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Personal Emotional Health: A Method for Measuring Difficulties in Emotional Self-Reflection

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Abstract

Introduction. This article introduces a new instrument aimed at addressing various synthetically integrated process formations and their effects that underlie the challenges of personal reflection on emotions as an intrapersonal predictor of emotional health development. The research objective was to develop and validate a diagnostic methodology for assessing difficulties in personal emotional reflection (DPER). Methods. The study involved 1688 participants (62.26% female, 37.74% male) aged 15 to 60 years. The development of DPER methodology statements was based on an author's model of research tools, presented by three components that encompass seven parameters (scales). Unformed abilities to understand and express one's emotions (difficulties in recognising one's own feelings, difficulties in expressing emotions); susceptibility to emotional stress (inability to endure (tolerate) emotions; tendency to use physiologically oriented defenses); psychological mechanisms hindering effective emotional reflection (prohibitions on emotions; suppression of emotions; avoidance of emotions). Convergent validity of the methodology was tested using: The Emotional Regulation Questionnaire (Gross, 2003), the Diagnostic Methodology for the Value and Self-efficacy of Emotional Control (Mauss, 2010), the Emotional Intelligence Test (Lyusin, 2006), and The Brief Five-factor Personality Questionnaire (Gosling, Rentfrow & Swann, 2003). Statistical data analysis included the calculation of Cronbach's alpha coefficient, Kaiser-Meyer-Olkin criterion, Bartlett's sphericity coefficient, Pearson's criterion; exploratory factor analysis was conducted. Results. A sufficient level of reliability of the correlation

matrix characterising the questionnaire's structure and internal consistency of its scales was determined. The grouping of scales into factors corresponds to the proposed model of the research tool: a three-component structure (66.85% explained variance) encompassing seven parameters (scales) (62.15% explained variance). Convergent validity of six questionnaire scales was confirmed. **Discussion.** The DPER methodology is an independent, reliable, and valid instrument, allowing for the measurement of the degree of difficulties in personal emotional reflection over a relatively short period and making a probabilistic forecast for the development of emotional health conditions.

Keywords

For citation

Introduction

The development of a measuring tool that allows obtaining data on psychological (personal) predispositions of negative shifts in a person's emotional life is necessary for solving prognostic tasks of monitoring the states of emotional health of a person and determining the direction of psychological prevention measures, as well as supportive, retraining and personal-reconstructive psychological intervention.

The loss of reflexive contact with one's mental states and, accordingly, the ability not only to understand, but also to manage them, has negative consequences for emotional health. They are confirmed by relevant studies of alexithymia, emotional burnout, neurotic disorders, and destructive forms of emotional response (Brel, 2012; Sheinina, Tretiakova, 2016; Iskusnykh, 2015; Yutkina, 2017; Garanyan, Kholmogorova, 2017; Lyusin, Ovsyannikova, 2013; Sysoeva, 2009, 2013; Pryakhina, 2017; Belasheva et al, 2018; Rottenberg, 2005; Direnfeld & Roberts, 2006; Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg & Van Ijzendoorn, 2007; Derryberry & Reed, 2002; Gross & John, 2003; Gross & Jazaieri, 2014; Gratz & Roemer, 2004; Lis, Greenfield, Henry, Guilé & Dougherty, 2007; Gard et al, 2007; Campbell-Sills & Barlow, 2007; Padun, 2015; Ermakov et al, 2022). Due to the personal reflection of emotions, which implies the activity of the individual compared to the state of passive embracing of emotions (Bashanaeva & Shumilkina, 2016), there is not only an awareness of current emotions, but also an understanding of the reasons for their occurrence, their direction, and the identification of strategies for their transformation.

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Personal reflection of emotions occupies a central place in self-regulation of human emotional states (Prokhorov, Chernov, 2012), is a "key" to the awareness of one's own life, a condition for the development of personality, its integration into society, preservation of mental (Ingram, 1990) and psychological health in general.

Difficulties of personal reflection of emotions are formed under the influence of various factors. These include psychotraumatic experience, peculiarities of family upbringing, internalised socio-cultural attitudes, crisis response, and specific individual personality. The resultant effects of difficulties in personal reflection of emotions are emotional tension; disturbance of the balance of positive and negative affects due to the accumulation of negative emotions; excessive regulation of emotions at the physiological level (somatisation), individual vulnerability to emotional disorders, the appearance of neurotic symptoms; a decrease in the trustworthiness of interpersonal relations and an increase in the deficit of social ties; the experience of subjective disadvantage. These effects are in fact manifestations of emotional ill-health, and the very difficulties of personal reflection of emotions are its intrapersonal predictors.

The purpose of our work is to develop a Russian-language methodology to investigate the difficulties of personal reflection of emotions. The development should be carried out in accordance with the following requirements:

1. The methodology should cover the most frequently encountered difficulties in personal reflection of emotions and have a clear conceptual structure;

2. The results of the methodology should reflect the indicators of the degree of expression of this or that difficulty of personal reflection of emotions, the total indicators of unformedness of the corresponding abilities and the degree of expression of psychological mechanisms that block effective reflection of emotions, as well as the total indicators that make it possible to make a probabilistic forecast of the development of states of emotional ill-health;

3. The methodology should be user-friendly both for respondents (containing a reasonable amount of stimulus material presented in the form of a convenient registration and questionnaire) and for the researcher (the data recorded in the registration and questionnaire can be computer-processed).

