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Psychological Assessment of South Koreans' Perception on Unification Laws: How Legal Psychology Impacts Perspectives on Korean Unification Policies

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Abstract

Introduction. In order to implement the «Special Presidential Declaration for National Pride and Unification Prosperity», South Korea enacted and promulgated the «Inter-Korean Exchange and Cooperation Act» on August 1, 1990, expressing its commitment to a North Korea policy and unification policy based on constitutional rule of law. As a result, the Ministry of Unification currently is in charge of a total of 31 related statutes: 11 laws, 12 presidential decrees, and 8 ministerial decrees. However, despite South Korean's high public interest in North Korea and inter-Korean relations, there is a lack of public awareness regarding laws relevant to unification. This is partly because North Korea policy has primarily been led by the President and the executive branch, whereas the legislative body, the National Assembly, played a relatively minor role in inter-Korean and foreign relations. Effective rule of law reduces corruption, protects individuals from minor injustices, supports responsible governance, respects fundamental rights, and forms the foundation for a just, peaceful, and opportunistic community. In the context of unification, achieving an ideal unified state necessitates securing a legal system that ensures a fair society governed by rational and public rules, rather than arbitrary rule by leaders. **Methods.** This research conducted a survey on 225 South Korean citizens aged 19 and older using an online questionnaire to investigate their legal consciousness regarding unification-related laws. **Results.** Descriptive statistics revealed a low public awareness of unification-related laws, and low legal consciousness on the Unification law. Further correlational analysis revealed a positive correlation between cognitive and emotional dimensions of

legal consciousness and supportive attitudes towards unification and reconciliatory North Korea policies. **Discussion.** Based on these findings, it is suggested that the government could consider expanding the functions of the Unification Law Database operated by the Ministry of Unification and strengthening legal education in the curriculum conducted during the Unification Education Week by the National Institute for Unification Education.

Keywords

Korean unification, unification law, unification psychology, legal psychology, legal consciousness, legal culture, inter-group relations, legal attitude, legal awareness

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Introduction

Article 4 of the Constitution of the Republic of Korea stipulates, “the Republic of Korea shall seek unification and shall formulate and carry out a policy of peaceful unification based on free and democratic order.” Similarly, Article 9 of the Socialist Constitution of the Democratic People’s Republic of Korea states, “The Democratic People’s Republic of Korea shall strive to ... reunify the country on the principle of independence, peaceful reunification, and great national unity.” Thus, both South and North Korea express a constitutional commitment to peaceful reunification (Cho, 2018).

However, inter-Korean relations face numerous challenges, including North Korea’s missile launches, the nuclear issue, the closure of the Kaesong Industrial Complex, and intensifying United States (U.S.)-China competition. Despite the hopeful Panmunjom Declaration for Peace, Prosperity, and Unification on the Korean Peninsula on April 27, 2018, North Korea has conducted numerous missile tests following the collapse of the Stockholm working-level talks. Many inter-Korean agreements have not been implemented and have become ineffective (Kim, 2021). One key issue is that inter-Korean relations have traditionally been viewed as a “political question” rather than a legal matter.

Article 4 of the Republic of Korea’s Constitution asserts that unification is a constitutional mandate to be achieved through a democratic system (Choi, 2022). To enhance the transparency and consistency of South Korea’s policies towards North Korea, it is necessary to emphasize the rule of law. Overcoming the stalemate in inter-Korean relations requires opportunities for change and development through legal research on unification. Social change is needed to lead to a more substantial transformation in

inter-Korean relations, which can be achieved by shifting perceptions towards the rule of law (Ji, 2005). Specifically, the legal consciousness regarding inter-Korean relations is essential to establish a new national psychological consciousness (Ji, 2005).

However, public awareness of the law should be assessed based on empirical investigation and analysis rather than abstract reasoning. Practical rule of law can be established when there is an accurate understanding of public legal awareness through empirical research, which then informs the drafting and amendment of laws and policy implementation (Kang & Cha, 2019).

This study examines the theoretical background of current legislations related to Korean unification (hereinafter "Unification Law") and legal consciousness. We assess public perception regarding awareness of laws related to Unification Law and the impact of legal consciousness on attitudes toward unification and preferences for North Korea policies. Further implications for the South Korean government's unification policy are subsequently derived.

Theoretical Background

Legal Culture and Legal Consciousness

Effective rule of law reduces corruption, protects people from injustice, ensures responsible governance, upholds fundamental rights, and lays the foundation for a community of justice, opportunity, and peace (Kang & Cha, 2019). Therefore, measuring and improving citizens' legal awareness is of great national importance (Kwak, 2011). However, according to the 2021 National Law Consciousness Survey conducted by the Korea Institute of Legislation, 43.3% of respondents stated that South Koreans "do not know" about the law, and about six out of ten respondents found legal terms and sentences "difficult to understand" (Kang & Cha, 2019). Although these figures have improved compared to 2019, when more than half of the respondents said they "do not know" about the law and seven out of ten found legal terms and sentences "difficult to understand," there remains a significant reluctance towards law and legal terminologies (Kang & Cha, 2019).

Generally, the three elements of the legal system are composed of substantive legal norms, legal systems, and legal culture (Im, 2015). Legal culture refers to the attitudes, values, and opinions commonly found within a society towards the law or legal system (Im, 2015). Specifically, it encompasses the perceptions and understanding of individuals and groups towards the law, as well as attitudes towards the judicial system, from the perspectives of legal sociology and legal anthropology (Jung, 2014).

A crucial component of legal culture is legal consciousness (Yoo, 2024). Legal consciousness refers to the psychological aspect of legal phenomena, generally understood as intertwined with the broader legal culture of a country and the legal consciousness of

its citizens. For instance, a country's political system can be seen as a product of different historical and cultural contexts according to time and region (Park, 2009).

Legal culture based on legal consciousness has two primary effects: the social function of law and the creation and change of law (Yoo, 2024). The social function involves law controlling and integrating society, legitimizing community power, and handling conflicts. This function is essential for community members, and its legitimacy must be maintained by legal cultural conditions (Yoo, 2024). On the other hand, conflicts in legal consciousness can lead to changes in legal culture. Therefore, considering both the practical and formal aspects of legal consciousness regarding legal systems, procedures, and their necessity can drive new legal changes (Yoo, 2024).

Empirical Research on the Legal Consciousness of the Unification Law

Following democratization, the authoritative decisions of the government, including those of the president, have decreased, while the influence of public opinion in the decision-making process of foreign policy has increased. This is evident in the formation of policy towards North Korea. For example, when North Korea abuses South Korea's policies of tolerance, the resulting deterioration in domestic and international public opinion can weaken the foundation for advancing these policies, highlighting the importance of public sentiment (Hwang, 2011). Furthermore, preferences for policies towards North Korea can be restructured according to the socio-cultural context. For instance, during the Kim Dae-jung and Roh Moo-hyun administrations, sustained economic cooperation and private exchanges with North Korea led to a reduction in South Koreans' hostile perceptions of North Korea. Additionally, understanding the market order in the Kaesong Industrial Complex and the spread of South Korean pop culture also changed North Koreans' perceptions of South Korea (Hwang, 2017). Conversely, after the Panmunjom Declaration, the Inter-Korean Presidential Summit, and the U.S.-North Korea Presidential Summit alleviated South Korean citizens' security concerns regarding North Korean nuclear weapons and provocations. However, subsequent North Korean nuclear crises and deteriorating inter-Korean and U.S.-North Korea relations have hardened public perception of North Korea. Therefore, the formation of North Korean policy should consider not only the formal aspects of laws and procedures but also the changing public opinion based on social and cultural contexts (Lee & Jeong, 2019).

