

parameters of the studied phenomenon. Psychological semantic parameters are discriminated by conative, affective-volitional and cognitive components. Forms of such measurement are aggression, cruelty, passivity, escape, isolation and distancing. Psychological and physiological dimensions are interrelated and complementary. Physiological semantic parameters are rapid heartbeat, higher than normal changes in blood pressure, sweating, disorders of the gastrointestinal tract and other symptoms.

Psycho-emotional overload of pupils is a factor that contributes to failure. The rapid changes, unexpected innovations, information deficit, which alternates with information overload, encourages students to mental instability, fear. This affects low performance and apathy in communicating with peers (Pysmak, 2018). In developing a methodology for studying the mental states of anxiety of fourth-graders in secondary education, a number of initial methodological dispositions were used, which were reflected in studies of mental states of expectation in other areas of human activity (Popovych et al., 2020a).

Methodological initial dispositions for the study of the factor structure of fourth-graders in secondary education is a verified psychodiagnostic set of methods which has been tested in the study of adaptation (Kononenko et al., 2020), innovations of pedagogical activity (Shkabarina et al., 2020; Tsiuniak et al., 2020), educational activities of respondents of different ages (Petrović & Dimitrijević, 2020; Popovych et al., 2020c; Semenov, 2017). These scientific studies are directly related to the study of mental states of anxiety in school children.

Participants

Our empirical study voluntarily involved fourth-graders from secondary schools: Kyiv Specialized School № 196 (Kherson, Ukraine); Kherson Specialized School № 27 (Kherson, Ukraine); Dnipro Specialized School № 129 (Dnipro, Ukraine); Odessa specialized school № 53 (Odessa, Ukraine). The sample consisted of 123 people. School children represented secondary schools that combined natural sciences, mathematics and philology. The mean age of the sample was 10.2 years ($SD = 1.26$; 9-11 y.). There were 51.22% of girls and 48.78% of boys in the sample.

Organization of research

The statement was made during March – April 2020 (after the official announcement of quarantine in Ukraine, in connection with COVID-19). Fourth grades were randomly selected, representing different

schools from different regions of Ukraine. The study was agreed with school administrations. Pupils voluntarily participated in the study.

Empirical research is organized and conducted in compliance with ethical standards. Approval was obtained from the REC to conduct a study of pupil's anxiety. Respondents were informed in advance about voluntary participation in the study and about the possibility, without any negative consequences for them, to withdraw from it. Respondents' attention was focused on the confidentiality of data collection. The obtained results are reliable, as all the basic requirements for conducting such empirical research are taken into account.

Procedures and instruments

At the stage of selection of psychodiagnostic methods, the complexity of the phenomena of anxiety and fears of schoolchildren is taken into account. Selected techniques relevantly reflected the psychological semantic parameters. At the initial stage, valid and reliable test methods were used. The reduction of the proportionality of the obtained factors was performed using factor analysis ANOVA. The implemented theoretical and empirical complex clearly determined the mental activity of the pupil and allowed to take into account the procedural and resulting components of his/her activities.

“The Scale of Anxiety” (“SA”) (Kondash, 1981) was used to diagnose pupils' anxiety. “The Scale of Anxiety” questionnaire identified: school anxiety (SCA), self-estimation anxiety (SEA) and personal anxiety (PRA). The measurement scale was applied – semantic, differential, unipolar, with the limits of the answer “I do not consider the situation unpleasant” – (0) to “The situation is unpleasant and causes fear” – (4).

The next technique is “The Children's Form of Manifest Anxiety Scale” (“CMAS”) (Castenada et al., 1956; adapted by Prikhozhan, 2002). The scale was developed by American psychologists A. Castaneda, B. McCandless and D. Palermo in 1956, based on the “Personality Scale of Manifest Anxiety” (Taylor, 1953), which is intended for adults. In the children's version of the Prikhozhan (2002) 42 points were selected, which are key in terms of the manifestation of chronic anxiety reactions in young ones.

These points were supplemented by the researcher with 11 more questions. The total number of questions was fifty – three (Prikhozhan, 2002). An important characteristic of the children's version of the test is that only positive answers indicate the presence of anxiety. If there were more than three errors in the answer sheet of the respondents, such forms were

not processed. This indicated the difficulties of choice and the latent anxiety of the respondents.

