

Students' Defense Mechanisms and Coping Strategies in Terms of COVID-19 Pandemic

Halyna CHUYKO¹,
Tetiana KOLTUNOVYCH²,
Yan CHAPLAK³,
Mariia KOMISARYK⁴

¹PhD, Associate Professor of the Department of Psychology at Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine, h.chuyko@chnu.edu.ua

²PhD, Associate Professor of the Department of Pedagogy and Psychology of Preschool education at Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine, t.koltunovych@chnu.edu.ua

³PhD, Associate Professor of the Department of Psychology at Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine, y.chaplak@chnu.edu.ua

⁴PhD, Associate Professor of the Department of Pedagogy and Psychology of Preschool education at Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine, m.komisaryk@chnu.edu.ua

Abstract: The COVID-19 pandemic has forced the human psyche to intensify the protection mechanisms and coping strategies to optimally cope with the problem situation. The aim of the article was to study the peculiarities of the use of mental defense mechanisms and coping strategies by students in quarantine isolation caused by COVID-19, and their comparison with the protections and copings used by students before the pandemic. The study involved 108 students (future psychologists and preschool teachers). The sample is homogeneous. The average age of the subjects was 18.4 years. The empirical study used the following techniques: "Ways of Coping Questionnaire" (WCQ; Folkman & Lazarus, 1988); The Life Style Index (LSI; Plutchik et al., 1979); "SVF120" (Janke & Erdmann, 1997). Methods of descriptive statistics, Spearman correlation analysis and Mann-Whitney U were used. Mathematical data processing and graphical representation of the results were performed using the computer software package SPSS 22.0. The results of our study confirmed the hypotheses of the work on the connection of protection mechanisms with copings and on the change in the quantity and quality of protection mechanisms and coping strategies in a situation caused by quarantine isolation compared to the usual life of students. In general, this suggests a mutually reinforcing effect of copings and protections in order to effectively influence the adaptation of the individual to the circumstances through COVID-19. Understanding this pattern can help improve students' mental protection by using more mature and adequate life situations in COVID-19 protections and copings.

Keywords: *COVID-19, mental protection; mechanisms of mental protection; coping strategies; mental protection; stress.*

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1. Introduction

Modern person is mainly accustomed to life in a constantly changing society, because a certain background level of its instability, which is perceived as habitual is in fact evidence of its development. However, it is unlikely that a person can just as calmly accept the extreme uncertainty and unexpectedness in the development of society or civilization as a whole, which was the emergence of COVID-19. From such unexpected and psychotraumatic events because of this, a person is forced to protect his/her psyche, using all available arsenal of mental means to reduce anxiety, from defense mechanisms to coping. Therefore, the interest of scientists in the study of these psychological phenomena is natural and does not decrease since the first mention of them in the scientific psychological literature, but under the above conditions, is timely and relevant.

The term of “defense mechanisms” was first used by S. Freud (2014), directly linking its use with mental illness and believing that its main purpose is to help avoid individual detection of unacceptable impulses, or satisfy them in a socially acceptable way, protecting the ego from anxiety of different origins. Freud (2014) considered the protective mechanisms of the psyche to be unconscious and distorting reality in order to reduce the individual's experience of anxiety.

A. Freud (2020) identified and characterized the main protective mental mechanisms and defined their role in the fight of the Ego against attempts of instinctive impulses to enter consciousness, thus confirming that a healthy person also needs mental protection. Subsequently, mental protection and its mechanisms were analyzed mainly in psychoanalysis (a significant number of protective mechanisms was identified, conditions and a certain sequence of their development and dependence on personal dispositions was described) (Maddi, 2002) until the problem found a response in cognitive, social psychology and personology, in the context of the role of protections in maintaining the stability of human self-esteem (Baumeister et al., 1998).

Quite often the study of the role of mental defenses in the socio-psychological adaptability of the individual is associated with the study of their relationship and differences with coping strategies used by a person to overcome stress, consideration of which in psychology was initiated by Lazarus (1966).

Almost since then, it has been thought that mental protections and copings should be integrated into a single holistic system because the functions they perform in human life are similar, moreover they are

complementary. Thus, Cramer (2015) proposed the following name for such an association: “adaptation process” because, according to the scientist, it contributes to the adaptation of the individual to the problem situation in particular and reality in general. We also are committed to the idea of unification coping and protection under a common name, into a single holistic system of “overcoming” anxiety in order to preserve the mental balance of the individual, instead of further search for reasons for their separation. As for the foreign scientific psychological literature on stress management, psychoanalytic studies of defense mechanisms are included in the history of coping (Dias & Pais-Ribeiro, 2019).