The development of the Unification Law also reflects social phenomena (Supreme Court of Korea, 1995). Traditionally, North Korea was viewed as a non-state entity. However, the Constitutional Court of South Korea recognized the "dual status" of North Korea as a "special party of inter-Korean relations," pursuing a common goal of peace and reunification, thereby acknowledging North Korea's legal status in the context of inter-Korean cooperation (Constitutional Court of Korea, 1992). The Constitutional Court has upheld the constitutionality of the "Inter-Korean Exchange and Cooperation Act" by recognizing North Korea's dual status as a non-state entity under Article 3 of the Constitution and as a party to dialogue and cooperation under Article 4 of the Constitution

(Constitutional Court of Korea, 1992). As such, laws and judicial precedents that regulate inter-Korean relations must evolve to adapt to social changes, considering how they are positioned in society and what changes they induce in the legal system.

In alignment with this direction, the South Korean government enacted and promulgated the Inter-Korean Exchange and Cooperation Act on August 1, 1990, to specifically execute the Special Presidential Declaration for National Pride and Unification Prosperity, expressing its commitment to promoting North Korea and unification policies based on the rule of law (Ji, 2005). As a result, the Ministry of Unification currently oversees 11 laws, 12 Presidential Decrees, and 8 Ministry of Unification decrees, totaling 31 related laws (Korean Law Information Center). Furthermore, the "Development of Inter-Korean Relations Act," established to promote the development of inter-Korean relations based on national consensus, according to the principles of transparency and trust, has contributed to enhancing policy transparency and promoting national consensus by being incorporated into the legal system and under the legislative control of the National Assembly.

However, the public's understanding of the Unification Law is insufficient, even though interest in North Korea and inter-Korean relations is high. This is because North Korea policy has predominantly been led by the president and the administration, with the National Assembly, the legislative body, having a very limited role in inter-Korean relations (Jhe, 2004).

To achieve an ideal unified state, a legal system must be secured to create a fair society according to reasonable and public rules through the "rule of law," not arbitrary rule by the ruler (Choi, 2022). Therefore, in terms of reunification policy, it is crucial to legalize agreements and domestic inter-Korean issues. This will promote unification and North Korea policy, and further inter-Korean unification, as processes grounded in laws based on national consensus.

Methods

Participants

Two hundred and forty participants of South Korean nationality participated in an online questionnaire in October 2021. The demographic composition of participants is presented in Table 1. All analysis was performed through IBM SPSS 22.

Table 1
Demographic Composition of Participants

Age	Male	Female	Other	Sum
20-29	68	32	8	108
30-39	28	24	0	52
40-49	44	36	0	80
Sum	140	93	8	240

Measures

Awareness on Unification Law

Legal consciousness is composed of cognitive, emotional, and behavioral dimensions. The cognitive dimension includes legal knowledge, understanding of the law, and awareness of the need for the law. The emotional dimension encompasses elements such as legal empathy, familiarity, and trust. Finally, the behavioral dimension involves perceptions of legal effectiveness and legal normativity (Choi et al., 2017).

To assess legal consciousness regarding Inter-Korean relations, this research first evaluated awareness of individual laws related to Inter-Korean exchange and cooperation, unification policy, unification education, and policy towards North Korea. Participants were asked of their awareness of the 11 laws relevant to Korean Unification policies.

Subsequently, standards from the scale developed by Choi et al. (2017) were used to measure legal consciousness across its three dimensions in relation to the Unification Law. The cognitive dimension was assessed with two questions: "The Unification Law has authority" and "The Unification Law is fair." The emotional dimension was also measured with two questions: "I feel familiar with the Unification Law" and "I trust the Unification Law." The behavioral dimension included: "The government is enforcing the Unification Law well" and "The government's unification and North Korea policy is implemented in accordance with the law."

Participants responded to each question on a 5-point scale (1 = strongly disagree, 5 = strongly agree).

Attitudes Toward Unification

According to the annual Understanding of the Unification Problem published by the National Institute for Unification Education under the Ministry of Unification, discourse on the necessity of Korean unification can be categorized into three main types: ethnic nationalism discourse, universal value discourse, and benefit of unification discourse (Kim & Lim, 2021).

The ethnic nationalism discourse argues that unification is essential because South and North Koreans are part of the same nation and share a unified national identity. The universal value discourse posits that unification is desirable for all Koreans to enjoy universal values such as international peace, human rights, freedom, welfare, human dignity, and respect for human rights. The benefit of unification discourse emphasizes the various advantages that unification can bring, potentially transforming the Korean Peninsula into a "Korean Premium" (National Institute for Unification Education, 2022).

Attitudes towards unification were assessed using the Attitude Toward Unification of Korea (ATU-K) scale (Choi et al., 2021). This scale, developed from a social psychological perspective, measures individuals' attitudes towards Inter-Korean unification in terms of cognitive and emotional dimensions.

The cognitive dimension of the ATU-K scale categorizes expected outcomes of Inter-Korean unification into three sub-dimensions: "national strength," "identity preservation," and "peace promotion." These align respectively with the three types of unification discourse mentioned earlier. This framework helps to identify the primary motivations behind an individual's support for unification and discern which unification discourse prevails among the South Korean public.

Participants responded to categories assessing the strengthening of national power with statements like "Unification will develop the Korean economy," "Unification will enhance Korea's international stature," and "Unification will bolster Korea's military capabilities." Items addressing identity preservation included statements such as "Unification will safeguard the historical legacy of the Korean nation," "Unification will preserve the cultural identity of the Korean nation," and "Unification will promote the cultural heritage of the Korean nation." Statements focused on promoting peace included "Unification will mitigate the threat of war on the Korean peninsula," "Unification will contribute to peace in Northeast Asia," and "Unification will foster peace in the broader international community." Participants rated their level of concurrence with each statement on a 5-point scale (1 = strongly disagree to 5 = strongly agree).

Preferences toward Policies toward North Korea

Security and cooperation represent the dual pillars of South Korean policies towards North Korea that have been consistently pursued. This study draws on questions from a prior research by Park et al. (2019) and categorizes North Korea policies into reconciliatory and hardline approaches. To gauge preferences towards reconciliatory policies, participants were presented with statements such as "South Korea should provide humanitarian aid to vulnerable groups in North Korea (children, pregnant women, and the elderly) regardless of sanctions" and "The South Korean government should actively implement cooperation projects with North Korea that have the potential to lead to sanctions relief and seek support from the UN."