Raw scores were transferred as follows: 1-2 – the respondent is not characterized by a state of anxiety; 3-6 – normal level of anxiety; 7-8 – anxiety is slightly inflated; 9 – clearly overestimated anxiety; 10 – a very high level of anxiety.

The “Phillips School Anxiety Test” (“PSAT”) (Phillips et al., 1980) was used to establish the levels and psychological semantic features of fourth graders’ anxiety. “PSAT” consists of 58 questions that allowed to deeply and significantly reveal the essence of the following eight factors. “Phillips School Anxiety Test” allowed to determine the individual status of the respondent, the state of relations in the system “teacher – pupil”, to characterize the school spaciousness of secondary education.

The method of studying emotions “Differential Emotions Scale IV-A” (“DES IV-A”) (Izard, 1993) identified ten mental emotional states of the respondents: interest (IN), joy (J), surprise (SR), grief (GR), anger (AN), disgust (DS), contempt (CN), fear (FR), shame (SH), guilt (GL) and parameter 11 – the coefficient of self-feeling (CLF). The measurement scale is applied – semantic, differential, and unipolar, with the limits of the answer “Not at all suitable” – (1) to “Absolutely true” – (4).

The coefficients of the Cronbach’s alpha (α) by the methods “SA”, “CMAS”, “PSAT”, “DES IV-A” were in the range from sufficient to high level of reliability (see Table 1).

Table 1. Indicators of the coefficient of Cronbach’s alpha (α) according to research methods ($n=123$)

Research methodology	Cronbach’s alpha, α
“SA”	.869**
“CMAS”	.893**
“PSAT”	.886**
“DES IV-A”	.725*

Note: * – sufficient level of reliability; ** – high level of reliability.

Data analysis

The obtained empirical data were processed and the results were graphically presented with the help of computer programs “SPSS” v. 21.0 and MS “Excel”. Significant correlations were established by the Spearman’s rank correlation coefficient (r_s). ANOVA factor analysis was used to reduce

the proportionality of factors and to establish the factor structure of mental states.

4. Results of research

The set of 23 studied parameters of fourth grade pupils' anxiety is relevant and methodologically sound. When choosing psychodiagnostic methods, the initial conceptual dispositions of the phenomenon of anxiety and children's fears are taken into account. This approach allowed us to emphasize the key points of a series of anxiety according to Berezin (1988). We present descriptive frequency characteristics of the semantic parameters in Tabl. 2.

Table 2. *Values of scales of semantic parameters according to research methods (n = 123)*

Scale	Arithmetic mean (M)	Mean-square deviation (SD)
“The Scale of Anxiety”		
School Anxiety (SCA)	18.66	7.86
Self-Estimation Anxiety (SEA)	16.23	6.82
Personal Anxiety (PRA)	18.12	7.54
“The Children’s Form of Manifest Anxiety Scale”		
Anxiety Scale (AS)	7.65	2.61
“Phillips School Anxiety Test”		
General Anxiety in School (GAS)	13.22	4.34
Experiencing Social Stress (ESS)	8.34	3.23
Frustration of the Need to Succeed (FNS)	8.43	3.25
Fear of Self-Expression (FSE)	4.07	1.79
Fear of Testing Situation (FTS)	4.09	1.79
Fear of Not Meeting Expectations of Others (FMEO)	3.08	1.65
Low Physiological Resistance (LPR)	4.34	1.88
Problems and Fears in Relationships with Teachers (PFRT)	4.12	1.80
“Differential Emotions Scale IV-A”		
Interest (IN)	7.85	2.56
Joy (J)	11.12	2.98
Surprise (SR)	6.43	2.54
Grief (GR)	3.23	.79
Anger (AN)	6.38	1.59

Disgust (DS)	3.20	0.71
Contempt (CN)	3.80	1.69
Fear (FR)	3.87	1.68
Shame (SH)	4.41	1.81
Guilt (GL)	3.57	1.28
Self-Feeling (CLF)	1.34	.49

The obtained empirical data on all scales are compared with the test norms. Test norms are found in the authors of techniques and researchers who used the methods (Kondash, 1981; Kuzikova, 2015; Popovych et al., 2020d; Prikhozhan, 2002; Pysmak, 2018). We state that the obtained results for “SA”, “CMAS”, “DES IV-A” were within the recommended norms. Frequency characteristics according to the “PSAT” method: “ESS” (M = 8.34; SD = 3.23) and “LPR” (M = 4.34; SD = 1.88) significantly exceed the established norms for Student’s t-criterion ($p < .05$). Clearly, children’s anxiety factors of “Experiencing Social Stress” and “Low Physiological Resistance” are the most sensitive to the changes that have occurred as a result of the implementation of quarantine measures related to COVID-19.