The theoretical basis for the development of the methodology for diagnosing difficulties in personal reflection of emotions (DPRE) was the ideas, concepts, and models of reflexive processes (Karpov, 2001) and health-improving (sanogenic) reflection (Orlov, 2006); procedural emotional regulation (Gross, 2014) and its dysfunctional strategies (Werner & Gross, 2010; Gross & Jazaieri, 2014; Sheppes, Suri & Gross, 2015; Aldao, Nolen-Hoeksema & Schweizer, 2010; Padun, 2015); the multilevel structure of the emotional regulation system and its disorders (Lebedinsky & Bardyshevskaya, 2006); emotional intelligence (Lucin, 2006; Zeidner & Olnick-Shemesh, 2010); the influence of emotional properties and personality states on the processes of processing emotional information (Lyusin & Ovsyannikova, 2013; Sysoeva, 2013; Pryakhina, 2017; Austin, 2004; Rusting,

1998; Segerstrom, 2001; Bar-Haim et al., 2007); multifactoriality of emotional disorders (Kholmogorova & Garanyan, 2006); alexithymia symptom complex, including difficulties in identifying and describing feelings (Sifneos, Apfel-Savitz & Frankel, 1977; Taylor & Bagby, 2021; Provotorov, Kravchenko, Budnevsky, Grekova, 1998; Iskusnykh, 2015; Yutkina, 2017; Solozhenkin & Guzova, 1992; Brel, 2012); defence mechanisms as processes of intrapsychic adaptation of personality in conditions of traumatic emotional tension (Bond, 1992; Pantileev, Zhilina, 2009; Plutchik, Kellerman & Conte, 1979; Romanova, Grebennikov, 1996); emotional stability as the ability to withstand emotions of different degrees of intensity, sign and modus (Vasilyeva, Filatov, 2018; Dubrovina, 2015; Sirotin, 2018).

The analysis of the indicated concepts and representations allows us to consider the difficulties of personal reflection of emotions as characteristics of properties and states of the system of emotional, cognitive and personal process formations and their resultant effects, functioning in dynamic unity on the basis of nonlinear complex mutual influence and presented at different levels of individuality, reducing the awareness and adequacy of experiences and behaviour under the influence of subjectively emotionogenic information.

Table 1 shows the constructs of process means related to personal reflection of emotions (temperament, defence mechanisms and coping, cognitive processing of emotional information, emotion regulation, emotional competences), which are united into three groups differing by factors of determination, by their significance for the subject's social adaptation, and by the underlying processes.

Table 1

Constructs of process means related to personal reflection of emotions

Group	Construct	Processes and components
Emotional tolerance	temperament	A set of dynamic features of mental activity and behaviour (activity, pace, rhythm, intensity, emotionality, etc.) that have a connection with the world of internal representations (thoughts, affects, memories, etc.).
Automated protections	defence mechanisms and coping	Constructs describing the ways of consciousness work that modulate unwanted discharges of affects in situations of conflict, stress, and trauma. They are based on perceptual, intellectual and motor mechanisms that provide a consistent processing of the image of the real situation to reduce traumatic emotional tension

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Group	Construct	Processes and components
Awareness and regulation of emotions	cognitive processing of emotional information	Operation of individual system modules of cognitive processing of information, which are part of the system of downward processing of information determined by individual characteristics of the subject, and the system of upward processing of information determined by the information coming to the inputs of the cognitive system
	emotional regulation	An automated monitoring process consisting of two main components: a control process focused on comparing the individual's current state with the desired state, and an operational process focused on reducing the discrepancy between the individual's current state and the desired state
	emotional competences	A system of acquired procedural skills, which are essentially operations outside the realm of awareness, and declarative skills acquired through life experience and learning to which the individual has conscious access, can demonstrate and verbally describe

Based on the constructs of process tools we have developed a model of the research toolkit, including seven parameters (scales): difficulties in understanding one's own feelings; difficulties in expressing emotions; inability to withstand (tolerate) emotions; tendency to use physiologically oriented defences; prohibitions on emotions; suppression of emotions; avoidance of emotions. The parameters are united in three components: unformed abilities to understand and express their emotions; instability to emotional stresses; psychological mechanisms preventing effective reflection of emotions (table 2).

The allocation of parameters (scales) is also justified by the data of counselling psychological work within the framework of different psychotherapeutic approaches. Most approaches assume that reflexive working through complex emotional experience and its factors is necessary to eliminate the symptoms that motivate clients to go to psychotherapy. Strategies for working with emotions in different psychotherapeutic approaches have common features and aim to: the client's awareness of the presence of the emotion and contact with it until the moment of transformation, on tolerance of emotions, on the ability to express emotions, on overcoming psychological (suppression, avoidance, prohibition) and physiologically oriented defences against emotions that make it difficult both to fully form and live emotions and to withstand (tolerate) emotions (Jung, 1960; Stolorow, Brandchaft, Atwood, 1995; Laplance & Pontalis, 1998; Dayananda, 2002; Selvam, 2019).

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Table 2

Model of the research toolkit of difficulties of personal reflection of emotions

Components	Incomplete ability to understand and express emotions	Emotional stress	Psychological mechanisms that hinder effective reflection of emotions
parameters	difficulties in recognising their own feelings	Inability to withstand (tolerate) emotions	Emotional prohibition
			emotional suppression
	emotional difficulties	a tendency to use physiologically oriented defences	emotional avoidance

Description of the parameters (scales) of the DPER questionnaire:

- DUOF scale (*difficulties in understanding one's feelings*): difficulties in recognising and describing one's feelings and emotions and understanding their impact on behaviour and activities;

- DEE scale (*difficulties in expressing emotions*): inability to give emotions an adequate outlet and to express emotions in a form understandable to others on the basis of a "vocabulary" of emotions;

- ITE scale (*inability to withstand (*tolerate*) emotions*): low tolerance to intense polar emotions, inability to stay in an emotion until the moment of its transformation, rapid fatigue in emotionogenic situations;

- TUPOD scale (*tendency of using physiologically oriented defences*): tendency to relieve emotional tension with medications or other substances (alcohol, nicotine), physical activity, breathing exercises, food; the presence of pronounced physiological defences against emotions reduces the ability to withstand intense polar emotions and to be in conscious contact with one's own emotions;

- PE scale (*prohibitions on emotions*): negative attitude to emotions, prohibition on their open manifestation;

- SE scale (*suppression of emotions*): inhibition of experiences and external manifestations of feelings and emotions;

- EA scale (emotional avoidance): avoidance of emotions and situations provoking them.