Conversely, to assess preferences towards hardline policies, statements included "Providing humanitarian aid to North Korea violates sanctions," "Support for North Korea could strengthen its military capabilities," and "Sanctions on North Korea should only be lifted upon complete denuclearization." Participants indicated their consent with each statement using a scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Results

Awareness of Unification Laws

Descriptive statistics on the awareness of individual laws constituting the Unification Law are presented in Table 2, and descriptive statistics on the cognitive, emotional, and behavioral dimensions of the Unification Laws are presented in Table 3.

Table 2
Descriptive Statistics on Awareness of Unification Laws

Name of Act/Law	Awareness (%)
Act on Finding the Truth of North Korea's Abduction During the Korean War and Restoring Honor of the Victims	2.7
Act on Support of Gaeseong Industrial Complex	5.3
Act On The Joint Board Of South And North Korea For The Compilation Of Gyeongmal-keunsajeon	5.3
Act On Compensation And Assistance To Victims Of Abduction By North Korea After Conclusion Of The Military Armistice Agreement	4.0
Development of Inter-Korean Relations Act	6.7
The Inter-Korean Exchange and Cooperation Act	10.7
Act On Confirmation of The Life or Death Of Inter-Korean Separated Families And Promotion Of Exchange	16.0
Inter-Korean Cooperation Fund Act	8.0
North Korean Defectors Protection And Settlement Support Act	14.7
North Korean Human Rights Act	8.0
Average	8.0

Table 3
Descriptive Statistics on Legal Consciousness on the Unification Law

Classification	Questionnaire	M	SD
Cognitive	I am well-aware of Unification Law	1.91	.98
	Terms used in Unification law can be easily understood.	2.28	.97
	Average	2.09	.85
Emotional	The Unification Law has authority.	2.37	.99
	The Unification Law is fair.	2.92	.94
	Average	2.65	.83
Behavioral	The government is enforcing the Unification Law well.	2.75	.92
	The government's unification and North Korea policy is implemented in accordance with the law.	2.81	1.03
	Average	2.83	.86

Attitudes Toward Unification

Descriptive statistics on attitudes towards unification based on discourses on the necessity of unification are presented in Table 4. The results show that participants support the necessity of unification based on the "peace promotion" discourse the most ($M=4.12$, $SD=1.02$), as the mainstream public opinion in South Korea.

Table 4
Descriptive Statistics on Attitudes Toward Unification

Classification	Questionnaire	M	SD
National Strength	Unification will help the development of Korea's economy	3.67	1.20.
	Unification will raise Korea's international status	3.98	1.17
	Unification will strengthen Korea's military power	3.98	1.14
	Average	3.87	1.04
Identity Preservation	Unification will preserve of the history of the Korean nation.	4,15	1.07
	Unification will maintain the identity of the Korean nation.	3.96	1.21
	Unification will develop the culture of the Korea nation.	4.00	1.17
	Average	4.04	1.07
Peace Promotion	Unification will resolve the threat of war on the Korean Peninsula	4.11	1.16
	Unification will contribute to peace in Northeast Asia	4.09	1.10
	Unification will help promote peace in the international community	4.15	1.05
	Average	4.12	1.02

Preferences Toward North Korea Policies

Descriptive statistics on preferences toward reconciliatory and hardline North Korea policies are presented in Table 5. The results show that while participants did not show a significant preference towards a single direction of North Korean policies, they show a generally positive attitude towards reconciliatory North Korean policy pursued by the Unification Law.

Table 5
Descriptive Statistics on Preferences Toward North Korea Policies

Classification	Questionnaire	M	SD
Reconciliatory Policies	Humanitarian support for vulnerable groups in North Korea such as children, pregnant women, and the elderly should be carried out regardless of sanctions.	3.77	1.09
	Our government should actively explore cooperation projects with North Korea that have the possibility of sanctions exemptions and request the support from the UN.	3.48	1.20
	Average	3.62	1.04
Hardline Policies	Humanitarian aid to North Korea is a violation of sanctions.	2.52	1.04
	Support to North Korea will be used to enhance its military power.	3.67	.93
	Sanctions on North Korea must not be eased until complete denuclearization of North Korea.	3.57	1.19
	Average	3.25	.86

Correlation Between Legal Consciousness and Attitudes

To explore the relationship between the legal consciousness of the Unification Law and attitudes towards unification measured through the ATU-K scale, and preferences toward reconciliatory/hardline North Korean policies, a correlation analysis was conducted. The results show a significant correlation between legal consciousness in the cognitive and

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emotional dimensions and attitudes towards unification, but there was no significant correlation in the behavioral dimension. More specifically, higher degrees of legal consciousness in the cognitive and emotional dimensions were positively correlated with positive attitudes towards unification in support of strengthening national power ($r = .25$, $r = .35$) and preserving identity ($r = .23$, $r = .38$) and a higher degree of support towards reconciliatory North Korea policies ($r = .33$, $r = .40$). On the other hand, the degree of legal consciousness in the behavioral dimension did not show any significant correlation with any other measured variables. The overall results are presented in Table 6.

Table 6
Correlation of Legal Consciousness of the Unification Law and Attitudes Towards Unification and Preferences Toward North Korea Policies

		1	2	3	4	5	6	7	8
1	Cognitive Dimension	-	.58**	.30*	.25*	.23*	.16	.33**	-.15
2	Emotional Dimension		-	.49**	.35**	.38*	.19	.40**	-.14
3	Behavioral Dimension			-	.21	.20	.15	.14	.01
4	National Strength				-	.70**	.66**	.41**	-.27*
5	Identity Preservation					-	.64**	.45**	-.17
6	Peace Promotion						-	.37**	-.25*
7	Reconciliatory policies							-	-.59*
8	Hardline policies								-

Note. * $p < .05$, ** $p < .01$

Discussion

Legal Consciousness of the Unification Relations Act

The issue of Korean Unification is complex and ongoing, with the government's approach often termed the "sunshine policy," focused on engagement and reconciliation towards achieving reunification. Public support and a robust legal framework are seen as crucial for maintaining a consistent unification policy.

Public awareness and understanding of Unification laws are relatively low, averaging around 8%. Specific laws such as the "Act on Confirmation of the Life or Death of Inter-Korean Separated Families and Promotion of Exchange", the "North Korean Defectors Protection and Settlement Support Act", and the Inter-Korean Exchange and Cooperation Act have higher awareness rates at 16%, 14.7%, and 10.7%, respectively. In contrast, laws like the "Act on Compensation and Assistance to Victims of Abduction by North Korea after Conclusion of the Military Armistice Agreement," "Act on Finding the Truth of the Damage from North Korea's Abduction during the Korean War and Restoring Honor of the Victims," and the "Act on Support for Gaeseong Industrial Complex" have lower awareness rates ranging from 2.7% to 5.3%. The disparity in awareness is likely influenced by the frequency of encounters with North Korean defectors and separated families in society, and the duration of public discussion around these laws.