Let’s move on to the study of the factor structure of mental states of anxiety of respondents. The reduction of proportionality to all studied parameters was applied. The factor matrix is constructed of twenty-three variables by the principal component method. Five factors have been found to have loads greater than one. The sum of the five factors is 76.371% of the variance of the variables (see Table 3).

Table 3. *Matrix of factor loads of mental states of fourth-graders’ anxiety*

Scale	F 1	F 2	F 3	F 4	F 5
SCA	.915				
SEA				.618	
PRA				.516	
AS	.884				
GAS	.662				
ESS			.862		
FNS				.762	
FSE			.562		
FIS	.605		-.534		
FME0			.661		
LPR	-.567				.543
PFRT	.567				
IN		.912			

J		.810			
SR		.754			
GR		.741			
AN		.652			
DS		.679			
CN		.445			
FR					.506
SH		.522			
GL				.488	
CLF		.762			
Dispersion, %	38.029	16.057	9.711	8.045	4.529
∑ Dispersion, %	38.029	54.086	63.797	71.842	76.371
Value	9.962	4.206	2.544	2.107	1.186

Factor 1 “School Anxiety” combined the following semantic research parameters: “School Anxiety” (.915), “Anxiety Scale” (.884), “General Anxiety in School” (.662), “Fear of Testing Situation” (.605), “Problems and Fears in Relationships with Teachers” (.567) and the negatively loaded parameter “Low Physiological Resistance” (-.567). This mental state of pupils’ anxiety is accompanied by anxiety and fears that characterize the substantive features of the subject of study. The negative connection with “Low Physiological Resistance” indicates that the physiological component has less of an effect on school anxiety than expected. Respondents in the mental state of “School Anxiety” experience anxiety and fears with everything associated with school. The factor “School anxiety” is key in the organization of the educational process of fourth graders, because everything related to schooling causes a set of anxious emotions and fears.

Factor 2 “Emotional-expressive anxiety” combined only the semantic researched parameters related to the method of “DES IV-A”: Interest (.912), Joy (.810), Surprise (.754), Grief (.741), Anger (.652), Disgust (.679), Self-Feeling (.762). All parameters are positively loaded. The mental state of the respondents “Emotional – expressive anxiety” is accompanied by incredibly expressive reactions. They are a kind of protective psychological mechanism in a situation of anxiety and uncertainty. Such substitution reduces the risk of a pupil's maladaptation. This mental state is closely related to the individual psychological characteristics of the school child, including temperament.

Factor 3 “Social Anxiety” combined positively loaded: “Experiencing Social Stress” (.862), “Fear of Self-Expression” (.562), “Fear of Not Meeting the Expectations of Others” (.661) and negatively loaded “Fear of Testing

Situation” (-.534). This mental state of anxiety of the subjects indicates that the “external pressure” in the form of expectations of the others is a significant destabilizer for junior pupils, despite the fact that learning is a leading type of mental activity.