Today the problem of analyzing the phenomena of mental protection and coping in psychology remains relevant, as evidenced by the number of scientific papers devoted to it. In particular, Andrushko (2016), Baumeister et al. (1998), Belov et al. (2009), Bitiutskaya (2011), Bohomolov & Portnova (2004), Cramer (2015), Dias & Pais-Ribeiro (2019), Filipcheva & Yasynska (2009), S. Freud (2014) and A. Freud (2020), Kruzhkova (2012), Lapkina (2011), Lazarus & Folkman (1984), Liakhovets (2011), Shebanova (2011), Shuldyk (2017), Waqas et al. (2015) and many other scientists turned to the study analyzed the manifestations of protection mechanisms or coping during COVID-19.

2. Review of literature

2.1. The concept of protection mechanisms, their types and role in human life

Relatively different interpretations of the concept of “defense mechanisms” in their studies offer: Baumeister et al. (1998), Cherry (2021), Fang et al. (2020), Kruzhkova (2012), Waqas et al. (2015), Walker & McCabe (2021), Zhang & Guo (2017) and others. However, even different understandings of this phenomenon by scientists may indicate both the lack of a holistic concept of defense mechanisms in psychology, and the urgency of this problem.

Bohomolov and Portnova (2004) note that the concept of defense mechanisms can be understood in a broad (as a protective behavior of the individual, including all levels of mental regulation, all available methods and mechanisms and aimed at eliminating discomfort and maintaining personal integrity) and a narrow meaning of the term (as a specific change the content of consciousness as a result of the functioning of various protective mechanisms).

Belov et al. (2009) proposes an understanding of defense

mechanisms as ways to establish partial mental balance to gather strength for the next real overcoming of a problematic situation, i.e. as preparation for the application of coping.

According to Waqas et al. (2015), "Ego" uses various protective mechanisms to maintain mental balance and protect the conscious part of the psyche from the effects of conflicts between instinctive "Id" and "requirements of the idealistic Super-Ego".

McWilliams (2010) emphasizes that using protection mechanisms, the individual unconsciously tries to solve the following tasks: objectives: 1) to avoid the negative disorganizing experiences or cope with it; 2) maintain self-esteem.

Having studied and analyzed different interpretations of the concept of mental protection in psychology, we tend to offer the following generalizing definition: "Mental protection is a system of mental techniques and mechanisms that protect the "I" from the traumatic emotions caused by life problems that lead to a crisis of self-acceptance and self-esteem, by transforming the information (or changing attitudes) and creating pseudo-reality to weaken the destructive influence of reality on the socio-psychological adaptation of a person and the stability of his/her internal regulation" (Chaplak et al., 2020).

R. Plutchik et al. (1979) specifies that protective mechanisms are used to minimize the traumatic emotions associated with states of anxiety and discomfort; to maintain a stable self-esteem and ideas of man about the world and himself. But if a person cannot overcome anxiety or fear in order to maintain their mental health, he/she resorts to distorting reality.

We will briefly describe the mental defense mechanisms identified by S. Freud (2014) and A. Freud (2020), which are diagnosed by the method of Plutchik et al. (1979).

Displacement is the removal from a person's consciousness of everything that can cause suffering.

Objection is the refusal to acknowledge the reality of an unpleasant event for a person, "those aspects of external reality which, being obvious to others," may not be "recognized by the person himself," according to Plutchik et al. (1979).

Rationalization is the creation of logical justifications for behavior caused by reasons that a person cannot recognize due to the threat of loss of self-esteem. Intellectualization diagnosed by the method of Plutchik et al. (1979) is an overly mentally logical and manipulative way of overcoming a conflict or frustrating situation, avoiding their experience.

Reaction formation, according to Plutchik et al. (1979), is the

prevention of the expression of unpleasant or unacceptable to the individual thoughts, feelings or actions through the excessive development of opposing aspirations.

Projection is manifested in the attribution by an individual of his own unacceptable thoughts, experiences or behavior to another person, blaming him/her for shortcomings (Cherry, 2021).

Isolation is an attempt to separate an unpleasant event from a person's experience, preventing it from being experienced (Freid, 2020). Plutchik et al. (1979) include isolation in the mechanism of reaction formation.

Regression is a return to children's patterns of behavior, to an early, safe period of life.

Substitution is to relieve repressed emotions by redirecting an instinctive impulse from a threatening object to a less dangerous and accessible one.

Sublimation is the change of impulses to express them in socially acceptable thoughts or actions that correspond to higher social values. A. Freud (2020) considers sublimation a constructive protection strategy.

The methodology of Plutchik et. al. (1979) also diagnoses a protective mechanism of compensation, as human attempts to find an adequate replacement for a real or imagined defect with another quality; fantasizing or appropriating the merits of another person.

In conclusion, Plutchik et al. (1979) rightly suggest that there is a small number of basic defenses, while the rest are either a combination of them or different names for the same defenses.

Vaillant et al. (1986), considering the mechanisms of protection as a natural adaptation of the individual to life's difficulties, arranged them hierarchically, on four levels: narcissistic (denial and distortion of external reality); immature (dissociation, projection, passive aggression, autistic fantasizing), neurotic (rationalization, reaction formation, intellectualization, regression) and mature (altruism, sublimation, humor, suppression). At the same time, he considers higher protections to be adaptive, and lower ones more often arise due to mental problems of the individual. According to Fang et al. (2020), mature defenses are not only able to "maximize gratification", but also allow a person to better understand both their own thoughts and feelings, and the possible consequences of the situation.