Participants also showed low levels of legal consciousness in the emotional dimension regarding the authority and fairness of the Unification law, and in the behavioral dimension regarding its enforcement. This highlights the need for improved dissemination of information about the Unification Act through accessible platforms like the Korean government's Database on a Unified Korea's Legal System. This database, managed jointly by the Ministry of Unification, Ministry of Justice, and Ministry of Government Legislation, categorizes legal data related to Inter-Korean affairs and unification, facilitating public understanding and interest in these areas.

Moreover, enhancing legal awareness through unification education is essential. The current curriculum, outlined by the National Institute for Unification Education's 2021 plan, includes subjects on peace, unification/peace economy, North Korea understanding/inter-Korean integration, and international relations. However, it lacks comprehensive education specifically on unification law. Efforts should include expanding education on topics such as Inter-Korean agreements, North Korea's legal status, and relevant international agreements and treaties through both in-person and online educational initiatives. These steps are critical for fostering greater public engagement and understanding of the legal frameworks underpinning Korean reunification efforts.

Legal Consciousness and Attitudes Toward Unification

The findings reveal that individuals with higher levels of legal consciousness in the emotional dimension exhibit more favorable attitudes towards Korean unification,

particularly in terms of supporting national strength and preserving national identity ($r = 0.23$, $r = 0.38$ respectively). This suggests that those who emotionally recognize the importance of Korean Unification laws are more inclined to endorse the economic and international benefits of unification, as well as to emphasize the maintenance and development of Korean national identity and culture.

Further implications suggest that enhancing emotional recognition of unification laws requires establishing a stable and consistent reunification policy grounded in a solid legal framework. Between 1971 and 2018, South and North Korea adopted 258 agreements and held 667 meetings (Inter-Korean Dialogue Statistics). However, many of these agreements and meetings have not been consistently implemented due to political and military factors. For instance, agreements such as the Basic Agreement between South and North, intended to establish various organizations and structures, were undermined by North Korea's nuclear threats and missile crises, diminishing their effectiveness (Kim, 2021).

In contrast, Germany's experience demonstrates that concrete legal and institutional frameworks for exchange and cooperation, independent of political fluctuations, significantly contributed to peace-building and tension reduction (Kwon, 2018). Therefore, mere rhetorical slogans must be translated into binding laws and institutions to uphold social values and ideals effectively.

To achieve this, ensuring the effective implementation of South-North agreements necessitates binding mechanisms, including ratification by the National Assembly, defining the scope of effectiveness under Article 23 of the Act on the Development of Inter-Korean Relations (pertaining to the validity of agreements between South and North), registration with the UN, and establishing dispute resolution procedures. Additionally, enhancing transparency, legitimacy, and consistency of policies towards North Korea through legal institutionalization is crucial (Kim, 2021).

Legal Consciousness on Preferences Toward North Korea Policies

Based on the categorization of North Korea policies into reconciliatory and hardline approaches, the findings indicate a positive correlation between higher levels of legal consciousness in the emotional dimension and greater support for reconciliatory policies ($r = 0.40$).

Moreover, the *2020 Survey of Korean Attitudes on Unification* conducted by the Institute for Peace and Unification Studies at Seoul National University reveals that a significant proportion of the South Korean population consistently views North Korea as a "partner" for cooperation. Specifically, in 2020, 48.2% of respondents considered North Korea a partner, while 21% viewed it as a border, 14.8% as an enemy, 11.9% as support, and 4% as competition. Comparing these figures to data from 2007 onwards shows fluctuations over time, with the highest percentage viewing North Korea as a partner in 2008 (57.6%) and the lowest in 2015 (35.2%). These findings underscore the

importance of actively implementing economic, social, cultural, and other inter-Korean cooperation projects to enhance public recognition and emotional engagement with the laws of unification, crucial for effective policy implementation.

It is essential to note that public support for specific North Korea policies fluctuates over time. For instance, between 2007 and 2012, dissatisfaction with North Korea policies generally outweighed satisfaction. From 2013 to 2015, however, satisfaction began to surpass dissatisfaction. Thereafter, fluctuations continued, with peaks in satisfaction reaching a record high of 65.6% in 2018, followed by declines in subsequent years (Lee, 2020).

These variations indicate that perceptions of North Korea and satisfaction with North Korea policies do not always align. Therefore, policies ranging from military approaches and pressure tactics to those emphasizing tolerance, reconciliation, and cooperation are not mutually exclusive but should be strategically balanced to foster a stable North Korea policy environment.

Conclusion

The distinction between law and morality lies primarily in the enforceability of law. Unlike moral principles, which are voluntary and subjective, laws are binding and mandatory for citizens. Consequently, if laws fail to reflect current societal realities, they risk losing relevance and becoming disconnected from the populace. Given that laws evolve alongside social changes and vary across different periods, accurate measurement of these shifts through legal consciousness is crucial. This measurement informs continuous improvements in legal frameworks, ensuring they remain aligned with societal needs and values (Kim, 2016).

The South Korean government's official approach to unification is outlined in the Basic Agreement for Inter-Korean reconciliation, cooperation, and exchange, structured across three stages: harmony and cooperation (Stage 1), Inter-Korean union (Stage 2), and the completion of a unified nation (Stage 3) (Kim, 2021). This plan formally adopts the "National Community Unification Plan" as its unification policy, institutionalizing it at the Inter-Korean union stage (Stage 2). This involves systematizing legal and institutional mechanisms and establishing various Inter-Korean union bodies such as the Joint Summit Meeting, Joint Advisory Council, Joint Executive Council, Joint Parliament, Joint Court, and Joint Audit Office.

Notably, as Inter-Korean integration deepens during Stage 2, the establishment of a Joint Court holds particular significance. This court is envisioned to uphold the primacy of agreements and decisions made jointly between South and North Korea, thereby laying the groundwork for a unified legal community.

In anticipation of the dynamic nature of Inter-Korean relations, it is essential to develop a range of legal institutions capable of operating effectively under fluctuating circumstances. Whether progressing through a gradual, step-by-step unification process akin to Germany's experience or navigating swiftly changing conditions, thorough review and preparation of diverse legal issues—whether quantitative agreements or explicit normalization and unification agreements—are imperative.

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Emotional Burnout Symptoms in Mothers of Primary School Children: Role of Intensive Parenting Attitudes and Parenting Styles

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Abstract

Introduction. Symptoms of emotional burnout (EB) in mothers of primary school children are associated with parenting styles and intensive parenting attitudes. Mothers seeking psychological help for problems related to the education and rearing of primary school children are characterized by EB caused by contradictory parental attitudes embodied in parenting styles. **Methods.** The study aimed to determine the severity of intensive parenting attitudes among mothers of primary school children as a predictor of EB and parenting styles related to EB. The sample comprised women seeking psychological help at the Novomed-Deti multi-disciplinary clinic in Kaliningrad (n = 158). The study used the following diagnostic tools: (a) Intensive Parenting Attitudes Questionnaire; (b) Varga–Stolin Parenting Attitudes Questionnaire; (c) Maternal Burnout Questionnaire by L. I. Bazaleva; and (d) Luscher Color Test to diagnose the emotional sphere. Methods of mathematical and statistical analysis were used, including factor analysis with varimax rotation and Mann-Whitney U Test. **Results.** Mothers of primary school children with strong attitudes toward essentialism, intensive stimulation, difficulty and with low parental satisfaction are more prone to EB. Parenting styles with characteristic symptoms of maternal burnout, including rejection, infantilization – high EB level; authoritarian hypersocialization, symbiosis – average EB level; acceptance and social cooperation – low EB level, are described. **Discussion.** The data obtained can be used as the basis for the development of a comprehensive model for preventing EB in mothers and for overcoming parenting stress and parental dissatisfaction.

