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## Theoretical and methodological approaches to the correction of aggressive behaviour in adults with frustration-related manifestations

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**Abstract.** The purpose of the study was to determine the effectiveness of a comprehensive psychological correction programme for aggressive behaviour in adults with pronounced frustration-related manifestations. Psychodiagnostic methods were employed (an author-developed frustration level questionnaire, the Rosenzweig Picture-Frustration Study, the Buss-Durkee Inventory, and the Self-Actualisation Personal Profile) to examine the interrelations between levels of frustration, aggression, and self-actualisation, and to assess the dynamics of change following the correction programme. The results demonstrated a substantial reduction in the level of personal frustration, which was reflected in lower mean values, median values, and percentiles. The Rosenzweig test indicated a shift from barrier-dominant responses towards solution-oriented tendencies, reflecting enhanced adaptability in frustration-inducing situations. A decrease in both direct and indirect forms of aggression was recorded using the Buss-Durkee method, including reductions in irritability and hostility. Correlational analysis identified a strong association between reduced frustration and lower levels of verbal aggression, and between the rise in problem-solving tendencies and the decline in hostility. The most pronounced positive changes were observed among respondents who presented with a high level of emotional instability at the beginning of the programme. Additional effectiveness was achieved through the integration of emotional-somatic and cathartic techniques, which facilitated a deeper processing of aggressive experiences. The group format played a decisive role, as the support and shared experience of other participants fostered greater awareness of personal behavioural patterns. In summary, the correction programme, which combined cognitive, emotional, and social components, proved effective in reducing levels of frustration and aggression. The practical value lies in the potential use of the developed programme as an instrument for preventing and correcting aggressive behaviour in adults within psychological support systems

**Keywords:** self-control; cognitive-emotional approach; irritability; emotional self-regulation; group dynamics; correction programme

### Introduction

Aggression and frustration in adulthood constitute one of the key issues in psychology, as they directly influence the quality of interpersonal relationships, social adaptation, professional functioning, and the psycho-emotional state of the individual. In adulthood, manifestations of aggression often take latent or socially acceptable forms, yet even in such forms, they may hinder constructive communication, increase the likelihood of conflict situations, and reduce psychological well-being. Frustration arising from encounters with objective or subjective obstacles is one of the factors

that provoke aggressive reactions. This issue is particularly relevant in conditions of ongoing social transformation, economic instability, high levels of uncertainty, and heightened psycho-emotional tension, which create additional conditions for the emergence of chronic frustration among the adult population. Accordingly, the analysis of the relationship between frustration and aggression is not only theoretically significant, but also practically necessary for the development of psychological correction and prevention programmes aimed at reducing destructive forms of behaviour.

### Suggested Citation:

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The scientific literature addresses aggressive behaviour in adults from diverse theoretical and applied perspectives, yet it remains a complex and multidimensional phenomenon. P. Sturme (2022) conducted a retrospective analysis of the principal theories of aggression, ranging from psychoanalytic explanations to contemporary integrative models. According to the researcher, scientific thought has progressively evolved from reductionist models, including the hydraulic model of aggression, to more comprehensive approaches that combine biological, psychological, and social dimensions. This analysis provided a methodological foundation for the further identification of effective interventions. H. Girasek *et al.* (2022) emphasised that aggressive behaviour in patients with psychiatric disorders results from the interaction of multiple risk factors, including the type of diagnosis, comorbid conditions, socio-economic status, and personal history. The researchers highlighted the importance of accurately predicting aggression through standardised assessment tools to ensure safety and optimise treatment programmes.

U. Kurilova (2022) theoretically substantiated and empirically confirmed that the development of reflective mechanisms is an effective means of correcting aggressive behaviour in adolescents as a form of psychological defence. The statistically validated results demonstrated a reduction in impulsive aggressive reactions in conflict situations following the correctional intervention. O. Herasymchuk & T. Lisyanskaya (2025) analysed the complex and multifaceted phenomena of aggression and frustration through a comparative examination of their structural components and mechanisms of emergence in the context of major psychological schools, including psychoanalysis, behaviourism, cognitive psychology, and neurobiology. The conclusions confirmed the necessity of methodological pluralism and the integration of knowledge from different fields to gain a deeper understanding of the causes of destructive behaviour and to develop effective prevention strategies, which represents an important step towards a more harmonious society.

Ş. Bicer Hazir (2025) examined human aggression through an integrated biological and socio-psychological framework. The study demonstrated that aggression is neither purely innate nor entirely determined by the environment, but emerges from the complex interaction of evolutionary mechanisms and social learning. Evidence was provided that biological predispositions to aggression may be expressed and modulated in response to the social context, which opens new avenues for corrective strategies. D. DeMarsico *et al.* (2022) focused on cyber-aggression and developed a new scale, the “Cyber Motivations for Aggression and Deviance”, which demonstrated reliability and validity. Eight motivational factors of cyber-aggression were identified, confirming its multidimensional character. This

expanded understanding of the psychological mechanisms of aggression in the digital environment and broadened the toolkit for preventive work with adults.

Q. Alam (2023) highlighted the multifactorial character of aggression, demonstrating that it emerges from the interaction of social, cognitive, instinctive, and learning mechanisms. This approach enables aggression to be viewed not as an isolated psychological phenomenon, but as a product of the complex interaction of numerous processes that either reinforced or neutralised one another. A. Lankford (2021) broadened the understanding of frustration by emphasising its sexual dimension as a distinct form of dissatisfaction. The author demonstrated that sexual frustration may provoke aggression through mechanisms of revenge, displacement, or the display of power. The study indicated the need to incorporate additional forms of frustration into broader models of aggressive behaviour. Despite the diversity of approaches, the literature devotes insufficient attention to the comprehensive analysis of theoretical and methodological approaches to correcting aggressive behaviour in adults with frustration-related manifestations. Most studies concentrate either on general theories of aggression or on specific clinical or social contexts, leaving the integration of different models into practical corrective strategies insufficiently explored.

The purpose of the study was to systematise theoretical and methodological approaches to correcting aggressive behaviour in adults with frustration-related manifestations. The objectives were to synthesise contemporary approaches to the examination of aggression and frustration; analyse the potential for integrating different models in the development of effective psychological correction programmes; and determine the prospects for applying comprehensive methods to mitigate aggressive tendencies in adults.

## Materials and Methods

The study was conducted in 2024-2025, with participants recruited from social media platforms. A total of 158 individuals aged between 33 and 52 participated. All participants provided informed voluntary consent. Inclusion criteria comprised pronounced personal frustration, a tendency towards aggressive behaviour according to preliminary testing, and the absence of severe mental disorders. Participants with diagnosed psychotic conditions, active addictions, or severe somatic pathologies that might impede participation in the programme were excluded. The study consisted of three interrelated stages. The diagnostic stage involved initial testing using four psychodiagnostic instruments: an author-developed frustration level questionnaire, the S. Rosenzweig (1935) Frustration Reaction Test, the Bass-Darke Aggression Level Questionnaire (n.d.), and the “Self-Actualisation Profile of Personality” – SAMOAL (Pryyshak & Matsko, 2012). The formative stage consisted of implementing a psychological correction

programme grounded in cognitive-behavioural therapy, social learning theory, and self-determination theory. The control stage consisted of repeated testing aimed at assessing indicator dynamics and determining the effectiveness of the intervention.

The programme had a preventive focus and comprised five blocks: block 1 – awareness of aggression, including diagnostics, the creation of a safe environment for analysing emotional reactions, and the development of an understanding of the functions of aggression; block 2 – analysis of sources of frustration and their influence on behaviour, with consideration of the basic needs for autonomy, competence, and relatedness; block 3 – development of emotional self-regulation skills, including mindfulness, conscious breathing techniques, relaxation methods, and cognitive strategies for delaying reactions; block 4 – transformation of aggressive impulses into goal-directedness, including the formation of personal and professional goals with the use of the SMART model and self-motivation techniques; block 5 – consolidation of results, including the integration of strategies into daily life, the formulation of development plans, and the identification of social support resources.

A separate module was directed at developing a positive attitude towards failure, grounded in a growth mindset (Dweck & Yeager, 2021). Practical implementation of this approach was conducted through the exercise “Analysis of failure as a lesson”, which included describing the situation, analysing causes, extracting lessons, formulating alternative actions, and planning future steps. An autonomous format with independent work on modules was used at the initial stage, which included a block of cognitive restructuring. One of the key techniques was the “Thought diary”, which required the recording of situations, automatic thoughts, emotions, bodily sensations, and reactions; a stage of thought disputation (analysis of evidence “for” and “against”, search for alternative interpretations); and an additional column “Alternative reaction” with constructive behavioural models. This method contributed to reduced impulsivity, the adoption of more adaptive strategies, and an enhanced subjective sense of control.

A range of exercises was integrated for working with emotions: “Emotional dictionary”, “Emotion mapping”, “Trigger analysis”, and “Post-event reflection”. They supported deeper self-observation and consideration of individual differences. Spiral learning became an important technique, implemented through the exercises “Rewrite your biography” and “Emotions and needs”. The cognitive-behavioural block included methods for identifying and disputing irrational thoughts (Ali, 2024), reinterpreting situational appraisals (Dodge, 2024), replacing negative beliefs with realistic and adaptive ones (Diachkova *et al.*, 2024), and self-instruction techniques (Prayogi *et al.*, 2024). The exercise “Analysis of obstacles and action planning”, based on

the coping model of R. Lazarus (1991), was applied in addition. Cathartic release was used to integrate the affective component: body-oriented practices for experiencing anger and hypno-practices, which facilitated the safe release of aggression, tension reduction, and the transition toward more adaptive behavioural models. Hypno-practices were introduced on an optional basis, which enabled the assessment of varied participant attitudes towards this technique.

Sessions were conducted in a group format, with each session lasting 2 hours, and held twice a week over 16 weeks. Normal distribution of variables was checked using the Shapiro-Wilk and Lilliefors tests. The analysis of results employed the paired t-test for identifying dynamics, comparisons of means, medians, and percentiles, Pearson and Spearman correlation analyses for identifying linear and non-linear interrelations, and regression analysis for assessing variable influence. The study was conducted in accordance with the Declaration of Helsinki (2013). Participants were informed about the purpose and objectives of the study, had the right to withdraw without consequences, and were guaranteed confidentiality. Participants who showed signs of depression or high emotional instability were identified and advised to seek additional psychological support. This recommendation was also given to all participants in the program.

## Results

### Results of the implementation of the psychocorrective intervention programme and their interpretation

In psychology, aggression is understood as behaviour aimed at causing harm to another person or oneself, which may manifest in verbal, physical, or indirect forms (Maia & Tinatin, 2024). A classical explanation of its emergence was provided by the frustration-aggression hypothesis of J. Dollard *et al.* (1939), which argues that an obstacle on the way to a goal inevitably generates aggression. Nevertheless, later research demonstrates that frustration does not always lead to destructive actions but creates emotional tension that may be channelled either destructively or constructively. Contemporary studies highlight the multidimensionality of this relationship: individual traits, levels of self-control, emotional intelligence, and sociocultural conditions significantly determine the response (Lazarus, 1991). Under conditions of discrimination or limited resources, aggression may become a systemic reaction, whereas in a supportive environment, frustration may stimulate resilience and the development of coping strategies.

Psychological practice assigns particular importance to reducing aggression in adulthood. The cognitive-behavioural approach, social learning theory, and self-determination theory are recognised as effective. The cognitive-behavioural approach focuses on working

with maladaptive beliefs and thinking patterns that provoke aggression. Social learning theory demonstrates that aggressive behaviour is developed through observation and reinforcement from the social environment. Self-determination theory by E. Deci & R. Ryan (2012) posits that frustration of the basic psychological needs for autonomy, competence, and relatedness contributes to the emergence of aggressive reactions. The combined application of these approaches allows addressing cognitive, social, and motivational mechanisms.

The development of emotional self-regulation and group interaction becomes an important component of corrective programmes. Emotional regulation involves the ability to recognise and modify one's own states, which reduces impulsive responses; its effectiveness

is demonstrated through mindfulness practices and cognitive reappraisal (Zhang & Zhang, 2023). Group work creates a space for social learning, support, and feedback, reduces isolation, and promotes the formation of new behavioural models (Freud, 1949; Wang *et al.*, 2024). The integration of individual self-regulation techniques with group dynamics supports the consolidation of new response strategies, transforms destructive impulses into constructive forms of interaction, and enhances psychological resilience. Analysis of the data from the developed frustration level questionnaire demonstrates the effectiveness of the intervention programme, reflected in a noticeable reduction in personal frustration. Figure 1 presents the distribution prior to the frustration level questionnaire.

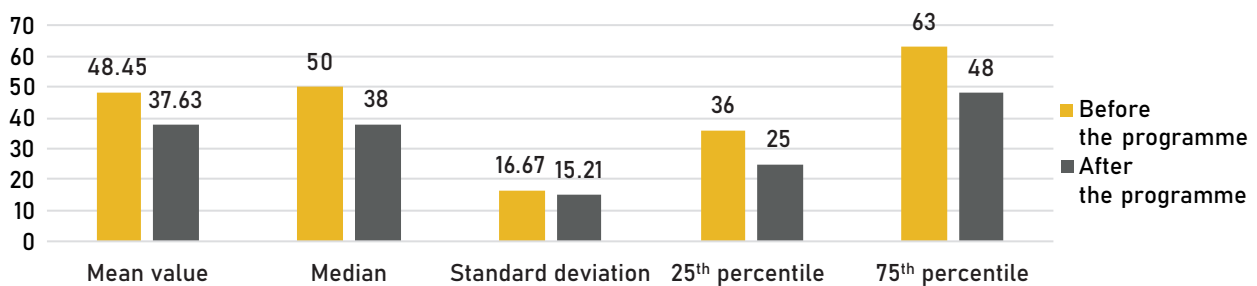


Figure 1. Frustration level questionnaire

Source: compiled by the author

Figure 1 shows that the mean decreased from 48.45 to 37.63, and the median from 50 (N = 158). The shift in central tendencies is confirmed by a narrowing of the standard deviation (from 16.67 to 15.21) and changes in percentiles (the 25<sup>th</sup> decreased from 36 to 25, the 75<sup>th</sup> from 63 to 48), which indicates an overall reduction in score dispersion and a decline in frustration among most participants. The next stage of distribution analysis covers separate groups. In the experimental group, the mean score declined from 48.91 to 33.22 (N = 98). In the control

group (N = 60), the mean changed only slightly: from 47.7 (SD = 17.96) before the intervention to 44.82 after it. Medians in the experimental group shifted from 50.5 to 32.5, whereas in the control group, 45.5 was recorded after the intervention and 49.5 before it. The range of values in the experimental group contracted from 60 to 54, and in the control group stood at 57 after the intervention and 60 before it. Figure 2 presents the distribution indicators prior to the developed frustration level questionnaire (for the experimental group).

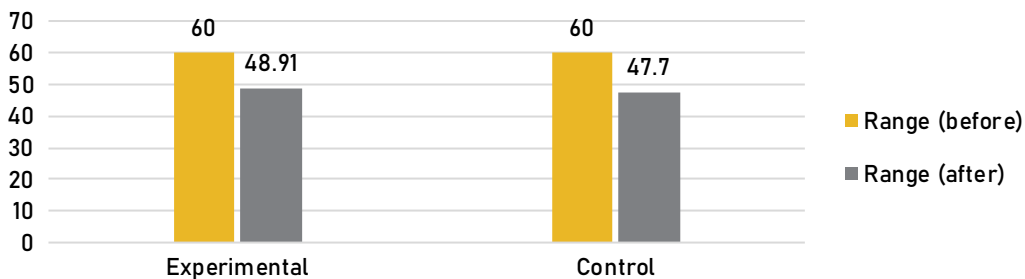


Figure 2. Frustration level questionnaire (experimental group)

Source: compiled by the author

Analysis of percentiles and variance confirms the substantial impact of the programme on the experimental group: the lower quartile decreased from 36 to 21, and the upper quartile from 63 to 42, whereas no

similar changes were observed in the control group (25<sup>th</sup>: 29.25; 75<sup>th</sup>: 57.75). A sharp reduction from 252.74 to 177.95 indicates levelling and homogeneity of the results, which demonstrates a shift among the majority

of participants towards a markedly lower level of frustration after the intervention. The distribution of results according to the Rosenzweig Picture-Frustration Test indicates a pronounced decline in the Object Dominance (OD) indicator, which reflects a reduced focus

on external barriers. The mean value of Ego-Defensiveness (ED) remained almost unchanged, demonstrating the stability of ego-defensive mechanisms, whereas NP increased, which indicates a strengthening of motivational persistence. The results are presented in Table 1.

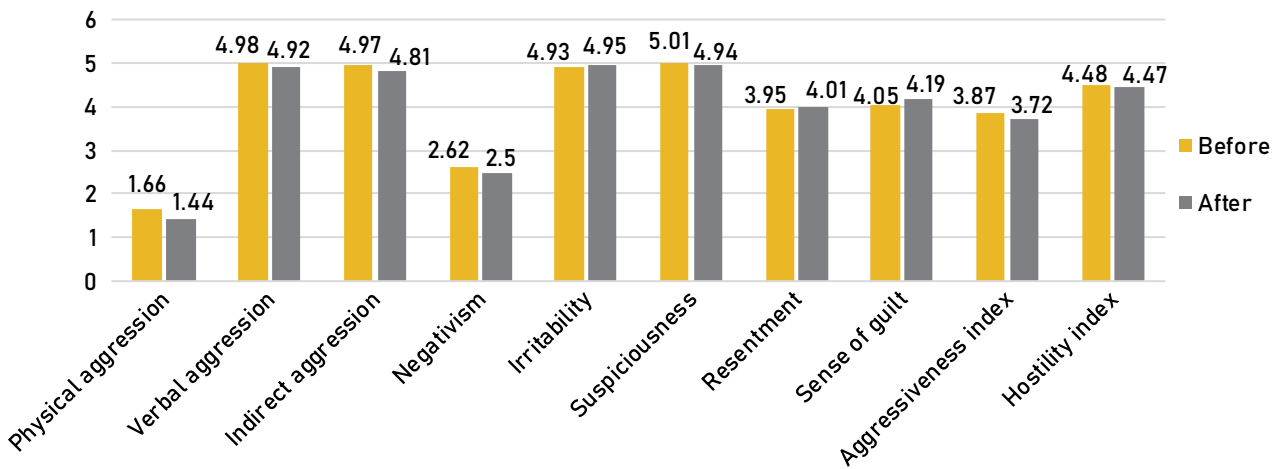
**Table 1.** Dynamics of indicators according to the C. Rosenzweig test

Group	Indicator	Before	After	Δ (After-Before)
Experimental	OD	8.48	7.42	-1.06
	ED	6.9	6.81	-0.09
	NP	5.57	7.07	+1.5
Control	OD	8.43	8.18	-0.25
	ED	6.43	6.53	+0.1
	NP	6.17	5.93	-0.24

Source: compiled by the author

The ED indicator changed only marginally (-0.09), which demonstrates the stability of ego-defensive mechanisms and confirms that the programme did not lead to an increase in defensive aggression. NP, in contrast, increased by +1.5, which represents the most substantial positive shift: it reflects a strengthened motivational persistence and a greater focus on seeking ways to overcome difficulties. This dynamic confirms the corrective effect of the intervention, directed at a re-orientation from destructive fixation towards constructive activity. In the control group, the deltas showed

only minor fluctuations without systemic dynamics: OD declined insignificantly (-0.25), ED increased slightly (+0.1), and NP decreased (-0.24). These outcomes indicate the absence of stable positive tendencies and confirm that the changes in the experimental group were due to the programme rather than external random factors. The results indicate that the main effect concerns not so much the shift in mean values as the reduction of extreme manifestations, specifically among participants who demonstrated high levels of aggression before the intervention. The indicators are presented in Figure 3.



**Figure 3.** Dynamics of mean aggression scores (experimental group, N = 98)

Source: compiled by the author

The obtained data indicate that the programme was effective primarily in smoothing the most intense forms of aggression, which is confirmed by medians and upper quartiles, whereas mean values show only moderate changes. The most distinct decrease was observed in physical aggression: the mean value decreased from 1.65 to 1.41 points, and in the experimental group from 1.66 to 1.44, with the median decreasing from 2 to 1 and the upper quartile from 3 to 2. This means that for an average participant, the level of physical aggression became lower, and the most aggressive

respondents demonstrated a noticeable reduction in the intensity of reactions. Verbal and indirect aggression remained relatively stable; however, the percentile analysis revealed a decrease in the upper quartile of indirect aggression from 6 to 5, which indicates a reduction in intensity among those with the highest scores. Negativism decreased from 2.62 to 2.5 points, with the median declining from 3 to 2.5, which reflects changes at the level of the “average” participant. Feelings of guilt increased from 4.05 to 4.19, primarily due to an increase in the lower quartile, which is interpreted as

strengthened reflection and self-control among those who had previously been less inclined to acknowledge responsibility for their aggression. Irritability proved to be the most stable variable: mean, median, and quartile values changed only minimally. The indices reflected the dynamic as well: the mean level of aggressiveness decreased from 3.89 to 3.76, and in the experimental group from 3.87 to 3.72. Hostility remained almost un-

changed at approximately 4.5 points. These findings show that the intervention had the greatest impact on reducing physical aggression and negativism, whereas other forms displayed either stability or minor shifts. The SAMOAL questionnaire, comprising eleven subscales, made it possible to identify both general and differentiated changes in the sphere of self-actualisation. The changes are presented in Table 2.

**Table 2.** Results of the SAMOAL questionnaire

Subscale	Before intervention (M)	After intervention (M)	Δ (delta)	Dynamics
Values	7.35 ± 3.74	8.12 ± 3.68	+0.77	↑ substantial
View of human nature	7.34 ± 3.81	7.99 ± 3.62	+0.65	↑ substantial
Self-compassion	6.85 ± 3.93	7.44 ± 3.71	+0.59	↑ substantial
Sociability	7.18 ± 3.69	7.70 ± 3.55	+0.52	↑ substantial
Self-understanding	5.46 ± 3.88	6.12 ± 3.73	+0.66	↑ moderate
Creative aspiration	6.94 ± 3.75	7.41 ± 3.66	+0.47	↑ moderate
High need for cognition	6.87 ± 3.82	7.36 ± 3.64	+0.49	↑ moderate
Autonomy	6.92 ± 3.59	6.95 ± 3.60	+0.03	→ stable
Communication flexibility	7.04 ± 3.35	7.10 ± 3.39	+0.06	→ stable
Time orientation	7.36 ± 3.77	7.40 ± 3.74	+0.04	→ stable
Spontaneity	6.82 ± 4.27	6.85 ± 4.34	+0.03	→ minimal shifts

Source: ccompiled by the author

The obtained data confirms that the programme has a targeted impact: the greatest increases were observed in areas related to humanistic values, self-acceptance, and social openness. In turn, temporal orientations, autonomy, and spontaneity remained relatively stable, which can be interpreted as core personality characteristics. Before the intervention, mean values ranged from 5.46 (“Self-understanding”) to 7.36 (“Time orientation”), with the greatest variability observed in “Spontaneity” (SD = 4.27) and the lowest in “Communication flexibility” (SD = 3.35). Medians largely coincided with means, reflecting a symmetrical distribution. Percentile analysis demonstrates considerable individual differences, notably for “High need for cognition” with an interquartile range of only 3.42, whereas “Time orientation” reached 9.48.

After the intervention, increases were observed in key domains: “Values” rose from 7.35 to 8.12, “View of human nature” from 7.34 to 7.99, “Self-compassion” from 6.85 to 7.44, and “Sociability” from 7.18 to 7.7. This indicates strengthened self-acceptance, social openness, and a humanistic orientation. In contrast, “Autonomy” and “Spontaneity” showed only minimal fluctuations, confirming their relative stability. Standard deviations remained within the range of 3.55-4.34, indicating that inter-individual differences persist. In the experimental group, positive dynamics are more pronounced. Mean values of “Values” increased to 8.32, “View of human nature” to 8.02, and “Self-understanding” from 5.34 to 6.12. The lower quartile of

“Self-understanding” rose from 2.34 to 3.16, and “Self-compassion” from 4.11 to 4.73, demonstrating the effect of the programme primarily among participants with the lowest initial scores.

According to the frustration level questionnaire, the mean score in the experimental group decreased from 48.91 to 33.22 points (N = 98; SD = 15.9 → 13.34), corresponding to high statistical significance:  $t(97) = 13.407$ ;  $p < 0.001$ . The correlation between measurements ( $r = 0.699$ ;  $p < 0.001$ ) confirms the reliability of the scale, and the effect size (Cohen’s  $d = 1.354$ ) indicates a strong programme impact on reducing frustration tension. Data from the Rosenzweig Picture-Frustration Test indicate uneven dynamics. The OD indicator (“Obstacle dominance”) decreased from 8.48 to 7.42,  $t(97) = 4.144$ ;  $p < 0.001$ ; Cohen’s  $d = 0.419$ , reflecting a moderate effect. Ego-defensive reactions (ED) remained stable (6.9 → 6.81;  $p = 0.724$ ; Cohen’s  $d = 0.036$ ). Meanwhile, the NP indicator (“Need-oriented persistence”) increased from 5.57 to 7.07,  $t(97) = -4.385$ ;  $p < 0.001$ ; Cohen’s  $d = -0.443$ . Thus, the intervention prompted a shift from a focus on obstacles to enhanced internal motivation and persistence.

The Bass-Darkie methodology indicated no statistically significant changes in most aggression subscales. Physical and verbal aggression, indirect forms, and indices of aggressiveness and hostility remained statistically stable ( $p > 0.05$ ), with effects ranging from minimal to small (Cohen’s  $d$  within  $-0.254 \pm 0.138$ ). This suggests limited programme effectiveness in the

direct modification of aggressive behaviour. Within the SAMOAL questionnaire, the most pronounced increase occurred in the "Values" subscale (7.12 → 8.32;  $t(97) = -2.451$ ;  $p = 0.016$ ; Cohen's  $d = -0.248$ ). Other subscales, including "View of human nature", "High need for cognition", and "Creative aspiration", showed positive, though statistically non-significant, trends. Consequently, the most notable changes occurred in value orientations, whereas the majority of other aspects of self-actualisation remained relatively stable. Overall, the t-test results indicate a significant impact of the programme on reducing frustration and fostering more constructive coping strategies. However, the effect on aggressive behaviour is limited, and the development of personal characteristics is selective, with dominant growth observed in the domain of values.

Correlation and regression analysis demonstrated substantial changes in the structure of relationships between self-actualisation, frustration, and aggressiveness after the implementation of the programme. Before its implementation, the subscale "Time orientation" exhibited a negative association with aggressiveness ( $r = -0.225$ ;  $p = 0.026$ ) and with self-understanding ( $r = -0.297$ ;  $p = 0.003$ ), indicating a reduction in aggressive behaviours among respondents with a stronger temporal perspective and capacity for self-reflection. Meanwhile, "Self-understanding" demonstrated a strong positive correlation with "Sense of guilt" ( $r = 0.536$ ;  $p < 0.001$ ), reflecting a combination of self-criticism and deep self-assessment. Following the programme, the correlation structure underwent changes. The subscale "Values" began to correlate negatively with verbal aggression ( $r = -0.215$ ;  $p = 0.033$ ), while "High need for cognition" correlated negatively with indirect aggression ( $r = -0.239$ ;  $p = 0.018$ ). These findings suggest that strengthening value orientations and cognitive interests reduced the need for external aggressive reactions and promoted the formation of more constructive behavioural strategies. Nevertheless, the close positive link between "Self-understanding" and "Sense of guilt" remained unchanged ( $r = 0.525$ ;  $p < 0.001$ ), confirming the stability of mechanisms of emotional reflection irrespective of the intervention.