2.2. Coping strategies

The history of the study of coping in psychology begins with the work of Lazarus "Psychological stress and the coping process" (1966).

According to Lazarus and Folkman (1984), coping is a set of cognitive and behavioral efforts that are constantly changing and aimed at overcoming various (external and internal) barriers that may exceed human resources; to overcome stress.

With the advent of the concept of coping in psychology, scientists have also felt the need to distinguish it from the concept of defense mechanisms. Since then, scientists have identified various parameters that distinguish them. Lazarus (1966) initiated this distinction, highlighting the following distinctive features: temporal and instrumental orientation, functional-target significance and modality of regulation (Shebanova, 2011; Kruzhkova, 2012).

We tend to agree with Lapkina (2011) and Bitiutskaia (2011) that the separation of protections and copings is somewhat conditional because they have a common purpose and similar functions. We believe that it is appropriate to identify not only the differences between coping and protection, but also what they have in common: 1) they help to adapt to the problem situation and to some extent cope with it, overcoming it real or virtual, maintaining mental health and well-being of personality; 2) may have a complex structure that shapes protection styles and coping strategies as a system of combining interrelated protection or coping mechanisms.

Lazarus and Folkman (1984) emphasize that coping strategies are used by a person to adapt to an adverse situation during life (Dias & Pais-Ribeiro, 2019) and coping, effective in one situation, may be completely ineffective in another and in everyday living conditions it is unnecessary.

The coping process is formed by the following components: the frequency of the situation; its primary (cognitive) and secondary (ability to overcome the problem); the process of overcoming the problem situation and its consequences for a person (Dias & Pais-Ribeiro, 2019; Hrabovska & Yesyp, 2010).

3. Design and methods

3.1. The aim of article

The aim of article is to conduct an empirical study of the features of the manifestations of protective mechanisms and coping strategies in students in quarantine isolation through COVID-19 and in their absence.

3.2. Participants

108 students of first and second-year in both samples (future psychologists and preschool educators) participated in the study. The

average age of the subjects was 18.4 years. The sample did not coordinate on gender, as the majority of students at the Department of Pedagogy, Psychology and Social Work of Yuriy Fedkovych Chernivtsi National University were girls.

3.3. Hypothesis

Hypothesis of work: quantitative and qualitative use of mechanisms of protection and coping by students in the conditions of quarantine changes, in comparison with a usual life; there are links between the use of protection mechanisms and coping by students.

3.4. Methods

Methods of research: analysis, synthesis, comparison and generalization of the main thesis of scientific sources that are relevant to the problem and purpose of the article; written survey by the following methods:

- “Ways of Coping Questionnaire” (WCQ) (Folkman & Lazarus (1988), adapted by Kriukova and Kuftiak (2007), which allows to identify coping strategies used by the subjects and how often they are used by them to overcome anxiety and difficulties.

The questionnaire consists of 50 statements that reflect different ways of behaving in a problem situation (confrontive, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem-solving, positive reappraisal). The respondent assesses how often he/she uses them. The answers vary from “never” (0 points) to “often” (3 points), a maximum of 18 points can be obtained on each scale.

The level of coping intensity is determined by the formula or total score:

$$X = \frac{\text{the sum of points}}{\text{maximum score}} \cdot 100\%$$

Responses are evaluated according to the key of the method, determining the levels of coping intensity from adaptive (0-6 points) to maladaptive (13-18 points);

- “Test of overcoming difficult life situations” - Russian version of the questionnaire “SVF120” Janke & Erdmann (1997) adapted by Vodopianova (2009). The questionnaire is designed to identify typical ways to overcome stressful situations (coping strategies); the choice is determined by respondents from 20 possible. It contains 120 statements, to which the test subject is offered five possible answers: from “never” (0 points) to “always” (4 points), depending on how the statements correspond to what he/she usually does in a problem situation.

The results are processed in accordance with the key on each scale (maximum score on the scale is 24 points).

The analysis of results is possible both on separate scales, and on secondary estimations (the sums of points on the choice of positive and negative strategies and three groups of positive copings);

- The Life Style Index (LSI) questionnaire (Plutchik et al., 1979) adapted by Romanova and Hrebennikov (1996) was used to determine the features of the functioning of various defense mechanisms used by the subjects.

The questionnaire consists of 92 statements, with which the subject is asked to express his/her consent/disagreement, depending on whether he/she thinks that the statement is characteristic of him/her. 8 basic mechanisms of mental protection are diagnosed: objection, displacement, regression, substitution, projection, compensation, reaction formation/hypercompensation, intellectualization/rationalization. First, according to the key to the method, the total "raw" points are calculated, then the intensity of each mental defense (ID) is determined by the formula:

$$ID = n / N \cdot 100\%,$$

where n is the number of positive responses on the scale of this protection, N is the number of all statements related to this scale.