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Since the components and parameters of the research toolkit reflect the difficulties of personal reflection of emotions, based on different process formations realised both in the conscious and unconscious fields, the approaches to their measurement may differ. Nevertheless, as the analysis shows, in diagnostics of all the process formations described in the model of the research toolkit along with other methods, questionnaires based on self-reporting of test persons are used (questionnaires of emotional intelligence, emotional regulation, expression of defence mechanisms, personality questionnaires). Therefore, in our opinion, the questionnaire is the most satisfactory for the tasks of complex measurement of difficulties of personal reflexion of emotions.

Methods

Description of the methodology for measuring difficulties of personal reflection of emotions

In order to create the questionnaire "Difficulties of Personal Reflection of Emotions" (DPRE), statements were developed to measure the relevant parameters presented in Table 2. The development of the questionnaire statements aimed at measuring the degree of representation of psychological mechanisms that hinder effective reflection of emotions, which are most often not realised by a person, was based on Bond's (1992) ideas that a person can find with a sufficient degree of accuracy an explanation for his/her behaviour after a certain time after an event, even if at the time of this event his/her behaviour was not conscious; people often notice manifestations of protective behaviour in other people (Tunick, 2010).

The principles on which the statements of the DPER questionnaire were selected:

1. Statements revealing an individually characteristic style of behaviour related to personal reflection of emotions, which a person can identify independently (for example, the statement "I find it difficult to express my emotions and feelings in words", related to the ability to express emotions, or the statement "Physical (or breathing) exercises help me cope with emotions", related to the ability to tolerate (withstand) emotions);

2. Statements built on the identification of difficulties in personal reflection of emotions through the description of a person's behaviour by others (for example, the statement "People around me consider me to be an emotionally reserved person" related to the ability to express emotions);

3. Statements in the form of imperative utterances reflecting human attitudes towards emotions (e.g., the statement "An adult should be restrained in showing emotions" associated with prohibitions on emotions).

About 10% of the questionnaire statements were borrowed from other standardised methods aimed at diagnosing different definitions of personal reflection of emotions: for

example, the statement "I can recognise most of my feelings" from the emotional skills and competencies questionnaire of Avsec et al. (2020); the statement "An adult should be restrained in showing emotions" corresponds closely with the statement "Adults should be restrained in showing their feelings" of the questionnaire "The prohibition to express feelings" by V. K. Zaretsky, A. B. Kholmogorova, and N. G. Garanyan (2006).

The questionnaire statements were subjected to *expert evaluation* for their compliance with the parameters reflecting the difficulties of personal reflection of emotions. Six experts (one doctor of psychological sciences, 5 candidates of psychological sciences, one of whom is a specialist in profiling, one in body-oriented psychotherapy, and one in pathopsychological and neuropsychological diagnostics) took part in the examination and were asked to evaluate the statements from the questionnaire on a four-point scale (0 – does not correspond, 1 – rather does not correspond, 2 – rather corresponds, 3 – fully corresponds). Based on the results of the expert group's work, an average score was obtained for each statement, which was taken into account when selecting them for the final version of the questionnaire: the questionnaire included statements whose independent assessments by experts were consistent, with an average score of at least 2.6. There were 32 statements in the original version of the questionnaire. Four statements were deleted.

The developed questionnaire is a closed-ended questionnaire and contains 28 statements (Table 9). Four judgements (statements) are provided for each of the seven dimensions. Verbal responses are based on a set of judgements (statements) about the presence and degree of expression of the studied attribute using the scale "agree" – "rather agree" – "rather disagree" – "disagree". The subject's answers are reduced to marking the required option with simple symbols (cross, circle, etc.) in the questionnaire.

For scoring, keys are used, according to which the items (statements) of the questionnaire refer to a certain scale (parameter). The questionnaire has direct (89.3%) and reverse (10.7%) items. All items referring to a certain scale are equivalent. Subjects' responses are coded according to the following scheme:

• for statements with a direct key: "agree" – 4, "rather agree" – 3, "rather disagree" – 2, "disagree" – 1;

• for reverse–key statements: "agree" – 1, "rather agree" – 2, "rather disagree" – 3, "disagree" – 4.

Scale values are obtained by simply summing up the corresponding scores.

Sample description

The study of validity and reliability of the DPER methodology was conducted on a sample of 1688 respondents (teachers and students of 10–11 grades of schools in Stavropol Krai, students, undergraduates and teachers of higher education institutions of the Russian Federation (Stavropol, Rostov-on-Don, Kursk, St. Petersburg, Moscow), employees of

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organisations, banks, law enforcement agencies, rescuers, doctors. Table 3 presents gender and age indicators of the sample.

Table 3
Gender and age indicators of the sample

Gender	Female		Male	
Packs	1051		637	
Age*	Adolescence and young adulthood (15–19 years)	Early adulthood (20–39 years old)	Middle adulthood (40–60 years old).	
Packs	737	823	128	

Note. *Division of the sample into age groups was carried out in accordance with the classification of Rean (2013)*

Psychodiagnostic techniques to assess the convergent validity of the DPER questionnaire

Convergent validity (the main component of construct validity) of the DPER questionnaire was assessed using the scales of the following psychodiagnostic techniques that study, based on theoretical assumptions, similar phenomena:

1. Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003), adapted from Pankratova (2017), aimed at diagnosing two emotion regulation strategies: cognitive reappraisal (cognitive reappraisal) and expressive suppression (expressive suppression); it consists of 10 statements assessed on a seven-point scale; the "expressive suppression" scale of the questionnaire reveals a regulatory strategy oriented towards restraining external manifestations of an already emerged emotional reaction and theoretically partially correlates with the "emotion suppression" scale of the DPER questionnaire;