The frustration level questionnaire recorded a decrease in the mean score from 48.91 to 33.22 points ( $SD = 15.9 \rightarrow 13.34$ ;  $t(97) = 13.407$ ;  $p < 0.001$ ). The confidence interval for the difference between means was [13.362; 18.005], and the effect size corresponded to a large magnitude (Cohen's  $d = 1.354$ ; Hedges'  $g = 1.349$ ), indicating high reliability of the positive impact of the programme. The Rosenzweig Picture-Frustration Test showed uneven dynamics: the "Obstacle dominance" score decreased from 8.48 to 7.42 ( $t(97) = 4.144$ ;  $p < 0.001$ ;  $d = 0.419$ ), whereas "Ego-defensiveness" remained unchanged ( $6.9 \rightarrow 6.81$ ;  $t(97) = 0.354$ ;  $p = 0.724$ ;  $d = 0.036$ ). The most pronounced change was observed in "Need-oriented persistence", which increased from

5.57 to 7.07 ( $t(97) = -4.385$ ;  $p < 0.001$ ;  $d = -0.443$ ). The observed dynamics indicate a shift from externally oriented reactions (fixation on obstacles) towards more constructive internal strategies for overcoming difficulties.

The Bass-Darkie methodology (adaptation by A. Osnitsky) did not demonstrate statistically significant changes in most subscales. Physical aggression decreased from 1.66 to 1.44 points, but this difference was non-significant ( $t(97) = 1.37$ ;  $p = 0.174$ ). Similar results were observed for verbal aggression (4.98 → 4.92;  $p = 0.593$ ), indirect aggression (4.97 → 4.81;  $p = 0.168$ ), negativism (2.62 → 2.5;  $p = 0.09$ ), and irritability (4.93 → 4.95;  $p = 0.853$ ). Integral indices also remained practically unchanged: aggressiveness decreased from 3.87 to 3.72 ( $p = 0.062$ ), and hostility from 4.48 to 4.47 ( $p = 0.953$ ). The intervention effect according to Cohen's  $d$  ranged from -0.254 to +0.138, corresponding to a small or negligible magnitude of change. Results from the SAMOAL test indicated selective changes. In the "Values" subscale, the mean increased from 7.12 to 8.32 ( $t(97) = -2.451$ ;  $p = 0.016$ ;  $d = -0.248$ ), whereas most other indicators, including autonomy, spontaneity, and communication flexibility, remained statistically unchanged. This confirms that the primary effect of the programme was the reinforcement of participants' value orientations while other components of self-actualisation remained relatively stable. Regression analysis showed limited explanatory power of the models. For "Self-understanding" ( $R^2 = 0.121$ ), the only significant predictor was "Irritability" ( $\beta = 0.237$ ;  $p = 0.021$ ), whereas "Sense of guilt" showed only a trend-level effect ( $\beta = -0.19$ ;  $p = 0.065$ ). For "Self-Sympathy" ( $R^2 = 0.061$ ) and "Creative aspiration" ( $R^2 = 0.086$ ), the models were statistically non-significant ( $p > 0.5$ ). Overall, the programme had a selective but pronounced effect: it substantially reduced frustration levels and diminished fixation on external obstacles, promoted increased persistence and the development of value-based behavioural regulation, whereas the level of aggressiveness remained relatively stable. This indicates a predominant impact of the intervention on the frustration-value sphere of personality while preserving basic patterns of aggressive behaviour.

#### **Comparative experiment on the effectiveness of a programme for overcoming aggression in a frustrated personality**

Observations indicate limited effectiveness of the autonomous format, manifested in a substantial number of clarifying questions arising from high self-criticism and anxiety, characteristic of the study group. Furthermore, a deficit in understanding of personal emotions and behavioural patterns complicates independent assimilation of the material. Group dynamics enabled participants to express emotions openly, practise assertive strategies, and adopt adaptive models of interaction, positively influencing their behaviour and emotional regulation.

During the process, participants' persistent beliefs regarding the exclusively destructive nature of aggression were identified, alongside the perception that its suppression contributes to heightened anxiety and internal conflicts (Gross, 1998). The application of cognitive challenging techniques enabled participants to question their own beliefs, separate them from identity, and develop new, adaptive attitudes towards aggression. Reframing exercises facilitated the transformation of aggression from a destructive force into a resource for self-realisation, enhancement of emotional flexibility, and development of constructive coping strategies. Participants learned to perceive aggression as neutral energy capable of supporting goal attainment and the protection of personal boundaries, contributing to a reduction in frustration levels and the development of more adaptive behavioural patterns.

At the initial stages of the programme, participants demonstrated increased sensitivity to failure and potential errors. This manifested in slowed progress in task completion, observable during the first week of sessions. Behavioural responses fell into two contrasting patterns: some participants began to isolate themselves and avoid activity, demonstrating a tendency towards withdrawal, while others exhibited heightened inquisitiveness combined with aggressive intonations, indicating latent anger. Such ambivalence of reactions is interpreted as a consequence of internal conflict associated with feelings of shame and guilt, which, according to the study, can block cognitive functions and reduce learning effectiveness.

During the implementation of the programme, humour was observed to function as an emotional defence. Participants frequently used jokes, puns, or even sarcastic remarks as a means of tension reduction. This aligns with classical psychoanalytic conceptions of humour as an anxiety-reducing mechanism (Freud), and with contemporary research highlighting its role in social adaptation (Saracoglu, 2019). Humour also served a unifying function, promoting group cohesion and creating an atmosphere conducive to safe emotional exchange. Despite considerable age differences among participants (ranging from 30 to 50 years), responses to humorous interventions were consistently positive, indicating similarity in cognitive and affective patterns. For this reason, the programme incorporated additional humorous elements to reduce tension, overcome age-related stereotypes, and foster an atmosphere of trust and openness.

Another challenge at the implementation stage of the programme was the participants' limited ability to recognise and describe their own emotions. Many experienced difficulties not only in naming emotions, but also in expressing them, with considerable suppression in some cases manifesting as dissociation. Such manifestations align with alexithymia, which impedes access to personal feelings, particularly among

individuals with a history of trauma (Luminet *et al.*, 2024). In response, a module focused on the development of emotional intelligence was incorporated, emphasising the ability to identify, understand, and manage emotional states.

Participants demonstrated difficulty in formulating and verbalising their own needs, reflecting a longstanding strategy of suppression. This deficit in self-knowledge correlates with alexithymia and interoceptive awareness problems (Sifneos, 1973). Aggressive behaviours were often observed to function as indicators of unmet needs, supporting the classical frustration-aggression theory, where aggression emerges as a consequence of goal obstruction. Respondents frequently attempted to satisfy their needs indirectly, through helping others with the expectation of reciprocity. Such strategies rarely yielded results: even when goals were achieved, the level of satisfaction remained low due to a cumulative "basket" of chronically unmet needs. This reinforced the view that learning to identify and articulate personal needs constitutes a fundamental step in reducing aggression. Additional sessions for individual case analysis were organised to support this process, overcoming barriers to self-expression. Within the extended emotional intelligence module, it became evident that a universal approach was insufficient for the heterogeneous group. Respondents refrained from critiquing the methods, but with strengthened group dynamics and a sense of safety, they began to express their needs openly. Repetition of exercises in varied formats facilitated the development of stable skills, integration of knowledge into daily experience, and the overcoming of cognitive barriers.

The gradual establishment of a trusting environment led to increased openness and a willingness among participants to acknowledge their own aggression. Initial avoidance of direct verbalisation was overcome through exercises focused on rewriting emotional triggers, resulting in emotional and cognitive disclosure. Group discussions enabled participants to recognise the universality of their experiences, which, according to I. Yalom & M. Leszcz (2020), constitutes a therapeutic factor in group dynamics. Awareness of shared experience represented a turning point, supporting acceptance of personal aggression as part of normal emotional life and creating conditions for its constructive transformation.

Management of aggression largely depended on participants' capacity to recognise and modify destructive cognitive patterns that provoke frustration and anger. For the target group, formed under conditions of deprivation and rigid social norms, there was a high likelihood of rigid, irrational beliefs that fuelled aggressive responses. Exercises enabled participants to become aware of automatic thoughts, analyse their validity, generate alternative explanations, and reduce tendencies towards catastrophising or impulsive

reactions. Regular application of cognitive strategies facilitated the development of more resilient thinking patterns and a shift from aggressive behaviour towards goal-directed activity.

Difficulties in seeking help were also identified, accompanied by feelings of isolation and mistrust towards others, stemming from prior experiences of emotionally immature relationships. These tendencies were expressed in two patterns: intropunitive, involving self-blame, and extrapunitive, involving the attribution of blame to others. To overcome these barriers, a module on developing skills for seeking support and utilising social resources was integrated, including identification of support networks, training in assertive help-seeking, practice in accepting assistance, and use of informational and social resources.

A limiting factor in the effectiveness of the programme was the participants' high anxiety, manifested in a tendency towards catastrophic predictions and "what if" questioning. Participants learned to structure potential obstacles, evaluate their probability and consequences, and formulate specific action plans according to the principle "if... then...". This approach transformed abstract anxious thoughts into realistic plans, reducing uncertainty and fostering the development of proactive coping strategies.

Work with participants demonstrated a strong need for clear, step-by-step instructions, reflecting low tolerance for uncertainty and a reliance on external guidance. This characteristic likely stems from previous life experiences dominated by dependence on external authorities. In response, an adapted guide, "Strategies for overcoming destructive aggression: Seven methods", was created, integrating cognitive-behavioural techniques, emotional self-regulation methods, and stress management strategies. Practical strategies included identification of triggers and underlying beliefs, application of deep-breathing and counting techniques to regulate physiological arousal, engagement in physical activity as a cathartic mechanism, participation in creative activities for emotional sublimation, development of social communication skills and reliance on social support, and access to professional intervention in cases of chronic aggression. This structured system addressed participants' demand for concrete tools while reducing aggressive impulses through the expansion of behavioural strategy repertoires.

Analysis of group dynamics indicated that some participants, particularly those occupying dominant roles in professional or family contexts, interpret aggression as the sole effective means of influence. This reflects entrenched behavioural scripts in which aggression functions as a means of control and achieving desired outcomes. Such an approach reveals cognitive rigidity and a deficit of constructive communication skills, complicating adaptive emotional regulation. Empirical data on high levels of indirect and verbal aggression

initially prompted the inclusion of empathy-building exercises in the programme; however, further analysis demonstrated that respondents already exhibited high empathy and a tendency towards altruism. They instead displayed difficulty asserting their own needs and excessive self-sacrifice, potentially exacerbating frustration responses. Empathy-focused modules were therefore replaced with components aimed at developing assertiveness, internal motivation, and constructive emotional expression. This adjustment accounted for the specific characteristics of frustrated personalities, for whom aggression manifested not as a lack of compassion but as a result of accumulated frustration and socially internalised behavioural models. Such adaptation enhanced programme effectiveness and channelled participants' aggressive energy towards constructive self-realisation.

During implementation, it was observed that purely cognitive techniques aimed at restructuring thought processes did not produce a sufficient effect. The creation of a safe group environment initially promoted openness, but early stages also elicited latent aggression and internal tension, which manifested indirectly, particularly through sarcasm, sometimes directed at the group facilitator. These behaviours gradually diminished over time. Cognitive-behavioural techniques were generally well received; however, hypnopractices elicited scepticism among some participants. For individuals with high openness to experience and imaginative thinking, these methods proved particularly effective, whereas more critical participants remained distant. Observations confirmed that even elements of group interaction, namely repetition of key phrases, emotional reinforcement, and support, contributed to the reduction of barriers and the emergence of new behavioural patterns. Although the program is designed for independent completion, with additional modules on emotional intelligence to support this, the author's observations indicate that the group format remains more effective, as participants who engaged in collective sessions showed better progress compared to those working individually. Flexible adaptation of the programme, combining cognitive techniques, body-oriented practices, hypnoprocedures, and social support, proved most effective in overcoming destructive aggression and facilitated profound changes in emotional regulation.

## Discussion

Recent studies on frustration and aggression, conducted across diverse theoretical and methodological paradigms, gradually formed a comprehensive understanding of this complex psycho-emotional process. The scientific discourse demonstrated an evolution from classical frustration-aggression models towards integrative concepts incorporating motivational, emotional, cognitive, and social factors. All these approaches

highlight the multifaceted and deeply interconnected nature of emotional processes, motivational structures, and behavioural patterns, which underpin both the emergence and the regulation of aggressive tendencies. A. Kruglanski *et al.* (2023) proposed conceptualising aggression as a means of restoring a sense of significance, extending beyond the standard frustration-aggression model. Findings from the intervention programme support this perspective: high levels of fixation on obstacles and increased verbal aggression were interpreted as manifestations of a compensatory mechanism aimed at preserving subjective significance under conditions of limited resources and chronic stress. Concurrently, reductions in frustration were accompanied by substantial decreases in hostility, indicating a diminished need for aggression as a means of maintaining control. Comparison with the study by N. Din & M. Ahmad (2021) allowed for an explanation of observed dynamics in direct and indirect forms of aggression. The researchers emphasised that the capacity for emotional regulation serves a protective function, mitigating the impact of frustration on aggressive behaviour. Techniques applied in the programme, including mindfulness, breathing exercises, and body-oriented methods, created conditions for constructive emotional processing, thereby reducing the intensity of verbal and physical aggression. Indirect forms were partially retained, aligning with the notion of transforming aggressive energy into socially acceptable modes of expression.

Results also correspond with the findings of J. Dugré & S. Potvin (2023), who identified specific patterns of neural activation in the transition from frustration to aggression. The observed reduction in impulsive aggressive behaviours following programme participation can be interpreted as evidence that systematic application of cognitive-behavioural and emotion-focused techniques facilitates restructuring of cognitive appraisals, thereby reducing activation of mechanisms associated with uncontrolled affective responses. This suggests that the intervention impacts not only behavioural outcomes but also neuropsychological processes, promoting more stable patterns of responding to frustrating stimuli. M. Ellenberg *et al.* (2025) emphasised that aggressive behaviour arises not automatically in response to frustration, but only when the threat affects the individual's need for significance. In comparison with these findings, results from the aggression management programme indicate that cognitive reorientation and group dynamics reduce not only the intensity of frustration responses but also the need to compensate through aggression. Reductions in aggression occur even when participants' sense of significance remains under threat, indicating the possibility of learning alternative methods for restoring self-worth without resorting to aggressive behaviour. Therefore,

the findings extend the propositions of the Significance-Seeking Theory, demonstrating that systematic work on cognitive and emotional patterns diminishes the role of aggression as a tool for self-affirmation.

The study by C. Lagios *et al.* (2025) demonstrated the complexity of displaced aggression and its high relevance across various domains. The researchers concluded that mechanisms underlying this phenomenon remain insufficiently defined and proposed an integrated framework for its explanation. In comparison with these conclusions, results from the aggression management programme indicate that correction of cognitive attitudes and the development of emotional regulation skills reduce the likelihood of aggression being displaced onto secondary targets. Decreases in hostility and irritability among participants confirm that training in constructive response strategies under conditions of frustration mitigates the risk of redirecting negative emotions. The findings refine the propositions of C. Lagios *et al.*, demonstrating that targeted interventions could serve as an effective means of preventing displaced aggression in real-life interpersonal and professional contexts. In the dissertation by H. Yazdi (2025), frustration was conceptualised as a multidimensional phenomenon arising in response to various types of obstacles and manifesting through emotional, cognitive, and behavioural reactions. Several categories of triggers and affective dimensions were distinguished, alongside a typology of individual susceptibility to frustration. In alignment with these positions, results from the aggression management programme confirm that reductions in personal frustration were accompanied by qualitative changes in cognitive response strategies. Positive dynamics observed in the Rosenzweig test, reflected in an increased orientation toward solution-seeking rather than barrier-focused thinking, illustrate the practical application of H. Yazdi's ideas on the multidimensionality of this phenomenon. Correlational links identified between frustration and aggression emphasise that interventions targeting cognitive attitudes could reduce not only the subjective perception of obstacles but also the aggressive tendencies typically arising from them.

The study by K. Bertsch *et al.* (2021) established that anger, rather than other emotions, mediates the relationship between frustration and aggressive behaviour in women with borderline personality disorder. Comparison with results from the aggression management programme confirms the central role of anger in the development of aggressive responses, while demonstrating that its intensity could be regulated through targeted psychotherapeutic interventions. Reductions in verbal aggression and hostility, closely associated with overall decreases in frustration levels ( $r = 0.62$ ;  $r = -0.54$ ), indicate that control over the emotional sphere facilitates a decrease in aggressive tendencies. These results therefore refine the conclusions of K. Bertsch *et*

al., demonstrating the effectiveness of structured programmes in mitigating the role of anger as a principal mediator between frustration and aggression.

Comparative analysis allows for the generalisation that no single concept could fully explain the mechanisms linking frustration and aggression. Integration of findings from various approaches, however, enabled the outlining of prospects for the creation of comprehensive programmes for the prevention and correction of aggressive behaviour, incorporating cognitive strategies, emotional mediators, social support, and individual differences. A shared conclusion highlights the necessity of multi-level interventions combining cognitive-behavioural techniques, development of emotional self-regulation, use of group dynamics, and development of constructive motivational orientations. Collectively, these studies point towards greater individualisation of intervention programmes, extension of their duration, and integration of interdisciplinary approaches, opening new possibilities for the effective reduction of aggressive behaviours and the harmonisation of the psycho-emotional state of the individual.

### Conclusions

The study demonstrated that the aggression management programme was largely effective, while also highlighting certain strengths and limitations in its outcomes. In particular, the importance of flexible integration of cognitive and affective techniques was confirmed, alongside the role of group dynamics as a factor facilitating deep transformation of behavioural and emotional patterns. Social interaction and support from fellow participants created conditions for vulnerability, acceptance of one's own feelings, and overcoming defensive mechanisms that impede change. Empirical data confirmed the effectiveness of the programme. Results from the frustration level questionnaire showed a reduction in the mean score from 48.45 to 37.63, and a median decrease from 50 to 38 (N = 158). A reduction in score dispersion, evidenced by a narrowing of the standard deviation from 16.67 to 15.21, along with changes in percentiles (the 25<sup>th</sup> percentile decreased from 36 to 25, the 75<sup>th</sup> from 63 to 48), indicated an overall reduction in personal frustration levels among the majority of respondents. Positive dynamics were also observed in the Rosenzweig test: participants focused less on barriers and more on seeking solutions and achieving goals, demonstrating increased adaptability in frustrating situations.

It was further identified that aggression levels measured by the Buss-Durkee Inventory decreased

not only in direct expressions (verbal and physical aggression) but also in indirect forms, such as irritability and hostility. Correlational analysis established a strong association between reductions in frustration and decreases in verbal aggression ( $r = 0.62$ ,  $p < 0.01$ ), as well as between increased solution-orientation and reduced hostility ( $r = -0.54$ ,  $p < 0.05$ ). These findings indicate that modification of cognitive strategies in frustrating situations directly influences qualitative reductions in aggressive behaviours. Participants with higher initial levels of emotional instability exhibited the most pronounced changes, highlighting the importance of the programme for populations at high risk of aggressive tendencies.

An additional factor contributing to the success of the programme was the integration of emotional release techniques, including body-oriented practices and hypnotherapy, which allowed participants to process aggressive experiences cognitively, emotionally, and subconsciously. Although reception of these practices varied, their effectiveness was particularly notable for participants with high openness to experience and a propensity for imaginative thinking. This emphasises the necessity of individualising programmes and accounting for respondents' cognitive styles. Consequently, the outcomes of the programme confirm that overcoming aggressive tendencies requires a comprehensive approach combining cognitive-behavioural methods, emotional processing, cathartic techniques, and structured social interaction. Limitations of the study include group heterogeneity and the relatively short duration of the intervention, which did not allow for observation of long-term effects. Further programme development should involve extending its duration, expanding the emotional self-regulation module, and utilising extended group formats, thereby promoting deeper and more enduring restructuring of personal and behavioural patterns. Collectively, these factors support consideration of the programme as a promising tool in the field of psychological prevention and correction of aggressive behaviour.

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### Conflict of Interest

None.

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## Теоретико-методологічні підходи до корекції агресивної поведінки у дорослих з фрустраційними проявами

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**Анотація.** Метою дослідження було виявити ефективність комплексної програми психологічної корекції агресивної поведінки у дорослих із вираженими фрустраційними проявами. Для цього застосовувалися психодіагностичні методики (авторський опитувальник рівня фрустрації, тест Rosenzweig, методика Buss-Durkey, самоактуалізаційний профіль особистості), за допомогою яких досліджували взаємозв'язки між рівнями фрустрації, агресії та самоактуалізації, а також оцінювали динаміку змін після корекційної програми. Результати показали значне зниження рівня особистісної фрустрації, що підтверджувалося зменшенням середніх значень, медіани та перцентилів. За тестом Rosenzweig спостерігався перехід від орієнтації на бар'єри до пошуку рішень, що свідчило про підвищення адаптивності у фрустраційних ситуаціях. Було зафіксоване зниження як прямих, так і непрямих форм агресії за методикою Buss-Durkey, включаючи дратівливість та ворожість. Кореляційний аналіз засвідчив тісний зв'язок між зменшенням фрустрації та зниженням вербальної агресії, а також між зростанням орієнтації на вирішення проблем і зменшенням ворожості. Найбільші позитивні зміни спостерігалися у респондентів із високим рівнем емоційної нестабільності на початку програми. Додаткову ефективність забезпечила інтеграція емоційно-тілесних і катартичних технік, які сприяли більш глибокому опрацюванню агресивних переживань. Груповий формат відіграв визначальну роль, оскільки саме підтримка й досвід інших учасників дозволили активізувати процес усвідомлення власних патернів поведінки. Узагальнюючи, було підтверджено, що програма корекції поєднувала когнітивні, емоційні та соціальні компоненти й виявилася ефективною для зниження рівня фрустрації та агресії. Практичне значення полягає у можливості використання розробленої програми як інструменту профілактики та корекції агресивної поведінки у дорослих у системі психологічної допомоги

**Ключові слова:** самоконтроль; когнітивно-емоційний підхід; дратівливість; емоційна саморегуляція; групова динаміка; корекційна програма

## Primary autosensory experience and the aesthetic stage of personality development: From sensory mirroring error to the formation of dependent behaviour

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**Abstract.** In neurobiology and psychoanalysis, there is a growing interest in the role of the thalamus and sensory systems in early development and in the emergence of dependent behaviour. Disturbances in thalamocortical pathways during the first months of life may determine subsequent emotional and cognitive regulation. This meta-study explored the influence of sensory harmonisation and thalamocortical functioning on the early development of the child and on the appearance of dependency patterns, emphasising the importance of identifying sensory disturbances and preventing them in later life. A systematic theoretical analysis of scientific publications from 2016-2025 was conducted, encompassing data from neurobiological research, clinical observations, and psychoanalytic concepts of development. The analysis focused on comparing findings related to thalamic functions, primary reflexes, and maternal-infant sensory adaptation. It was found that disturbances in maternal sensory attunement to the infant's needs hinder the integration of primary reflexes and obstruct the development of vertical regulatory control. The results demonstrated that immature thalamocortical pathways render the infant vulnerable to fragmented sensory signals. Early dysfunctions were shown to contribute to compensatory dependency in adulthood. A new concept of the aesthetic stage of development was formulated, replacing the classical notion of the narcissistic stage by providing a more precise description of the sensory and affective dynamics of the first months of life. An explanatory model was also proposed, linking early sensory mismatches to the formation of dependency patterns. The findings may be applied by psychologists and psychotherapists in the design of early intervention and prevention programmes for dependent behaviour

**Keywords:** maternal-infant synchronisation; thalamus; primary reflexes; top-down control; dependency patterns

### Introduction

In psychoanalysis, personality is viewed as a carrier of unconscious experience, the perception of which is formed from early childhood and is associated with the degree of attachment to the mother. Awareness of this influence enables the transformation, not only of one's self-attitude, but also of the quality of social relationships. Disturbances in the functioning of thalamocortical pathways during the early stages of development can have long-term consequences. On the neurobiological level, these are manifested in the fragmentation of sensory experience, while on the psychological level they lead to disruptions in self-perception and emotional regulation. Research on primary reflexes

demonstrates that their integration is closely linked to maternal sensitivity to the infant's signals and the quality of feedback within the interaction. When maternal sensory tuning to the child is impaired, the infant's natural reflexes fail to receive the necessary confirmation and thus are not integrated into higher regulatory systems, leaving the thalamocortical pathways immature.

As noted by G. Sydykova & E. Rybyanova (2022), the bodily self is formed through emotional experience; when affective signals are not integrated, bodily awareness becomes distorted. This reflects the earliest, infantile experiences related to the perception of one's own body and the body of the mother. When disturbances

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occur in infancy or early childhood and are linked to premature bodily separation from the mother; this results in a catastrophically distorted perception of bodily experience, producing a secondary trauma. The first months of life constitute a unique period in which sensory and neural connections are formed that determine subsequent emotional and cognitive development. During this time, the foundations of the attachment system are laid, and the interaction within the mother-child dyad becomes a key factor in creating a sense of safety and perceptual coherence of the world. Neuroscientific studies emphasise that the thalamus plays not only the role of a relay of sensory signals, but also actively participates in their integration and regulation, thereby establishing the prerequisites for the formation of top-down control and higher cognitive functions (Likhitska & Starovoyt, 2024; Kantarova, 2025).

Sensory prediction error influences the development of dependent behaviour and the regulation of emotional states. Y. Deng *et al.* (2023) concluded that prediction-error signals are involved, not only in learning and motivational processes, but also play a crucial role in the pathogenesis of addiction. Such errors affect behavioural adaptation, as they are related to the brain's adjustment of individual actions according to environmental changes. The process is implemented through the engagement of the orbitofrontal cortex, amygdala, and lateral habenular nucleus. At the same time, F.M. LoFaro *et al.* (2025) demonstrated that individuals with chronic cocaine dependence show diminished neural encoding of sensory prediction error in the ventral striatum and orbitofrontal cortex. The authors noted that this disturbance undermines the brain's ability to evaluate adequately behavioural consequences, and results in a loss of control over actions. The results of a meta-analysis conducted by E. Kennedy *et al.* (2024) revealed that people with substance-use disorders exhibit impairments in the cortico-striato-thalamo-cortical network. In particular, reduced thalamic connectivity was observed with the dorsal anterior cingulate cortex, superior frontal gyrus, and caudate nucleus. These findings support the hypothesis that the thalamus functions as a central hub in the regulation of behavioural and motivational processes.

The first months of an infant's life are thus decisive for the development of the sensory system and for the establishment of top-down regulatory mechanisms. This mechanism allows the cerebral cortex to regulate subcortical structures, ensuring conscious control and the inhibition of automatic reflexes (Gulko & Popovych, 2022). However, disruptions in sensory processing – both exteroceptive (filtering of external stimuli) and interoceptive (perception of internal bodily signals) – form not only the basis of psychopathology, but also a transdiagnostic vulnerability, which underlies the emergence of dependent behavioural patterns (Naydonova *et al.*, 2024). Based on the theoretical

analysis of scientific data, it was established that disturbances in maternal sensory attunement to the infant during the first three months of life lead to the non-integration of innate primary reflexes and the formation of immature thalamocortical pathways. This impedes the development of top-down control and results in the fragmentation of the infant's sensory experience. Subsequently, such early sensory disturbances become the foundation for the formation of dependent behavioural patterns in adulthood, which perform a compensatory function – the stabilisation of unstable sensory and emotional signals.