When determining the total intensity of defenses (TID), n is the sum of all positive responses to the questionnaire.

TID exceeding 50%, may reflect unresolved conflicts of the respondent.

3.5. Procedure

Ethical approval wasn't required for this research article.

Methodical forms were provided directly to each subject for completion at will. Participation in the study was voluntary, anonymity and confidentiality, and the protection of personal data of participants was guaranteed. They were informed in advance about the purpose of the study and received oral consent to participate in it. A period of one to two weeks was set for data collection.

The empirical study was conducted in two stages: The first stage November-December 2019 was aimed at determining the features of coping strategies and mental defenses inherent in students majoring in "Psychology" and "Preschool education", the purpose of the second stage April-May 2020 was to determine coping strategies and mental defenses of students in a pandemic and comparing the results obtained in stages I and II.

Descriptive Statistics Methods, Spearman's Rank correlation analysis

and Mann-Whitney U were used.

Statistical data processing was performed using standard packages of MS Excel and statistical program SPSS version 22 for Windows.

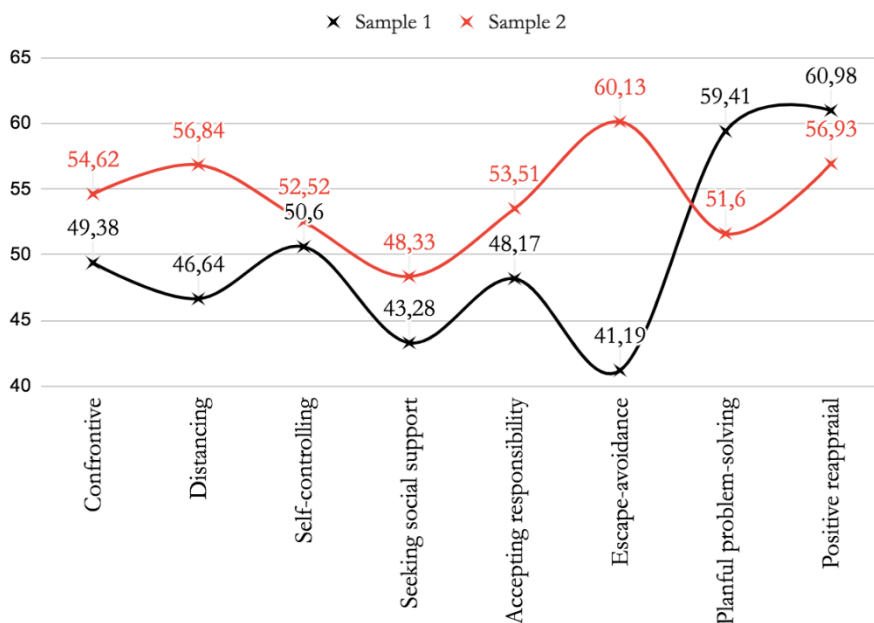
4. The results of the research - statistic data and their interpretation

For convenience of the description we will mark a sample of subjects before quarantine - sample 1 (n=53), during quarantine - sample 2 (n = 55).

We will our analysis with sample 2.

More often than others in a difficult life quarantine situation, the studied samples 2 use such copings (WCQ method by Folkman & Lazarus, 1988) as: “escape-avoidance” (29.09% of indicators of high level of coping tension, the rest is average), “confrontive coping” and “distancing” (20% of high indicators and 1.82% is at a low level, the rest is the average levels of indicators). The least studied use coping “seeking social support” (5.45% of indicators is low, the rest 94.55% is medium level of manifestation) and “accepting responsibility” (in all respondents have the average level of indicator).

For average, sampling scales of “distancing” (56.84 points), “escape-avoidance” (60.13 points) and “positive reappraisal” (56.93 points) prevail in sample 2, that is close to the above copings. The minimum average score is 48.33 points was diagnosed by coping “seeking social support”. The results obtained by this method are shown in Pic 1.



Picture 1. Average indicators according to the method “WCQ” (Folkman & Lazarus, 1988)

Source: Authors' own conception

The studied samples 1 more often resort to the use of copings “planful problem-solving” (45.28% of high-level indicators) and “positive reappraisal” (49.06% of high indicators), while copings “escape-avoidance” (33.96% has low indicators), “seeking social support” (41.51% has low level of the indicator) and “distancing” (26.41% of respondents have a low rate of coping) are used by respondents much less often.

The analysis of the averages shows that they correspond to the indicators of coping intensity levels: according to the averages, the indicators of the scales “planful problem-solving” (average is 59.41 points) and “positive reappraisal” (60.98 points) predominate in the sample in the same way. “Lagging behind” in the use of research the following copings: “escape-avoidance” (41.19 points), “seeking social support” (43.28 points) and “distancing” (46.64 points) respondents use less. Other protective mechanisms are used by respondents at the middle level.