Keywords

emotional burnout in mothers, intensive parenting, parenting styles, parental attitudes, primary school children

For citation

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Introduction

The development of modern society requires innovative strategies to reveal individual and harmonized potential and strengthen the education system. Under modern conditions, the problem of family participation in the social-psychological adjustment of children to school is urgent (Baeva & Laktionova, 2017).

Learning is the leading activity in primary school age. If the child does not feel competent in educational activities, his/her personal development will be distorted (Vygotsky, 2019). To develop adequate self-esteem and a sense of competence in children in the first years of schooling, it is necessary for teachers and parents to create an atmosphere of psychological comfort and support (Goshin, Grigor'ev, & Mertsalova, 2019). Many mothers who have children between the ages of 5 and 14 and seek psychological help admit in a confidential conversation with a psychologist that they really love their children, see the meaning of their life in them and wish only the best for them. However, they often scream and hit their children, experiencing anger, constant irritation, anxiety, guilt, and emptiness related to certain aspects of interaction with children, which is exacerbated by adaptation to the demands of school life. Mothers who have high expectations for themselves and their children with intensive parenting attitudes may often suffer from chronic stress, accompanied by emotional burnout (hereinafter referred to as EB). Chronic stress in the mother cannot have a beneficial effect on the adaptation of the child. Unresolved psychological difficulties, dissatisfaction with various aspects of interactions, mother's high anxiety can have a negative impact on her attitude toward the child and make it difficult to provide him with appropriate emotional support, which is essential in the first years of school education (Kamakina, 2021; Karabanova, 2017; Molostova, 2016; Filippova, 2002).

Based on the studies by Yu. V. Misiyuk, N. Yu. Molostova, and K. N. Polivanova (2015), R. V. Ovcharova, M. S. Astoyants, D. E. Boiko, we understand "intensive parenting attitudes" in women as an educational approach that emphasizes the child-centred and active involvement of mothers in all areas of the lives and development of children. In addition

to the positive aspects of this phenomenon, it is also interesting to pay attention to the tendency to create parental perfectionism which contributes to higher parenting stress levels.

Our theoretical review focuses on conceptualizing the concepts of parenting stress and ways to cope with it (Apanovich, 2023), in which we consider parenting stress to be the cause and consequence of child-parent relationship deterioration; its cumulative effect can lead to emotional burnout in the parent.

The theoretical basis for the concept of emotional burnout was the model proposed by L. A. Bazaleva. The model reveals the multidimensional nature of EB construct, which main components are emotional exhaustion, depersonalization, reduced personal accomplishment, and social isolation (Bazaleva, 2010).

Factors related to parents and families influence the effectiveness of psycho-correction interventions for children and adolescents (Serykh & Lifintseva, 2014). High levels of parenting stress can hinder the effective work of psychologists when they need psychological support and correction for children. The "parental" factors contributing to the success of psychological work with children include parental self-efficacy, which refers to the ideas of the father and mother in relation to their parental competence; participation of parents in the process of psycho-correction and cooperation with a child psychologist; parental adherence to psychotherapy, etc. The presence of psychopathology among parents, the high degree of parenting stress, increased hostility and criticism of children are factors that have a negative impact on the process of psychological work with children and adolescents.

Purpose

This study aims to identify mothers with EB symptoms among parents who sought psychological support and correction for primary-age children. Our aim is also to establish the relationship between the EB level, severity of intensive motherhood attitudes and parental styles.

We hypothesized that the EB of mothers of young children is influenced not only by parenting styles, but also by intensive parenting attitudes associated with ideas of essentialism, child-centrism, and stimulation. We also hypothesized that mothers who avoid burnout have personal resources that allow them to choose effective strategies to cope with parenting stress and not to classify interactions with their children as frustrating.

Methods

The study was carried out in 2022–2023, at the Novomed-Deti multi-disciplinary clinic in Kaliningrad.

Sample

The study comprised 158 mothers of primary school children who sought help from a child psychologist. All children had normal ontogenesis.

This sample was derived from the total number of requests, which totaled 420 requests from mothers who also raise preschool children and adolescents, including those with developmental disorders, congenital neurological and somatic diseases.

Socio-demographic characteristics of the sample

The sample comprised 158 women aged from 29 to 57 years ($M = 38$ years), 83 mothers with only one child (52 %), 64 mothers with two children (41 %), 11 mothers with three or more children (7 %).

Of the 158 mothers, 93 (59 %) raised children in a two-parent family, 65 mothers (41 %) raised children alone (due to divorce, outside of marriage, long-term (3-6 months) permanent business trips of a partner).

Also, 14 women (9 %) raised IVF-conceived children, and 19 women became mothers only after 2 or more unsuccessful pregnancies (12 %).

Five women were adoptive mothers (3 %) of their children; 118 mothers (75 %) were employed.

Socio-demographic characteristics of children

There were 87 boys (55 %) and 71 girls (45 %) aged 6 to 9 years ($M = 7$ years), school students of grades 1-3 of 16 municipal and private educational institutions in Kaliningrad, including 8 schools, 5 gymnasiums, and 3 lyceums. 131 children (83 %) participated in other intellectual, sports and/or creative clubs and areas.

Diagnostic tools

In accordance with the theoretical justifications stated for the hypothesis, the research methods were as follows: survey, conversation. The study used the following diagnostic tools: (a) Intensive Parenting Attitudes Questionnaire (M. Liss, H. H. Schiffrin, V. H. Mackintosh, H. Miles-McLean, and M. J. Erchull, 2013; modified by Yu. V. Misiyuk, A. I. Prikhidko, and P. S. Rogacheva, 2020–2022); (b) Parenting Attitudes Questionnaire (Varga & Stolin, 1988); (c) Maternal Burnout Questionnaire (Bazaleva, 2010); and (d) Luscher Color Test (Luscher, 1970) which allows to avoid socially desirable responses when assessing respondents' current emotional states.

To process the results, mathematical and statistical analysis methods were used, including factor analysis with varimax rotation and Mann-Whitney U test (Statistica 7.0).

Results

We found that the EB symptoms (above 30 % of the maximum score by 12 scales) were diagnosed in 96 (61 %) of 158 mothers. Symptoms common to all 96 mothers included "anxiety" (71 %), "selective emotional response" (55 %), "economy of emotions" (39 %), and "depersonalization" (34 %).

The overall level of intensive parenting attitudes in mothers with EB symptoms was $X_{avg} \pm \sigma = 58.14 \pm 5.54$, and in mothers without EB was $X_{avg} \pm \sigma = 74.22 \pm 3.12$.