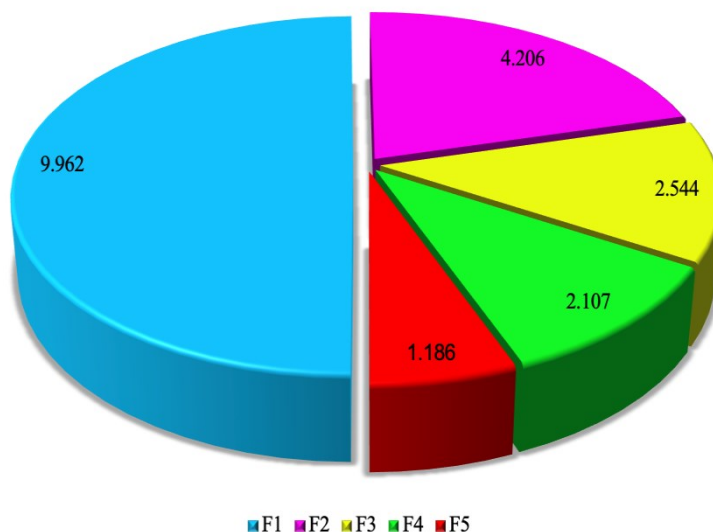
The negatively loaded “Fear of the Knowledge Test Situation” indicates that this parameter does not cause anxiety, is a kind of relief of the anxiety situation. Pupils with a predominant mental state “Social anxiety” seek to create a general positive impression, wrapped in the “effect of social desirability” (Popovych et al., 2021; Shevchenko, 2019). The prevailing affiliation motives of the respondents are their protective mechanism. School children with a predominant mental state of “Social Anxiety” are constantly seeking support and approval of their actions and performance.

Factor 4 “Self-realization anxiety” includes positively loaded: “Self-estimation anxiety” (.618), “Personal anxiety” (.516), “Frustration of the Need to Succeed” (.762). Respondents with a mental state of “Self-realization anxiety” strive for self-realization from the first days of training. Excessive desire for self-realization and fear of not achieving it encourage the formation of anxiety. Such students are dominated by internal position, excessive desire to control everything. Such a mental state in the transition to adolescence can be transformed into a hyperthymic accentuation of the character of the adolescent.

Factor 5 “Isolation-physiological anxiety” combined positively loaded: “Low Physiological Resistance” (.543) and “Fear” (.506). The mental state of the respondents is described as “Isolation-physiological anxiety”, because it has a pronounced physiological component, which is supported by the emotion of fear. The desire to isolate one from all sorts of anxiety sources usually leads to social isolation and distance. We consider this mental state of fourth-graders’ anxiety to be extremely dangerous.

The desire to close and “escape” from problems carries a social danger. The behavior of such respondents at key points in a series of anxiety according to Berezin (1988) is impulsive and uncontrollable. Respondents who are prone to the melancholy type of temperament with a dominant mental state “Isolation - physiological anxiety” are suicidal. They belong to the “risk group” and need qualified psychological support.

The following factors are F insignificant. Their load is less than .945. Thus, according to the results of factor analysis and statistical processing, five main factors F1-F5 ($\sum D=76.371$; $V=20.005$) were identified. The presented and characterized factors determined the structure of mental states of fourth-graders’ anxiety of secondary schools during the progression of the COVID-19 pandemic (see Fig. 1).



Note: F1 – “School anxiety”; F2 – “Emotional-expressive anxiety”; F3 – “Social anxiety”; F4 – “Self-realization anxiety”, F5 – “Isolation-physiological anxiety”.

Fig. 1. *The structure of mental states of anxiety of fourth-graders of secondary schools during the progression of the pandemic COVID-19*

The interdependence of factors that determine the structure of mental states of respondents' anxiety was studied. A correlation matrix of components of the structure of mental states of anxiety is constructed (see. Tabl. 4). The most significant ($p \leq .01$) is the positive relationship F1 and F4 (.433). The most significant negative ($p \leq .01$) is the F3 and F5 (-.398) relationship. F3 has the maximum number of significant connections, four of which are two positive and two negatives. Thus, “School Anxiety” is a major component of fourth – grade secondary school pupils. The least dependent in the structure of mental states of anxiety are the factors: F2 “Emotional-expressive anxiety” and F5 “Isolation-physiological anxiety”.

Table 4. *Correlation matrix of components of the anxiety mental states structure of fourth-graders*

Factors	F1	F2	F3	F4	F5
F1	1.000	.373**	.079*	.443**	.019
F2	.373**	1.000	-.121**	.029	-.037
F3	.079*	-.121**	1.000	.132**	-.398**
F4	.443**	.029	.132**	1.000	.183**
F5	.019	-.037	-.398**	.183**	1.000

Note: * – statistical significance of $p \leq .05$; ** – statistical significance of $p \leq .01$.