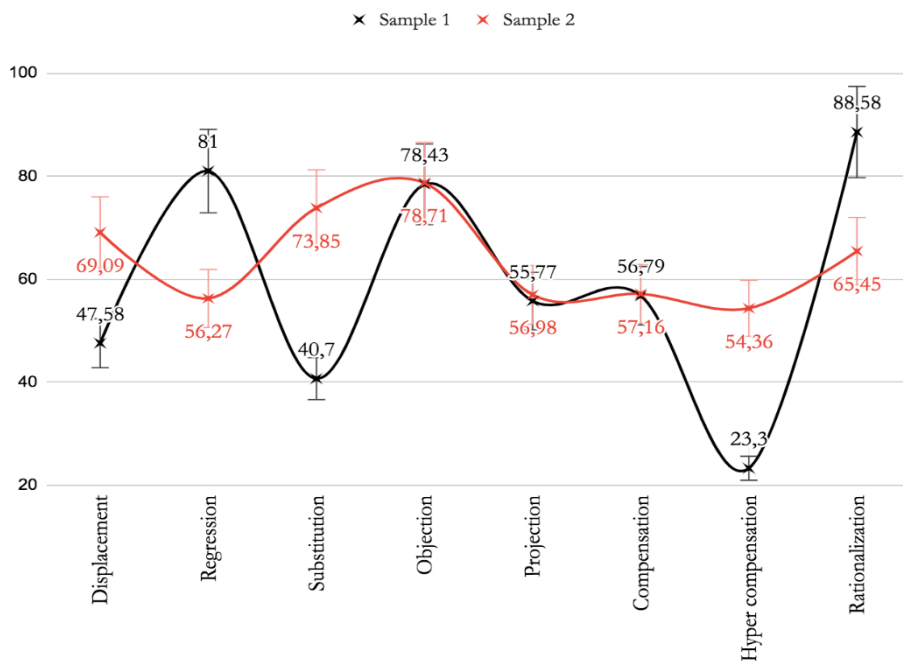
Thus, the respondents of the two samples prefer different copings: under normal / habitual living conditions, sample 1 mainly uses coping “planful problem-solving”, sample 2 in an anxious quarantine situation uses

coping strategies of “escape-avoidance”, “confrontive coping” and “distancing”, common to both samples was the choice of “positive reappraisal” of the situation coping and minimal use of “seeking social support” coping.

To sum up: respondents in sample 2 often start trying to deal with the problem by avoiding solving it, perhaps the problem itself (apparently because it is impossible to solve the problem of coronavirus and the quarantine caused by it), perhaps expecting that it will solve itself. However, since this did not happen, they try to distance themselves from it mentally, pretend it doesn't concern them, reducing the experience (which can be perceived as an escape from the problem). Copings of confrontive resistance to difficulties become more active, and when it becomes clear that it is impossible to cope with the problem a positive reassessment of the problem, the perception of it as an incentive for self-development. However, sample 2 students are reluctant to seek support from others in solving the problem (perhaps because of their inability to do so, realizing that everyone is in a situation of COVID-19 and quarantine, and no one knows how to overcome this problem) and naturally (in this situation) are not ready to answer for it.

Representatives of sample 1, on the contrary, tend to plan to solve the problems, taking into account past experience, planning and assessing alternatives and possible consequences; positively overestimating the situation, understanding it as a challenge and possibility for further self-development. While escape-avoidance by mentally distancing oneself from it, or rationally reducing its significance for oneself, these subjects have the least. However, they, like sample 2, do not tend to rely on support, compassion or effective help of others (it is possible that their future professions teach them to help others; although Zhang and Guo (2017) emphasize the need to seek social support in difficult life situations, and Fluharty and Fancourt (2021) believe that some of the problems associated with COVID-19 were related to the lack of use of social support).

According to the average indicators of the intensity of protection (“LSP” method by Plutchik et al., 1979), we concluded that the representatives of the sample 2 more often use protective mechanisms of “objection”, “substitution”, “displacement” and “rationalization”(pic. 2). Whereas the use of the protective mechanism of “hyper compensation” is rarely resorted to. The rest of the protections used by respondents on average.



Picture 2. Average indicators according to the “LSI” method (Plutchik et al., 1979)

Source: Authors' own conception

Most often, subjects prefer one or two protections at the same time (29.09%); three or five protections are used twice as rare (14.54% of the subjects); 10.91% of respondents use four defenses at the same time, and only one student of sample 2 combines six defenses at the same time during quarantine, and their intensity is more than 90%, i.e. he/she experiences quarantine quite hard; we can state that the majority of the studied (70.91%) use a set of protective mechanisms to protect the psyche.

The dominant defense mechanism in sample 2 is “objection” (23.94% of respondents has its tension as one of the highest), somewhat less often is used “rationalization”, “displacement” and “substitution” (the respondents’ greatest tension is 16.9%, 15.49% and 14.08% respectively). Much less often than other respondents use the protection of “hyper compensation” (4.93%) and “regression” (7.04%). The overall intensity of defenses, which exceeds 50% and may indicate unresolved conflicts of respondents, was found in 36.36% of the surveyed of sample 2.