2. Emotion Control Values (ECV) questionnaire (Mauss, Butler, Roberts & Chu, 2010), adapted from Pankratova (2015): it consists of 15 statements on which respondents need to indicate their degree of agreement; two scales of the questionnaire presumably partially correlate with the "difficulty in realising one's own feelings" scale of the DPER questionnaire;

3. Lucin's *Emotional Intelligence Test (EmInt) (*2006) is a questionnaire-based psychodiagnostic technique consisting of 46 statements that assesses emotional intelligence on four scales and five subscales; the scale "intrapersonal emotional intelligence" and its constituent subscales ("understanding one's emotions", "managing one's emotions") can theoretically correlate with the group of scales

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included in the complex indicator "lack of ability to understand and express one's emotions" ("difficulty in understanding one's own feelings", "difficulty in expressing emotions") and the indicator "instability to emotional stress" ("tendency to use physiologically oriented defences", "inability to withstand (tolerate) emotions") of the DPER questionnaire;

4. Short Five-Factor Personality Inventory (TIPI-RU) (Gosling, Rentfrow & Swann, 2003), adapted from Sergeeva, Kirillov & Dzhumagulova (2016), consisting of 10 statements (personality traits) rated by respondents on a seven-point scale; the scales could theoretically correlate with those of the DPER questionnaire due to the predominantly personal nature of difficulties in reflecting emotions.

Methods of data analysis

Statistical processing of the data obtained in the study was carried out using the software SPSS 27.0; Cronbach's α coefficients, Kaiser-Meyer-Olkin (KMO) criterion, Bartlett's coefficient of sphericity, Pearson's criterion, Kraskall-Wallis test, t-test for independent samples, Chi-square, z-transformation; descriptive statistics were calculated; exploratory factor analysis was performed (based on the use of principal component method, Varimax rotation with Kaiser normalisation). Statistical validity was considered at a significance level of $p < 0.05$.

Results

The validity and reliability of the DPER methodology was investigated in several stages.

The first step was to assess the sampling quality and internal consistency of the seven-scale structure of the DPER questionnaire.

The Shapiro-Wilk and Kolmogorov-Smirnov criteria were used to assess the initial sample for conformity to normal distribution (Table 4). The results show that all scales of the DPER questionnaire conform to normal distribution.

Table 4
Conformity of the sample to normality of distribution on the scales of the DPER questionnaire

Scale	Criterion Shapiro-Wilk	Kolmogorov-Smirnov criterion
Suppression of Emotions (SE)	0,9706***	0,1191***
Emotional avoidance (EA)	0,9872***	0,0919***
Difficulties in recognising one's own feelings (DUOF)	0,9569***	0,1412***

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Scale	Criterion Shapiro-Wilk	Kolmogorov-Smirnov criterion
Tendency to use physiologically oriented defenses (TUPOD)	0,9623***	0,1224***
Inability to withstand (tolerate) emotion (ITE)	0,9706***	0,1190***
Difficulty in expressing emotions (DEE)	0,9872***	0,0919***
Emotional prohibition (PE)	0,9685***	0,1085***

*Note. Level of significance * 0.05 < p < 0.10; ** 0.01 < p < 0.05; *** p < 0.01*

To assess the internal consistency of the scales of the DPER questionnaire, the values of Pearson's paired correlation coefficients were determined (Table 5). The values of paired correlation coefficients for all scales do not exceed 0.7 at the significance level of $p < 0.05$. This allows us to conclude that there is no collinearity and close relationship between the scales and, as a consequence, that there is no need to reduce the dimensionality or eliminate the scales.

Table 5

Matrix of paired correlation coefficients between scales of the DPER questionnaire*

Scale	Having served emotional behaviour	Emotional avoidance	Difficulties realise proprietorships feelings	A tendency to use physiological centred defences	Inability endurance emote	Difficulties in expressing emotions	Emotional prohibition
Suppression of emotions	1,000	0,507	0,269	0,168	0,227	0,437	0,543
Emotional avoidance	0,507	1,000	0,158	0,212	0,262	0,347	0,400

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Scale	Having served emo- tional beha- viour	Emo- tional avoi- dance	Diffi- culties realise pro- prietor- ships feelings	A ten- dency to use physio- logical centred defences	Ina- bility endu- rance emo- te	Diffi- culties in expres- sing emo- tions	Emo- tional prohi- bition
Difficulty recognising your own feelings	0,269	0,157	1,000	0,162	0,241	0,386	0,273
Tendency to use physio- logically oriented defences	0,168	0,212	0,162	1,000	0,233	0,247	0,209
Inability to withstand (tolerate) emotions	0,227	0,262	0,241	0,233	1,000	0,269	0,262
Difficulties in expressing emotions	0,437	0,347	0,386	0,247	0,269	1,000	0,358
Emotional prohibition	0,543	0,400	0,2737	0,209	0,262	0,358	1,000

Note. *Significance level of correlations p < 0.05.*

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The adequacy of the sample and internal consistency of the questionnaire structure are also confirmed by the value of the Kaiser-Meyer-Olkin (KMO) criterion, which exceeds 0.7 (calculated value 0.812), and the value of the Bartlett's sphericity coefficient (Chi-square value is 1746.42, which corresponds to the level of statistical significance 0.001) (Table 6).

Table 6
Estimated sampling adequacy coefficients

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.		0,812
Bartlett's sphericity criterion	Approximate Chi-square	1746,421
	Significance	0,000

The obtained results confirm a sufficient level of reliability of the correlation matrix characterising the structure of the questionnaire.