The child-centrism indicator, i.e. placing the child at the center of the family system, characterized by the adjustment of mothers' personal needs to the needs of children, is a fundamental component of the intensive parenting model, closely interrelated with others, such as stimulation, essentialism, difficulty, and parenting satisfaction. This indicator does not have significant differences between the groups of mothers with EB ($X_{avg} \pm \sigma = 66.31 \pm 4.72$) and without EB ($X_{avg} \pm \sigma = 61.27 \pm 3.48$).

Essentialism is an attitude that reflects the belief that women are the best in parenting. Essentialism is most characteristic of mothers who raise primary school alone. Essentialism has significant differences in severity in the groups of mothers with EB ($X_{avg} \pm \sigma = 76.81 \pm 7.64$) and without EB ($X_{avg} \pm \sigma = 28.33 \pm 5.42$).

The results on the "stimulation" scale are equally high in both groups of mothers: $X_{avg} \pm \sigma = 83.11 \pm 6.72$ for mothers with EB and $X_{avg} \pm \sigma = 88.47 \pm 2.36$ for mothers without EB. This reflects the general trend of Russian mothers to strive to contribute in every way to the early development of children. At the beginning of schooling, development stimulation becomes competitive and reinforced by school requirements and performance assessment systems.

Mothers with EB consider parenting to be very difficult ($X_{avg} \pm \sigma = 85.54 \pm 1.35$), while estimating the pleasure of parenting low ($X_{avg} \pm \sigma = 26, 14 \pm 5.52$). On the contrary, mothers without EB are convinced that caring for the child and his needs brings them great pleasure ($X_{avg} \pm \sigma = 91.64 \pm 0.58$) and do not see much difficulty in fulfilling their parental responsibilities ($X_{avg} \pm \sigma = 29.17 \pm 2.41$).

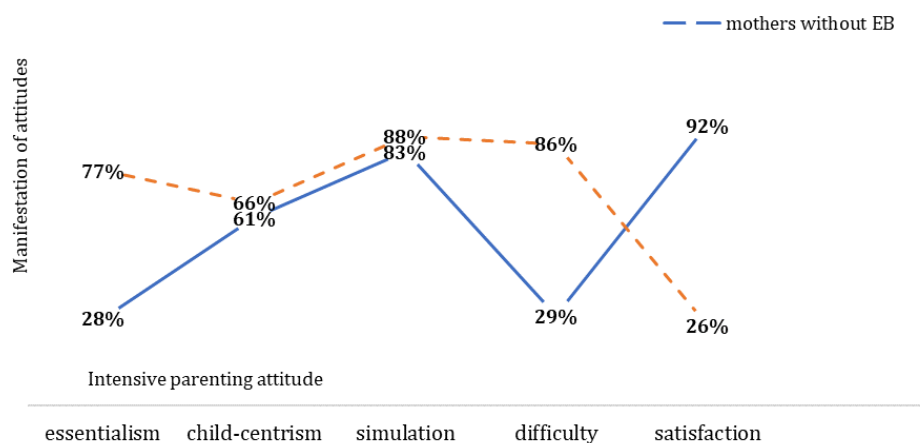
To determine the significance of differences in the average values of intensive parenting attitudes (child-centrism, essentialism, stimulation, difficulty, satisfaction) in two samples (mothers with and without EB), the Mann-Whitney U test was used, confirming statistically significant differences in the manifestation of the trait in these samples (U_{amp0} , U_{cr1} , at $p \leq 0.01$). Therefore, attitudes toward essentialism, high difficulties of parenting and low parenting satisfaction are, in all probability, associated with the emotional well-being of mothers of primary school children.

Based on the diagnosis results of the Luscher Color Test, in the group of mothers with EB we observed the following characteristics of the psychophysiological state, which varied depending on the intensity of the following EB symptoms: stress; anxiety; functional psychosomatic disorders; negative protest reactions; tendency to unexpected

destructive reactions in a state of passion; dissatisfaction with basic needs; emotional instability; suppression of the need for self-realization; lack of recognition by significant others; and rigid attitudes.

Figure 1

Differences in intensive parenting attitudes between mothers with and without EB



Unlike mothers with EB, among mothers without EB there were more common states characterized by optimism, easy adaptation to different social roles, artistry, kindness, conformity of attitudes, strong and deep need for affection, sensitivity in interpersonal communication, responsiveness to environmental influences, and careful approach to problem solving. This difference is likely to be related to a higher level of development of social creativity, a component of socio-psychological competence, as a personality characteristic that contributes to coping with parenting stress (Il'inykh, 2011; Luneva, 2012; Meshkova, Enikolopov, Zharinova, & Mukovnina, 2022).

According to the Varga-Stolin Questionnaire results, the mothers who showed acceptance and social cooperation in parental attitudes represented 39 % of the sample (n = 62). They tend to accept the child as he is, respect his individuality, and show sympathy for him. The child's abilities are highly appreciated, and his initiative and independence are promoted. An unconditional acceptance and cooperation enable parents to spend a lot of time with their children, respect their interests and plans without compromising their emotional well-being. This group of mothers is the least prone to burnout. The total level of EB for these mothers is an average of 7 % of the maximum possible.

Mothers with EB demonstrate the following parenting styles:

1. **Rejection.** The child is perceived as bad, helpless, and disadvantaged. It seems to the parent that the child will not succeed in life due to a difficult character, bad inclinations, low abilities, including physical, intellectual and creative. The child is often criticized,

regarded as ungrateful, and the psychologist is asked to change him. The rejection is typical of 12 % of the sample (n = 19). The overall level of EB is high, on average 82 % of the maximum possible. Factor analysis with varimax rotation allowed us to identify the following four main components from the 12 symptoms specified in the Maternal Burnout Questionnaire scales: "emotional and moral disorientation" (factor loadings up to 0.91), "selective emotional response" (factor loadings up to 0.84), "reduction of maternal interaction" (factor loadings up to 0.76), and "depersonalization" (factor loadings up to 0.72).