Analysis of LSI averages of Sample 1 (Plutchik et al., 1979) shows that the surveyed of sample 1 more often use the following protective mechanisms: “rationalization” (the average is 88.58 points), “objection”

(78.43 points) and “regression” (81 points). Protection of “hypercompensation” is used by them relatively rarely (the average is 23.3).

The subjects of this sample more often use two (39.62%) or one (32.07%) main protections, while they use three combined protections (18.87% of respondents) twice less often and they use four protections (only 9.43 % of respondents) four times less often, and their tensions do not always reach high levels, and may be in the range of 61-78%. Thus, the majority of respondents in sample 1 (67.92%) are accustomed to using a set of protective mechanisms to resolve their own problems and conflict situations as in Sample 2.

“Rationalization” (37.61% of cases) is the most often used as an independent defense mechanism and in combination with others in sample 1, “regression” (24.77%) and “objection” (22.94%) are somewhat less used by respondents), while the protective mechanism of “hyper compensation” has never been identified as dominant in Sample 1. 24.53% of respondents of this Sample (less than in sample 2) have the total intensity of defenses exceeding 50%, which may indicate that they have their own unresolved problems.

Thus, in a situation of quarantine isolation, students use slightly different protections than the situation of normal life.

In our opinion, in a situation involving quarantine isolation, students in Sampling 2 often first tried to deny its objective danger by getting rid of anxiety; when it became useless, they tried to push it out of consciousness, but the corona virus could not be forgotten. Then, rationally and logically explaining their behavior, they used to “replace” the negative emotions they experienced in connection with the quarantine situation, redirecting them to accessible objects.

Mechanisms of compensation and hyper compensation of the subjects of this sample are used less often: it is impossible for sober-minded people to recognize adequate replacement of real dangerous problems by fantasizing about their absence or thoughts such as “it will not affect me” in the situation of coronavirus. It is also inappropriate in the current situation in Ukraine and the world to form opposite real feelings, desires, thoughts or actions (even if it could be manifested at the beginning of quarantine).

The studied of samples 1 of the problem seek to turn into a logical, rational and socially acceptable justification of their current behavior and feelings in a stressful situation. When this fails, denial of the existing problem and / or regression are added to simple, familiar, stereotypical behaviors. Respondents of both samples rarely find useful hyper compensation as a way to activate aspirations opposite to the real and

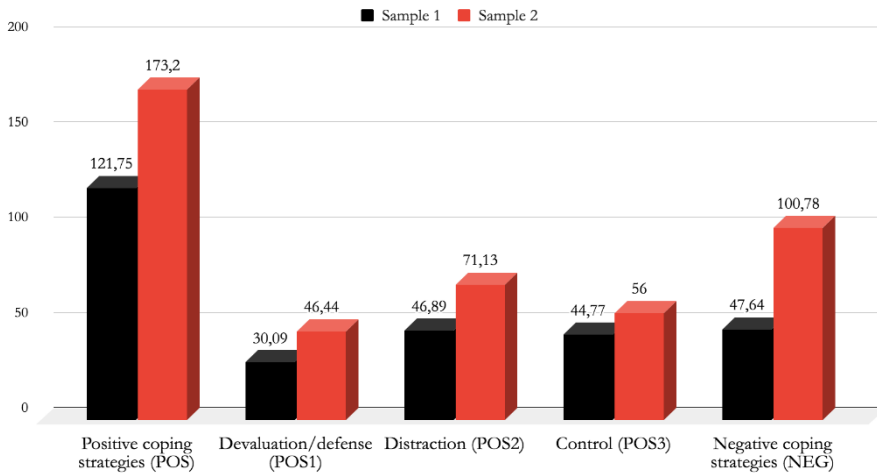
desirable.

Analysis of the averages according to the method "SVF120" (Janke & Erdmann, 1997) (pic. 3) shows that the surveyed of sample 2 more often use the following copings: "psychomuscular relaxation" (the average is 18.14 points), "situation control" (18.38 points), "self-control" (18.69 points), "positive reappraisal" (18.56 points) and "worn-out record" (19.36 points) (these averages correspond to the increased level of use of coping), while copings "social isolation" (the average is 14.62 points), "impotence" (14.96 points), "self-pity" (13.67 points) and "medication use" (8.94 points) - the subjects apply much less often.

Thus, subjects of sample 2 use positive coping strategies more often than negative ones (the average is 173.2 points and 100.78 points, respectively).

Among the groups of positive coping strategies, considering that they are determined by a different number of scales, respondents more often choose to control the stressful situation (56 points, which corresponds to 77.78% of the maximum), or distraction from stress (71.13 points, 74.1% maximum), while the coping strategy of reduction the significance of stress (46.44 points, 64.5%) is used less frequently.