The Cronbach's α measure of *internal consistency* showed the following: on five scales (emotional avoidance (EA), difficulties in being aware of one's own feelings (DUOF), tendency to use physiologically oriented defences (TUPOD), inability to withstand (tolerate) emotions (ITE), difficulties in expressing emotions (DEE)) the value of Cronbach's α exceeds 0.7; for two scales (suppression of emotions (SE) and prohibition on emotions (PE)) the value of Cronbach's α is within acceptable limits (exceeds 0.65); the total value of Cronbach's α is 0.749 (Table 7). This allows us to conclude that the level of internal consistency of the DPER questionnaire scales is satisfactory.

Table 7
*Psychometric characteristics of the DPER * questionnaire scales*

Scale	Under-whel-med emo-tio-nality	Avoid emotio-nality	Difficul-ties in realising one's own feelings	The ten-dency to use physio-logical centred defences	Inability to with stand (tolerate) emotions	Difficul-ties in expres-sing emo-tions	Emo-tional prohi-bition
Cron-bach's α	0,689	0,711	0,736	0,752	0,737	0,701	0,698

Note. *Final calculations for the questionnaire: Cronbach's α = 0.749407; standardised α = 0.744315; mean inter-item correlation = -0.298058*

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The application of exploratory factor analysis to the 28 statements of the DPER questionnaire allowed us to reproduce the structure of the 7 scales and to determine the significance of the contribution of each statement to the corresponding scale. The seven-factor solution explains 62.15% of the explained variance: the first factor covers 17.9% of the variance, the second – 14.9%, the third – 8.8%, the fourth – 6.51%, the fifth – 5.24%, the sixth – 4.64%, the seventh – 4.16%. The appropriateness of the seven-factor solution is also confirmed by the values of the Kaiser-Meyer-Olkin criterion (KMO) (exceeding 0.7) and Bartlett's sphericity coefficient (statistically significant at the 0.001 level) (Table 8).

Table 8
Estimated sample adequacy coefficients for the seven-factor solution

Kaiser-Meyer-Olkin measure of sampling adequacy (KMO)		,859
Bartlett's sphericity criterion	Approximate Chi-square	8955,511
	st.st.	378
	Significance	,000

Table 9 presents the values of the exploratory factor analysis coefficients (principal component analysis followed by Varimax rotation with Kaiser normalisation) showing with what weight the scale is included in a factor.

Table 9
Results of exploratory factor analysis of the DPER questionnaire statements. Inverted component matrix

Questionnaire statements	Key	Component						
		1	2	3	4	5	6	7
I can recognise most of my feelings	DUOF	-,195	**,643**	**,418**	,031	,020	,053	-,107
I don't know how to let my emotions out	DEE	,207	**,427**	**,501**	-,061	-,013	-,036	-,080
I can experience very strong emotions	ITE	,110	,237	,034	,034	**,630**	-,074	,044

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Questionnaire statements	Key	Component						
		1	2	3	4	5	6	7
An adult should be restrained in showing emotions	PE	**,637**	-,187	-,172	,237	,067	-,053	-,083
I make sure I don't outwardly show my emotions	SE	**,425**	,112	,205	**,430**	-,067	-,153	-,026
In a stressful situation, I start thinking about something else	EA	,187	,206	,234	-,016	,044	-,092	**,643**
Emotional distress affects my physical well-being	ITE	-,037	,073	,240	-,076	**,687**	,068	,213
I use medication to deal with my emotions	TUPOD	,073	,265	,197	,031	-,241	**,527**	,153
It's hard for me to describe the emotions I'm feeling right now	DUOF	,086	**,632**	**,437**	,044	-,163	,258	,100
People around me think I'm an emotionally reserved person.	DEE	,308	,314	**,552**	,209	,112	-,274	-,071

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Questionnaire statements	Key	Component						
		1	2	3	4	5	6	7
I can't keep worrying about something for too long.	ITE	,067	-,141	-,061	,159	**,442**	,036	,269
Openly rejoicing and laughing in public is bad form	PE	**,613**	,143	,192	-,043	,111	,295	,199
When I'm happy, I try to keep my cool.	SE	,454	,174	,273	**,492**	,112	-,062	,092
I try to avoid conflict situations and conflicted people	EA	,112	,070	,168	**,401**	-,095	-,354	**,407**
The best way for me to relieve emotional stress is with alcohol (or smoking)	TUPOD	,086	,199	,115	,088	-,062	**,671**	-,056
For me, good food is the best cure for stress	TUPOD	-,037	,151	,054	,094	-,079	**,494**	,068
Often I don't feel anything	DUOF	,189	**,554**	**,421**	,162	,134	,200	,050

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Questionnaire statements	Key	Component						
		1	2	3	4	5	6	7
I find it difficult to express my emotions and feelings in words	DEE	,155	**,417**	**,717**	,032	-,121	,035	-,001
Emotional people don't inspire respect.	SE	**,552**	,036	,114	,050	,117	,325	,164
I try to suppress negative emotions.	SE	,214	,165	,181	**,699**	,071	,012	,048
I try to avoid strong positive emotions (joy, jubilation)	EA	**,462**	,284	,212	,039	,062	,334	**,473**
I find physical (or breathing) exercises help me deal with my emotions	TUPOD	-,024	-,062	-,219	,152	-,086	**,384**	,368
In a stressful situation, I feel nothing but fatigue.	ITE	,106	,404	,342	,057	**,503**	,136	,344

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Questionnaire statements	Key	Component						
		1	2	3	4	5	6	7
Emotions influence my behaviour and activities	DUOF	,137	**,524**	,387	-,101	**,440**	-,007	-,029
People around me don't realise what I'm really going through	DEE	,177	**,412**	**,429**	,197	-,340	,007	,035
Emotions get in the way of business and make commu-nication difficult	PE	**,513**	,206	,171	,251	-,219	,146	,044
I suppress fear, anxiety, anger and aggression through willpower	SE	,159	,013	,050	**,728**	,025	,137	,011
I try to avoid negative emotions and situations that provoke them	EA	,100	-,011	-,026	**,410**	-,055	-,208	**,413**

Note. Method of factor extraction: Principal component method. Rotation method: Varimax with Kaiser normalisation. Rotation converged in 8 iterations. The factor loadings of the items that were included in the factor are in bold type.