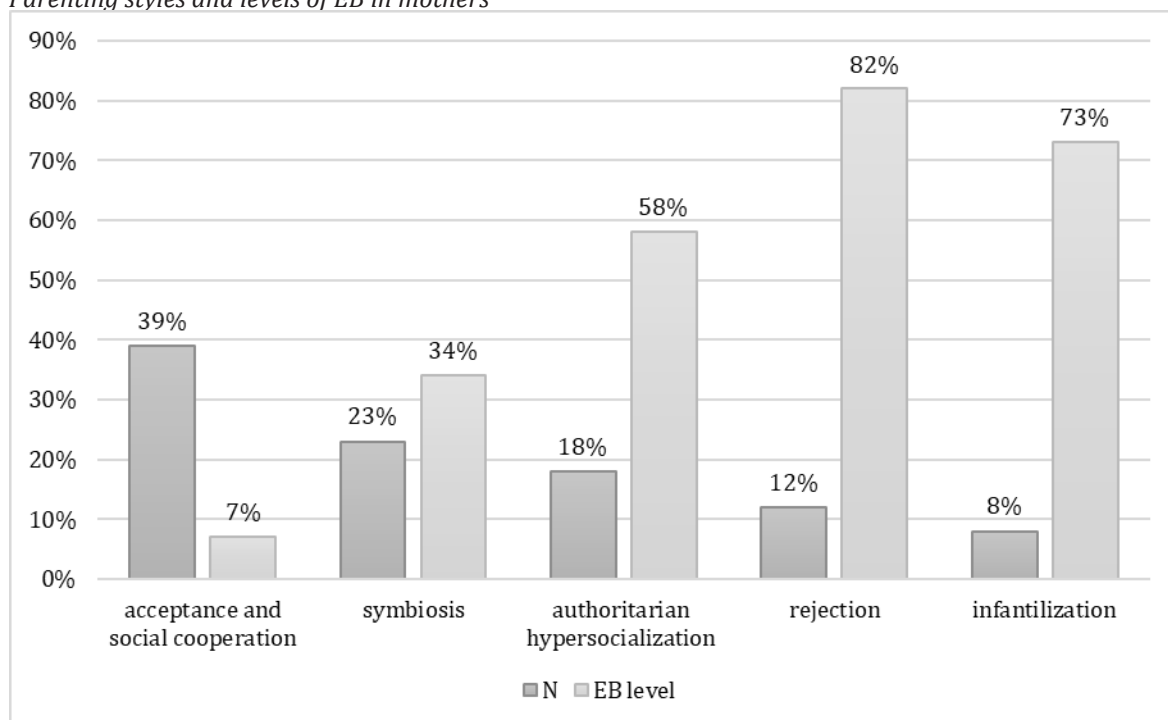
2. Authoritarian hypersocialization. A parent with such a style of behavior requires unconditional obedience and discipline from the child. He tries to impose his will on the child in everything, unable to take his point of view. A child is severely punished for showing his or her self-will. The parent closely monitors the child's social achievements, individual characteristics, and habits. 18 % of the sample (n = 28) showed authoritarianism toward the child. The overall level of EB is low, on average 58 % of the maximum possible. According to the principal component analysis, the mothers of this group show the main symptoms of EB, including: "selective emotional response" (factor loadings up to 0.78), "emotional deficit" (factor loadings up to 0.71), and "emotional detachment" (factor loadings up to 0.66).

3. Symbiosis. The parent feels as one with the child; in this merging he/she joins the anxieties and fears of the child, thinks that he is weak and defenseless, which sometimes does not correspond to reality. They meet all the needs of their children; children are protected from all possible difficulties and problems of life, which greatly complicates the necessary process of their autonomy. The symbiosis is demonstrated by 23 % of the sample (n = 36). The total level of EB is low – 34 % of maximum possible. The main symptoms of EB in symbiotic mothers according to the results of the principal component analysis are the following: "anxiety" (factor loadings up to 0.93), "self-dissatisfaction" (factor loadings up to 0.85) and "psychosomatic disorders" (factor loadings up to 0.64).

4. Infantilization. Parents desire to infantilize the child, to blame him for his personal and social failure. Children's interests, hobbies and thoughts seem to parents to be too childish for their age. The child seems ineffective, unsuccessful and open to bad influence. The parent is annoyed by the child's failures and does not trust him. Infantilization of children was typical for 8 % of the sample (n = 13). The overall level of EB is high, with an average of 73 % of the maximum possible. According to the results of the principal component analysis, the EB symptoms in mothers infantilizing their children are the following: "economy of emotions" (factor loadings up to 0.87), "emotional and moral disorientation" (factor loadings up to 0.82), "emotional detachment" (factor loadings up to 0.71), and "anxiety" (factor loadings up to 0.63).

Figure 2 shows parenting styles and levels of EB.

Figure 2
Parenting styles and levels of EB in mothers



Discussion

This study confirmed our hypothesis that mothers of primary school children involved in intensive parenting experience EB. Conscious attitudes of intensive parenting often conflict with stable patterns of parental behavior uncritically learned in childhood. Maternal burnout requires socio-psychological support.

Acceptance and social cooperation parenting styles mainly contribute to the emotional well-being of mothers.

Mothers who show "rejection" and "infantilization" towards their children and to a moderate extent – "authoritarian hypersocialization" and "symbiosis" – are more likely to develop EB. At the same time, the higher the level of their EB, the more pronounced the attitudes toward essentialism, difficulty, and low returns in parental activity.

Our data are consistent with the results of previous studies emphasizing that maternal burnout is becoming increasingly common due to increasing social demands for the quality of parental work (Akinkina, 2020; Misiyuk, 2022; Mikolajczak, Aunola, Sorkkila & Roskam, 2023). Emotional burnout of mothers differs from postpartum depression (Yakupova & Suarez, 2023) and can have a long-term impact on the child's development. Studies in this field appear to be promising for further psychological and educational research.

Searching for factors that determine the presence of emotional burnout in mothers from various sources is varied. In addition to external ones, i.e. socio-demographic, economic and political (Van Bakel, Van Engen, & Peters, 2018; Nieves, Clements-Hickman, & Davies, 2021; Favez, Max, Bader, & Tissot, 2022) and factors associated with impaired child ontogeny; intrapersonal characteristics of mothers are also considered, including her socio-psychological type, degree of acceptance of maternal identity, and preferred coping strategies for coping with stress (Gallegos, Jacobvitz, Sasaki, & Hazen, 2019; Lebert-Charron, Dorard, Boujut, & Wendland, 2018; Raudasoja, Sorkkila, & Aunola, 2023). In addition, we examined the style of parental relationship as a system of patterns of mother-child interaction, reflecting the parents' different feelings toward the child, ideas about his sociopsychological competence, behavioral stereotypes practiced in communication with the child, which are most often acquired by mothers through the continuity of intergenerational transmission (Bowen, 1978; Ovcharova, 2006; Smirnova & Khaneliya, 2019; Stolin, Sokolova & Varga, 1989).

According to the results of the Luscher Colour Test diagnostics, the most common personality traits contributing to the emotional and productive interaction of mothers with primary school children are optimism, artistry, kindness, a thoughtful problem-solving and sensitivity to environmental influences. If these characteristics are combined into a single structure, we may assume that mothers who are resistant to EB develop social creativity.

The overcoming of emotional burnout is related to: 1) receiving social and psychological support and reaching emotional balance; 2) the analysis and correction of parents' attitudes and styles in relation to the child; 3) the development of mother's social creativity as a personal resource for coping with parenting stress.

Our results enabled us to identify objectives of psycho-correctional work, including:

- debunking unproductive attitudes (the "ideal mother" cult, success and perfectionism);
- elaboration (search, understanding, and reaction) of dysfunctional patterns of the family system;
- expanding the repertoire of skills for mother-child interpersonal interaction through the development of social creativity.

Our results are the basis for developing an integrated psychotherapy model for mothers suffering from emotional burnout who raise primary school children and require psychological help and support.

It is interesting, for example, to continue developing the problem in the form of improved diagnostic tools, as questionnaires, unlike projection tests, have a number of known shortcomings (e.g. social preferences factors (especially pronounced in mothers who are trying to be perfect), and the predominant cognitive understanding of experience in answers to the detriment of emotional components).