The surveyed of sample 1 relatively more often use the following copings to solve problem situations: "positive reappraisal" (the average is 17.68 points), "self-control" (13.68 points), "control over the situation" (13.41 points) or "self-affirmation" (12.68 points) of copings; other coping strategies are used less frequently, especially "escape from a stressful situation" (7.64 points), "social isolation" (7.24), "impotence" (5.72), "self-compassion" (6.64) and "medication use" (3.07 points).



Picture 3. Average indicators according to the method “SVF120” (Janke & Erdmann, 1997)

Source: Authors' own conception

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This sample is dominated by the use of positive coping in general (121.75 points against 47.64 points for the use of negative coping) and positive strategies of the third group (control over a stressful situation is 44.77 points, 62.1% of the maximum). Copies of the other two groups of respondents choose less.

It should be noted that according to the method “SVF120” (Janke & Erdmann, 1997) the samples are different: sample 2 more often uses copings “psychomuscular relaxation” (which is necessary in conditions of reduced physical activity and emotional stress); sample 1 instead prefers “self-affirmation” (ensuring success and recognition) and less often uses “escape from stress” (the tendency to humbly avoiding a tense situation).

Correlation analysis by Ch.Spearman based on the results of the study revealed a significant number of statistically significant correlations between the indicators of different methods, but we plan to focus on the existing links of the method “LSI” (Plutchik et al., 1979) with indicators of methods that determine coping strategies respondents and illustrate strong (r

≥ 0.7), significant ($r \geq 0.5$) and moderate ($r \geq 0.3$) connections. The results are presented in tab. 1.

Table 1. Partial correlations between defense mechanisms and coping (“SVF 120” strategies and “WCQ”)

	<i>Sample 1</i>									<i>Sample 2</i>								
	Displacement	Regression	Substitution	Objection	Projection	Compensation	Hyper compensation	Rationalization	General intensity of defenses	Displacement	Regression	Substitution	Objection	Projection	Compensation	Hyper compensation	General intensity of defenses	
Confrontive	-	0.49**	-	0.40**	-	0.44**	-	0.55**	-	0.37**	0.41**	0.32*	0.43**	0.51**	0.44**	0.30*	0.63**	
Distancing	-	-	-	0.45**	0.37**	0.36**	-	-	0.52**	-	0.53**	0.40**	0.37**	0.37**	0.47**	-	0.58**	
Self-controlling	-	0.32*	-	-	-	0.30*	-	-	-	-	0.32*	0.34*	0.61**	-	0.30*	-	0.32*	
Seeking social support	-	-	-0.35**	-	0.32*	0.33*	-	-	0.36**	0.40**	-	-	0.40**	-	-	-	-	
Accepting responsibility	-0.40**	-0.42*	-	-	-	-	-	-	-	-	-	0.45**	-	-	-	-	-	
Escape-avoidance	-0.38**	-	-	0.36**	-	-	-	-	-	-	0.52**	0.79**	0.47**	0.39**	0.68**	-	0.62**	

Planful problem-solving	-0.31*	-	-	-	-	0.35**	-	0.52**	-	0.50**	-	-	-	-	-
Positive reappraisal	-0.33*	-	-	-	-	-	-	-	-	0.62**	-	-	-	-	-
Positive coping strategies (POS)	-	-	-	-0.42**	0.32**	-	-	-	-	0.52**	0.39**	-	-	-	0.37**
Devaluation/defense (POS1)	-	-	-	-	-0.52**	-	-	0.33*	0.53**	0.45**	0.39**	-	0.32*	0.35**	0.47**
Distraction (POS2)	-	-	-	0.42**	-	-	-0.33*	0.31*	0.53**	-	0.40**	0.53**	0.49**	0.47**	0.66**
Control (POS3)	-	0.32*	-	0.38**	-	-	-0.56**	0.66**	0.43**	-	-	-	-	-	-
Negative coping strategies (NEG)	0.44**	0.75**	0.58**	0.46**	0.37**	0.52**	0.48**	0.72**	-	-	0.57**	-	-	0.53**	0.38**

Source: Authors' own conception

It should be noted that the numerous correlations found substantiate the validity of our hypothesis about the existence of a connection between coping (coping strategies) and protective mechanisms. Obviously, the fact that they perform common / similar functions unites them more than they separate other characteristics of these phenomena, especially in a situation of quarantine isolation in long-term stress. It seems that in this stressful situation, protections and coping combine to help students cope with it.

The Mann-Whitney U-test for two independent samples was used to verify the differences in protection and coping mechanisms of students before the pandemic and during quarantine isolation (tab 2).