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The first factor combines the 4 items we developed for the Prohibition on *Emotion* (PE) scale; it also includes statements theoretically related to the Emotional Suppression (SE) and Emotional Avoidance (EA) scales.

The *second factor* with high weights included 4 statements reflecting *difficulties in recognising one's own feelings* (DUOF) and with weights greater than 0.4 statements relating to the scales "difficulty in expressing emotions" (DEE) and "inability to withstand (tolerate) emotions" (ITE);

The third factor includes all statements characterising *difficulties in expressing emotions (DEE);* some contribution is made by statements developed for the Difficulties in Being Aware of One's Own Feelings (DUOF) scale.

The *fourth factor* encompasses 4 statements theoretically related to the *emotional suppression* (SE) scale, and with lower weights (but greater than 0.4) statements reflecting emotional avoidance (EA) tendencies.

The fifth factor includes 4 statements hypothesised to be related to the *Inability to Endure (Tolerate) Emotions (*ITE) scale and 1 statement related to the Difficulties in Being Aware of One's Own Feelings (DUOF) scale.

The *sixth factor* with the highest weights included statements reflecting the *propensity to use physiologically oriented defences* (TUPOD).

The seventh factor combines 4 statements characterising the *emotion avoidance* (EA) tendency.

Thus, each questionnaire statement makes the most weighty and statistically significant contribution to the scale to which it was theoretically assigned (see key, Table 9).

There are "intercepts" on statements between different factors. The most significant ones are between the 2nd factor ("difficulties in understanding my own feelings" (DUOF)) and the 3rd factor ("difficulties in expressing emotions" (DEE)): "People around me don't understand what I'm really experiencing" (DEE), "Often I don't feel anything" (DUOF), "I don't know how to give an outlet to my emotions" (DEE); between the 1st factor ("prohibition on emotions" (PE)) and the 4th factor ("suppression of emotions" (SE)): "When I am happy, I try to keep myself in control" (PE), "I make sure I don't outwardly show my emotions" (DEE); between factor 1 ("prohibition on emotions" (PE)) and factor 7 ("emotion avoidance " (EA)): "I try to avoid strong positive emotions" (EA)); between factor 4 ("suppression of emotions" (PE)) and factor 7 ("emotional avoidance" (EA)): "I try to avoid negative emotions and situations provoking them" (EA). The contributions of the DPER questionnaire statements to the non-key matched scales are less significant than to the key matched scales. Nevertheless, they testify to the "determinational" closeness of the defence mechanisms of avoidance, prohibition and suppression, as well as difficulties in realising and expressing emotions.

Thus, the values of all statistical characteristics of the structure of the DPER questionnaire and the consistency of its scales confirm its seven-factor structure and

the validity of including the questionnaire statements in the corresponding scales, and the obtained "intercepts" of the statements between the scales additionally testify to the closeness of the phenomena described by the scales in accordance with the structural model of difficulties in personal reflection of emotions that we have proposed.

At the second stage, an exploratory factor analysis using the principal component analysis (PCA) method was conducted to **test our proposed three-component theoretical structural model of difficulties in personal reflection of emotions**. A three-factor solution explained 66.85% of the explained variance (the first factor covered 40.3% of the variance, the second 14.0%, and the third 12.6%). Consequently, it is reasonable to combine the seven scales of the DPER questionnaire into three factors. This is confirmed by the values of the Kaiser-Meyer-Olkin criterion (KMO) (exceeding 0.7) and Bartlett's sphericity coefficient (statistically significant at the 0.001 level) for the three-factor solution (Table 10).

Table 10
Estimated sample adequacy coefficients for the three-factor solution

Kaiser-Meyer-Olkin measure of sampling adequacy (KMO)		,799
	Approximate Chi-square	2247,588
Bartlett's sphericity criterion	st.st.	21
	Significance	,000

In order to assign each of the DPER questionnaire scales to one of the three factors, we determined the values of the exploratory factor analysis coefficients (principal component analysis followed by Varimax rotation with Kaiser normalisation), showing with what weight the scale is included in one or another factor (Table 11).

Table 11
Rotated component matrix*

Scale	Component		
	1	2	3
Suppression of Emotions (SE)	0,829	0,227	0,030
Emotional avoidance (EA)	0,785	-0,037	0,223

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Scale	Component		
	1	2	3
Difficulties in recognising one's own feelings (DUOF)	0,075	0,908	0,096
Tendency to use physiologically oriented defences (TUPOD)	0,099	0,004	0,876
Inability to withstand (tolerate) emotion (ITE)	0,273	0,290	0,712
Difficulty in expressing emotions (DEE)	0,336	0,681	0,214
Emotional prohibition (PE)	0,726	0,232	0,123

*Note. *Method of factor extraction: Principal component method. Rotation method: Varimax with Kaiser normalisation. Rotation converged in 5 iterations.*

Scales whose factor loadings exceed 0.7 or are within acceptable limits are combined into appropriate groups (factors):

1. the 1st group (factor) included the scales "suppression of emotions" (SE), " emotion avoidance " (EA), "prohibitions on emotions" (PE);

2. The 2nd group (factor) included the scales "difficulties in realising one's own feelings" (DUOF) and "difficulties in expressing emotions" (DEE);

3. the 3rd group (factor) included the scales "tendency to use physiologically oriented defences" (TUPOD) and "inability to withstand (tolerate) emotions" (ITE).