5. Discussion

In the scientific resources there is a study of children's anxiety and fears, anxiety in primary school and adolescence (Bochis & Sandra, 2018; Kondash, 1981; Kovalevska, 2010; Kuzikova, 2015; Prikhozhan, 2002; Pysmak, 2018). Consistent with the results of our study are the proposed and argued measures to reduce pupils' anxiety (Orska, 2017). The researcher, as in the results of our study, stated a high level of anxiety in pupils of grades 4-5. Emphasis is placed on the planning and organization of school spaciousness as an important part of school anxiety mitigation measures. It is also proposed to create professional working groups to provide support to anxious pupils (Orska, 2017).

It is worth noting that the situation with COVID-19 significantly changes the studied social reality (Khmiliar et al., 2020; Hudimova et al., 2021). At one time, the problem of mental states was the subject of research in the context of the transformation of stable properties into dominant mental states of personality (Izard, 2007; Prokhorov et al., 2015).

We certify that the organization of educational work with pupils is accompanied by a study of the five mental states of anxiety F1-F5 ($\sum D = 76.371$; $V = 20.005$). Note that the mental states of "School Anxiety" ($D = 38.029$; $V = 9.962$) and "Self-Realization Anxiety" ($D = 9.711$; $V = 2.544$) are such mental states of fourth-graders' anxiety, which with the skillful organization of the educational process are transformed into constructive work.

The most difficult situation is with pupils who are dominated by "Isolation-physiological anxiety" ($D = 4.529$; $V = 1.186$). Such subjects are classified as "at risk", and their mental state has complex semantic-procedural formations of anxiety. The coping strategy of distance dominates (Lazarus & Folkman, 1984). Such pupils need systematic correctional and

developmental work. Excessive self-control in respondents with a dominant mental state “Self-realization anxiety” is accompanied by constant reflection of their thoughts and actions, which has negative anxious consequences.

Taking this aspect into account by a school psychologist can be an effective measure of correctional and developmental work. It is obvious that the organizers of educational work would only benefit from the knowledge and implementation of the obtained scientific facts about the mental states of the respondents’ anxiety. The competencies of school psychologists (Ukraine) are enough to master the proposed theoretical and empirical complex of research of mental states of pupils’ anxiety. The scientific facts established by us are confirmed in a number of empirical studies of the mental states of the individual (Popovych et al., 2020a, 2020d).

6. Research Limitation

We consider it appropriate to point out that “Research of the mental states of anxiety of fourth-graders in secondary schools during the progression of the COVID-19 pandemic” has some limitations. Although the significance of the problem of pupils’ anxiety in the world dimension is outlined and a considerable amount of modern scientific research is critically analyzed, the representation of the sample has a regional context (only educational institutions of Ukraine).

The educational institutions in which the study was conducted used a mixed form of education (full-time – in the school and distance – using Zoom, Meet, Classtime et al). If training were only distance, it would probably affect the results of the study. The presented conclusions are aimed at establishing new scientific facts. These facts require explanation and implementation during the planning and organization of school educational spaciousness.

7. Conclusions

We generalize that the obtained empirical results and theoretical substantiation of mental states of fourth-graders’ anxiety of secondary schools will contribute to the implementation of educational solutions.

The ANOVA factor analysis examined the structure of students’ mental states of anxiety, which consisted of five main factors F1-F5 ($\sum D=76.371$; $V=20.005$). It is established that the main one is F1 “School anxiety” ($D = 38.029$; $V = 9.962$), which is interconnected with F4 “Self-realization anxiety” ($D=9.711$; $V=2.544$) ($r_s=-.443$; $p \leq .01$) and F2 “Emotional-expressive anxiety” ($D=16.057$; $V=4.206$) ($r_s=.373$; $p \leq .01$). It

was established and grounded that the mental state F5 “Isolation-physiological anxiety” ($D = 4.529$; $V = 1.186$) are suicidal.

The proposed hypotheses are confirmed. It is proved that the study of anxiety of the subjects are a special kind of mental states of the individual. These states integrate mental processes and properties of the subject, which directly affects the intellectual and mental development. The introduction of the acquired knowledge in the organization of the educational process, preventive and correctional and developmental work, will help reduce anxiety and affect the formation of adequate behavior of fourth-graders of secondary schools.

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