The analysed publications in psychology and neuroscience describe individual aspects of these processes, examining emotional regulation within the dyad, the role of sensory integration in development, and behavioural addictions in adulthood. However, there remains a lack of an integrative conceptual model that would connect early sensory disturbances with the later emergence of dependent behaviour. These gaps in scientific understanding highlight the need to synthesise existing findings and develop a new approach that integrates neurobiological, clinical, and psychoanalytic perspectives on development. The aim of this study was to determine the role of thalamocortical dysfunction and sensory attunement in the formation of dependent behaviour, as well as to underline the importance of identifying sensory disturbances for the prevention of addictive disorders in the future. To achieve this aim, the following objectives were defined: to analyse current data on the functions of the thalamus and its role in sensory integration; to examine the characteristics of sensory attunement in the mother-infant interaction and the consequences of its disruption; and to identify the relationship between immature primary reflexes, underdeveloped thalamocortical pathways, and the formation of dependent behavioural patterns in adulthood.

## Materials and Methods

The article has a theoretical character; therefore, the methodology was based on the systemic analysis and integration of contemporary concepts, the comparison of empirical results, and the formulation of a new developmental model – the concept of the aesthetic stage. The theoretical framework of this study was grounded in classical psychoanalytic theories, contemporary neuroscientific findings, and the concept of sensory resonance. This created the prerequisites for a new understanding of dependent behaviour as a consequence of early sensory integration disturbances. Initially, a literature search was conducted in the Scopus, PubMed, and Google Scholar databases using key terms related to sensory development, brain rhythmic activity, primary reflexes, and the formation of top-down control. Special attention was given to studies describing the influence of sensory interaction between mother and infant during the first three months of life. During the selection

process, attention was paid not only to the thematic focus of publications, but also to the characteristics of the articles. Priority was given to papers published predominantly within the last five years (some within the last nine years) and cited in other studies, which confirmed their credibility and relevance. The content analysis method was also applied to ensure the inclusion of works representing diverse geographic origins of the authors. The sample consisted of scientific papers and conference materials published in both Ukrainian and English. During the analysis, the scientometric indicators of the journals were considered, excluding publications from journals removed from indexing databases. The process of literature analysis included the comparison of existing concepts and approaches, which facilitated their systematisation and further presentation in the results section. The findings were obtained through comparative analysis and deductive generalisation, which contributed to forming the study's conclusions based on the analysed works.

The analysis and construction of the theoretical model were implemented primarily on the basis of core scientific articles reflecting the relevance of the research. The theoretical model was developed through a deductive approach, implying the generalisation of information from the general to the specific. This method enabled the identification of key concepts and the establishment of relationships between them. The validation of the relevance of these studies was linked to the prevalence of the hypotheses derived from them and their application in subsequent works. To construct a theoretical model of sensory resonance in the mother-child dyad, a systematic analysis of modern neuroscientific data concerning top-down regulation, thalamocortical connectivity, and the extinction of automatic reflexes was carried out (Leong *et al.*, 2017; Zagoory-Sharon *et al.*, 2024). To support the proposed hypothesis, additional data were considered from the analysis of maternal and adolescent reactions in a postural asymmetry test, which revealed correlations between the optic tubercles and confirmed the hypothesis concerning the critical role of the thalamus in the formation of intergenerational regulation from early infancy to adolescence (Grygorieva, 2021). As the basis for sensory synchronisation between mother and child – a factor influencing subsequent linguistic and cognitive development – the study by X. Bi *et al.* (2023) was adopted. This aligns with the concept that disruptions in such synchronisation lead to sensory perception errors, where the child's signals are either unrecognised or distortedly integrated. In the study of neonatal automatic reflexes, it was taken into account that during the early developmental period, there is intensive maturation of thalamocortical connections, which ensure the integration of sensory signals and the gradual transition from automatic, unconditional reflexes to voluntary movements and complex

behavioural patterns (Nielsen *et al.*, 2023). When analysing published sources, special consideration was given to studies of top-down modulation of sensory perception in infants (Xiao *et al.*, 2024). The focus on this aspect allowed for understanding the brain's capacity to regulate and filter sensory stimuli according to context, thereby supporting its subsequent harmonious development. Final conclusions and the establishment of the working hypothesis were made possible through the analysis of thalamocortical connectivity in dependent behaviour (Lor *et al.*, 2023). Thus, the combined use of content analysis, comparative analysis, and deductive generalisation in the study of theoretical materials made it possible to formulate the main hypothesis of the research. The hypothesis was derived from the understanding of infant behavioural models and their manifestation in adulthood. Accordingly, the formulation of the hypothesis became possible through the substantiation of theoretical and empirical data regarding stages of personality development.

To determine the relevance and validity of the analysed theoretical studies, the method of critical evaluation of scientific sources was applied. The relevance of the literature sources was linked to the consistency of the information with methodological studies that formed the basis of the theoretical model. The year of publication, citation rate, and the logical structure of the argumentation were considered. An evaluation scale was introduced to assess the level of relevance and validity along a range from 1 to 5, where 5 indicated the highest level. The relationship between the relevance and validity of the selected materials was determined through the calculation of the Spearman's rank correlation coefficient (Akbash *et al.*, 2022). This coefficient is a non-parametric statistical indicator, calculated on the basis of ordinal variables under conditions of non-normal data distribution.

$$\rho = 1 - \frac{6\sum d^2}{n(n^2-1)}, \quad (1)$$

where  $d$  denotes the difference between the ranks of the studied criteria, and  $n$  is the number of paired observations.

The interpretation of Spearman's coefficient assumed a strong correlation at calculated values from 0.7 to 1.0, a moderate correlation from 0.33 to 0.69, and a weak correlation below 0.33. A positive coefficient indicated a direct relationship, whereas a negative coefficient indicated a monotonic relationship associated with an increase in one variable's rank over another.

## Results and Discussion

During the first three months of life, the brain develops key sensory-regulatory circuits, reflecting the rapid maturation of the central nervous system caused by automatic responses to environmental stimuli. The analysis of primary reflexes provides insights into the

level of early child development. Therefore, a theoretical review of the literature was conducted to identify

features of early reflex development. The most substantiated and relevant studies were selected (Table 1).

**Table 1.** Analysis of published studies on the features of primary reflex development in infants

Literature source	Relevance (A)	Validity (B)	Rank A	Rank B	d	d <sup>2</sup>	$\rho$
H. Toulmin <i>et al.</i> (2021)	5	4.0	4	2	2	4	0.6
V. Leong <i>et al.</i> (2017)	3.5	3.5	2	2	0	0	
M. Cacciatore <i>et al.</i> (2025)	4.0	4.5	2	3	-1	1	
L. Wang <i>et al.</i> (2025)	3.0	4.5	1	3	-2	4	
S. Furutachi <i>et al.</i> (2024)	3.5	5.0	2	4	-2	4	
J. Lassen <i>et al.</i> (2022)	4.5	4.0	3	2	1	1	

**Source:** developed by the author based on the cited studies and the calculated Spearman coefficient

The analysis of scientific publications revealed that the study by H. Toulmin *et al.* (2021) is among the most relevant. The authors noted that during the first three months of life, primary reflexes (Moro, sucking, grasping) should gradually integrate under top-down control and fade under the influence of sensory experience and emotional attunement within mother-infant interaction. The study also indicated that the development of motor function in infants is directly related to the connection between the premotor associative cortex and the thalamus, while cognitive function depends on the link between the primary sensorimotor cortex and the thalamus. The findings of J. Lassen *et al.* (2022) were also found to be highly relevant, demonstrating that sensory disturbances may occur at the subcortical level, long before higher cognitive processes are engaged. This suggests that primary errors in sensory attunement lay the foundation for subsequent emotional and behavioural dysregulation. From a developmental psychology perspective, this reveals a mechanism by which non-integrated neonatal reflexes may persist as sensory-driven subcortical-thalamic patterns, unconsciously fuelling compensatory behavioural tendencies until stable cortical control and co-regulation with the caregiver are established.

The study of M. Cacciatore *et al.* (2025), focusing on the relationship between the thalamus and consciousness, was also deemed significant. The researchers stated that non-specific thalamic nuclei modulate conscious experience through the regulation of synchronisation within thalamocortical loops, highlighting the central role of the thalamus in awareness. The thalamus directly influences the formation of conscious experience by reducing redundant information for processing and by shaping coherent information flow. Through convergent cortico-thalamic projections, the reduction of information load contributes to the normalisation of neural activity. The results of V. Leong *et al.* (2017) were of nearly equal relevance and validity. Using EEG hyper-scanning, the authors found that eye contact between infant and adult triggers phase synchronisation in the beta band, accompanied by increased activation

in the thalamus. This coordination of neural activity between two individuals confirms the role of early communication in supporting developmental synchrony. The study by L. Wang *et al.* (2025) on pain sensitivity in embryos and preterm infants indicated that thalamic projections to the subplate form earlier than to the cortical plate, and these early pathways may be functionally active prior to the full establishment of cortical connections. This implies that reflexive responses may be amplified or preserved through subcortical or transitional structures when cortical control is incomplete or impaired due to functional deficiency or stress conditions. S. Furutachi *et al.* (2024) demonstrated that the thalamus is not limited to its traditional role as a relay of sensory signals to the cortex, but is actively involved in generating prediction-error signals that inform the brain about unexpected or contradictory stimuli. The authors identified a cooperative thalamocortical loop enabling the nervous system to monitor unpredictable events and adjust adaptive responses accordingly. Their research emphasised perceptual prediction errors, rather than the stable formation of sensory representations. The comparison of relevance and validity indices using Spearman's coefficient ( $\rho = 0.6$ ) revealed a moderate correlation between the parameters, confirming that the relevance of research increases in proportion to its empirical substantiation.

Thus, when the "mother-infant" interaction produces sensory perception errors, in which the infant's signals are not recognised or mirrored – for instance, when the mother imposes her own rhythms – the infant's brain receives contradictory information. This creates a sensory perception error, where internal signals are not confirmed by external responses. From the standpoint of predictive neuroscience, such a situation leads to mis-calibration of the thalamocortical system. It can therefore be assumed that, in the future, this establishes a predisposition to dependent behaviour, as external stimuli become perceived as the only way to restore internal harmony. When sensory perception error occurs, cortical inhibition may be delayed, and reflex patterns persist, varying at the level of the

brainstem. These are associated with central pattern generators responsible for swallowing, sucking, and breathing, until cortical integration matures. For example, if the infant is ready for feeding but is instead put to sleep, the rooting and sucking reflexes remain “tense” and unintegrated. Conversely, if the infant is tired and needs sleep, but is stimulated to remain active, the Moro reflex remains hyper-reactive. When the mother is unable to perceive or interpret the infant’s reflexes, the child must adapt to her emotional state and schedule. In this way, the infant becomes a reflection of the mother’s capacity for resonance with others. The absence of resonance with the external world often indicates the lack of internal resonance within the mother herself. In such circumstances, the mother’s attention is directed not to the child’s authentic needs, but to the mechanical fulfilment of caregiving functions. These dynamic forms a narcissistic risk for the infant: the child begins to perceive the self as the centre of attention, which

later complicates the capacity to build reciprocal relationships. Consequently, the child may internalise a pattern of excessive responsibility for others, which inhibits the development of autonomy and flexible interpersonal connections. At the same time, maternal stress can reduce synchronisation between the mother’s and infant’s brains, disrupting emotional resonance. The concept of emotional availability emphasises the mother’s ability to remain open to the child’s affective states, while high contextual stress demonstrates a negative impact on maternal sensitivity. The study also examined the delay in top-down control, a process in which the maturation of the cortex and thalamocortical pathways leads to the gradual suppression and integration of reflexes under the influence of sensory experience and emotional attunement in mother–infant interaction. The analysis aimed to elucidate the causes of cognitive impairments, mechanisms of consciousness formation, and attention regulation (Table 2).

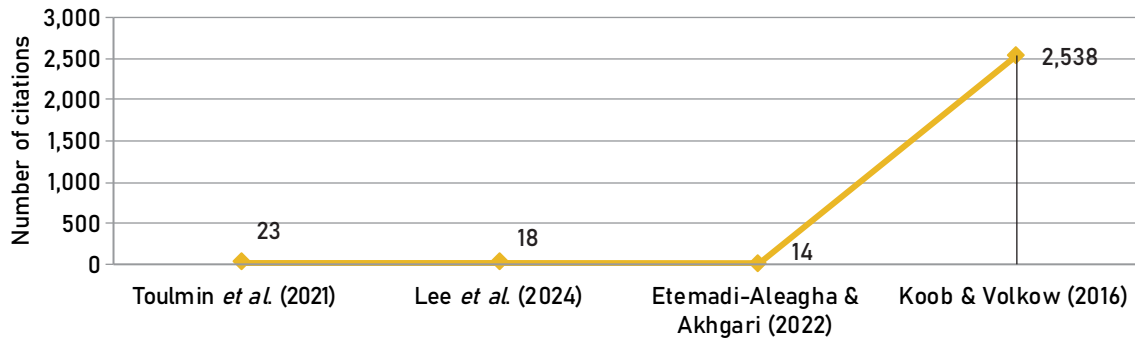
**Table 1.** Relevance and validity of materials according to the analysis of cognitive impairment causes

Literature source	Relevance of materials	Validity of materials	Mean score
G. Leisman & R. Melillo (2022)	4.0	4.0	4.0
M.M. Halassa & S. Kastner (2017)	5.0	4.5	4.75
G.F. Koob & N.D. Volkow (2016)	4.0	5.0	4.5
B.J. Everitt & T.W. Robbins (2016)	4.5	4.5	4.5

**Source:** developed by the author based on the cited studies

During the maturation of the cortex and thalamocortical pathways, a gradual “inhibition” and integration of reflexes occur under the influence of sensory experience and emotional attunement within the mother–infant or caregiver interaction. However, an error in sensory integration may act as a factor delaying the development of top-down regulation, which is responsible for suppressing primary neonatal reflexes. These networks are established at the end of the intra-uterine period and are subject to significant sensitivity to perinatal factors. Delays or instability within these connections may lead to the failure of cortical inhibition of primary reflexes, resulting in their prolonged persistence or weakening due to functional exhaustion, even in the absence of organic brain damage (Leisman & Melillo, 2022). Consequently, the gradual transition from automatic reactions to voluntary control may inhibit cortical development. This leads to the retention of reflexive patterns within subcortical–thalamic networks and to the formation of unconscious behavioural schemas, which may subsequently manifest as dependent or dysfunctional modes of interaction. Later, erroneous prioritisation of stimuli, the development of self-stimulating sensory patterns, impulsivity, and, during adolescence, heightened expectations of “superstimuli” with an increased risk of addictive behaviour, may emerge.

M.M. Halassa & S. Kastner (2017) developed a concept suggesting that individuals with impaired sensory regulation exhibit an inability to distinguish clearly between internally significant signals and external stimuli. This creates a predisposition toward seeking excessively strong stimuli such as alcohol, psychoactive substances, or behavioural addictions. In line with contemporary approaches to the understanding of addiction, G.F. Koob & N.D. Volkow (2016) emphasised three core disturbances: an imbalance between reward and stress systems, a shift from goal-directed to habitual behaviour, and a deficit in executive control. Disruption of thalamocortical connectivity leads to a prioritisation of anticipated “superstimuli” in cognitive processing, whereas natural sensory stimuli are disregarded. According to B.J. Everitt & T.W. Robbins (2016), the gradual shift of behaviour toward automatic habitual actions results from the activation of the dorsal striatum, where cortical control diminishes and subcortical mechanisms dominate. This is associated with impaired descending prefrontal inhibitory control, influencing behavioural regulation. A subsequent analysis of published studies on the thalamus contributes to a more detailed understanding of its functions and its role in consciousness regulation. This process supports a critical review of existing information and the identification of inconsistencies among research findings (Fig. 1).



**Figure 1.** Comparative analysis of citation rates in studies examining thalamic features

**Source:** developed by the author based on the cited studies

The most frequently cited study is that of G.F. Koob & N.D. Volkow (2016), which is associated with the exploration of extended aspects of thalamic functioning. In the context of addictive behaviour, the authors note that deficits in prefrontal control combine with hyperactivity of the reward system and the amygdala, creating a positive feedback loop that reinforces habitual responses and facilitates relapse. Thus, both in infants and in adults, the weakness of “top-down” inhibition over “lower” sensory and subcortical levels results in behaviour being driven by unconscious impulses or habits, rather than by conscious choice. This study reflects important conceptual contributions as it addresses the thalamus in relation to executive function, emotional dysregulation, and motivational systems, integrating findings from neurochemistry, neurophysiology, and psychology. The study by H. Toulmin *et al.* (2021) is also substantially cited. The authors state that, under normal conditions, the fading of neonatal reflexes occurs through the maturation of cortical inhibition mediated by the thalamus and cortico-spinal tracts. A delay in this process does not necessarily indicate organic pathology, but may suggest an underdeveloped network-level control mechanism. The researchers further note that early thalamic projections form a “sensory framework” for the processing of cortical inputs. Their findings showed that thalamus–cortex connectivity in preterm infants is associated with the synthesis between the thalamus and cortical areas, supporting both cognitive and motor development during the first two years of life. However, the established correlation demonstrated that the thalamus is particularly vulnerable to congenital developmental impairments.

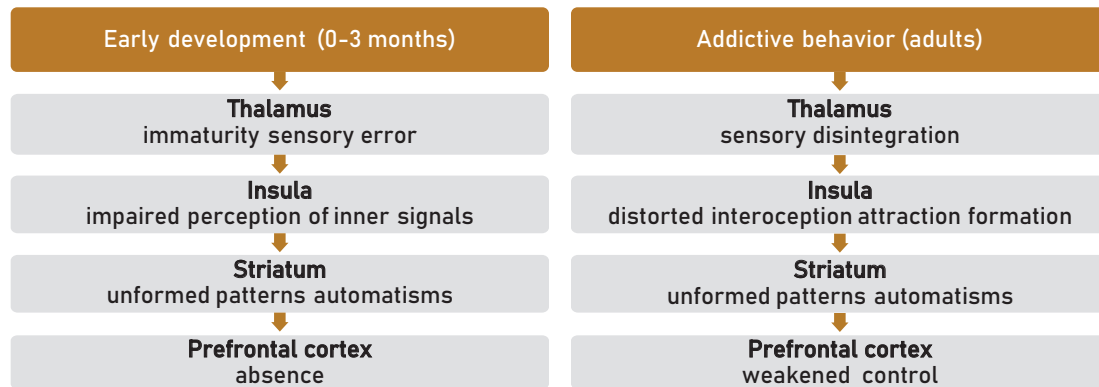
In infants, immature thalamocortical connections are associated with instability of states and reflexive responses. In the study on addictive behaviour by K. Lee *et al.* (2018), disruptions within thalamocortical and salience networks were found to shift attention toward triggers, intensify craving, and reduce awareness. Thus, errors in motor adaptation may occur through mismatches between expected and actual outcomes. The analogy lies in the fact that when sensory salience is skewed, infants develop increased “inquisitive”

reflexivity – such as sucking or grasping as basic sensory reactions – whereas in adults this transforms into craving for a substance or stimulus that becomes the dominant source of regulation. The study by A. Etemadi-Aleagha & M. Akhgari (2022) is the least cited, which is related to its specific focus on analysing developmental responses in children of mothers who used narcotic substances during pregnancy. Substance abuse by pregnant women may result in neurological impairments in their offspring, including attentional difficulties, hyperactivity, and autism spectrum disorders. These findings make it possible to conceptualise addictive behaviour not merely as a disorder of motivation or stress regulation, but as a disruption of fundamental sensory and motor circuits that originate in early childhood. This perspective provides a foundation for a new understanding of addiction as a phenomenon rooted in the early stages of brain development and sensory interaction (Fig. 2).

Thus, both in infants and adults with addictive behaviour, a shared neurobiological principle can be observed. When cortical control mechanisms fail to integrate subcortical impulses, behaviour becomes automatised and resistant to change. This allows addiction to be viewed not only as a disorder of motivation, but also as a disruption of the fundamental sensory and motor circuits established during early development. The human sensory system is in constant dynamic balance between the stream of external stimuli and the internal cognitive models that generate expectations. In this context, two distinct yet interrelated phenomena can be identified: the sensory perception error and the sensory prediction error. According to R.T. Born & H. Bencomo (2021), a sensory perception error arises when a sensory signal is distorted or misinterpreted at early stages of processing – from peripheral receptors to the primary sensory cortex. Perception occurs through the integration of bottom-up sensory data with top-down priors. Their study notes that suppression of sensory data by overly dominant priors leads to perceptual distortion. A sensory prediction error, as described by B. Millidge *et al.* (2021), emerges when the actual sensory input does not match the prediction generated by the brain. The mechanism implies that the nervous system

continuously updates its internal models by comparing incoming information with expected patterns.

Evidence shows that, within the visual system, such comparison takes place in thalamocortical circuits.



**Figure 1.** Model of the formation of addictive behaviour in children and adults under the influence of early sensory disturbances

**Source:** developed by the author based on studies by G.F. Koob & N.D. Volkow (2016), V. Leong *et al.* (2017), H. Toulmin *et al.* (2021), A. Etemadi-Aleagha & M. Akhgari (2022), J. Lassen *et al.* (2022), S. Furutachi *et al.* (2024), L. Wang *et al.* (2025), M. Cacciatore *et al.* (2025)

An imbalance between these two mechanisms is observed in a range of psychopathological conditions – from post-traumatic stress disorder (PTSD) and dissociative phenomena, to psychoses and sensory deprivation. This imbalance increases the risk of developing attention-deficit hyperactivity disorder (ADHD) and addictive behaviours. During the first three to four months of life, the central nervous system does not yet provide full sensory integration, functioning primarily through unconditioned reflexes. This layer becomes the foundation for later bodily connections and intra-psychic experience. However, when a child receives contradictory information and their internal sensations are not confirmed by external responses, a sensory perception error arises. Over time, such an error leads the child to distrust internal signals, orienting instead toward external cues and losing connection with the body and authentic needs. In adolescence and adulthood, such individuals frequently seek external sources of regulation – alcohol, drugs, gambling, or dependent relationships.

Patients with disrupted sensory connections often express their experiences through bodily sensations and somatisation, rather than through emotions. Sensory and bodily experiences are linked to the fundamental right of bodily ownership. Within such an interactional model, the body remains detached or dissociated from the self from the earliest stages of life. With the first occurrence of sensory dissonance, the body begins to be perceived as alien – as an “other” beside the self – because the child becomes attuned to the mother’s desires. Loss or distortion of bodily perception may lead to depression, when the body, deprived of its voice, ceases to serve as a guide for emotions, leaving the child in an inner void where not maternal,

but one’s own feelings become estranged. The brain continues to receive undifferentiated predictions from the body even when its early sensory signals were ignored by the mother. Thus, the child fulfils the mother’s need to find herself, serving as the mirror that the mother lacked in her own childhood. Such sensory deficits form the basis for anxiety and the inability to live through one’s own sensations and emotions, thereby impeding the prediction of one’s personal future.

In the psychoanalytic tradition, Sigmund Freud proposed that the initial stage of a child’s development be designated as primary narcissism. Within this framework, primary narcissism is described as a natural developmental stage of infancy characterised by sensory self-focus and auto-affective experience. At this stage, the infant is centred on bodily sensations – warmth, touch, sucking – without yet differentiating between the self and the other. This is not a pathology, but a necessary foundation for the later formation of self-regulation and the capacity for empathy, as Freud noted (Ross *et al.*, 2024). However, in contemporary scientific and everyday discourse, this term has acquired stigmatising connotations, making its use problematic for describing normal ontogenetic processes. By mirroring the infant’s sensory signals, the mother creates an aesthetics of contact – a primary experience of synchrony, rhythm, and sensory organisation. When this process is disrupted (due to a sensory perception error or sensory inversion), a false self and dependent behavioural patterns may form in adulthood. It is therefore appropriate to employ the term aesthetic stage of personality development, which more accurately reflects the essence of this period. The term aesthetic underscores that at this stage, the formation of the psychic structure occurs through embodied sensory

experience, providing a sense of harmony, wholeness, and beauty of the self in interaction with the mother. Avoiding the stigmatising stereotype of narcissism and instead using expressions such as “autosensoriality” and “aesthetic stage of personality development” helps preserve theoretical precision and sensitivity to infant development without negative connotations. This process can be more precisely defined through the concept of the aesthetic phase of development, which replaces the classical concept of the narcissistic phase and more accurately describes the sensory and affective dynamics of the first months of life.

In psychotherapy with clients exhibiting addictive behaviour and pronounced bodily dissociation, it is essential to facilitate a return to the experience of primary sensorimotor patterns. This may be achieved through physical exercises, somatic practices, and body-oriented techniques that gradually extinguish residual unconditioned reflexes that have remained non-functional and fixed within the psyche. Another key objective is sensory reformation, which involves restoring authentic desires and bodily responses to each sensory stimulus. This allows the client to regain the capacity for sensory sensitivity that was blocked due to early maternal mirroring errors in infancy. The gradual discovery of one’s own sensory preferences re-establishes contact with genuine desires, strengthening the connection with the self. Although this process is lengthy, it yields lasting outcomes: a renewed thalamocortical system emerges in which emotionality is structured not on external imitative models, but on intrinsic sensory priorities. This enables the formation of a unique cognitive and mental representation that may not have developed due to disrupted early contact with the mother and the dominance of imitative behavioural patterns. Based on the conducted research, it is hypothesised that timely recognition and correction of sensory attunement disturbances in early development can reduce the risk of forming dependent behavioural patterns and promote the child’s harmonious growth. Considering contemporary evidence on neuroplasticity, sensory reformation and neurocorrection are recognised as effective at any stage of life. This implies that targeted rehabilitation programmes for individuals with addictive behaviour may include the restoration of sensory receptor functioning, integration of primary reflexes, and correction of top-down regulatory dysfunctions. Thus, sensory reformation may become a key element in the comprehensive therapy and prevention of addictive disorders.

The results obtained from the conducted critical analysis of published studies are consistent with earlier findings on primary autosensoriality and the aesthetic stage of personality development. In the study by I. Danyliuk & N. Burkalo (2024), it was noted that a child’s development based on sensory integration occurs through the perception of information received

via the sensory organs. This process relies on selective perception, which enables the individual to focus on specific details. Sensory development in infancy plays one of the most significant roles in the formation of the functions of the sensory organs and the perception of the surrounding world, supporting the development of cognitive processes. The present findings are in agreement with this view, but place greater emphasis on the analysis of sensory and cognitive functions from the perspective of thalamic functioning, whose main task is associated with the acquisition of conscious experience. The analysis conducted by W. Zheng *et al.* (2023) demonstrated that, during early childhood, thalamocortical connections actively form and reorganise, creating the foundation for sensory integration and cognitive development. Alterations in these connections may influence the specialisation of sensory and associative networks and contribute to vulnerability to the development of dependent behavioural patterns. The development of thalamic subdivisions follows a lateral-medial pattern, whereby the lateral thalamus forms more rapidly than the central part does. In the study by M. Shved (2023), the effects of traumatic experiences on the formation of attachment models were examined. Traumatic experiences affect sensory development, behavioural patterns, identity formation, and cognitive skills. Therefore, a child’s perception of the surrounding world is directly related to the quality of interaction with the mother, which is shaped through attachment patterns. The analysed studies confirm the results of the present research, while providing a more comprehensive account of how a child perceives the world – not only through the development of primary reflexes, but also by examining sensory disturbances.

The development of cognitive processes in children was identified using magnetic resonance imaging (MRI). The results revealed that stronger functional connectivity within the medial temporal lobe was associated with smaller volumes of the right hippocampus and the left thalamus; within the thalamocortical network, it correlated with smaller volumes of the left hippocampus. These findings indicated substantial maturation of the thalamocortical network during the third trimester (Correa *et al.*, 2023). In the present study, the features of thalamic development were not examined through MRI-based approaches; however, theoretical analysis has demonstrated that sensory perception may be incorrectly formed at the early stages of processing. This occurs through the brain’s continuous updating of its internal models. Disturbance of this balance affects the emergence of psychopathological states, which were not addressed in previous research.