Table 2. Differences in the manifestations of protective mechanisms and coping of students before the pandemic (Sample 1) and during quarantine isolation (Sample 2)

	Runk Sum ₂	Runk Sum ₁	U	Z	p-value
Confrontive	3354.50	2531.50	1100.5	2.191	0.028
Distancing	3604.00	2282.00	851.0	3.724	0.000
Accepting responsibility	3405.00	2481.00	1050.0	2.501	0.012
Escape-avoidance	3980.50	1905.50	474.5	6.038	0.000
Positive reappraisal	2655.50	3230.50	1115.5	-2.099	0.036
Displacement	3649.50	2236.50	805.5	4.004	0.000
Regression	2244.50	3641.50	704.5	-4.624	0.000
Substitution	3907.50	1978.50	547.5	5.589	0.000
Hypercompensation	3935.00	1951.00	520.0	5.758	0.000
Rationalisation	2226.50	3659.50	686.5	-4.735	0.000
Self-approval	4004.50	1881.50	450.5	6.185	0.000
Self-justification	4018.00	1868.00	437.0	6.268	0.000
Distraction	4283.50	1602.50	171.5	7.900	0.000
Substitution	4082.50	1803.50	372.5	6.665	0.000
Self-affirmation	4038.00	1848.00	417.0	6.391	0.000
Psychomuscular relaxation	4041.00	1845.00	414.0	6.410	0.000
Control over the situation	3977.50	1908.50	477.5	6.020	0.000
Self-control	3819.50	2066.50	635.5	5.049	0.000

Seeking social support	4376.00	1510.00	79.0	8.469	0.000
Anticipatory avoidance	4094.00	1792.00	361.0	6.735	0.000
Escape from a stressful situation	4148.00	1738.00	307.0	7.067	0.000
Social isolation	4049.00	1837.00	406.0	6.459	0.000
A worn-out record	4089.00	1797.00	366.0	6.705	0.000
Impotence	4269.00	1617.00	186.0	7.811	0.000
Self-pity	4090.50	1795.50	364.5	6.714	0.000
Self-blame	4142.00	1744.00	313.0	7.030	0.000
Aggression	3905.50	1980.50	549.5	5.577	0.000
Medication use	4326.00	1560.00	129.0	8.161	0.000

Source: Authors' own conception

The table shows the features (protections and copings) by which the samples differ.

Thus, students of sample 1 are more likely than students of sample 2 to use mechanisms to protect “regression” and “rationalization” ($p \leq 0.01$), which allow them to better adapt to reality, overcoming negative experiences by positively rethinking the problem and returning to simpler forms of response to it, consideration of the problem as an incentive for personal growth (“positive reassessment”, $p \leq 0.05$).

Whereas students in sample 2 to a greater extent than sample 1, use a much wider arsenal of protections (mature and primitive) and copings (adaptive and maladaptive). Therefore, they are more inherent by:

- such protection mechanisms as: “displacement” ($p \leq 0.01$) in the unconscious situation, which is impossible to accept and which cannot be reconciled; “Substitution” ($p \leq 0.01$) - the discharge of negative experiences in an accessible form (for example, - computer games); “Hypercompensation” ($p \leq 0.01$) - finding a way to overcome the disturbing circumstances of quarantine by satisfying as much as possible their desires / needs in another area (in particular, virtual);

- coping: “escape-avoidance” ($p \leq 0.01$) - denial of the problem, ignoring emotional discomfort; “Distancing” ($p \leq 0.01$) - reducing their own

emotional involvement in experiencing the problem; "Acceptance of responsibility" ($p \leq 0.01$) - understanding one's role in the problem up to unfounded self-accusations; "Confrontive" coping ($p \leq 0.05$) - active resistance to difficulties in order to change the situation and "positive reassessment" ($p \leq 0.05$) - an attempt to overcome negative experiences, positively rethinking them or the problem itself;

- all copings, except for coping "positive reappraisal". Naturally, in general, students in sample 2 use both positive ($p \leq 0.01$) and negative coping strategies ($p \leq 0.01$) more than in sample 1.

That is, in a situation of prolonged stress caused by the COVID-19 pandemic and related quarantine isolation, the number of protections and copings used by students to overcome the consequences of the problem situation has increased.

Thus, in a situation of quarantine isolation, students tend to give up stress-related activities, to be distracted from the problem situation; to relax stress and anxiety; to turn to positive situations and do what brings them pleasure; to attribute less stress and anxiety to themselves compared to other people; at the same time - to analyze the situation, make attempts to control their behavior and maintain self-control.

As we can see, before and during quarantine isolation, students apply slightly different protections and copings. In addition, in a stressful situation caused by the COVID-19 pandemic, the number of protections and copings used by students increases significantly.

5. Conclusions

Human mental protection, both under normal living conditions and in the event of a COVID-19 pandemic and quarantine isolation, is formed by a combination of protective mechanisms and coping, each of which performs its own function, complementing each other. According to the results of our empirical study, the students under study in the COVID-19 pandemic not only make extensive use of protective mechanisms and coping strategies, increasing their number, but also resort to the use of somewhat different, compared to normal life, coping (avoiding problems, distancing from it or confrontation with the problem, psychomuscular relaxation, combined with constant "brainwashing" over the solution of the problem) and immature defense mechanisms (replacement, displacement). Common to the students of both samples was the reluctance to use hypercompensation as a protective mechanism and to seek support from

other people (coping). Understanding these patterns can help improve the mental protection of students by using them more mature and adequate life situations in terms of COVID-19 protection and coping.

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