Such grouping of scales into groups (factors) corresponds with the model of the research toolkit of difficulties of personal reflection of emotions, according to which the 1st factor is psychological mechanisms preventing effective reflection of emotions (PE, EA, SE); the 2nd factor is unformed abilities of understanding and expressing one's emotions (DUOF, DEE); the 3rd factor is instability to emotional stresses (TUPOD, ITE).

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The results of the statistical analysis show that the internal structure of the analysed set of statements is quite strong and easily lends itself to meaningful interpretation, which corresponds to the theoretical structural model of difficulties in personal reflection of emotions, which formed the basis for the development of the DPER questionnaire. The vast majority of statements make a high contribution to their corresponding scale, and the scales have high loadings on their corresponding factor. Thus, the meaningful interpretation of the DPER questionnaire is possible on the basis of seven scales that unite into three summary indicators of difficulties in personal reflection of emotions.

The *third* stage investigated the **convergent validity of the DPER questionnaire**, which was determined by assessing the values of the correlation coefficients between the scales of the DPER questionnaire and the scales of other methods that study similar phenomena, based on our theoretical assumptions (Anastasi, Urbina, 2003).

The results of the correlation analysis are presented in Table 12, where the scales of psychodiagnostic techniques that showed reliable correlations with the scales of the DPER questionnaire are included.

Table 12

Correlations of DPER questionnaire scales with scales of methods measuring similar phenomena

	1	2		3	4		
Scales THRE question-naire	Having served expres-siyas	Self-efficacy emotio-nality internal control	Under-stand emo-tion	Intra-personal emo-tional individual intelli-gence	Mate favou-rites	Extra-vertiro-vanity	Emotio-stable vulne-rability
Suppres-sion of emotions	0,297	-0,169	-0,216	-0,078	-0,1934	-0,131	-0,065
Emotional avoidance	0,026	-0,120	-0,104	-0,096	-0,136	-0,094	-0,101
Difficulties in recog-nising one's own feelings	0,0716	-0,522	-0,505	-0,059	-0,148	-0,071	-0,031

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Scales THRE question-naire	1	2		3	4		
	Having served expres-siyas	Self-efficacy emotio-nality internal control	Under-stand emo-tion	Intra-personal emo-tional individual intelli-gence	Mate favou-rites	Extra-vertiro-vanity	Emotio-stable vulne-rability
Tendency to use physio-logically oriented defences	0,029	-0,127	-0,131	-0,382	-0,048	-0,076	-0,080
Inability to withstand (tolerate) emotions	0,072	-0,133	-0,093	-0,054	-0,299	-0,216	-0,364
Diffi-culties in expressing emotions	0,068	-0,160	-0,116	-0,017	-0,330	-0,245	-0,204
Emotional prohi-bition	-0,004	-0,116	-0,090	-0,068	-0,613	-0,528	-0,181

Note. 1 – Gross questionnaire; 2 – Mauss methodology; 3 – Emin Lucin test; 4 – TIPI-RU; for all correlations p < 0.01.

The analysis of correlations between the scales of the DPER questionnaire and the scales of methods measuring phenomena close to the difficulties of personal reflection of emotions confirms the convergent validity of the DPER questionnaire: The "suppression of emotions" scale of the DPER questionnaire is positively correlated with the "suppression of expression" scale of the Gross questionnaire; the scale "difficulty in understanding one's own feelings" negatively correlates with the scale "self-efficacy of emotional control" of the Mauss methodology and the scale "understanding of one's own emotions" of the EmIn Lucin questionnaire; the scale "tendency to use physiologically oriented defences" negatively correlates with the complex indicator "intrapersonal emotional intelligence"

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of the EmIn Lucin questionnaire, which is logical, since the presence of expressed physiological defences against emotions reduces a person's ability to be in conscious contact with his or her own emotions. the scale "inability to withstand (tolerate) emotions" negatively correlates with the scale of emotional stability of the TIPI-RU questionnaire, as well as with the scales "friendliness" and "extraversion" of this technique; the same scales of the TIPI-RU questionnaire are negatively correlated with the scale "difficulties in expressing emotions" and the scale "prohibitions on emotions", which is consistent with the idea that the problems of building trusting, friendly, open contacts with other people have an intrapersonal predisposition associated with difficulties in emotional self-expression and the presence of blocks to the free expression of emotions.

At the *fourth stage, the sensitivity of the* DPER *methodology to the factors "gender" and "age" was* investigated. Since the indicator "gender" is binary, the differences between male and female samples on the scales of the DPER questionnaire were determined using the t-criterion for independent samples (Table 13).

Table 13

Differences in the scales of the DPER questionnaire by gender *and age* *

DPER scale	Gender	Age	
	t-value	Crascall-Wallis	Chi-square
Suppression of emotions	1,25887	6,5183*	9,3480***
p-values	*0,20825*	*0,1722*	*0,1875*
Emotional avoidance	-0,84063	6,353*	9,8687***
p-values	*0,40067*	*0,1135*	*0,1445*
Difficulty recognising your own feelings	-0,44213	1,4985	3,8939
p-values	*0,65845*	*0,4727*	*0,1427*

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DPER scale	Gender	Age	
	t-value	Crascall-Wallis	Chi-square
Tendency to use physiologically oriented defences	-2,78514***	6,390*	9,357***
p-values	0,00541	0,0410	0,0093
Inability to withstand (tolerate) emotions	-0,59129	0,018	1,945
p-values	0,55440	0,9910	0,3780
Difficulties in expressing emotions	-0,04240	0,809	0,4932
p-values	0,96618	0,6670	0,7814
Emotional prohibition	0,51864	2,167	4,157
p-values	0,60407	0,3383	0,1251

Note. *Level of significance: * 0.05 < p < 0.10; ** 0.01 < p < 0.05; *** p < 0.01; table shows p-value values.*

The results of the analysis confirmed significant differences between male and female samples on the scale "propensity to use physiologically oriented defences" (TUPOD). The analysis of average values on the scale shows that this propensity is characteristic of men to the greatest extent.