The development of a child takes place through the formation of sensory processing and attachment, which influence sensory regulation and interaction with others. A disorder of sensory processing may lead to difficulties in perception and response, hypo- or

hypersensitivity, and constant seeking of sensory stimuli (Bernal Rivas & Avello-Sáez, 2023). The results of the present study fully resonate with this statement, but further emphasise the mechanisms of distorted self- and other-perception identified during the current research. These processes are rooted in the restoration of the sense of internal rhythm and safety. During the first years of life, a process of synaptic pruning occurs, whereby frequently used sensory connections are strengthened while redundant ones are eliminated. When this process is disrupted, the child may develop disorganisation in sensory perception. A child who is not “heard” in their natural sensory experience is compelled to adapt to the sensations of the mother, losing connection with their authentic self. This increases the risk of forming rigid internal models that persist into adulthood and manifest as distrust of one’s own sensations, impaired interoception, and dependence on external behavioural regulators.

The developmental process of the child is characterised by sensory self-focus, associated with the psychic functioning of non-neurotic analysers. This theory was developed by André Green, based on Freudian psychology. Thus, the child’s fixation on sensory experience supports identity formation and interpersonal relatedness. This may manifest as dual narcissism (Pavlovská, 2024). In the present study, child development was examined from the perspective of Freud’s concept of primary narcissism. Consequently, the term aesthetic stage is proposed as an alternative designation that preserves the psychoanalytic tradition while avoiding pathologising associations, highlighting instead the central importance of bodily sensory experience in early personality development. Hence, the common features between previously published studies and the current research lie in the shared recognition of the importance of investigating early developmental specificities that later influence the formation of dependent behavioural patterns in adulthood. However, the current study focuses more specifically on identifying the role of thalamocortical connections and their impact on sensory, emotional, and cognitive development. Considerable attention has also been given to analysing sensory attunement disturbances that shape mother-infant interaction – an area insufficiently substantiated in previous research.

### Conclusions

The findings of the study contribute to the understanding of how early sensory integration and thalamocortical connectivity influence the formation of self-regulation, attachment, and subsequent behavioural patterns. The analysis revealed that disruptions in sensory attunement during infancy may lead to persistent maladaptive reflexes, distorted body perception, and dependence on external stimuli in later life. The concept of the aesthetic stage of development offered a non-pathologising

framework for describing early sensorimotor and affective dynamics, thereby integrating psychoanalytic theory with contemporary neuropsychological findings.

Moreover, the study underlined the importance of sensory reformation and neurocorrective approaches in rehabilitation programmes for individuals with addictive behaviour. These interventions – aimed at restoring sensory sensitivity, integrating primary reflexes, and recalibrating top-down control – can enhance emotional regulation and promote harmonious personality development throughout the lifespan.

The analysis conducted made it possible to systematise contemporary data on the role of thalamocortical connections in early development and their influence on the formation of dependent behavioural patterns in adulthood. The review of scientific publications and clinical observations revealed that the first months of a child’s life constitute a critical period during which the sensory and neural systems are formed, determining subsequent emotional and cognitive development. During this period, top-down control is established, regulating the interaction between sensory signals and higher mental functions. It was found that disruptions in sensory attunement within mother-infant interaction led to failures in the integration of primary reflexes. When neonatal reflexes do not receive adequate reinforcement due to delayed or insufficient maternal response, they remain at a primitive level and fail to integrate into more complex neural networks. This results in fragmentation of sensory experience and hinders the development of a coherent system of perception, emotional regulation, and self-awareness. Such disturbances may have long-term consequences, influencing adult behaviour and predisposing individuals to dependent patterns.

Contemporary studies demonstrating the relationship between thalamocortical pathway dysfunction and addictive behaviour were also analysed. It was identified that addiction is not limited to a malfunction of the reward system, but encompasses complex sensory disruptions at various levels of the nervous system – from receptor perception to cortical integration. The sensory prediction error, encoded by dopaminergic neurons, emerged as a key mechanism explaining not only difficulties in learning and motivation, but also loss of behavioural control in addicted individuals. This highlights the necessity of developing new interdisciplinary approaches that integrate neurobiological analysis, clinical data, and psychoanalytic developmental concepts. Based on the findings, the concept of the aesthetic phase of development was proposed, expanding the classical understanding of early narcissism and emphasising the role of sensory interaction in forming the child’s coherent experience. This perspective explains how early sensory disturbances may lay the foundation for future behavioural dysfunctions, including addictions, and opens pathways for the

creation of practical diagnostic and corrective methods at early stages of development.

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## Conflict of Interest

None.

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## **Первинна аутосенсорність та естетична стадія розвитку особистості: від помилки сенсорного відзеркалення до формування залежної поведінки**

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**Анотація.** У нейробіології та психоаналізі зростає інтерес до ролі таламуса та сенсорних систем у ранньому розвитку та формуванні залежної поведінки. Порушення таламокортикальних шляхів у перші місяці життя можуть визначати подальшу емоційну та когнітивну регуляцію. Мета дослідження полягала у вивченні впливу сенсорної гармонізації та таламокортикального функціонування на ранній розвиток дитини та появу залежної поведінки для необхідності розпізнавання сенсорних порушень і забезпечення їх профілактики у майбутньому. Під час дослідження було проведено систематичний теоретичний аналіз наукових публікацій за 2016-2025 роки, що охоплював дані нейробіологічних досліджень, клінічних спостережень та психоаналітичних концепцій розвитку. Аналіз було спрямовано на порівняння результатів досліджень функцій таламуса, первинних рефлексів та сенсорної адаптації матері та дитини. Встановлено, що порушення сенсорної адаптації матері до потреб немовляти перешкоджають інтеграції первинних рефлексів і блокують розвиток вертикального контролю. Результати аналізу показали, що незрілі таламокортикальні шляхи роблять немовля вразливим до фрагментованих сенсорних сигналів. Встановлено, що ранні дисфункції сприяють компенсаторній залежності в дорослому віці. Була розроблена нова концепція «естетичної фази розвитку», яка замінила класичне поняття нарцисичної фази та полягає більш точний опис сенсорної та афективної динаміки перших місяців життя. Також було запропоновано пояснювальну модель, яка пов'язує ранні сенсорні невідповідності з формуванням моделей залежності. Результати дослідження можуть застосовуватися психологами та психотерапевтами при розробці програм раннього втручання та профілактики залежної поведінки

**Ключові слова:** материнсько-дитяча синхронізація; таламус; первинні рефлекси; топ-даун контроль; патерни залежності

## Psychological characteristics of personality affecting driving behaviour

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**Abstract.** The study aimed to identify the relationship between psychological traits and driving style in the context of cross-cultural comparison. Within the framework of the empirical study, the Big Five Inventory-2 methodology was used to assess personality characteristics and the Driving Behaviour Questionnaire to analyse driving style. The results of the study revealed differences caused by driving experience, as well as cultural differences in the expression of basic personality traits. It was found that with increasing driving experience in both samples, there was a decrease in the level of neuroticism (in Ukraine from 3.4 to 2.9 points, in EU countries from 3.2 to 2.7), which indicated a stabilisation of the emotional background. A similar trend was observed for extraversion and openness to experience. Cross-cultural analysis revealed that European respondents at all levels of experience had higher average scores for agreeableness and conscientiousness, which correlated with the dominance of a safe driving style. Neuroticism proved to be a significant predictor of aggressive driving style, and extraversion was a risk factor in the Ukrainian sample but was associated with safer behaviour in the European sample. Conscientiousness was the most consistent indicator of a safe driving style, particularly among experienced European drivers ( $M = 4.5$ ). It was found that drivers with an aggressive or deliberately risky driving style cause about 25-30% of all road traffic accidents (RTAs). Among drivers with up to 5 years of experience, the level of involvement in road accidents is 12-15% higher than among those with more than 15 years of experience, regardless of their country of residence. The study demonstrated the feasibility of introducing psychological components into driver training programmes. The results can be used by road safety specialists and insurance companies to improve driver training programmes and promote a culture of safe driving

**Keywords:** intercultural differences; road traffic accident; safe behaviour; risk; driving style

### Introduction

The increase in the number of road traffic accidents (RTA) necessitates an in-depth study of the factors that influence driver behaviour when operating vehicles. In this context, it is necessary to consider the psychological traits of the personality that determine driving style, reactivity and the level of riskiness of driving. The problem lies in the insufficient consideration of individual psychological traits in accident prevention and in the system of professional driver training. There is no systematic concept that combines personality factors with specific driving styles and possible deviant behaviour patterns on the road.

Several studies addressed the influence of individual characteristics of drivers on their driving behaviour and aspects of their conduct. Specifically, L. Bai *et*

*al.* (2025) investigated the relationship between personality types according to the Myers-Briggs Type Indicator and driving style characteristics. The results showed that extroverts exhibited a more active, sometimes risky driving style, while introverts tended to drive more cautiously. The study also determined that differences between personality types determined reactions to critical traffic situations. X. Luo *et al.* (2023) conducted a systematic review and meta-analysis of studies on the relationship between personality traits according to the Big Five model and driving behaviour. The study concluded that neuroticism and low agreeableness were consistently correlated with aggressive, impulsive, or risky driving styles. The influence of the Big Five personality traits on the driving behaviour of

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young Indian drivers was studied by P. Mittal (2024). The study determined that extraversion and neuroticism were associated with increased emotional reactivity and a tendency to violate rules. At the same time, high conscientiousness was associated with a reduced risk of traffic accidents. A study by Y. Niu & B. Nie (2024) analysed how individual personality traits influenced driving behaviour in heavy traffic conditions. The study demonstrated that emotional stability and openness to experience were positively correlated with maintaining attention and making informed decisions in traffic. The study also noted the influence of driving experience as a moderator of these relationships.

The process of emotional stability formation in learner drivers during the study of traffic rules was analysed by V. Chernyshov (2022). The study determined that the development of emotional regulation skills had a positive effect on the ability to maintain self-control in stressful traffic situations. The results emphasised the significance of psychological training in the process of driver education. The influence of emotional (dis)regulation on the behaviour of young drivers was investigated by A. Pizzo *et al.* (2024). The study determined that emotional regulation disorders led to impulsive decisions, a tendency to violate speed limits, and aggressive responses to stress. The study emphasised the significance of working with emotional strategies in the prevention of risky driving. W. Scherz *et al.* (2024) used a non-invasive wearable device to study the relationship between personality traits and stress behind the wheel. The results demonstrated that drivers with high levels of neuroticism exhibited increased physiological stress indicators during heavy traffic. The study confirmed the relevance of objective bioindicators in studying the psychological determinants of road behaviour. The influence of arousal on the interaction of age, personality, and behavioural factors in the context of emotional driving was investigated by Z. Shangquan *et al.* (2025). The study determined that increased arousal significantly altered responses to road stimuli, especially in individuals with high levels of neuroticism. Within age groups, differences in adaptability to stressful road situations were observed.

T. Hill *et al.* (2021) examined the frequency of mobile app use while driving in Ukraine and the psychosocial factors that drive this behaviour. The study determined that high impulsivity, low emotional control, and risk tolerance significantly increased the likelihood of using mobile apps while driving. A correlation between digital communication habits and reduced attention while driving was also found. The impact of initial levels of trust in autonomous vehicles and driving style on driver behaviour was studied by J. Cegarra *et al.* (2025). The study showed that individuals with a high level of distrust exhibited more defensive behaviour in mixed traffic conditions. Driving style was significantly

modified depending on expectations regarding the behaviour of autonomous vehicles.

The above-mentioned researchers significantly contributed to the study of this issue, but insufficient attention has been paid to a comprehensive study of the interaction of psychological traits with social contexts of driving, in particular, cultural differences and road infrastructure conditions. The study aimed to investigate the influence of psychological traits on driving style in a cross-cultural context. The objectives of the study were to establish the relationship between psychological traits and driving behaviour; to analyse the influence of emotional regulation, experience of critical situations and risk-taking on driving behaviour; to conduct a cross-cultural comparison of the driving behaviour of participants from Ukraine and EU countries.

### Materials and Methods

The study was empirical in nature and aimed to identify the relationship between psychological traits and driving behaviour. The study was conducted between September 2024 and June 2025 in two regions: Ukraine and EU countries (Germany, Poland, and the Czech Republic), which was used for a comparative cross-cultural analysis. The research methodology was based on a mixed design combining quantitative and qualitative methods. The study involved 480 drivers aged 21 to 55, divided equally between Ukraine and EU countries. The sample included 160 participants in each group according to driving experience (up to 5 years, 5-15 years, over 15 years). Participants were selected using a stratified purposive sampling method, which ensured the representation of key socio-demographic groups.

To study personality characteristics, the Big Five Inventory-2 (BFI-2) questionnaire was used, adapted to the linguistic and cultural context of each country using a back translation procedure and preliminary reliability testing (Soto & John, 2017). Average scores were determined for each personality trait (neuroticism, extraversion, openness, agreeableness, conscientiousness). Driving behaviour was assessed using the Driving Behaviour Questionnaire (DBQ), which classified behaviour into four types: aggressive, deliberately risky, unconscious, and safe (Reason *et al.*, 1990). In addition, statistical data on road accidents were analysed according to the type of character and psychological traits of drivers, using reports and open databases of international organisations (International Transport Forum, 2023; European Commission, 2023; World Health Organization, 2023).

To process quantitative data, variance analysis was used to identify intergroup differences in regional affiliation, driving experience, and emotional regulation. All stages of the study complied with the ethical standards set out in the European Charter for the Rights of Participants in Social and Humanitarian Research (European Commission, 2018). Participants provided written

informed consent to participate, and data processing was conducted following confidentiality and anonymity requirements. The combination of quantitative and qualitative analysis not only identified general patterns but also provided insight into individual and cultural characteristics of driving style and was used for the development of practical recommendations for driver training for road safety. To collect data, the online resources such as Google Forms and SurveyMonkey were used which made it possible to involve respondents from different countries. Drivers were recruited through targeted advertising on social networks, including Facebook, Instagram, and LinkedIn, which made it possible to reach different groups of drivers

with relevant characteristics, such as age groups and driving experience. Additionally, recruitment efforts were supplemented by collaboration with local driving clubs and associations in each country, which helped to further disseminate the survey among their members and ensured greater diversity within the sample.

### Results

Analysis of the results obtained using the BFI-2 methodology revealed several intercultural and intragroup differences in the psychological traits of drivers (Soto & John, 2017), which are possibly related to their driving experience, sociocultural context, and road behaviour characteristics in different countries (Table 1).

**Table 1.** Results of study participants based on the Big Five Inventory-2 questionnaire

Group/driving experience		Neuroticism	Extroversion	Openness	Friendliness	Conscientiousness
Ukraine	Up to 5 years	3.4	3.6	3.9	3.5	3.3
	5-15 years	3.1	3.4	3.7	3.6	3.5
	More than 15 years	2.9	3.2	3.5	3.7	3.8
EU	Up to 5 years	3.2	3.8	4	3.7	3.4
	5-15 years	3	3.5	3.8	3.8	3.7
	More than 15 years	+2.7	3.3	3.6	3.9	4

**Note:** average scores are shown in the table

**Source:** compiled by the author

The results of the study demonstrated a correlation between driving experience and the severity of certain psychological traits, particularly neuroticism, extraversion, and openness to experience, among both Ukrainian and European respondents. A trend towards a decrease in neuroticism with increasing driving experience was observed. Among Ukrainian drivers with up to 5 years of experience, the average neuroticism score was 3.4 points, in the group with 5 to 15 years of experience, it was 3.1, and among those who have been driving for more than 15 years, it was 2.9. A similar trend was observed in the European sample: 3.2, 3 and 2.7, respectively. According to data from the International Transport Forum (2023) and the World Health Organization (2023), drivers with high levels of neuroticism are 18-22% more likely to be involved in a traffic accident than those with low levels, which is particularly noticeable among novice drivers. In EU countries, novice drivers with up to 5 years of experience who are prone to increased neuroticism were involved in approximately 14% of all accidents with casualties in their age group (European Commission, 2023). These data indicate a gradual decrease in emotional tension, anxiety and internal instability with increasing experience, which is possibly related to increased self-confidence, gaining experience in navigating the road environment and improving adaptation to stressful situations.

A similar gradual change was observed in the level of extroversion, which also showed a downward trend over the years, despite slightly higher initial scores among European drivers. Drivers with up to 5 years of

experience had the highest extroversion scores of 3.6 in Ukraine and 3.8 in EU countries. This may indicate the activity, energy and social engagement characteristic of the beginning of a driving career. According to the World Health Organization (2023), young drivers with high extroversion are more likely to engage in risky behaviour on the road, which correlates with a 12-15% higher frequency of accidents in the first years after obtaining a licence. As experience accumulated, these figures fell to 3.2 and 3.3, respectively, among drivers with more than 15 years of experience. This trend may indicate a change in driving style from emotionally expressive to more restrained, pragmatic and rational. Another feature that showed changes depending on experience was openness to experience. The highest values for this characteristic were observed among novice respondents: 3.9 points in the Ukrainian sample and 4 in the European sample. In groups with more driving experience, the level of openness decreased to 3.5 and 3.6, respectively. According to the European Commission (2023), beginners with high openness are more likely to use non-standard manoeuvres, which in 9-11% of cases becomes a contributing factor to road accidents, especially in difficult weather or road conditions. Less experienced drivers show greater flexibility in decision-making and are more open to new technologies, changes in rules or unusual traffic situations, while experienced road users tend to rely more on verified patterns of behaviour developed over many years.

Friendliness indicators demonstrated a positive trend depending on driving experience. In contrast to

traits such as neuroticism or openness to experience, friendliness increased with the number of years behind the wheel. Within the Ukrainian sample, the average level of this trait was 3.5 points among drivers with up to 5 years of experience, gradually increasing to 3.6 in the group with 5 to 15 years of experience and reaching 3.7 among respondents who had been driving for more than 15 years. Even higher values were recorded among European participants in the study: 3.7, 3.8 and 3.9, respectively. According to data from the International Transport Forum (2023), drivers with high friendliness are 10-12% less often involved in accidents, especially in conflictual road conditions. This trend indicates a gradual development of tolerance, restraint, politeness and willingness to cooperate with other road users. A similar dynamic was observed in the indicators of conscientiousness, which, similar to friendliness, demonstrated a gradual increase in both samples. Among Ukrainian respondents, conscientiousness increased from 3.3 points in the group with up to 5 years of experience to 3.6 in the 5-15-year category and reached 3.8 in the oldest group. In the European sample, the indicators were slightly higher, at 3.4, 3.7 and 4 points, respectively. A high level of conscientiousness is associated with a reduction in the frequency of road accidents by approximately 15% compared to drivers with low scores for this trait. With experience, drivers become more disciplined and inclined to control personal behaviour, which may be the result of both accumulated practical experience and awareness of the risks associated with careless or reckless driving.

The overall picture of the results concludes that there are stable changes in personality profile during the process of accumulating driving experience. A decrease in levels of neuroticism, extraversion and openness to experience was found, along with a simultaneous increase in friendliness and conscientiousness. Such a transformation may indicate that driving requires a gradual transition from an emotionally impulsive style to a more balanced, responsible and socially oriented one. At the same time, an analysis of cross-cultural differences indicates that drivers from EU countries on average demonstrate slightly higher levels of agreeableness, conscientiousness, extraversion and openness compared to Ukrainian participants. This may be due to differences in social norms, driving culture, training systems, and the broader influence of the educational and legal environment on the formation of driving behaviour. The data obtained is significant both for further psychological research in the field of road traffic in an intercultural context and for practical activities, in particular in the development of driver training and support programmes. Consideration of personal characteristics in the training process can contribute to increased road safety, improved quality of interaction between road users, and the formation of a responsible attitude towards driving. The results of the analysis showed a variety of driving styles among the study participants, depending on their experience and country of residence. The data obtained indicate significant changes in driving behaviour depending on accumulated experience, as well as differences between Ukrainian and European drivers (Table 2).

**Table 2.** Results of study participants using the DBQ method

Group/driving experience		Aggressive driving	Deliberate-risk driving	Unconscious driving	Safe driving
Ukraine	Up to 5 years	26	21	32	21
	5-15 years	19	17	28	36
	More than 15 years	12	10	22	56
EU	Up to 5 years	18	16	29	37
	5-15 years	14	13	24	49
	More than 15 years	9	8	20	63

**Note:** frequency (%) is shown in the table

**Source:** compiled by the author

The analysis demonstrated a trend: with driving experience, the frequency of aggressive, deliberately risky and unconscious driving styles decreases, while safe driving consistently increases. Thus, among Ukrainian respondents with up to 5 years of experience, aggressive (26%) and unconscious (32%) styles dominated. However, among drivers with more than 15 years of experience, these figures decreased to 12% and 22% respectively, while safe driving became the leading style (56%). Similar trends were observed in the EU sample, but the proportion of safe driving was even higher (63% in the most experienced groups), and aggressive driving was less common in all age groups. According

to data from the International Transport Forum (2023), drivers with an aggressive or deliberately risky style are approximately 25-35% more likely to be involved in a serious accident than drivers with a neutral or safe style. Drivers with an unconscious style (low attention, distraction, impulsive decisions) show an 18-22% increase in the risk of accidents, with this trend being particularly pronounced among novice drivers.

A study by the European Commission (2023) noted that drivers with aggressive and risky behaviour patterns are involved in approximately 27% of all road accidents, while the proportion of safe drivers in these statistics does not exceed 9%. These results confirm

that psychological traits, such as impulsiveness, low emotional stability and high risk-taking, directly influence driving style and the likelihood of causing a traffic accident. Conversely, a safe driving style, which correlates with high conscientiousness, emotional stability and friendliness, is associated with a significantly lower accident rate. In countries with a high proportion of drivers who adhere to a safe driving style, the number of accidents per 100,000 vehicles is 40-45% lower than in countries where aggressive or chaotic driving styles predominate. Interregional differences, in particular lower levels of aggression and risk in EU groups, may be due to cultural regulation of emotions, stricter driver training standards, a better transport environment (infrastructure, road planning, enforcement of traffic rules) and wider experience in the use of digital safety systems in motor vehicles (World Health Organization, 2023).

A combination of the results of the DBQ and BFI-2 questionnaires demonstrated the psychological mechanisms underlying different driving styles. Analysis of the correlations between personality traits and behavioural patterns of drivers revealed a complex interdependence that illustrates how individual psychological characteristics influence driving behaviour. First, neuroticism, which characterises emotional instability, anxiety and susceptibility to stress, was found to be positively associated with manifestations of aggressive and unconscious driving styles. Drivers with high neuroticism scores were more likely to exhibit impulsive behaviour, irritability and loss of self-control in difficult traffic situations, which increases the risk of accidents. This was particularly noticeable in the Ukrainian sample, where the average level of neuroticism was significantly higher ( $M = 3.2$ ) compared to the EU sample ( $M = 3$ ). This difference explains the higher frequency of aggressive driving styles among Ukrainian drivers, which may be related to the general level of stress, socio-economic factors and regional cultural characteristics. Extraversion showed a more complex relationship with driving styles. On the one hand, extroverts, who are energetic, sociable and prone to seeking new experiences by nature, are more likely to exhibit a deliberately risky driving style. This is due to their need to dominate and influence their social environment, which can lead to more risky behaviour on the road. On the other hand, extroverts with high levels of agreeableness tended to have more adaptive and controlled driving styles, accompanied by responsibility and consideration for other road users. In the EU sample, extraversion was often combined with higher levels of self-control and a predominance of safe driving styles, indicating better emotional regulation and social functioning skills.

Regarding openness to new experiences, this trait did not show a significant correlation with driving style, but participants with high openness scores were more likely to demonstrate a safe driving style. This can be explained by their greater reflectiveness, ability to

anticipate potential dangers, and willingness to adapt to unpredictable road situations. The EU sample had higher average openness scores ( $M = 3.8$ ) compared to Ukrainian drivers ( $M = 3.7$ ), potentially reflecting a more progressive approach to driving and the acceptance of new technologies and rules. Friendliness demonstrated a clear negative correlation with aggressive driving style. Drivers with high levels of empathy, compassion and social orientation exhibited more tolerant and balanced behaviour on the road and were less likely to resort to aggressive or confrontational actions. High levels of friendliness were particularly prominent among older participants from EU countries, who also demonstrated the highest frequency of safe driving styles, highlighting the role of social norms and moral values in shaping behavioural patterns. The strongest positive correlation with safe driving was found in conscientiousness, which reflects organisation, responsibility, attention to detail and self-discipline. Drivers with high conscientiousness adhered more closely to traffic rules, avoided risky manoeuvres and consciously planned their actions in traffic conditions. This was particularly evident among drivers with more than 15 years of experience in EU countries, demonstrating the highest levels of conscientiousness ( $M = 4$ ), reflecting their conscious and disciplined approach to driving.

The data obtained indicate that driving style is formed not only under the influence of practical experience, but also largely determined by stable personality characteristics. A high level of conscientiousness and friendliness contributes to the formation of safe, controlled and socially responsible behaviour on the road. On the other hand, increased neuroticism and, to a certain extent, extraversion are associated with impulsive, aggressive or risky driving styles. This highlights the significance of a comprehensive approach to accident prevention, which should include not only improvements in technical and legal aspects, but also work on the personal development of drivers, the development of emotional stability, social skills and self-control. This approach is particularly relevant in the Ukrainian context, where the psychological characteristics and behavioural patterns identified require the adaptation of safety improvement programmes to take account of socio-cultural factors. Thus, effective interventions to improve road safety must address not only behavioural aspects but also the psychological profile of drivers. Psychological training and psychoeducational programmes for the development of emotional self-regulation and social responsibility may become a promising area of work in this field. In the context of interregional differences, improving driving culture in Ukraine requires a comprehensive approach: infrastructure development, tighter control, and targeting drivers' personal qualities at the training and retraining level.

Based on the results of the study, which revealed a statistically significant correlation between individual

personality traits of drivers (according to the BFI-2 model) and dominant types of driving behaviour (measured using the DBQ), a set of comprehensive and interdisciplinary practical recommendations can be formulated that have the potential to be implemented in educational, preventive and infrastructural policies in the field of road safety. This involves not only improving the training of future drivers, but also developing psychologically oriented interventions, forming new standards of driving culture and developing systems for assessing psychophysiological readiness to drive a vehicle. The first set of recommendations concerns updating the educational and training component of the system for obtaining a driving licence. Given the tendency identified in the study towards aggressive or risky behaviour among individuals with high levels of neuroticism, low levels of conscientiousness and openness to experience, it can be argued that the traditionally technocratic approach to driver training needs to be radically supplemented with psychologically oriented components. Based on this, the study recommended expanding the existing training programmes of driving schools and driver training centres with modules on the basics of transport psychology, emotional self-regulation, and conscious decision-making in stressful road situations. This may include specialised courses on cognitive-behavioural risk assessment models, anger management training, recognition of cognitive distortions (e.g., the “illusion of control” or “overconfidence effect”), as well as virtual reality training simulations that safely model behavioural responses in critical road scenarios.

The second direction of practical implementation of the research results is related to the development and introduction of a multi-level system of psychoprophylaxis of road traffic violations. Since, according to the research, impulsiveness, a tendency to carelessness, and social non-aggressiveness significantly correlate with unintentional mistakes and violations of traffic rules, it is particularly relevant to develop national programmes for the prevention of risky behaviour, aimed at identifying drivers from risk groups and applying targeted preventive measures to them. Such prevention can be implemented through regular psychological screenings adapted to the conditions of the country in question, including both self-assessment (using scales such as BFI-2) and projective methods of assessing behavioural patterns. The introduction of digital self-diagnostic platforms is relevant, which can be used by drivers to assess personal stress resistance, anxiety level or propensity for aggression using a mobile application, with subsequent recommendations on how to behave in risky situations. These measures should be complemented by information and awareness campaigns that promote a positive social norm of responsible driving behaviour, through influential media, educational videos, social advertising and institutional communication.

The third vector of practical measures covers the creation of an institutionally established system of psychological support for road users, which is an integral part of the modern transport safety model in many European countries. Given the increased vulnerability of certain groups of drivers, such as those who have survived road accidents, are in constant contact with stressful road situations (e.g., taxi, bus or truck drivers), or show signs of chronic psycho-emotional exhaustion, it is necessary to develop a network of regional psychological assistance centres. These centres could operate based on medical institutions, state rehabilitation programmes or within the framework of social partnerships with non-governmental organisations. Their activities should include group therapy, individual counselling, psycho-educational activities for drivers and their families, as well as crisis intervention in the event of serious road accidents. In the context of a long-term transport strategy for states, it is also necessary to develop a regulatory framework that recognises the importance of psychological factors in shaping safe driving behaviour. Based on research confirming the relationship between personal characteristics and the type of mistakes made by drivers, it is advisable to update national standards for assessing psychophysiological readiness to drive, including psychological tests as a mandatory part of the procedure for obtaining or renewing a driving licence.

In addition, it is necessary to ensure systematic training of driving instructors who possess not only technical but also basic psychological competencies that can be used to recognise the individual psychotypes of students and adapt teaching strategies to them. Lastly, it is worth emphasising the need to integrate the results of psychological research into transport policy at the macro level. The systematic collection of empirical data on the psychological profile of drivers, the dynamics of their behaviour under stress, and their level of awareness of the consequences of risky driving should form the basis for scientifically sound government decisions in the field of road safety. Scientific institutions specialising in transport psychology should be involved in providing expert support for the reform of the driver training system, as well as in developing cross-sectoral measures to improve road safety, incorporating the cultural context, demographic trends and technological developments. Thus, a psychologically oriented approach to traffic management can be the key to significantly reducing accidents, improving the quality of driver training and shaping a culture of responsible driving that meets the challenges of modern society.

## Discussion

The results of the study revealed that high levels of neuroticism correlate significantly with aggressive and unconscious driving styles. Drivers with high levels of emotional instability demonstrated greater impulsivity,

irritability, and reduced control during stress. This is consistent with the findings of Z. Totkova (2020), determining a significant positive association between impulsivity and driving styles (e.g., risky and unconscious), while adaptive style had a negative association with impulsivity. Similarly, extraversion in this study had a mixed effect. On the one hand, it was associated with a deliberately risky style, while on the other hand, extraverts with high levels of agreeableness exhibited a more adaptive and controlled style. These results are consistent with the model of F. Wang *et al.* (2020), observing that changes in personality traits (e.g., increased extraversion) led to increased risky behaviour, but drivers with high self-regulation can stabilise their driving style. Despite extroverts' potential for activity and dominance, developed friendliness can compensate for this in the direction of safer behaviour. Regarding openness to experience, there was no clear correlation with driving style in this study, although participants with high openness scores were more likely to demonstrate a controlled, safe style. This is consistent with the findings of C. Pan *et al.* (2021), demonstrating that drivers with higher openness and willingness to innovate were more likely to rate the support of automated systems as comfortable and natural, which may correlate with a more cautious driving style.

This study demonstrates cultural differences, as European drivers had lower neuroticism and higher levels of agreeableness and conscientiousness, which explained their greater focus on safe driving. This is consistent with A. Humpe *et al.* (2022) & H. Horimoto *et al.* (2024), who emphasised that socio-psychological conditions in European countries foster a more responsible attitude towards driving. At the same time, the classification of driving styles based on acceleration showed that driving types do not correlate significantly with driving experience, reflecting the independence of techno-dynamic behavioural patterns from chronological factors. In this sample, driving experience was a factor in reducing aggression and risk, but E. Szumska & T. Stańczyk (2022) highlighted that even experienced professional drivers can exhibit aggressive driving behaviour if they have a pronounced tendency to perform extreme manoeuvres. Lastly, C. Peng *et al.* (2022) noted that the dynamics of personal states (e.g., short-term increases in anxiety or extraversion) can change driving style during a single route or trip. This is consistent with qualitative analysis, as increased stress or emotional arousal in a critical traffic situation can lead to a temporary shift to an aggressive or deliberately risky style, even in drivers with high conscientiousness or control.

People with high levels of empathy and social orientation exhibited more tolerant, balanced behaviour on the road. These results echo the findings of X. Liu *et al.* (2022), determining that in an East Chinese sample, friendlier drivers were less likely to engage in aggressive manoeuvres and speeding. The most significant

association in this analysis was observed for conscientiousness, which correlated more strongly than other traits with safe driving style: responsibility, attention to rules, and self-discipline ensured a reduction in riskiness. Similar results were presented by X. Liao *et al.* (2022), determining that a driver profile characterised by high conscientiousness and stable mood resulted in more predictable and safer driving behaviour. In contrast, X. Fan *et al.* (2019) demonstrated that personality traits such as impulsivity and emotional excitability can occur in different ways in complex driving manoeuvres, particularly when turning left, which requires increased attention and quick decision-making. J. Faílde-Garrido *et al.* (2021) created the prospect to analyse aggressive driver behaviour not only as a consequence of individual traits, but also as a mediation between personality and situational factors. In particular, "driver anger" was identified as a mediator between neuroticism and traffic rule violations. This conclusion corresponds with the findings of this study. Drivers with high levels of neuroticism demonstrated a marked tendency toward emotionally charged reactions in traffic situations, accompanied by an increased frequency of aggressive or deliberately risky manoeuvres.

In addition, there is a correlation between driving style and biological reactivity in states of negative affect. These conclusions were made by N. Habibifar & H. Salmazadeh (2022), determining those physiological indicators (e.g., heart rate) correlated with aggressive driving styles in respondents with low emotional stability. This approach creates new opportunities for interdisciplinary analysis, including biobehavioural markers in the study of psychological characteristics of drivers. In correlation, the results of a study by N. Habibifar *et al.* (2020) conducted among taxi drivers in Tehran showed a strong relationship between openness to experience, conscientiousness, and driving style characteristics. Taxi drivers with low scores on the openness scale were more likely to demonstrate a conservative or rigid style, which was also manifested in a reduced ability to adapt to new traffic situations. A. Aluja *et al.* (2023) complemented the analysis by examining the interaction between age, gender, personality variables, and decision-making style in the context of risky driving. Their data show that young men with a predominantly spontaneous decision-making style and a high novelty-seeking score are more likely to violate traffic rules. This is confirmed in the present study, where respondents with little driving experience (up to 5 years) in both countries showed pronounced signs of indiscipline and overestimation of their own skills.

The results of the study highlighted not only individual psychological aspects but also culturally determined aspects of aggressive behaviour on the road. This correlates with the study by F. Haidu *et al.* (2024), determining that aggressive driving is closely related to increased dominance, emotional reactivity, and low

self-control. This improves analysis of the manifestations of aggression found in both samples, although their frequency and form differed. The results of the study showed that neuroticism was strongly associated with aggressive and risky driving behaviour. These data corresponded with the conclusions of J. Djordjević (2023), proving that increased levels of neuroticism among Slovenian drivers were significantly correlated with the frequency of traffic violations and manifestations of road aggression. Similar trends were also found by M. Chrisnatalia *et al.* (2023), noting that drivers with high levels of neuroticism are more vulnerable to emotional burnout and prone to risky behaviour on the road. At the same time, this study showed that high levels of conscientiousness correlated with safe driving behaviour. Participants with high conscientiousness scores demonstrated prudence, responsibility, and a low propensity for violations. This result is consistent with the findings of R. Kimura *et al.* (2023), determining, based on an analysis of road data, that individuals with high conscientiousness have a more predictable and controlled driving pattern. They are less prone to speeding and demonstrate a high level of distance maintenance. These results correlate with the findings of C. Karageorghis *et al.* (2021), determining that emotional stability and the ability to regulate one's emotional state (particularly through music) significantly influence driving style, reducing aggression and improving concentration.

Thus, the results of the study confirm that personality traits have a significant impact on driving behaviour, both within a single culture and in an intercultural context. High levels of neuroticism, low conscientiousness, and emotional instability are associated with risky and aggressive driving styles, while friendliness, conscientiousness, and effective emotional regulation contribute to a safe driving style. Comparison with other studies confirmed the validity of the results and emphasised the importance of personality psychology in modelling road behaviour.

### Conclusions

Analysis of the results obtained using the BFI-2 methodology revealed both intercultural and age-related (based on experience) differences in the severity of psychological traits among drivers. The study established that as driving experience increases, the level of neuroticism decreases: from 3.4 to 2.9 points among Ukrainian drivers and from 3.2 to 2.7 points among European drivers, indicating a gradual decrease in emotional instability. Extroversion showed a similar trend: from 3.6 to 3.2 points in Ukraine and from 3.8 to 3.3 in

EU countries, which may indicate a shift in behaviour from more expressive to more restrained. At the same time, openness to experience decreased from 3.9 to 3.5 points in the Ukrainian sample and from 4 to 3.6 in the European sample, which may indicate a lower propensity of experienced drivers to experiment with their driving behaviour. The results of the study showed a clear link between psychological traits and driving style.

It was found that driving behaviour depends significantly on both the respondent's experience and the cultural context of their country of residence. With increasing driving experience, there is a clear trend towards a decrease in aggressive behaviour (from 26% to 12% in Ukraine; from 18% to 9% in EU countries). The analysis showed that neuroticism is associated with aggressive and unconscious driving styles, which is confirmed by higher average scores for this trait among Ukrainian drivers ( $M = 3.2$ ) compared to European drivers ( $M = 3$ ). This partly explained the higher frequency of aggressive behaviour among drivers in Ukraine. Friendliness and conscientiousness showed the most consistent link with safe driving styles. Respondents with high levels of friendliness showed a reduced tendency towards aggression, conflict and impulsiveness, especially among experienced drivers from the EU, also demonstrating the highest average scores for this trait. Conscientiousness proved to be the best predictor of safe behaviour: drivers with high levels of this trait ( $M = 4$  among experienced EU respondents) demonstrated conscious compliance with rules, attentiveness and self-discipline.

The results of the study demonstrated the feasibility of introducing psychological components into the driver training system. Training programmes should be supplemented with training in emotional self-regulation, stress management and risk behaviour recognition. It is also advisable to introduce psychological screening to identify drivers with high levels of anxiety or aggression. All this will contribute to the formation of a safer driving style and a reduction in the number of accidents on the roads. Prospects for further research lie in expanding cross-cultural comparisons and a deeper analysis of the neuropsychological factors that influence driving behaviour.

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None.

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## Психологічні особливості особистості, які впливають на манеру водіння транспортного засобу

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**Анотація.** Метою було виявити взаємозв'язок між психологічними рисами особистості та стилем водіння в контексті міжкультурного порівняння. У межах емпіричного дослідження було застосовано методіку Big Five Inventory-2 для оцінки особистісних характеристик та Driving Behavior Questionnaire для аналізу стилю водіння. Результати дослідження засвідчили наявність відмінностей, зумовлених досвідом керування транспортними засобами, а також культурних відмінностей у вираженості базових особистісних рис. Виявлено, що зі зростанням досвіду водіння в обох вибірках фіксувалося зниження рівня нейротизму (в Україні – з 3,4 до 2,9 бала, у країнах ЄС – з 3,2 до 2,7), що вказувало на стабілізацію емоційного фону. Аналогічна динаміка простежувалась щодо екстраверсії та відкритості до досвіду. Міжкультурний аналіз виявив, що європейські респонденти на всіх рівнях досвіду мали вищі середні показники доброзичливості та сумлінності, що корелювало з домінуванням безпечного стилю водіння. Нейротизм виявився значущим предиктором агресивного стилю водіння, а екстраверсія – фактором ризику в українській вибірці, проте асоціювалася з безпечнішою поведінкою в європейській. Найбільш стійким показником безпечного стилю стала сумлінність, зокрема серед досвідчених європейських водіїв (M = 4,5). Виявлено, що водії з агресивним або навмисно-ризикованим стилем керування спричиняють близько 25-30 % усіх дорожньо-транспортних пригод (ДТП). Серед водіїв із досвідом до 5 років рівень причетності до ДТП на 12-15 % вищий, ніж серед тих, хто має стаж понад 15 років, незалежно від країни проживання. Дослідження засвідчило доцільність упровадження психологічних компонентів у систему підготовки водіїв. Отримані результати можуть бути використані фахівцями підрозділів безпеки дорожнього руху та страховими компаніями для удосконалення програм підготовки водіїв і підвищення культури безпечного водіння

**Ключові слова:** міжкультурні відмінності; дорожньо-транспортна пригода; безпечна поведінка; ризик; стиль керування

## Patterns of the influence of female teachers' psychological health on their social and psychological adaptation to global changes

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**Abstract.** Ukrainian society is currently undergoing deep transformations and significant socio-economic and political changes, driven by globalisation, economic instability, war, and migration processes. For the teaching community – predominantly composed of women who combine multiple social roles (professional, family-related, and civic-communicative) – constructive adaptation to new global realities has become an inevitable challenge. The aim of this article was to present the results of an empirical study and identify the patterns of influence of female teachers' psychological health on their socio-psychological adaptation to global changes. The study applied a combination of methods, including surveys, psychodiagnostic testing, and empirical data analysis using percentage distribution and correlation analysis. The findings indicated that 22.0% of female teachers are well adapted to current conditions, 26.4% showed above-average adaptation, while 24.5% experienced partial maladaptation, and 27.5% demonstrated marked socio-psychological maladaptation and required psychological support. Based on correlation analysis, it was concluded that psychological health determines the constructiveness of the personality's adaptation process to new circumstances. Statistical analysis revealed a psychological regularity: the better the psychological health of a female teacher, the more capable she is of adapting to change. Conversely, the more neurotic, depressive, pessimistic, aggressive, or rigid the teacher is, the lower her adaptive capacity. The data confirmed that the psychological foundation for activating a teacher's adaptive abilities lies in the integration of spiritual and moral qualities with volitional traits, cognitive flexibility, and vitality. The study supported the conclusion that psychological health defines a female teacher's capacity for constructive self-realisation and socio-psychological adaptation

**Keywords:** mental; teachers; spirituality; behavioural regulation; communicative competence; moral normativity

### Introduction

The teaching profession demands a high level of self-regulation and adaptive capacity, especially under crisis conditions such as war, where educators bear responsibility not only for themselves but also for their

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students. Teachers constantly operate within a social environment and exert a subconscious influence on the psychological well-being of pupils and students. The educational sector in Ukraine is predominantly represented by women, who, amidst air raid alerts, are expected to accompany children to shelters, deliver online lessons, provide emotional support, and offer appropriate explanations of ongoing events. The challenge of adapting to global transformations becomes particularly acute for female educators, who frequently combine multiple social roles – professional, familial, pedagogical, and civic-communicative. The intersection of these roles often leads to the emergence of the so-called “double burden” phenomenon, which significantly complicates psychological harmonisation and increases the risk of crisis states. In this context, the adaptation of female educators is conceptualised as a dynamic process encompassing psychological, socio-cultural, and spiritual dimensions.

Several key problem areas are identified in the scholarly discourse. One of them is the double burden – defined as the necessity to function effectively in both professional and domestic domains. The high level of responsibility associated with managing family well-being alongside the quality organisation and implementation of the educational process contributes to chronic psychological fatigue and increased anxiety (Kostruba & Kostruba, 2024). Another aspect involves forced migration and wartime trauma, which create a psychological imbalance due to the loss of social ties, disruption of familiar environments, and the need to integrate into new communities. The war has generated unprecedented challenges to psychological adaptation. Research conducted by V. Pundiev & K. Volska (2024) showed that women are faced with multiple psychological traumas and material instability. However, their resilience is supported by reference groups, non-governmental organisations, and psychological interventions.

It is also crucial to highlight the impact of digitalisation – emergence of new forms of employment and remote interaction, which, on the one hand, broaden opportunities for self-realisation, yet on the other, contribute to information overload and professional burnout. According to M. Dvornyk & M. Sliusarevskiy (2025), digital technologies exert an ambivalent influence: they enable flexible learning and professional development, yet blur boundaries between work and private life, thus intensifying the risk of burnout among female teachers. In light of the above, the central research question arises: how can female educators constructively adapt to global changes while preserving their psychological health, personal identity, and capacity for self-realisation?

Socio-psychological adaptation has been widely explored in academic literature and is characterised by a set of specific features determined by the nature of the teaching profession. For instance, D. Astanova (2022) conceptualised psychological adaptation in teachers as

the capacity to adjust constructively to educational processes and to perform leadership functions. The scholar emphasised that the development of teachers’ adaptive capacities is primarily determined by their sense of responsibility. Subaidah & A. Rizquha (2023) identified self-awareness and social abilities as core psychological mechanisms in developing a teacher’s adaptive potential. Through self-awareness, individuals gain access to a holistic understanding of the new environment they must adjust to, while social skills – such as communicativeness and sociability – enhance their capacity for integration into unfamiliar social contexts. Other researchers have noted that educators adapt to innovations through active self-directed learning, driven by strong intrinsic motivation and activation of psychological adaptation mechanisms (Nguyen & Duong, 2022).

There are numerous approaches to understanding the factors and mechanisms that contribute to the development of teachers’ adaptive abilities. S. Maksymenko *et al.* (2021) emphasised the critical role of psychological health as a key determinant in the process of socio-psychological adaptation. Psychological health, in their view, extends beyond the boundaries of mental health and is intrinsically linked to spirituality – namely, morality, humanity, and conscience. Psychological health is defined as the harmonious interaction between an individual’s psychophysiological, mental, social, and spiritual subsystems. It represents a multilevel structure encompassing biological, psychological, mental, social, and spiritual dimensions of personality functioning. As a dynamic, integrative system, it ensures personal integrity and facilitates an active lifestyle and effective self-realisation. At the biological level, psychological health ensures the coherence of bodily functions; at the mental level, it includes cognitive, emotional, and volitional well-being, mental resilience, and behavioural self-regulation. At the social level, it enables a person to maintain harmony with the environment and with others. One of the key functions of psychological health is self-regulation and maintaining a dynamic balance between the individual and their environment (Pavlyk, 2023). Under the conditions of prolonged war – which poses a direct threat to life – there has been a marked deterioration in the psychological health of the Ukrainian population. This decline is largely a consequence of emotional burnout resulting from chronic stress. According to L.M. Karamushka (2023), indicators of impaired psychological health include chronic fear, anxiety, depression, excessive worry, emotional suppression, irritability, and outbursts of aggression. These symptoms block the realisation of personal potential and significantly lower quality of life.

Conversely, the general indicator of psychological well-being is inner harmony, positivity, creative inspiration, and the ability to engage in spiritual and moral self-regulation. In the educational context, the psychological health of a female teacher determines her

readiness to support her students. When she is in a positive mental state, she is capable of inspiring and motivating her pupils. In contrast, a teacher's pathogenic emotional state tends to induce similar emotions in students, which negatively affects the overall moral climate of the classroom. The preservation of psychological health as a foundation for a teacher's adaptive potential remains one of the most pressing socio-psychological issues of our time. The purpose of this article was to explore the regularities governing the impact of psychological health on the socio-psychological adaptability of female teachers in the face of current global challenges.

### Materials and Methods

Based on a theoretical analysis, a structural model of psychological health was developed, comprising four hierarchical components: spiritual-meaning, social, mental, and psychosomatic. Each component was operationalised through a set of dichotomous criteria, reflecting both constructive and destructive manifestations. The spiritual-meaning component encompassed such indicators as moral self-reflection, optimistic worldview, personal responsibility, and creative self-actualisation. Its opposite traits included lack of self-awareness, pessimism, external locus of control, and unrealised creative potential. The social component was characterised by social adaptability, decentration, benevolence, and tolerance to frustration. In contrast, social maladaptation, egocentrism, aggressiveness, and frustration intolerance were identified as its antithetical indicators. The mental component included cognitive flexibility, emotional stability, self-control, and stress resilience. Opposing traits were represented by rigidity, emotional lability, weak volition, and neuroticism. The psychosomatic component comprised positive physical well-being, high activity levels, positive mood, and healthy lifestyle habits. Its inverse manifestations were described as poor physical condition, passivity, negative mood, and harmful behavioural patterns.

According to the defined criteria, a set of psychodiagnostic scales was developed and integrated into the "Personality Psychological Health" questionnaire, which allowed for the assessment of each criterion, the level of development of each component, and an integrated psychological health index, determined by the cumulative level of all components. The questionnaire consisted of 160 items (five psychodiagnostic statements for each criterion) (Pavlyk, 2023). For example, the item: "I have a personal hobby that I devote a lot of time to" corresponds to the scale "Creative Realisation". Participants were instructed as follows: "Please assess your level of agreement with each statement: 0 – completely disagree; 1 – partially agree (sometimes true); 2 – completely agree". The validity of the author-developed questionnaire was assessed using the cross-sectional test-retest method. Correlation coefficients between the first and second measurements ranged from 0.60

to 0.85 ( $p \leq 0.001$ ), indicating a high level of reliability.

The assessment of female teachers' socio-psychological adaptability was conducted using the standardised "Adaptability" diagnostic method, which made it possible to determine their adaptive potential across the following criteria: Behavioural Regulation, Communicative Competence, Moral Normativity, and an additional indicator – Suicidal Risk. An additional measure was introduced to assess teachers' readiness to teach worldview-related content, using the following survey item: "How prepared are you to talk to students about global changes – to teach the material and respond to complex questions?" Responses were recorded on a 10-point Likert scale (1 = not at all prepared; 10 = fully prepared).

The classification of research results was based on four levels of psychological health and socio-psychological adaptability: low, below average, above average, and high. In 2023, an empirical study was conducted involving 95 female teachers aged 19 to 66 from Kyiv and Kremenchuk, Ukraine. At the time of the study, participants had already experienced three consecutive years of prolonged stress – two years of the COVID-19 pandemic, followed by one year of full-scale war. The study was carried out through psychodiagnostic testing in a mixed format (both online and offline).

Data analysis involved the calculation of percentage distributions. These were derived by computing the proportion of respondents who demonstrated a specific level of expression of the studied psychological phenomena.

$$x(\%) = \frac{a \cdot 100\%}{n}, \quad (1)$$

where  $n$  denotes the total number of respondents and  $a$  represents the number of respondents within a specific level (low, below average, above average, or high).

To establish psychological patterns in the influence of female teachers' psychological health on their socio-psychological adaptability to global changes, the empirical data were subjected to statistical analysis using the method of correlation analysis. The study identified statistically significant correlations between indicators of psychological health and measures of individual adaptive potential. The percentage distribution of psychological health levels was reported in a prior publication (Pavlyk, 2025). The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (2013). Participation in the research was voluntary, and individual results remained confidential. Participants were offered free psychological consultations, which served as an incentive for their engagement in the testing process.

The research was carried out in three stages:

Stage I (March-April 2023): Psychodiagnostic data collection (testing).

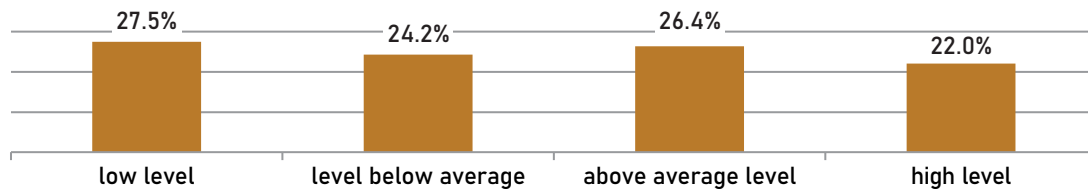
Stage II (May-June 2023): Data processing and statistical analysis.

Stage III (June-July 2023): Psychological counselling sessions (optional).

### Results and Discussion

According to the results of the study, more than one-third of respondents demonstrated a high level of psychological health, which creates favourable psychological conditions for successful socio-psychological adaptation. Nearly one-fourth of female educators had an above-average level of psychological health, while more than one-third of participants showed below-average or low levels of psychological well-being (Pavlyk, 2025).

These findings suggest that at least one-third of female teachers are in need of psychological support, as they lack sufficient internal resources to effectively cope with the challenges of modern life and the prolonged stressors associated with war, instability, and systemic change. The percentage distribution of adaptive potential levels (Fig. 1) shows that female educators were nearly evenly distributed across the different levels of adaptation to current conditions. This indicates a high degree of variability in individual adaptation capacity, reflecting both the strengths and vulnerabilities within the educational community during crisis periods.



**Figure 1.** Percentage distribution of adaptive potential levels among female educators

Source: compiled by the authors

However, it should be noted that the percentage of well-adapted teachers is lower than the percentage of those who are fully maladjusted. The analysis of the research results allows us to state that the most stress-resistant, adaptive, and creative group is represented by female educators aged 25-9. Psychological adaptation is most challenging for young teachers due to underdeveloped behavioural self-regulation and a lack of life experience. Hence, the conclusion: a significant portion of female educators (almost half) require psychological support to improve their level of socio-psychological adaptation. This fact highlights the relevance of developing psychological support

programs for professional and pedagogical activity, which would promote the development of psychological-adaptive mechanisms by strengthening the psychological health of female educators.

Through correlation analysis of the empirical data, patterns were identified regarding the influence of psychological health indicators on the specifics of socio-psychological adaptation among female educators. Significant positive correlations between personal adaptive potential and the integral index of psychological health, as well as all of its components, indicated a strong interrelation between these two psychological phenomena (Table 1).

**Table 1.** Correlation coefficients between indicators of personal adaptive potential and indicators of psychological health

Psychological Health Indicators	Indicators of socio-psychological adaptability					
	Adaptive potential	Behavioural regulation	Moral normativity	Communicative competence	Suicidal risk	Readiness to teach worldview topics
Psychological health	0.68	0.69		0.48	-0.57	0.28
Spiritual-meaningful component	0.60	0.58		0.46	-0.55	0.36
Social component	0.56	0.49	0.29	0.39	-0.38	
Mental component	0.60	0.69		0.36	-0.57	0.23
Psychosomatic component	0.62	0.67		0.35	-0.56	
Spiritually optimistic worldview	0.36	0.33		0.37	-0.24	0.35
Pessimistic worldview	-0.54	-0.55		-0.40	0.64	-0.23
Unawareness	-0.55	-0.49	-0.31	-0.36	0.35	-0.30
External locus of control	-0.40	-0.34	-0.25	-0.25	0.29	
Creative self-realisation	0.37	0.43		0.35	-0.46	0.32
Social maladjustment	-0.55	-0.52		-0.48	0.57	-0.37
Egocentrism	-0.38	-0.27	-0.35	-0.22		
Benevolence	0.34	0.23		0.34		
Aggressiveness	-0.59	-0.41	-0.54	-0.36	0.30	

Table 1. Continued

Psychological Health Indicators	Indicators of socio-psychological adaptability					
	Adaptive potential	Behavioural regulation	Moral normativity	Communicative competence	Suicidal risk	Readiness to teach worldview topics
Frustration	-0.56	-0.62		-0.32	0.43	
Cognitive flexibility	0.45	0.53		0.40	-0.48	0.21
Rigidity	-0.46	-0.41	-0.24	-0.31	0.42	
Emotional control	0.42	0.51		0.36	-0.46	
Emotional lability	-0.57	-0.55	-0.26	-0.35	0.62	
Self-control	0.40	0.55			-0.52	0.26
Weak will	-0.55	-0.61		-0.30	0.49	
Stress resistance		0.38			-0.35	
Neuroticism	-0.58	-0.67		-0.30	0.57	-0.22
Energy	0.47	0.57		0.33	-0.45	
Lethargy	-0.61	-0.76		-0.27	0.61	
Activity	0.39	0.44		0.34	-0.37	0.21
Passivity	-0.61	-0.53		-0.50	0.53	-0.23
Good mood	0.42	0.57		0.25	-0.56	
Depression	-0.54	-0.64		-0.33	0.71	-0.29
Healthy habits	0.33	0.37				
Harmful habits	-0.59	-0.53	-0.35	-0.36	0.44	0.28
Behavioural regulation	0.79			0.39	-0.64	
Moral normativity	0.59			0.31		
Communicative competence	0.76	0.39	0.31		-0.44	-0.22
Suicidal risk	-0.62	-0.64		-0.44		

Source: compiled by the authors

The most significant positive correlations of personal adaptive potential were observed with the following indicators of psychological health: cognitive flexibility, energy, positive mood, emotional control, self-regulation, spiritually optimistic worldview, benevolence, and healthy habits. Equally meaningful were the negative correlations between adaptive potential and such indicators as: lethargy, passivity, depression, harmful habits, neuroticism, frustration, egocentrism, aggressiveness, emotional lability, rigidity, weak will, pessimistic worldview, lack of life awareness, external locus of control, and lack of creative self-realisation. Based on the analysis of correlation relationships, it was concluded that all components of psychological health act as determinants of socio-psychological adaptation. The underdevelopment of any component of psychological health results in the absence of a well-functioning psychological self-regulation mechanism, which hinders the process of psychological adaptation.