To determine the differences in the scales of the DPER questionnaire between the three age groups, the Kraskall-Wallis test and the median test were used (Table 13), since it is reasonable to use it for three or more comparison groups. In order to remove limitations on the sample size (these criteria are usually used for small samples),

z-transformation was performed in the calculations. Statistically significant differences between the selected 3 age groups (15–19 years; 20–39 years; 40–60 years (Table 3)) were found on the scales "suppression of emotions" (SE), "avoidance of emotions" (EA), and "tendency to use physiologically oriented defences" (TUPOD) (Table 13). The analysis of descriptive statistics shows that the propensity to physiological defences against emotions, suppression of emotions and avoidance of emotions is more frequent in respondents 40–60 years old (the age of middle adulthood).

Discussion

As a result of the study on a representative sample of respondents and statistical analysis of its data, the psychometric validity of the developed methodology for assessing the difficulties of personal emotional reflection (DPER) was shown. The proposed construct of the research toolkit, which includes 7 scales (difficulties in understanding one's own feelings; difficulties in expressing emotions; inability to withstand (tolerate) emotions; tendency to use physiologically oriented defences; prohibitions on emotions; suppression of emotions; avoidance of emotions), grouped into three complex indicators (unformed abilities to understand and express one's emotions; instability to emotional stresses; psychological mechanisms preventing effective reflexion of emotions; prohibition on emotions; and psychological mechanisms preventing effective reflexion of emotions), was confirmed.

The contributions of some statements of the DPER questionnaire revealed during the analysis, not only in the corresponding theoretically proposed scale, but also in its other scales, have their logical explanation and do not reduce the diagnostic value of the DPER questionnaire scales, because, firstly, the contributions of the questionnaire statements in the scales corresponding to the key are high, secondly, the scales between which there are "intercepts" on the discussed statements, refer to one complex indicator (theoretically assumed and statistically confirmed by the exploratory factor analysis).

The convergent validity of the DPER questionnaire was confirmed through correlation analysis of its scales with the corresponding scales of questionnaire methods measuring phenomena close to the difficulties of personal reflection of emotions. A higher correlation coefficient was expected between the "suppression of emotion" scale of the DPER questionnaire and the "suppression of expression" scale of Gross's (2003) questionnaire. This is probably due to the greater orientation of the Gross questionnaire statements assessing the emotion regulation strategy "suppression of expression" towards external manifestations of emotions, their demonstration, than towards internal reflexive contact with them. No correlations were found between the scale "difficulties in realising one's own feelings" of the DPER questionnaire and the scale "intrapersonal emotional intelligence" of the EmIn Lucin questionnaire (Lucin, 2006), which includes the subscale "understanding one's emotions" and "managing one's emotions", while the negative correlations with the subscale "understanding one's emotions" are expectedly high

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and significant. The "difficulty in expressing emotions" scale of the DPER questionnaire is not related to the scales and subscales of emotional intelligence, but correlates with the scales – personality characteristics of the TIPI-RU questionnaire ((Gosling, Rentfrow & Swann, 2003), adapted from Sergeeva, Kirillov & Dzhumagulova (2016)): introversion, emotional instability, and antagonism towards other people, which confirms the personal nature of difficulties in reflexive contact with one's own emotions. The scale "avoidance of emotions" does not correlate with any of the scales of the psychodiagnostic techniques used. This scale reflects a person's desire not to immerse in emotional experiences and to avoid situations that provoke them, i.e. it is associated with the personal blocking of emotion reflexion and the corresponding behavioural strategy. It is possible to verify this scale in subsequent studies through the use of the Thomas-Kilmann test to identify ways (strategies) of behaviour in conflict situations (the "avoidance" scale), the Lazarus and Folkman coping test (the "escape-avoidance" scale) and others.

The diagnostic sensitivity of the developed toolkit to the factors "gender" and "age" was confirmed. The scale "propensity to use physiologically oriented defences" is sensitive to the factor "gender". The scales "suppression of emotions", "avoidance of emotions", "tendency to use physiologically oriented defences" are sensitive to the factor "age" (we are talking about three age groups in the age range from 15 to 60 years).

The merits of the methodology include the fact that its construct clarifies scientific ideas (Garanyan & Kholmogorova, 2017; Lyusin & Ovsyannikova, 2013; Sysoeva, 2009, 2013; Pryakhina, 2017; Belasheva et al, 2018; Rottenberg, 2005; Direnfeld & Roberts, 2006; Bar-Haim et al., 2007; Derryberry & Reed, 2002; Gross & John, 2003; Gross & Jazaieri, 2014; Gratz & Roemer, 2004; Lis et al., 2007; Gard et al, 2007; Campbell-Sills & Barlow, 2007; Padun, 2015; Andreeva, 2006; Libin, 2000; Lucin, 2004; Vilenskaya, 2020; Rothbart, Sheese, Posner & Voelker 2014) about the process formations underlying the difficulties of personal reflection of emotions as intrapersonal predictors and indicators of the development of states of emotional ill-health, and allows us to measure the degree of their expression over a relatively short period of time, which is important for practical purposes of psychological counselling and correction.

Further work on the refinement of the construct, test norms and wording of statements on the scales of the DPER methodology can be related to the description of the results of step-by-step testing of scales with Cronbach's α thresholds for statements that reduce the consistency of the scales; testing the convergent validity of the scale "avoidance of emotions"; determining the retest validity of the methodology; determining the differences in the degree of expression of difficulties of personal reflection of emotions in representatives of different professions.

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Author Contributions

Irina Belasheva – planning and conducting the research, analysing and interpreting the results; working with sources, writing the review part of the article.

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Conflict of Interest Information

The authors have no conflicts of interest to declare.