The analysis of correlations between indicators of socio-psychological adaptability and indicators of psychological health made it possible to identify key psychological patterns of adaptation in female educators to global changes. The key indicator of personal adaptive potential was behavioural regulation, which showed the highest correlation coefficients with all components of psychological health, particularly with the following constructive traits: energy, activity, positive mood, self-control, stress resistance, cognitive flexibility, creative realisation, and spiritually optimistic

worldview. These qualities correspond to the psychological, psychosomatic, and spiritual-meaning components, and form the basis of personal psychological self-regulation. Significant negative correlations of behavioural regulation were observed with lethargy, neuroticism, depression, frustration, weak will, emotional lability, passivity, harmful habits, lack of life awareness, and rigidity. These findings suggest that deficits in psychological health lead to an undeveloped mechanism of psychological self-regulation, which hinders an individual's adaptation to new living conditions.

The leading functions in the process of socio-psychological adaptation of female educators are performed by cognitive flexibility, spiritually optimistic worldview, self-control, positive mood, and energy. The criterion of communicative competence was found to be less dependent on psychological health, although it demonstrated moderate correlations with its components and individual indicators such as cognitive flexibility, emotional control, social adaptability, benevolence, and activity. This allowed for the classification of communicative competence as a secondary criterion of socio-psychological adaptation in female educators. The criterion of moral normativity was found to be largely independent of psychological health. It did not correlate with either the spiritual-meaning or psychological components, and showed only a slight association with the social component, indicating a minor influence of moral norms on an individual's social status. A noteworthy pattern was the complete absence of

correlation between moral normativity and behavioural regulation, with only a minimal connection observed between moral normativity and communicative competence. This is understandable, given that pedagogical education traditionally emphasises the development of moral values and communication skills in future educators. However, the findings suggest that internalisation of external moral rules alone does not ensure the full formation of the psychological mechanism of behavioural self-regulation.

Negative correlations of moral normativity were found with aggressiveness, egocentrism, and the presence of harmful habits. This is consistent with theoretical expectations, as the adoption of moral norms tends to restrain egocentric and aggressive behaviours and supports the reduction of harmful tendencies. The correlation analysis thus demonstrated that moral normativity can serve as a suppressor of aggressive tendencies, moderately influencing the restraint of egocentrism and harmful habits, but does not contribute to the holistic development of the psychological mechanism of behavioural self-regulation. Based on the statistical analysis of empirical data, it can be argued that moral normativity provides an individual only with external behavioural guidelines for communicative actions. In contrast, it is the internal psychological mechanism of moral self-regulation that contributes to the development of moral behaviour. Therefore, the formation of such a mechanism should be grounded not only in the acquisition of external moral norms, but also in the development of spiritual and moral values, which subsequently become a core part of the personality and ensure moral conduct during adaptation to new living conditions. From this, we conclude that the internalisation of social moral norms is only partially related to the state of an individual's psychological health. Consequently, for the optimisation of the socio-psychological adaptation process, it is essential to cultivate intrapersonal spiritual-meaning determinants of psychological self-regulation in future female educators.

It may be assumed that psychological health influences behavioural regulation primarily outside the social context. This assumption is supported by the finding of only a weak correlation between psychological health and moral normativity. Therefore, social support in the adaptation process of female teachers to new life conditions plays a secondary role, in comparison to intrapersonal factors. As a result, pedagogical education should be based on a system of psychological interventions aimed at the development of the female teacher's personality across all levels – from spiritual-meaning to psychosomatic.

The suicidal risk indicator showed significant negative correlations with the psychological and spiritual-meaning components of psychological health. Specifically, it was found that the intrapersonal basis of suicidal risk includes depressiveness, pessimistic

worldview, emotional lability, social maladaptation, neuroticism, weak will, passivity, lack of creative self-realisation, frustration, and rigidity of personality. Timely psychodiagnostics of these traits is essential for identifying at-risk groups for suicidal behaviour, especially among women facing life challenges. Based on the presented statistical analysis, it is hypothesised that the development of psychological self-regulation – through cultivating a spiritually meaningful outlook on life, fostering an optimistic worldview, and achieving creative self-actualisation – represents a psychological direction for suicide prevention.

The confirmation of statistically significant correlations between the adaptive potential indicators and all criteria of psychological health provides a foundation for the conclusion that the state of psychological health determines an individual's socio-psychological adaptation to new life conditions. An interesting finding is that female teachers' psychological readiness to teach worldview-oriented material related to global changes had a positive correlation only with the spiritual-meaning component of psychological health – specifically with life awareness and creative self-realisation. This indicates the leading role of this component in the psychological adaptation process of the educator. It was also established that social maladaptation hinders the female teacher's ability to present worldview-related content to students. The readiness to teach worldview material and to respond to complex questions is based on a mechanism of spiritual-psychological regulation, which develops through the actualisation of spiritual-meaning qualities such as responsibility, optimism, and creative fulfilment.

Hence, to develop psychological readiness for delivering worldview-oriented instruction, the teacher must possess a clear self-awareness, an understanding of her place in the world, a spiritually optimistic worldview, be socially adapted, demonstrate personal responsibility, and avoid externalising blame. Based on the study, it was found that the state of psychological health in female teachers significantly influences their adaptation to new life conditions. Most notably, psychological well-being affects the development of self-regulation of behaviour and serves as a protective factor against suicidal risk.

Correlation coefficients between indicators of female teachers' psychological health and their socio-psychological adaptation are presented in Tables 2-3. The integrated indicator of psychological health showed significant positive correlations with all measures of adaptive potential. The most pronounced positive correlations were observed with behavioural regulation and communicative competence, while a significant negative correlation was identified with suicidal risk, confirming the determinative function of psychological health in the process of psychological adaptation. Among individual indicators, the most prominent positive correlations with adaptive potential

were found in cognitive flexibility, energy levels, and a spiritually optimistic worldview. This leads to another psychological pattern: flexible thinking, supported by spiritual and psychosomatic energy potential, appears to be the key psychological mechanism in the development of adaptive capacities.

Of particular note is the presence of pathogenic symptom complexes – destructive psychological health criteria that are closely interrelated and

negatively correlated with the indicators of personal adaptive potential. The first such symptom complex is reflected in the significant inter-correlations between neurotic traits such as neuroticism, emotional lability, depression, pessimism, lethargy, passivity, lack of willpower, frustration, and aggression. These factors significantly hinder the creative self-realisation of the teacher and are negatively associated with adaptive potential (Table 2).

**Table 2.** Significant correlation coefficients between indicators of female teachers' psychological health criteria

Indicators of adaptive potential and psychological health	Indicators of psychological health												
	General indicator of psychological health	Spiritual-optimistic worldview	Responsibility	Externality	Creative self-realisation	Social adaptation	Decentration	Egocentrism	Benevolence	Aggressiveness	Tolerance	Frustration	Cognitive flexibility
Adaptive potential	0.68	0.36		-0.40	0.21	-0.55		-0.38	0.34	-0.59		-0.56	0.45
Behavioral regulation	0.68			-0.34	0.25	-0.52		-0.27	0.23	-0.41	0.21	-0.62	0.53
Moral normativity	0.68			-0.25				-0.35		-0.54			
Communicative competence	0.68	0.37		-0.25		-0.48		-0.22	0.34	-0.36		-0.32	0.40
Suicidal risk	0.68	-0.24		0.29	-0.33	0.57				0.30		0.43	-0.48
Spiritual-optimistic worldview	0.42				0.38	-0.33	0.32	-0.28	0.56	-0.35	0.30	-0.28	0.61
Pessimistic worldview	-0.60	-0.53		0.32	-0.39	0.56			-0.28	0.33	-0.21	0.40	-0.60
Self-reflection	0.28		0.45		0.33		0.41				0.56		
Lack of awareness	-0.58	-0.26		0.24	-0.22	0.52		0.31		0.42		0.49	-0.23
Responsibility	0.27			-0.36	0.28		0.52		0.33	-0.23	0.45		0.22
Externality	-0.50		-0.36				-0.26	0.33	-0.25	0.40	-0.28	0.40	-0.25
Creative self-realisation	0.54	0.38	0.28			-0.30	0.29		0.48	-0.26	0.44	-0.35	0.51
Lack of creative self-realisation	-0.60	-0.41	-0.28	0.26	-0.66	0.35		0.23	-0.48	0.40	-0.39	0.33	-0.57
Social adaptation	0.51	0.44	0.41	-0.22	0.44	-0.54	0.38		0.45	-0.27	0.40		0.56
Decentration	0.30	0.32	0.52	-0.26	0.29			-0.22	0.52	-0.35	0.53		0.31
Egocentrism	-0.49	-0.28		0.33			-0.22		-0.30	0.56	-0.25	0.57	-0.22
Benevolence	0.47	0.56	0.33	-0.25	0.48		0.52	-0.30		-0.52	0.48	-0.25	0.53
Aggressiveness	-0.55	-0.35	-0.23	0.40	-0.26	0.22	-0.35	0.56	-0.52		-0.28	0.45	-0.41
Tolerance	0.43	0.30	0.45	-0.28	0.44		0.53	-0.25	0.48	-0.28		-0.33	0.46
Frustration	-0.68	-0.28		0.40	-0.35	0.36		0.57	-0.25	0.45	-0.33		-0.47
Cognitive flexibility	0.62	0.61	0.22	-0.25	0.51	-0.45	0.31	-0.22	0.53	-0.41	0.46	-0.47	
Rigidity	-0.55			0.28	-0.24			0.60	-0.22	0.44	-0.14	0.59	-0.31
Emotional control	0.68	0.42	0.25	-0.21	0.48	-0.46	0.29	-0.39	0.54	-0.42	0.45	-0.47	0.64
Emotional lability	-0.64	-0.26		0.28	-0.37	0.39		0.42	-0.32	0.52	-0.25	0.50	-0.46
Self-control	0.65	0.38	0.31	-0.45	0.51	-0.52	0.33		0.41	-0.38	0.40	-0.45	0.60
Weak will	-0.67	-0.30		0.46	-0.32	0.48		0.28		0.36		0.50	-0.37
Stress resistance	0.57	0.41	0.29		0.49	-0.40	0.31	-0.23	0.37	-0.21	0.54	-0.42	0.61
Neuroticism	-0.62			0.26	-0.29	0.49		0.40		0.40		0.54	-0.32
Energy	0.63	0.51		-0.38	0.45	-0.42		-0.25	0.40	-0.28	0.25	-0.39	0.53
Lethargy	-0.63	-0.24		0.38		0.37		0.35		0.40		0.53	-0.46
Activity	0.59	0.51	0.21		0.56	-0.55	0.22		0.44		0.42	-0.28	0.55
Passivity	-0.62	-0.34		0.37	-0.33	0.64				0.29		0.42	-0.43
Positive mood	0.62	0.46	0.21	-0.36	0.47	-0.43	0.27	-0.25	0.50	-0.36	0.28	-0.44	0.67
Depressiveness	-0.66	-0.38		0.24	-0.47	0.56		0.22	-0.36	0.39		0.46	-0.58
Healthy habits	0.54	0.40		-0.24	0.28	-0.32	0.26	-0.41	0.39	-0.44	0.32	-0.37	0.44
Harmful habits	-0.62			0.31	-0.28	0.47		0.41		0.49		0.50	-0.29

Source: compiled by the author

In contrast to the aforementioned negative traits, such indicators of psychological health as energetic disposition, activity, positive mood, cognitive flexibility, stress resistance, emotional and behavioral self-control also show strong intercorrelations and have significant positive correlations with indicators of the individual's adaptive potential (Table 3). These correlations point

to a psychological regularity: the higher the level of psychological health (including cognitive flexibility, self-control, energy, optimism), the more capable a female teacher is of adapting to new, complex living conditions. Conversely, the more neurotic, passive, depressive, pessimistic, aggressive, or rigid a female teacher is, the lower her adaptive potential.

**Table 3.** Significant correlation coefficients of female teachers' psychological health indicators

Indicators of adaptive potential and psychological health	Indicators of Psychological Health													
	Rigidity	Emotional control	Emotional lability	Self-control	Weak willpower	Stress resilience	Neuroticism	Energy	Activity	Passivity	Positive mood	Depressiveness	Healthy habits	Harmful habits
Adaptive potential	-0.46	0.42	-0.57	0.40	-0.55	0.21	-0.58	0.47	0.39	-0.61	0.42	-0.54	0.33	-0.59
Behavioral regulation	-0.41	0.51	-0.55	0.55	-0.61	0.38	-0.67	0.57	0.44	-0.53	0.57	-0.64	0.37	-0.53
Moral normativity	-0.24		-0.26							-0.22				-0.35
Communicative competence	-0.31	0.36	-0.35		-0.30		-0.30	0.33	0.34	-0.50	0.25	-0.33		-0.36
Suicidal risk	0.42	-0.46	0.62	-0.52	0.49	-0.35	0.57	-0.45	-0.37	0.53	-0.56	0.71		0.44
Spiritual-optimistic worldview		0.42	-0.26	0.38	-0.30	0.41		0.51	0.51	-0.34	0.46	-0.38	0.40	-0.20
Pessimistic worldview	0.31	-0.45	0.54	-0.53	0.49	-0.32	0.37	-0.47	-0.56	0.52	-0.55	0.61	-0.37	0.38
Self-reflection	0.35	-0.29	0.41	-0.34	0.51		0.54		-0.26	0.45	-0.25	0.37	-0.31	0.54
Lack of awareness		0.25		0.31		0.29			0.21		0.21			
Responsibility	0.28	-0.21	0.28	-0.45	0.46		0.26	-0.38		0.37	-0.36	0.24	-0.24	0.31
Externality	-0.24	0.48	-0.37	0.51	-0.32	0.49	-0.29	0.45	0.56	-0.33	0.47	-0.47	0.28	-0.28
Creative self-realisation	0.32	-0.51	0.50	-0.46	0.36	-0.49	0.38	-0.49	-0.56	0.43	-0.51	0.55		0.38
Lack of Creative self-realisation		0.53	-0.39	0.53	-0.28	0.51		0.42	0.53	-0.38	0.46	-0.36	0.27	
Social adaptation		-0.46	0.39	-0.52	0.48	-0.40	0.49	-0.42	-0.55	0.64	-0.43	0.56	-0.32	0.47
Decentration		0.29		0.33		0.31			0.22		0.27		0.26	
Egocentrism	0.60	-0.39	0.42		0.28	-0.23	0.40	-0.25			-0.25	0.22	-0.41	0.41
Benevolence	-0.22	0.54	-0.32	0.41		0.37		0.40	0.44		0.50	-0.36	0.39	
Aggressiveness	0.44	-0.42	0.52	-0.38	0.36	-0.21	0.40	-0.28		0.29	-0.36	0.39	-0.44	0.49
Tolerance		0.45	-0.25	0.40		0.54		0.25	0.42		0.28		0.32	
Frustration	0.59	-0.47	0.50	-0.45	0.50	-0.42	0.54	-0.39	-0.28	0.42	-0.44	0.46	-0.37	0.50
Cognitive flexibility	-0.31	0.64	-0.46	0.60	-0.37	0.61	-0.32	0.53	0.55	-0.43	0.67	-0.58	0.44	-0.29
Rigidity		-0.50	0.62	-0.21	0.26	-0.23	0.45	-0.33			-0.38	0.51	-0.30	0.38
Emotional control	-0.50		-0.60	0.57	-0.32	0.56	-0.47	0.50	0.54	-0.30	0.69	-0.57	0.47	-0.31
Emotional lability	0.62	-0.60		-0.51	0.38	-0.35	0.58	-0.48	-0.44	0.40	-0.58	0.67	-0.29	0.44
Self-control	-0.21	0.57	-0.51		-0.59	0.52	-0.47	0.54	0.45	-0.50	0.62	-0.50	0.35	-0.39
Weak will	0.26	-0.32	0.38	-0.59		-0.25	0.56	-0.47	-0.36	0.63	-0.42	0.44	-0.32	0.66
Stress resistance	-0.23	0.56	-0.35	0.52	-0.25		-0.35	0.45	0.52	-0.33	0.42	-0.35	0.31	
Neuroticism	0.45	-0.47	0.58	-0.47	0.56	-0.35		-0.43	-0.31	0.48	-0.45	0.64	-0.23	0.59
Energy	-0.33	0.50	-0.48	0.54	-0.47	0.45	-0.43		0.65	-0.51	0.69	-0.54	0.35	-0.39
Lethargy	0.52	-0.43	0.60	-0.44	0.56	-0.32	0.69	-0.59	-0.37	0.44	-0.53	0.66	-0.30	0.54
Activity	-0.20	0.54	-0.44	0.45	-0.36	0.52	-0.31	0.65		-0.57	0.55	-0.50	0.38	-0.31
Passivity		-0.30	0.40	-0.50	0.63	-0.33	0.48	-0.51	-0.57		-0.42	0.45	-0.29	0.59
Positive mood	-0.38	0.69	-0.58	0.62	-0.42	0.42	-0.45	0.69	0.55	-0.42		-0.70	0.41	-0.41
Depressiveness	0.51	-0.57	0.67	-0.50	0.44	-0.35	0.64	-0.54	-0.50	0.45	-0.70		-0.28	0.45
Healthy habits	-0.30	0.47	-0.29	0.35	-0.32	0.31	-0.23	0.35	0.38	-0.29	0.41	-0.28		-0.35
Harmful habits	0.38	-0.31	0.44	-0.39	0.66		0.59	-0.39	-0.31	0.59	-0.41	0.45	-0.35	

Source: compiled by the author

The second symptom complex is associated with egocentrism, which demonstrated strong correlations with rigidity, aggressiveness, emotional lability, neuroticism, harmful habits, externality, and lack of life awareness. Egocentrism had a negative impact on both the psychological and spiritual-meaning components of psychological health, as well as on the individual's adaptive potential. In particular, a negative correlation was observed between egocentrism and the teacher's moral normativity, behavioural self-regulation, and communicative competence. Based on the analysis of correlation links, it can be stated that egocentrism is a central pathogenic trait that hinders both the development of adaptive capacities and the harmonisation of an individual's psychological health. Therefore, overcoming egocentrism through the development of decentration is a foundational aspect of conscious self-development, especially during crisis periods and in the process of adapting to new life circumstances. Another important personality characteristic that hinders adaptation is stress intolerance – a high level of frustration tension in complex social situations. The indicator of frustration showed strong correlations with rigidity, egocentrism, neuroticism, weak willpower, aggressiveness, externality, and pessimism. Frustration, which is a consequence of stubbornness and cognitive rigidity, negatively affected all components of the individual's adaptive potential and contributed to the development of suicidal risk in difficult life circumstances.

It was revealed that there is a reciprocal influence between pronounced egocentrism and frustration intolerance. In contrast, the opposite quality – frustration tolerance – demonstrated strong positive correlations with all components of psychological health, particularly with stress resilience, cognitive flexibility, and activity. Based on this, the conclusion was drawn that the effect of self-regulation in situations of frustration is ensured through a strong association of this quality with spiritual-moral regulatory mechanisms: self-reflection, decentration, benevolence, and responsibility. Psychological adaptation of female teachers to war conditions therefore requires overcoming egocentrism through the development of decentration, responsibility, self-reflection, and cognitive flexibility. An equally noteworthy correlation pattern was observed for the criterion of psychological health referred to as creative selfrealisation. It demonstrated positive correlations with a system of positive cognitive-emotional-volitional qualities (cognitive flexibility, selfcontrol, stress resilience, activity, benevolence, positive mood, and vigour), which also influenced female teachers' readiness to teach worldviewrelated content to their students. Conversely, creative nonrealisation negatively affected the psychological and psychosomatic components of psychological health, reduced behavioural regulation and communicative competence, and contributed to the development of emotional lability, aggressiveness,

pessimism, and suicidal risk. Therefore, one of the effective directions for actualising the adaptive potential of female teachers is the development of cognitive flexibility through their involvement in creative activity and actualisation of their creative abilities.

The negative effect of externality on adaptive abilities is also of particular interest. Correlation analysis showed that an external locus of control reduces the individual's adaptive potential, in particular – behavioural regulation, moral normativity, and communicative competence – substantially deteriorates psychological health, and promotes increased weak will, aggressiveness, and frustration in problematic social situations. In contrast, the opposite personal quality – responsibility – showed positive correlations with decentration, selfreflection and benevolence, which contribute to the development of stress resilience and frustration tolerance. Based on the conducted empirical study, a set of psychological regularities was identified. It was established that the higher the level of psychological health of a female teacher – particularly her cognitive flexibility, selfcontrol, vigour, and optimism – the greater her capacity to adapt to new conditions of existence. Conversely, female teachers characterised by heightened neuroticism, depressiveness, pessimism, aggressiveness, and rigidity demonstrated a significantly lower potential for adaptive functioning.

In the process of developing psychological readiness to teach worldviewrelated content, the leading function was performed by the spiritual-meaning component of psychological health and by the teacher's cognitive flexibility. Egocentrism was found to be the central pathogenic personality characteristic that hindered both the development of adaptive abilities and the harmonisation of psychological health: the higher the level of egocentrism, the more difficult it was for an individual to adapt to new life conditions. Stress intolerance impeded the actualisation of adaptive potential in female teachers and contributed to suicidal risk under difficult life circumstances. Psychological health was found to influence behavioural regulation predominantly outside the social context, as moral normativity – i.e., adherence to social moral norms – did not ensure the development of behavioural selfregulation. The effect of selfregulation in complex social situations was provided by a set of spiritual regulators based on the unity of selfreflection, decentration, responsibility, benevolence, and optimism combined with volitional selfcontrol and cognitive flexibility.

Analysis of the correlation patterns allowed us to conclude that the determinants of developing the adaptive potential of female teachers are the combinations of spiritual-moral qualities and emotional-volitional qualities, which constitute the foundations of the mechanism of psychological selfregulation. In contrast, the determinants of sociopsychological maladaptation are predominantly pathogenic emotional states and

volitional deviations of the personality. Thus, the statistical analysis of the empirical data confirmed that psychological health is the basis for the development of the individual's adaptive potential.

Certain aspects of the influence of psychological health on the state of a teacher's socio-psychological adaptation find support in contemporary scientific research. Many scholars focus attention on psychosomatic factors – such as endurance, vigour, positive mood, and a healthy lifestyle. Negative psychosomatic influences include harmful habits, poor nutrition, mental exhaustion, harsh working conditions, a sedentary lifestyle, and loneliness (Voznyuk, 2021). S. Hrabovska *et al.* (2024) emphasised that during wartime, the primary integrator of an individual's adaptive resources is the ability to engage in somatic self-regulation. In the context of the present study, these findings confirm the conclusion that the psychosomatic component plays a significant role within the structure of psychological health, as the research results demonstrate the positive impact of such factors as physical activity, vigour, a positive emotional state, and healthy habits on the actualisation of adaptive potential. Researchers classify the adaptive resources of the individual as encompassing psychological mechanisms – cognitive, emotional, and volitional – which correspond to the psychological component of psychological health in the present study. Disharmony within this component tends to manifest in the form of anxiety, conflict-proneness, and loss of self-control. M. Yildirim & G. Arslan (2020) examined emotional balance and identified affective stability and volitional resilience as mechanisms that support psychological well-being during life's challenges. The activation of one's own psychological resources – intellectual, emotional, and volitional – is fundamental to the psychological adaptation of individuals involved in the educational process under wartime conditions.

It has also been statistically demonstrated that psychological flexibility fosters an optimistic outlook and enhances adaptive capacities in educators. Y.-F. Luo *et al.* (2021), in their study of the phenomenon of subjective well-being, confirmed that positive emotions reduce levels of anxiety. Within the framework of the psychological health model presented in this study, these findings convincingly reinforce the conclusion that the psychological component of psychological health underpins self-regulation and plays a determinative role in the development of behavioural regulation within the adaptive potential of the individual. A substantial body of research has experimentally demonstrated that teachers' psychological well-being and the effectiveness of pedagogical activity during wartime are significantly influenced by social qualities. I. Popovych *et al.* (2022), examining dispositional predictors of psychological well-being, emphasised that openness to experience and extraversion serve as the foundation for psychological well-being under martial law conditions,

as these traits facilitate the restructuring of individuals' adaptive resources under chronic stress.

Y. Kashpur & I. Roienko (2023) explored the relationship between psychological defense mechanisms and personality traits. Their research found that regression is positively associated with extraversion, neuroticism, openness to experience, and agreeableness; compensation correlates with extraversion, neuroticism, and agreeableness; projection is linked to extraversion; intellectualisation correlates with self-control; and extraversion itself is associated with a general tendency to employ defense mechanisms. These psychological defense mechanisms, which support adaptation to new life conditions, are closely related to personality traits that reflect the criteria of the social component of psychological health. I.V. Ievtushenko (2023) emphasised the importance of adequate social relationships as a crucial factor of psychological well-being. These findings align with the conclusions presented in the current study, particularly the role of the social component of teachers' psychological health in shaping their communicative competence, which is a key element of their adaptive potential.

Numerous researchers have concluded that spiritual and meaning-making factors play a leading role in the development of a teacher's adaptive potential – particularly life meaningfulness, personal self-actualisation, and emotional balance. S. Rostami *et al.* (2023) focused on responsibility as a key factor in enhancing teachers' adaptability, as it fosters the ability to consciously shape one's own motivation. In contrast, the main contributors to learned helplessness in contemporary educators include depressiveness and a lack of subjective control over events in professional life. Indeed, external locus of control and depressiveness, as markers of deficiencies in the spiritual and meaning-making component of psychological health, hinder the actualisation of adaptive potential.

Internal factors of teacher burnout include emotional rigidity, low work motivation, and an unwillingness to self-improve (Vargata *et al.*, 2021). These conclusions are fully supported by the findings of the present study, as spiritual-meaning-related criteria of psychological health are identified as primary determinants of the development of behavioral self-regulation. N.M. Savielieva *et al.* (2023) argue that teachers' responses to stressful situations should be grounded in spiritual and moral values, as harmonious teacher behavior reflects their inner spiritual position. This strongly supports the significance of the spiritual and meaning-making component of psychological health in the actualisation of adaptive potential, confirming its hierarchically dominant role within the overall structure of psychological health.

According to B. Misiak *et al.* (2025), an effective factor in mastering adaptive coping strategies in challenging social situations is the presence of personal

dispositions, which reflect the content of the individual's spiritual-meaning-based structures. This finding supports the existence of a deterministic relationship between the spiritual and social components of psychological health: the social component (i.e., the ability to behave constructively in difficult social situations) is determined by the spiritual one (values, attitudes, and dispositions). I. Voznyuk (2021) emphasised that psychological conditions for the actualisation of a person's adaptive potential include the development of self-regulation through the formation of responsibility and an active life position. This supports the findings of the current study, which posits that the foundation of psychological adaptation lies in self-regulation, rooted in spiritual and moral qualities, combined with cognitive flexibility and willpower.

Similarly, O. Shportun *et al.* (2024) identified the following components of socio-psychological adaptation during wartime: conative, cognitive, emotional, and motivational. These studies contributed to a more comprehensive understanding of the mechanisms behind the realisation of an individual's adaptive potential. Moreover, psychological research consistently confirms that the development of adaptive abilities in teachers is largely ensured through holistic personal development. Based on the data obtained, the article presents a new, evidence-based perspective on the issue of teachers' psychological health, viewing it as a complex construct that integrates spiritual, social, psychological, and somatic dimensions of personality. A close interrelation was demonstrated among various components of psychological health – such as cognitive flexibility, self-control, emotional stability, optimism, and the spiritual-meaning-making component – and their impact on teachers' adaptive potential.

It was found that a high level of psychological health facilitates successful adaptation to rapidly changing professional environments, whereas traits like rigidity, neuroticism, and egocentrism limit an individual's capacity to overcome difficulties. Thus, the holistic nature of teachers' psychological health was confirmed, and its crucial role in ensuring the harmonious functioning of personality in both professional and social contexts was underscored.

### Conclusions

The issue of socio-psychological adaptation of female teachers under current conditions is multifaceted and requires a comprehensive approach. On the one hand, adaptation processes are influenced by objective external factors such as war, socio-economic crises, and digitalisation; on the other hand, internal personal

resources – psychological health, resilience, meaning-making ability, and spirituality – play a decisive role.

The research findings confirmed that the development of adaptive potential in female educators is not only a prerequisite for their individual well-being, but also a crucial element of Ukraine's societal resilience in the face of global challenges. Psychological health serves as the foundation of personal stability in situations of socio-economic, political, and environmental crises. It is structured across four interrelated components: spiritual-meaningful, social, psychological, and psychosomatic. Empirical results revealed that 22.0% of respondents are well-adapted to current conditions, whereas 27.5% of teachers show marked socio-psychological maladaptation and are in need of psychological support.

Statistical analysis allowed the identification of a key psychological regularity: the higher the level of psychological health in a female teacher, the more capable she is of adapting to new life conditions. Conversely, individuals exhibiting neuroticism, depression, pessimism, aggressiveness, and rigidity demonstrated significantly lower adaptive capacity. The study confirmed that psychological health is the core foundation of a person's ability to adapt to global change. The main contributors to the development of adaptive capabilities were spiritual and moral qualities, combined with willpower, cognitive flexibility, and vital energy, which together determine the effectiveness of psychological self-regulation mechanisms. In contrast, maladaptive tendencies stem from pathogenic emotional states and volitional deviations, often present in individuals with impaired psychological health. Thus, ensuring psychological well-being is critical not only for professional functioning but also for personal resilience and emotional balance. Future research directions include the development of comprehensive psychological support systems (training programs, lectures, consultations, and community events) aimed at enhancing female teachers' socio-psychological adaptability. These efforts should focus on harmonising psychological health, fostering creativity, building stress resilience, and developing healthy lifestyle habits.

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None.

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## **Закономірності впливу психологічного здоров'я педагогів-жінок на стан їх соціально-психологічної адаптації до світових змін**

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**Анотація.** Українське суспільство перебуває у стані трансформацій та значних соціально-економічних і політичних змін, зумовлених впливом глобалізаційних процесів, економічної нестабільності, війни, міграційних рухів. Для педагогічної спільноти, що представлена переважно жінками, які поєднують кілька соціальних ролей – професійну, сімейну, комунікативно-громадську, неминучим постало завдання конструктивної адаптації до нових світових реалій. Метою статті було висвітлити результати емпіричного дослідження й встановити закономірності впливу психологічного здоров'я педагогів-жінок на стан їх соціально-психологічної адаптованості до світових змін. У дослідженні застосовувалися такі методи: анкетування, психодіагностичне тестування, аналіз емпіричних даних шляхом порівняння відсоткових показників, кореляційного аналізу. Результати дослідження довели, що 22,0 % педагогів-жінок добре адаптовані до сучасних умов, у 26,4 % – рівень адаптації вищий за середній, 24,5 % вчительок відчувають часткову дезадаптацію, 27,5 % – відчувають виражену соціально-психологічну дезадаптацію і потребують психологічної допомоги. За результатами аналізу кореляційних зв'язків зроблено висновок: психологічне здоров'я визначає конструктивність процесу адаптації особистості до нових умов. На основі статистичного аналізу даних встановлено психологічну закономірність: чим краще психологічне здоров'я у вчительки-жінки, тим більш вона здатна до адаптації до нових умов; а чим більш невротичною, депресивною, песимістичною, агресивною, ригідною є педагог-жінка, тим менший потенціал адаптивних здібностей вона має. Статистичний аналіз довів, що психологічним підґрунтям актуалізації адаптаційних здібностей педагога-жінки є поєднання духовно-моральних якостей з волею, гнучкістю мислення та енергійністю. Проведене дослідження підтвердило висновок, що психологічне здоров'я визначає здатність педагога-жінки до конструктивної самореалізації та психологічної адаптації в соціумі

**Ключові слова:** психіка; вчителі; духовність; поведінкова регуляція; комунікативна компетентність; моральна нормативність

## Value regulation of the state of emotional burnout of students

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**Abstract.** The purpose of the study was to determine the relationship between value regulation and emotional burnout among students of higher education institutions. Based on an analysis of scientific literature, it was found that emotional burnout is considered a complex psychological phenomenon that arises as a result of chronic stress and manifests itself through emotional exhaustion, depersonalisation and reduction of personal achievements. Based on theoretical analysis, it was found that the value sphere of the personality is a fundamental psychological formation of a multi-component structure, which performs motivational, regulatory and integration functions in the process of personal development. It has been found that during student age, value orientations are formed under the influence of the educational environment, family surrounding, individual and psychological characteristics and perform a regulatory function regarding emotional burnout, acting as protective or risk factors. An empirical study of the relationship between value regulation and emotional burnout among students was conducted. It was found that about a quarter of students are in a state of pronounced emotional burnout, a third are at risk, but the majority demonstrate resistance to emotional exhaustion. It has been established that the value profile of students is characterised by high indicators of openness to change and self-transcendence with low indicators of self-aggrandizement and conservatism. Correlation analysis confirmed the presence of statistically significant relationships: openness to change and self-transcendence showed negative correlations with the components of emotional burnout, acting as protective factors, while self-exaltation demonstrated the strongest positive relationships with all components of burnout, acting as a risk factor. The practical value of the study lies in the development by teachers of higher education institutions, practical psychologists, curators of academic groups and specialists of psychological support centres of preventive programmes and methods of psychological support to prevent emotional burnout of students

**Keywords:** emotional exhaustion; depersonalisation; learner; personality; reduction; value orientations

### Introduction

Modern society is characterised by a high level of psycho-emotional stress on the individual, which is especially acute during the period of study in higher education institutions. The intensification of the educational process, the need to simultaneously master significant amounts of information, the combination of study with work, and social uncertainty creates favourable conditions for the emergence of a state of emotional

exhaustion in young students. Emotional burnout of students is manifested in a decrease in motivation to study, the emergence of a cynical attitude towards the educational process, and a feeling of professional incompetence even at the stage of preparation for future professional activity. At the same time, a person's value orientations act as a powerful internal resource that can regulate emotional states and promote

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adaptation to difficult life circumstances. Research into the state of emotional burnout and the value sphere of the individual is of particular importance in the context of preserving the mental health of young students and forming psychologically stable future specialists.

The works of foreign and Ukrainian scientists on the phenomenon of emotional burnout became the basis for the work. A. Bravo *et al.* (2021) investigated that burnout involves feelings of exhaustion, increased mental distance from work, feelings of negativism related to career and a decrease in productivity. E. Voitenko *et al.* (2021) considered that emotional burnout is a complex psychological phenomenon involving activities that demand continued involvement and connection with people in an emotionally charged environment. D. Vlasenko & V. Kyrylenko (2023) identified three key manifestations of students' burnout experiencing exhaustion and chronic fatigue, feeling isolated and the perception of one's own inability to achieve the desired results. A. Carroll *et al.* (2022) proved the importance of the factors of emotional regulation, workload and subjective well-being in the development of stress and the formation of certain forms of burnout. T. Kovalkova & T. Malkova (2021) demonstrated that lecturers who practice effective strategies to reduce inner tension did not have the active symptoms of burnout such as psychosomatic and psycho-vegetative disorders, economy of emotions, or experience psycho-traumatic events. V. Tashmatov *et al.* (2025) emphasised that individual personality traits play an important role in the level of burnout, including stress tolerance, the ability to regulate emotions and to use coping strategies. N. Tushnitskyi (2023) emphasised that moral culture is associated with positive values and serves to elevate the human personality. Regarding the concept of personal values made by K. Gamage *et al.* (2021), it was concerned to define "values" as a combination of five main features: concepts or beliefs about desirable end states or behaviours that transcend specific situations, guide the selection or evaluation of behaviour and events and are ordered by relative importance.

Scientists have paid attention to the phenomenon of emotional burnout, the importance of emotional regulation factors in the formation of certain forms of burnout, but not enough attention has been paid to the value regulation of the state of emotional burnout, which served as the basis for conducting the study. The purpose of the study was the theoretical and empirical study of the relationship between value regulation and the state of emotional burnout of students. To achieve the goal, the following research tasks were defined: (1) to analyse the phenomenon of emotional burnout in psychological literature; (2) to consider the value sphere of the individual as an integrative psychological formation; (3) to empirically investigate the relationship between value regulation and students' emotional burnout.

## Literature Review

The study of emotional burnout among students is an important area in educational psychology, as this phenomenon significantly impacts their mental health, academic performance, and overall development. Value orientations, as a component of moral culture, play a crucial role in shaping students' attitudes towards the learning process and can act both as a protective factor against burnout and as a cause of its development. This section reviews the key theoretical approaches to studying emotional burnout and value orientations, as well as the scientific works that served as the foundation for the present research.

N. Tushnitskyi (2023) emphasised "Moral culture, like Christian values, is a product of human activity and is associated with positive values. It serves to elevate the human personality, finds its realisation in daily practice and is comprehended only to the extent of its general cultural level". V. Dub (2015) noted that a student comes to study at a higher education institution with a developed system of value orientations (ego-centric, family, social and spiritual values) and a certain level of personal development. M. Shypko (2016) believed that this state is caused by external and internal circumstances. The formation of the moral culture of student youth occurs under the influence of various factors, which are divided into internal (individual-psychological) and external (social-pedagogical). Emotional burnout of a student was defined by O. Sergeenkova & O. Stolyarchuk (2017) as "a persistent state of physical, emotional and mental exhaustion, accompanied by personal alienation and devaluation of academic achievements". Emotional burnout is considered as a gradual loss of a student's emotional, cognitive and physical resources, manifested through symptoms of exhaustion of various levels and loss of interest in educational activities.

D. Potupalo (2018) noted that "Emotional burnout has a strong impact on a student's personality, undermining their health and desire to study successfully. In addition, students are forced to endure quite heavy loads, which place great demands on the physical, mental, moral and volitional resources of the individual". O. Sergeenkova & O. Stolyarchuk (2017) noted that the development and severity of students' emotional burnout syndrome is determined by a combination of external and internal factors. Among the external factors, the following are distinguished: the peculiarities of the organisation of the educational process as an unclear structure of learning, excessive demands from teachers without a clear explanation of tasks and an unfavorable atmosphere in relations between teachers and students. Internal factors include incorrect choice of profession and distorted motivation for learning; overestimated academic ambitions along with inadequate self-esteem, with both students overestimated and underestimated self-esteem at risk of burnout;

tendency to perfectionism in learning; excessive anxiety and an exaggerated sense of responsibility; introversion and psychological rigidity of certain types of personality accentuations.

A. Tsiupryk & S. Fedorovych (2019) considered the most dangerous consequences of emotional burnout to be the student's devaluation of his own educational and professional achievements and loss of self-confidence, decreased work capacity and vital energy, depressive experiences against the background of weakened motivation and deterioration in academic performance. Researchers identified effective ways to reduce the risk of burnout. They are: trainings on personal growth, professional identity and preparation for future activities, which help to harmonise life and professional values, improve self-esteem and properly organise rest and leisure, resulting in the formation of experience for further self-regulation and self-realisation; involving experienced specialists in managing practice, educational work in academic groups and connections with the professional community, which helps students adapt to their future profession, master new social roles and form the necessary personal qualities; using self-regulation and autogenic training methods to manage cognitive and personal processes, including behaviour, emotions and actions.

O. Rybak (2017) examined the essence of value orientations through the prism of their subjective significance for the individual and positive life content, where the principled position on the formation of value orientations on the basis of higher social needs acquires a fundamental character that are realised in specific social conditions of an individual's life. L. Nikolenko (2018) examined the socio-psychological significance of the value sphere of the individual, highlighting its main characteristics and functions in the process of personality development. The researcher emphasised the dynamic nature of the value sphere, which is manifested in the ability to change under the influence of life circumstances. Thus, scientific research confirms the importance of value orientations in shaping the moral culture of student youth and their influence on emotional burnout. Both internal and external psychological factors significantly determine the level of burnout and can be key in developing effective methods for preventing and correcting this phenomenon among students. Understanding these connections forms the basis for further research and practical recommendations for supporting the psycho-emotional well-being of student youth.

### Materials and Methods

To generalise theoretical approaches to emotional burnout and value orientations, the following methods of theoretical analysis were used: analysis, synthesis, comparison, generalisation of scientific psychological literature. The main scientific works on which

the study was based are the works of C. Maslach *et al.* (1997) and D. Hadar-Shova *et al.* (2024). The works of O. Kononenko (2014), H. Hnuskina (2016), V. Tashmatov *et al.* (2025) were analysed. In particular, the study of the structure and factors of burnout according to the works of C. Maslach *et al.* (1997), the analysis of the value sphere of the personality, based on the theory of Sh. Schwartz, the use of the approaches of H. Hnuskina (2016), O. Kononenko (2014) and V. Tashmatov *et al.* (2025) for the systemic analysis of the problem. In order to study the psychological features of the relationship between value regulation and emotional burnout of students, an empirical study was organised.

The empirical study was conducted at the Kyiv National Economic University named after Vadym Hetman. The study sample consisted of 80 students aged 18 to 23, studying in various courses and majors at the university. Establishing differences in burnout levels depending on age, specialty or course of education was not the goal of the study. Participation in the study was voluntary and anonymous. All participants were previously informed about the purpose, content, and procedure of the study, after which they provided verbal consent to participate. The study was conducted in 2025 in an offline format, questionnaires were used and data collection was conducted individually. The forms were filled out by students independently and returned in coded form to ensure anonymity. The data obtained were used exclusively in a generalised form for scientific purposes and were not transferred to third persons. The procedures of this study complied with the provisions of the Declaration of Helsinki (2013) regarding research on Human participants. The empirical study was conducted in several stages. The first organisational stage involved defining the methodological tools of the study and forming a sample of subjects. The second diagnostic stage included the direct conduct of a psychodiagnostic examination of students using the selected methods. The third analytical stage involved quantitative and qualitative analysis of the data obtained, conducting correlation analysis to identify relationships between indicators and interpreting the research results.

To achieve the set goal and solve the research problems, the following diagnostic methods were used as Maslach Burnout Inventory (MBI) and "Methodology of diagnostics of individual values" (Sh. Schwartz). MBI is the assessment of the level of emotional burnout of students and identification of the specifics of its manifestation according to the main components in the conditions of educational activity. The Burnout Questionnaire is one of the most widely used methods developed by American psychologists C. Maslach & S. Jackson (1981). The questionnaire contained 22 statements about feelings and experiences related to performing an activity. The questionnaire allows to assess emotional burnout using three subscales:

Emotional exhaustion (9 statements) describes feelings of emotional fatigue and emptiness related to academic activities. High scores on this scale indicate exhaustion of the student's emotional resources, a feeling of overload and an inability to recover from academic stress. Depersonalisation (5 statements) describes an impersonal, cynical attitude towards academic activities, teachers and fellow students. High scores reflect the student's emotional detachment from the educational process, formalisation of relationships and indifference to learning outcomes. Depersonalisation acts as a defense mechanism in response to emotional overload. Reduction in personal achievements (8 statements) describes a decrease in the sense of competence in academic activities and satisfaction with one's own achievements. High indicators testify about negative assessment by the student of his own academic success, doubts about his own abilities, decreased motivation for professional development and a feeling of hopelessness in learning. Respondents rate the frequency of experiencing each statement.

Each subscale was rated on five levels: emotional exhaustion (very low – 0-10 points, low – 11-20 points, medium – 21-30 points, high – 31-40 points and very high – 41-54 points); depersonalisation (very low – 0-5 points, low – 6-11 points, medium – 12-17 points, high – 18-23 points and very high – 24-30 points); reduction of personal achievements (very low – 0-8 points, low – 9-18 points, average – 19-28 points, high – 29-38 points and very high – 39-48 points); emotional burnout (very low – 0-23 points, low – 24-49 points, average – 50-75 points, high – 76-101 points and very high – 102-132 points). Each respondent's answers were processed according to the method key. Scores were summed separately for three subscales: emotional exhaustion (9 statements, maximum 54 points), depersonalisation (5 statements, maximum 30 points), and reduction of personal accomplishment (8 statements, maximum 48 points). The total burnout score was calculated as the sum of scores across all three subscales (maximum 132 points). Each individual indicator was then assigned to one of five levels (very low, low, medium, high, very high).

"Methodology of diagnostics of individual values" (Sh. Schwartz) is the identification of dominant value orientations of students and determination of their hierarchical structure according to the main types. The methodology is designed to study the basic values of a person, which determine motivational goals and the direction of life and is based on the theory of universal values of Sh. Schwartz (Hadar-Shova *et al.*, 2024), according to which the value system of a person is organised according to the principle of compatibility and conflict between different motivational types. The questionnaire contains a list of 57 values that the respondent rates depending on their importance. The results were

interpreted according to the main subscales, which reflect the basic contradictions in the value sphere.

1. Openness to change (maximum 84 points). A high level (52-84 points) indicates a desire for novelty, independent thinking, hedonistic experiences and experimentation; average level (20-51 points) indicates a moderate orientation towards autonomy and change, balanced with a desire for stability; low level (12-19 points) indicates a tendency towards traditionalism, risk avoidance and uncertainty.

2. Conservatism (maximum 119 points). A high level (74-119 points) indicates an orientation towards stability, security and traditional values; an average level (29-73 points) indicates a flexible attitude towards traditions and social norms; low level (17-28 points) indicates skepticism towards traditions, low tendency towards conformity and social subordination.

3. Self-exaltation (maximum 63 points). A high level (40-63 points) indicates an orientation towards social status, power and personal achievements; an average level (16-39 points) indicates a balanced attitude towards success and power; low level (9-15 points) indicates a weak desire for dominance, material well-being and status achievements.

4. Self-transcendence (maximum 133 points). A high level (84-133 points) characterises the priority of altruistic values, empathy and public good; medium level (33-83 points) indicates a moderate importance of caring for others combined with personal interests; low level (19-32 points) indicates an orientation mainly towards one's own achievements and weakly expressed social responsibility. The sum of scores was calculated for four subscales: openness to change (12 values), conservatism (17 values), self-exaltation (9 values), and self-transcendence (19 values). Each indicator was then classified into three levels (low, medium, high). First, tables of summarised raw empirical data were created, then percentages were derived from the arithmetic mean.

Therefore, the use of these methods in research is due to their high validity, reliability and wide recognition in world psychological practice as well as compliance with the goals and objectives of the study, which allows obtaining a holistic picture of the relationships between the value sphere of the student's personality and his or her tendency to emotional burnout. After obtaining numerical indicators by both methods, a correlation analysis was conducted using the statistical programme SPSS 27.0. For each pair of variables (subscale of the Maslach method and subscale of the Schwartz method), the Pearson correlation coefficient was calculated. Percentage analysis was used at the descriptive statistics stage to determine the proportion of students belonging to each level of burnout and value orientations. Thus, it was obtained a general picture of the distribution of the studied indicators in the sample and to visually present the results in tables and

diagrams. Correlation analysis using Pearson's linear correlation (Pearson's coefficient) was chosen as the main method of statistical processing. The processing was carried out using the IBM SPSS Statistics 26.0 software package, which ensured the accuracy of calculations and the ability to verify the statistical significance of each correlation.

## Results

### Theoretical aspects of emotional burnout

Burnout syndrome can be characterised as a state of emotional exhaustion, which manifests itself through constant physical, mental and moral fatigue, loss of interest in favourite activities, irritability and stress. The concept of burnout was first introduced into scientific circulation by the American psychiatrist H. Freudenberg (1975), who viewed it as a state of physical and mental exhaustion caused by professional activity. The beginning of the study of this phenomenon dates back to 1974, when in his article "Employee Burnout" he described it as a complex of psychological problems like despondency, fatigue, disappointment that arise in healthy people as a result of prolonged work overload. H. Freudenberg identified three main components of emotional burnout. They are emotional exhaustion as fatigue from excessively long and intense involvement in an activity; depersonalisation as weakening of emotional connection with the world around us, indifference; feeling of futility of efforts as the belief that one's own actions do not bring results and do not affect the situation.

O. Kononenko (2014) identified two groups of causes of emotional burnout syndrome: Subjective (individual) reasons that are related to personality traits, age, value system, beliefs, psychological defense mechanisms, attitude to activity, relationships with colleagues and in the family. This group also includes high expectations for the results of one's own activities, a strong commitment to moral principles, an inability to refuse and a tendency to self-sacrifice. Objective (situational) reasons are directly related to the conditions of activity. They are increased workload, unclear understanding of responsibilities, insufficient social and psychological support. At the same time, researchers emphasise that preventing burnout is associated with the development of individual motivational resources that contribute to professional and personal development, the realisation of life goals and self-determination. In scientific works, as noted by H. Hnuskina (2016), the phenomenon of burnout is described using different terms: "professional burnout", "emotional burnout", "psycho-emotional burnout". The three-factor model of C. Maslach & J. Jackson (1981) has received the widest recognition in modern science. The essence of burnout is manifested through a combination of three components. They are physical, emotional and cognitive exhaustion, where the emotional component plays the main role.

C. Maslach & J. Jackson (1981) gave the basic definition of the phenomenon of burnout, considering it as a complex psychological phenomenon that causes emotional burnout as a reaction of the body to constant stress and contains the following main components that manifest through emotional exhaustion, depersonalisation and reduction of personal achievements.

Emotional exhaustion is manifested by a feeling of overload from emotional contacts. Characteristic features are excessive concern for other people's problems, along with a sense of responsibility for their well-being and blaming oneself when it is impossible to provide the necessary help. Depersonalisation is expressed in the creation of a protective barrier in professional communication. Typical signs are avoidance of communication, emotional detachment, indifference to the problems of clients and colleagues and demonstrative rejection of professional interaction. Reduction of professional achievements is the final component, which is characterised by a decrease in the sense of one's own competence and satisfaction with work and the formation of thoughts about the futility of professional efforts. In the development of emotional burnout, three consecutive stages are distinguished. At the first stage, an imbalance appears between the demands of the professional environment and personal resources, which leads to a stressful state with emotional and physical exhaustion. The second stage is characterised by the appearance of short-term emotional tension, the accumulation of fatigue and exhaustion, accompanied by negative thoughts about oneself and others, a feeling of emptiness and the loss of the ability to see the positive results of one's work. In the third stage, significant changes occur in the motivational sphere and behaviour, where the main manifestation is depersonalisation in interaction with clients and colleagues against the background of complex emotional, mental and physical exhaustion.

Thus, an analysis of the scientific literature shows that researchers, using the concept of professional burnout, focus on its connection with stressful factors of activity. The concepts of emotional and professional burnout are combined in the context of stressful situations related to the performance of professional duties, when it is possible to define emotional burnout through the manifestations of its main components: emotional exhaustion, depersonalisation and reduction of personal achievements. Emotional burnout is often provoked by a value conflict, when personal beliefs do not coincide with the requirements of the activity, which leads to cynicism, fatigue and apathy. Burnout is caused by hyper-responsibility, striving for the ideal, ignoring one's own needs, as well as inconsistency of the values of the activity with personal principles. It often occurs when expectations (ideals, values) do not match reality (high workload, low evaluation), leading to a devaluation of achievements.

### **The role of the value sphere in personality development**

Emotional burnout is closely related to the value sphere, because when value orientations (for example, “openness to change”, “conservatism”) come into conflict with reality (stress, fatigue, high workload, low assessment), detachment, loss of interest and devaluation of one’s own activities occur. Violation of value orientations leads to internal devastation and maladjustment. Studying the structure and functions of the value sphere helps to understand the mechanisms of personality development and the processes of transforming individual meanings into a stable system of value orientations. The term “value” is widely used in science to denote the human, social and cultural significance of various phenomena of reality. Values are a system of beliefs and ideas that help a person navigate the world and satisfy his needs. The value sphere is dynamic and can change under the influence of life circumstances and its main functions are manifested through orientation in life, integration into society, regulation of behaviour and setting life goals. Emotional burnout occurs when personal values are faced with the impossibility of their realisation or conflict with the demands of the environment. The main mechanism is that values become a source of stress if the activity reduces the meaning of this activity or requires actions that contradict beliefs.

Student age is a special period in a person’s life, characterised not only by the acquisition of professional knowledge and skills, but also by the active formation of a worldview, moral beliefs and value orientations. It is at this time that the formation of the individual as a subject of professional activity and a citizen capable of moral reflection and ethically responsible behaviour takes place. When considering the social situation of development during student age, it is important to highlight the main aspects related to education and professional prospects. During this period changes occur in social requirements and conditions in which personal attitudes are formed such as preparation for a future profession, for fulfilling civic duties, for choosing a life path. The transition from dependent childhood to independent adulthood affects all areas of life, leading to internal and external contradictions in the process of identity formation and “self-concept”.

V. Tashmatov *et al.* (2025) emphasised the regulatory role of values in the behaviour of student youth. The complex structure of the value sphere of the individual includes different levels of values. They are objective and subjective, universal and personal, internal and external. The level of emotional burnout among students is largely related to their lifestyle, attitude towards learning and social environment. Individual personality traits play an important role, including the level of stress tolerance, the ability to regulate emotions and the ability to use coping strategies to overcome difficulties. Researchers distinguished four groups of students

according to their value orientations and tendency to emotional burnout: “Party people” are students who thanks to their parents’ financial support, lead a care-free life and often neglect their studies. They rarely experience emotional burnout because they avoid intense academic stress. “Parental hopes” are students who are under strong parental influence regarding their choice of profession and the need to study hard. They often feel psychological pressure and responsibility for academic performance, which makes them vulnerable to burnout. “Know-it-alls” are students for whom studying is the top priority in life. They devote a lot of time to studying and academic work, which often leads to sleep deprivation, chronic stress and emotional exhaustion. The “golden mean” are students who are able to find a balance between their studies and personal lives, rationally distributing their time and energy. Thanks to this, they are less likely to encounter psychological problems, in particular, emotional burnout.

Values are organised according to the principle of compatibility and conflict, some of which encourage a person to be open, flexible, and caring for others, while the opposite ones focus on maintaining stability, personal status, and control. It is the content and ratio of dominant (prevailing) values that determine how a person interprets stressful situations or perceives them as a threat or as a challenge that can be overcome. When, thanks to the value sphere, a student finds meaning in activities, maintains contact with other people, and flexibly adapts to change, then this sphere becomes a powerful protective resource against emotional exhaustion. Instead, a value orientation towards high status and achievement in the face of limited opportunities generates chronic frustration, which gradually depletes the emotional resources of the individual. Values directly influence burnout through the conflict between personal beliefs and the reality. Burnout occurs when person’s values (e.g., honesty, quality, helping others) are ignored, or due to too high ideals, leading to chronic stress, cynicism, loss of meaning, alienation and emotional exhaustion.

Burnout manifests itself as emotional withdrawal. Openness to change (seeking novelty, flexibility) affects burnout, because the student is constantly looking for new projects, quickly takes on complex tasks. If energy runs out, and new stimuli continue to arrive, the exhaustion phase begins. For example, a student who loves innovation takes on the task of mastering three educational technologies at once. He quickly burns out due to overload and lack of time to deeply assimilate the changes. Conservatism (stability, tradition, predictability) influences burnout because a person feels stressed when the usual order is disrupted. Resistance to change requires enormous emotional effort, which leads to exhaustion when change is inevitable. For example, a student who has been working in a paper-based format is forced to switch to a new

programme. His fear of the unknown and attempts to resist change lead to constant background stress and burnout. Value regulation of emotional burnout involves managing the emotional exhaustion, depersonalisation and reduced personal accomplishment typical of burnout by aligning personal values with people's demands. It functions by replacing maladaptive, superficial emotional suppression with cognitive reappraisal, which helps individuals reframe stressful situations. This process prevents burnout by enhancing professional self-efficacy, fostering a sense of purpose and preventing the cynical detachment often found in high-stress roles.

During student age, value orientations are formed under the influence of the educational environment, family environment, individual psychological characteristics and perform a regulatory function regarding emotional burnout, acting as protective or risk factors. Therefore, student age is characterised by intensive formation of the value sphere of the individual in conditions of increased psycho-emotional stress, which creates the prerequisites for the occurrence of

emotional burnout. Students' value orientations act as an internal regulator of emotional states, determining a person's resistance to exhaustion or susceptibility to it, depending on the content and hierarchy of values. Prosocial orientation, flexibility of thinking and moderation of personal ambitions can contribute to adaptation to stressful learning conditions, while excessive striving for status, rigidity of attitudes and egocentric orientation increase the risk of emotional exhaustion. To establish the relationship between the type of dominant value orientations of students and the level of emotional burnout was organised and conducted an empirical study.

### Empirical analysis of emotional burnout and value orientations in students

Diagnostics were carried out using the specified methods and a quantitative and qualitative analysis of the obtained indicators was performed. The results of the survey using MBI the levels of student burnout in modern difficult conditions of educational activities were presented in the Figure 1.

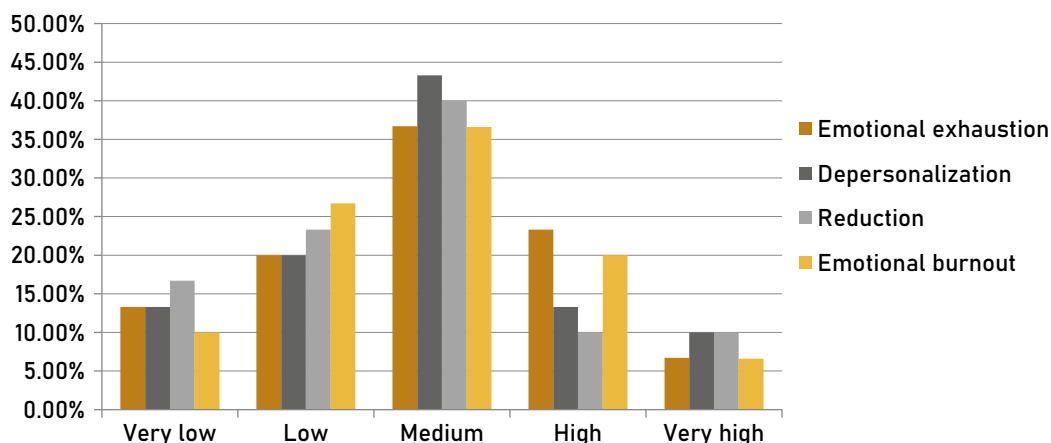


Figure 1. Results of diagnosis using the Maslach Burnout Inventory

Source: compiled by the authors

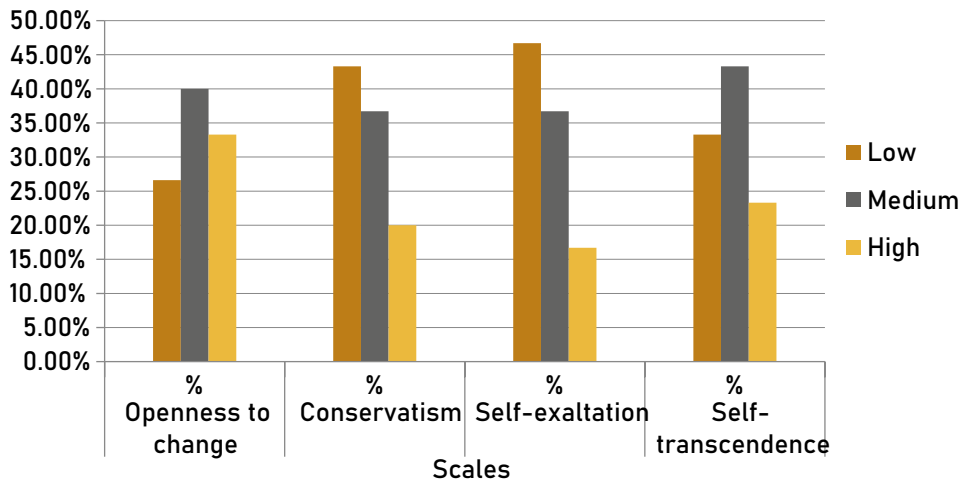
According to the results of diagnosing the level of emotional burnout of students, it was found that some of the subjects demonstrate signs of emotional burnout of varying degrees: emotional exhaustion as the main component of emotional burnout showed results at high and very high levels in 30% of the subjects (23.3% and 6.7%, respectively). Almost a third of student's experience pronounced emotional fatigue, emptiness and decreased emotional tone. 36.7% of respondents show an average level of emotional exhaustion, indicating a potential risk of worsening the problem without appropriate psychological support. At the same time, 33.3% of students have low and very low levels of emotional exhaustion (20% and 13.3%, respectively). High levels on the depersonalisation scale were found in 23.3% of respondents (13.3% and 10% respectively) and 43.3% of students had an average level of depersonalisation,

which generally indicates a tendency to distance themselves from emotional involvement in the learning situation as a protective mechanism. Low and very low levels were shown by 33.3% of respondents (20% and 13.3% respectively).

According to the personal achievement reduction scale, high and very high levels are observed in 20% of students (10% at each level), the average level is found in 40% of respondents and low and very low levels in 40% (23.3% and 16.7% respectively), which can manifest itself in a negative assessment of one's achievements, reduced motivation to get an education and doubts about one's own competence. The integral indicator of emotional burnout showed the following distribution: 26.6% of students have high and very high levels of burnout (20.0% and 6.6% respectively), 36.6% have an average level and 36.7% have low and

very low levels (26.7% and 10.0% respectively). The results obtained indicate that about a quarter of the subjects studied in the difficult conditions of martial law are in a state of pronounced emotional burnout, a third is at risk, but the majority of students (40%)

show resistance to emotional exhaustion. The results of the survey according to the “Methodology of diagnostics of individual values by Sh. Schwartz” the levels of dominant values among students were presented in the Figure 2.



**Figure 2.** Diagnostic results according to the “Methodology of diagnostics of individual values by Sh. Schwartz”

Source: compiled by the authors

Analysis of the results obtained using Schwartz’s method of diagnosing individual values revealed the peculiarities of the students’ value sphere. On the openness to change scale, 73.3% of students show medium and high levels (40% and 33.3% respectively), which indicates a desire for independence of thinking and action and the ability to respond flexibly to changes. Only 26.6% of students have a low level on this scale. According to the conservatism indicators, 43.3% of students have a low level, 36.7% have an average level and 20% have a high level. The prevalence of low levels of conservatism indicates a decrease in the importance of traditional values for almost half of the sample. On

the self-exaltation scale, 46.7% of respondents show a low level, 36.7% indicate show medium and only 16.7% high. Low self-exaltation indicators represent that for almost half of the students’ personal ambitions and the desire for status are not a priority. Self-transcendence is manifested at medium and high levels in 66.6% of students (43.3% and 23.3% respectively), low level in 33.3%. High scores on self-transcendence reflect the majority of respondents’ orientation toward the values of caring for others, justice, empathy and social responsibility. To understand the relationships between the studied indicators a correlation analysis was conducted using the Pearson coefficient (Table 1).

**Table 1.** Correlations between components of emotional burnout and levels of dominant value orientation of students

Maslach Burnout Inventory (MBI)	Methodology for diagnosing individual values by Sh. Schwartz			
	Openness to change	Conservatism	Self-exaltation	Self-transcendence
Emotional Exhaustion	-0.387*	0.243	0.508*	-0.535*
Depersonalisation	-0.336*	0.253	0.437*	-0.487*
Reduced Personal Achievement	-0.327*	0.252	0.454*	-0.538*
Overall Burnout Score	-0.373*	0.264	0.499*	-0.557*

Critical value 0.3 at p = 0.05

Note: \* – correlation is significant at the 0.05 level

Source: compiled by the authors

Correlation analysis revealed that openness to change demonstrates statistically significant negative correlations with all components of emotional burnout ranging from  $r = -0.327$  to  $r = -0.387$ . This suggests that students with high flexibility of thinking and the ability

to adapt to change are less prone to emotional exhaustion. The psychological mechanism of such protection is that, thanks to openness to change, which, according to S. Schwartz’s theory, includes the values of independence, stimulation and hedonism, difficult learning

circumstances are perceived not as a threat, but as an opportunity for the development of new skills. Students with high openness to change are able to rethink stressful situations and find alternative ways to achieve learning goals, which preserves their emotional resources. Self-transcendence also showed negative moderate correlations: the largest with the overall burnout score ( $r = -0.557$ ), emotional exhaustion ( $r = -0.535$ ) and reduction in personal achievement ( $r = -0.538$ ). The identified connections indicate that self-transcendence is a valuable resource for combating burnout. Students oriented towards the values of universalism and goodwill, find meaning in their studies in the context of future contributions to society and helping other people, which creates an additional source of motivation even in today's difficult conditions. As noted in the theoretical section, prosocial orientation protects against depersonalisation because it maintains emotional involvement in social interaction and creates a system of mutual support that prevents significant negative effects of stressors.

At the same time, self-enhancement revealed statistically significant positive correlations with all components of emotional burnout from  $r = 0.437$  to  $r = 0.508$ . That is, students with high personal ambitions and a desire for recognition are more prone to emotional burnout, because in times of crisis they feel a discrepancy between expectations and the real possibilities of their realisation. The strongest connection with emotional exhaustion ( $r = 0.508$ ) is explained by the fact that the orientation towards power and personal achievements, characteristic of self-aggrandizement according to S. Schwartz's classification, becomes a source of chronic frustration. Students with high self-esteem are prone to perfectionism and setting unrealistic standards, which is consistent with the theoretical propositions of O. Sergeenkova & O. Stolyarchuk (2017) about inflated ambitions as an internal factor of burnout. Conservatism did not demonstrate statistically significant relationships with emotional burnout ( $r = 0.264$  with the total indicator), which requires a separate explanation. In times of crisis, when traditional structures undergo change, the values of security, conformity, and tradition that constitute conservatism lose their regulatory function. Students are forced to adapt to new conditions regardless of the level of conservatism, which neutralises its influence. At the same time, weak positive correlations (although statistically insignificant) may indicate a tendency where the desire for stability in conditions of uncertainty creates additional stress due to the impossibility of realising these values.

### **Strategies for preventing emotional burnout in students and organising psychological support**

Based on the results of the study, practical recommendations were developed for the prevention of students' emotional burnout through value regulation

mechanisms, focused on various subjects of the educational process: students, administration of educational institutions, practical psychologists. Practical psychologists are recommended to conduct diagnostics of value orientations and the level of emotional burnout of students at the beginning of the academic year (September-October) in order to identify risk groups that is students prone to maladjustment, decreased motivation, and exhaustion. It is worth using the MBI methodology and value orientation tests (Rokich, Schwartz) to form risk groups that need preventive psychological support. Diagnostic strategies at the beginning of the year will be mass testing (screening) in the form of an online survey (Google Forms) in the first 3 weeks of study to cover all students, especially the 1st and last years. The emphasis should be on symptoms of "stress", identifying students with self-satisfaction, anxiety and depressive moods.

A comparative analysis should then be conducted, i.e., comparing the results with similar data from the end of last year to understand the dynamics (rested or burned out over the summer). Examples of the formation of risk groups may be the following. High-risk group, who need urgent help. These are students with a high level of exhaustion, a sense of powerlessness, reduced learning and conflicts. The initial group requiring burnout prevention. Such students have a high level of tension (dissatisfaction with themselves, "being cornered"). A group of students who have a value conflict, that is, whose values (for example, the desire for high achievements) contradict real opportunities or the values of the environment. Prevention and support strategies should include: correction of value orientations: measures to form realistic goals; psychological trainings for stress resistance, emotional self-regulation; social support, creation of self-help groups and curatorial support. Regular diagnostics help reduce the risk of maladjustment and preserve the mental health of students. It is necessary to organise group and individual consultations aimed at developing openness to change. The work should include the formation of flexibility of thinking, the ability to perceive uncertainty as an opportunity for development and the skills of adapting to changing circumstances without losing emotional resources. To effectively organise consultations aimed at developing openness to change, it is necessary to apply a cognitive-behavioural approach, coaching sessions and training methods.

The programme should focus on reframing uncertainty as an opportunity, developing emotional resilience and flexibility of thinking to preserve internal resources during a period of change. The structure and content of individual and group consultations include a diagnostic stage, i.e. an assessment of the current level of stress resistance and the type of reaction to change; development of flexibility of thinking, exercises in cognitive restructuring, for example, replacing the attitudes

“I can’t/this is a disaster” with “this is a challenge/what can I learn”, conducting scenario analysis, considering uncertainty as an opportunity, not a threat; adaptation and self-regulation skills, stress management training, i.e. breathing techniques, relaxation techniques, mindfulness to preserve emotional resources, work with plans, i.e. creating adaptive plans (plan A, plan B) to reduce anxiety about the unknown; group work should include peer-to-peer sharing, role-playing games to simulate changing circumstances, and exercises to develop creativity in finding solutions.

The expected results will be a reduction in anxiety, an increase in the speed of adaptation, the formation of a positive attitude towards change, and the maintenance of a high level of emotional energy. An important area of work is to strengthen self-transcendence through the actualisation of students’ prosocial values. Psychologists are recommended to involve students in volunteer projects, mutual assistance in learning and social initiatives, which allows them to form a sense of involvement in a common cause, which protects against depersonalisation and reduction of personal achievements. It is necessary to conduct comprehensive psychoeducational work with students on the content of emotional burnout, its symptoms and mechanisms of value regulation of emotional states of burnout. Comprehensive psychoeducation of students regarding emotional burnout includes studying it as a state of chronic physical and psychological exhaustion (due to study/stress), recognising symptoms (apathy, cynicism, decreased performance), and implementing values (balance, self-care) to regulate states, which prevents deep depression and loss of motivation.

Psychoeducational activities as a comprehensive work include training, i.e., teaching breathing exercises and progressive muscle relaxation techniques; workshops, such as evening analysis of events for timely detection of symptoms; information campaigns, for example, distribution of checklists on signs of burnout and rules of psychological safety; counseling as support for students in finding resources and balance. It is recommended to create a system of psychological support for students throughout the entire period of study with regular monitoring of the emotional state and timely correction of identified violations through individual and group forms of work. Creating a comprehensive system of psychological support for students involves regular (semester-by-semester) monitoring of emotional state through questionnaires, psychoeducation, individual consultations, and group trainings on resilience development. This ensures timely correction of disorders, stress reduction, and adaptation to the educational process, especially in crisis conditions. The main elements of the system are monitoring (i.e., regular testing, screening of anxiety and stress levels) individual forms (such as consultations with a psychologist, psychotherapeutic support, drawing up self-regulation

plans; group forms, such as resilience training, art therapy, mutual support groups) and correction (i.e., timely assistance in identifying emotional disorders, referral to specialists). This system is aimed at supporting students throughout the entire period of study.

## Discussion

The results of the study showed that students focused on self-transcendence (caring for others, fairness, empathy) and openness to change (flexibility of thinking, readiness for new experiences) demonstrated significantly lower levels of emotional burnout across all its components. This is explained by the fact that prosocial values form a system of mutual support and give additional meaning to learning, and the student feels that he is working not only for grades, but for the sake of future contribution to society. At the same time, students with pronounced self-aggrandizement (desire for power, status, recognition) turned out to be the most vulnerable to burnout, because in conditions of wartime and uncertainty, realising ambitions becomes much more difficult, which provokes a feeling of helplessness and emotional exhaustion. Aims of the study of E. Lopez-Gomez *et al.* (2025) were to validate the Maslach Burnout Inventory-Student Survey when applied among Thai university students. This study assessed the psychometric properties of the Maslach Burnout Inventory-Student Survey in a sample of Thai university students. The results confirmed that the Maslach Burnout Inventory-Student Survey has a stable three-factor structure (emotional exhaustion, cynicism/depersonalisation and reduced academic efficacy) and demonstrates high reliability and validity within this cultural context, consistent with findings from other countries. The study supported the appropriateness of using the Maslach Burnout Inventory-Student Survey to measure academic burnout.

The study conducted by D. Hadar-Shova *et al.* (2024) aimed to evaluate whether the Schwartz’s theory of basic values can measure value-like constructs within leading large language models and determine whether large language models exhibit distinct value-like patterns from humans and each other. The study examined whether Schwartz’s Theory of Basic Values can be applied to identify value profiles in large language models. The models completed an adapted version of the Portrait Values Questionnaire-Revised and their “value profiles” were compared with human data. The findings showed that the models exhibit value profiles that are statistically different from those of humans, with a strong emphasis on universalism and self-direction and weaker orientation toward achievement, power and security. These differences have important ethical implications for the use of such models in mental-health-related contexts. Comparing the conducted research with the research of D. Hadar-Shova *et al.* (2024), received similar

results, as students who oriented towards the values of universalism and benevolence, find meaning in their studies in the context of future contributions to society and helping other people, which creates an additional source of motivation even in today's difficult conditions.

The study conducted by M. Obregon *et al.* (2020) evaluated burnout among medical students in the United States using the Maslach Burnout Inventory-Student Survey. The findings showed that students experiencing burnout reported significantly higher levels of emotional exhaustion and cynicism, as well as lower academic efficacy, compared to students without burnout. Additionally, identified predictors of burnout included problems with academic scheduling, low perceived effectiveness of support measures, and reduced motivation for learning. Regression analysis denoted significant associations between burnout and being out-of-phase in the curriculum, the effectiveness of wellness initiatives and strength of motivation for medical school in both the two- and three-dimensional Maslach Burnout Inventory-Student Survey models. Comparing the conducted research with the research of M. Obregon *et al.* (2020), received somewhat similar results, because emotional exhaustion as the main component of emotional burnout showed high and very high levels and were observed in 30% of the researched (23.3% and 6.7%, respectively). Almost a third of the student's experience pronounced emotional fatigue, emptiness and decreased emotional tone.

Many studies have shown evidence that there are personal factors that reduce the probability of the burnout syndrome formation. For example, in an empirical study conducted by K. Pyhältö *et al.* (2021), found that only half of teachers have various combinations of burnout symptoms while other teachers show resistance to defensive reactions because they proactively use self-regulation and co-regulation strategies. Comparing the conducted research with the research of K. Pyhältö *et al.* (2021), received similar results, because the integral indicator of emotional burnout showed that 26.6% of students have high and very high levels of burnout, 36.6% have an average level, 36.7% have low and very low levels. The results indicate that about a quarter of the researched are in a state of pronounced emotional burnout, a third is at risk, but the majority of students (40%) show resistance to emotional exhaustion. G. Mancini *et al.* (2022) has pointed out that a high level of emotional intelligence blocks chronic burnout and increases personal achievements at work. In the study O. Savchenko *et al.* (2022) it was found that the system of personal values could be an effective regulator of the personal state in difficult situations. The obtained empirical results demonstrate that some components of personal value system like health, obedience and cleanliness help stabilise the personal state in difficult external conditions. Other values as

courage, honesty and wisdom can contribute to the formation of burnout syndrome. The value of courage negatively influences formation of the "reduction of professional duties". The values of health, obedience and cleanliness block the formation of this symptom. The values of an interesting job, an exciting life and freedom oppose routinisation and the consolidation of rigid stereotypes. And rational attitude toward oneself manifested in the dominance of values of health, cleanliness and obedience.

Comparing the conducted research with the research of O. Savchenko *et al.* (2022), received similar results, because it has been researched that self-transcendence is a valuable resource for combating burnout, because students who are oriented towards the values of universalism and benevolence find the meaning of their studies in the context of future contribution to society and helping other people, which creates an additional source of motivation even in today's difficult conditions. However, self-enhancement revealed statistically significant positive correlations with all components of emotional burnout, that is, students with high personal ambitions and a desire for recognition are more prone to emotional burnout, since in times of crisis they experience a discrepancy between expectations and real possibilities for their realisation. In the study conducted by S. Mohammed *et al.* (2020), it was found that the values of the individual and the presence of a conflict between personal values and the values of the organisation determine the level of emotional exhaustion and have almost no influence on the formation of depersonalisation symptoms. It is also important to pay attention to the fact that such values as an interesting job, obedience, health, cleanliness, an exciting life, freedom exert a mobilising effect that inhibits burnout syndrome. On the contrary, certain values like courage, honesty and wisdom contribute to the formation of this syndrome. This can be explained by the fact that the dominance of certain values can form an attitude towards increased arousal and its control, which creates additional stress for the student and depletes certain personal resources. The personality tries to compensate for the lack of resources by activating rigid stereotypes, such as saving emotions, alienation, reduction of responsibilities, etc.

Comparing the conducted research with the research of Mohammed *et al.* (2020), received similar results, because prosocial orientation protects against depersonalisation because it maintains emotional involvement in social interaction and creates a mutual support system that prevents significant negative effects of stressors. In the study conducted by I. Pankov (2022), negative correlations were obtained between the dominance of the value "honesty" and the ability to set life tasks and consciously use strategies for building life plans. Therefore, a high rating of the honesty value indicates strict requirements for oneself, which

creates a barrier for the transition from plans to their implementation. So, scientists have investigated the connections between components of emotional burnout and various personal values like values of universalism, benevolence, self-enhancement. They investigated that such values as obedience, health, cleanliness, freedom exert a mobilising effect that inhibits burnout syndrome, such values like courage, honesty and wisdom contribute to the formation of this syndrome. The conducted research revealed that the value profile of students is characterised by high levels of openness to change and self-transcendence, with low levels of self-aggrandizement and conservatism.

### Conclusions

The results of the study revealed that the most pronounced component is emotional exhaustion (30% at high and very high levels), less pronounced are depersonalisation (23.3%) and reduction of personal achievements (20%). The value profile of students is characterised by high indicators of openness to change (73.3% medium and high level) and self-transcendence (66.6%), with low indicators of self-exaltation (46.7% low level) and conservatism (43.3% low level). Correlation analysis confirmed that openness to change ( $r = -0.373$  with general burnout) and self-transcendence ( $r = -0.557$  with general burnout) are protective factors of emotional burnout. At the same time, self-exaltation is the strongest risk factor ( $r = 0.499$  with general burnout). Students with high personal ambitions show higher levels of all components of emotional burnout. Openness to change ( $r = -0.373$ ) and self-transcendence ( $r = -0.557$ ) showed significant negative relationships with the overall burnout score, so they perform a protective function, while self-enhancement ( $r = 0.499$ ) demonstrated a significant positive relationship, acting as a risk factor. Thus, the results of the empirical study confirmed the existence of a connection between value orientations and emotional burnout of students.

It was found that a significant part of young students remains resistant to emotional exhaustion due to flexibility, adaptability and values that have become more pronounced in crisis conditions. At the same time, students with pronounced ambitions and a desire for personal success are at risk for developing emotional burnout. The results obtained areas of preventive work focused on the development of value orientations in students. The connections between value orientations and manifestations of students' emotional burnout determined areas of psychological support and preventive work in higher education institutions. Based on the results obtained, comprehensive practical recommendations were developed for practical psychologists, students and administration of higher education institutions regarding the prevention of emotional burnout through value regulation mechanisms. A training programmes aimed at developing protective value orientations, transforming risk attitudes and forming skills for self-regulation of students' emotional states. This programme will reduce the level of emotional burnout among students and help to maintain their psychological well-being in the face of modern challenges. Prospects for further research include studying the value regulation of emotional burnout in teachers, since burnout occurs under the influence of chronic stress, especially work-related. Values help regulate emotional burnout, as perceived values, such as self-development, life balance, and helping others, help prevent burnout by shifting the focus from negativity to meaning, while rigid instrumental values (perfectionism) contribute to exhaustion.

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### Conflict of Interest

None.

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**Анотація.** Метою дослідження було визначення взаємозв'язку ціннісної регуляції та емоційного вигорання студентів закладів вищої освіти. На основі аналізу наукової літератури з'ясовано, що емоційне вигорання розглядається як складний психологічний феномен, який виникає внаслідок хронічного стресу та проявляється через емоційне виснаження, деперсоналізацію та редукцію особистих досягнень. На основі теоретичного аналізу виявлено, що ціннісна сфера особистості є фундаментальним психологічним утворенням багатокомпонентної структури, яке виконує мотиваційну, регулятивну та інтеграційну функції у процесі особистісного розвитку. З'ясовано, що у студентському віці ціннісні орієнтації формуються під впливом освітнього середовища, родинного оточення, індивідуально-психологічних характеристик та виконують регулятивну функцію щодо емоційного вигорання, виступаючи протективними або ризиковими чинниками. Проведено емпіричне дослідження зв'язку ціннісної регуляції та емоційного вигорання студентів. Виявлено, що близько чверті студентів перебувають у стані вираженого емоційного вигорання, третина знаходиться у зоні ризику, проте більшість демонструють стійкість до емоційного виснаження. Встановлено, що ціннісний профіль студентів характеризується високими показниками відкритості до змін та самотрансцендентності при низьких показниках самопіднесення та консерватизму. Кореляційний аналіз підтвердив наявність статистично значущих зв'язків: відкритість до змін та самотрансцендентність виявили негативні кореляції з компонентами емоційного вигорання, виступаючи протективними чинниками, тоді як самопіднесення продемонструвало найсильніші позитивні зв'язки з усіма компонентами вигорання, виступаючи чинником ризику. Практична цінність дослідження полягає у розробці викладачами закладів вищої освіти, практичними психологами, кураторами академічних груп та фахівцями центрів психологічної підтримки профілактичних програм та методів психологічного супроводу для запобігання емоційному вигоранню студентів

**Ключові слова:** емоційне виснаження; деперсоналізація; здобувач; особистість; редукція; ціннісні орієнтації

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