Conclusion

Symptoms of emotional burnout occur in more than half of mothers (61%) who sought psychological help for problems related to the education and rearing of primary school children with normal ontogenesis. Groups of mothers with and without emotional burnout differ significantly in the severity of intensive parenting attitudes (U_{amp0} , U_{cr1} , at $p \leq 0.01$). Of the 12 EB symptoms, the highest factor loading as a result of the rotation was obtained by "anxiety", "emotional detachment", and "selective emotional response". Mothers of primary school children who are optimistic, friendly, sensitive to environmental influences, who accept their child as he is and who seek to enter a relationship of social cooperation cope with parenting stress and avoid emotional burnout.

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Author Contribution

Tat'yana Mikhailovna Apanovich developed the main concept and formulated the purpose of the study, selected diagnostic tools, collected and analyzed the results, and wrote the text of the manuscript.

Anna Borisovna Serykh contributed to the theoretical justification of research objectives, developed the methodology of the study, interpreted the results, and edited the text of the manuscript.

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Conflict of Interest Information

The authors have no conflicts of interest to declare.

Research overview

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Assessing the Impact of Using Mobile Devices on School Students' Educational Outcomes: A Second-Order Meta-Analysis

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Abstract

Introduction. The use of mobile devices by children and adolescents is a common practice at the moment. Although mobile learning has some benefits, the results of the study on its effectiveness are contradictory. The study described in this paper is one of the first carried out to summarize the results of meta-analyses assessing the effects of using mobile devices by school children in the educational context. **Methods.** The study aimed to identify the effects of using mobile devices in learning based on second-order meta-analysis procedures. Twenty-nine meta-analyses conducted between 2014 and 2023 were analyzed, with minimal overlap between primary studies. A systematic search for sources and their assessment in accordance with the meta-review protocol, an analysis of coincidences in studies included in primary meta-analyses, an assessment of the presence of publication bias, and an analysis of the influence of categorical moderators were conducted. **Results.** The use of mobile devices by students has an average impact on their educational outcomes ($g = 0.654$ (95% CI: 0.578–0.73)). A significant result was found when assessing the heterogeneity of mean effect sizes ($\tau^2 = 0,042$, $Q = 277,255$, $p < 0,001$; $I^2 = 86,95\%$). The moderator analysis showed a significant impact of the type of educational outcome, subject area of study, type of publication and location of primary research. Conflicting results are found when mean effect sizes are analyzed across different levels of education. **Discussion.** The average effect size obtained during the analysis is characterized by a high degree of stability at different periods of digitalization of education. The use of mobile devices by school children can have a dual impact on their learning activities, depending on the inclusion of adults in this process. Problematic

digital behavior is associated with worsened educational outcomes. The use of gadgets for educational purposes, on the contrary, helps to increase learning efficiency compared to its traditional forms. The meta-review provides further directions for research on the effects of the use of mobile devices by school children in their educational activities and can help develop digital culture education programs.

Keywords

mobile devices, second-order meta-analysis, meta-analysis, learning, school children, educational outcomes, mobile learning, digital behavior

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Introduction

The first decades of the 21st century were revolutionary for global educational institutions. Accelerating the pace of technological change requires rapid updating and qualitative transformation of information, the dynamic changes in the labor market associated with the transformation of the functionalities of occupations, and the digitalization of all aspects of modern life (Kamal et al., 2019; Nakano, 2022). These changes require education theorists and practitioners to discuss the main problems they solve, such as determining the ability of modern educational systems to prepare graduates to succeed in society (Zhao, 2020), analyzing real-life situations and seeking best methods of achieving their goals, and demonstrating citizenship and responsibility for their countries (Fu, 2020). Scientists recognize that the transformation of education to meet fundamental needs of changing society and the world as a whole is a key issue (Fadel, Bialik, & Trilling, 2018).

One solution to these challenges was digital transformation in education. The purpose of digital transformation of education is to integrate digital technologies into teaching practices, including personalization of education, in order to help students achieve the required educational outcomes (Uvarov, 2019). Mobile technology deserves special attention because its use in education has several advantages related to its

increasing accessibility, adaptability, flexibility, and variety of functions (Yu et al., 2022). Already, more than 6 billion people around the world have smartphones, and this number will only increase in the future (Ericsson Mobility Visualizer, 2023). In addition, according to Mediascope CROSS WEB, in 2022, 96 % of Russian Internet users between the ages of 12 and 17 spend an average of about six hours on-line, and mobile devices are 94 % of Internet connections in the digital consumption structure (Borosdina, 2022). The increasing practice of using mobile devices (hereinafter MD) by school children opens up the possibility of using these tools for educational purposes. Research into the effectiveness of mobile learning began in the early 21st century (Keegan, 2000) and has been intensively ongoing for over twenty years. A large number of scientific data has been accumulated, but it is extremely contradictory. On the one hand, it has been shown that mobile technologies can improve school students' academic motivation (Kärchner et al., 2022), improve the quality of learning foreign languages (Chistova & Krotkova, 2018; Alfadil, 2020), natural sciences (Chang et al., 2020; Čevajka & Velmovská, 2022),; mathematics (Bimer and al., 2022); computer science (Novikov & Starichenko, 2020); and contribute to the formation of ideas on the potential of MD as an educational tool (Kapina, 2020; Sahin & Yilmaz, 2020). On the other hand, researchers emphasize the risks and negative effects of the use of mobile technologies by school children, expressed in problems such as self-control (Troll et al., 2020), the use of mobile phones for purposes that are not related to educational tasks and distractions while studying (Zhai et al., 2019; Yi et al., 2016), problems in the search and assessment of information (Bezgodova et al., 2020), threats to physical and mental health (Chau et al., 2022) and the growing digital inequalities (Jin et al., 2020). In some countries, the lack of consensus on such a sensitive issue led to restrictions on the use of gadgets in schools (Novikova et al. 2020). However, I. Sh. Mukhametsyanov notes that the non-alternative prohibition of the use of MD is the simplest solution to the problem of adapting schools and the pedagogical technologies they use to new digital realities (Mukhametsyanov, 2019). The author raises the question of the need to conduct in-depth research into the influence of MD on humans (Mukhametzyanov, 2019, p. 56).

In this respect, meta-analysis is an important area of research aimed at combining empirical studies and determining important patterns based on them (Kornilov & Kornilova, 2010). To date, a significant number of meta-analysis studies have been carried out to investigate the effects of MD in education. Most meta-analyses on mobile learning studies show positive effects ranging from 0.226 (Tamim et al., 2015) to 1.8 (Mihaylova et al., 2022). However, meta-analyses aimed at identifying the relationship between students' practices of using MD and their educational outcomes, on the contrary, demonstrate moderate negative effects ranging from -0.12 (Sunday et al., 2021) to -0.76 (Kärchner et al., 2022). It seems important to generalize the results of meta-analyses that have already been conducted on various aspects of the study of mobile technologies in education and on the use of gadgets by students. The generalization of the results will enable us to determine the general patterns of influence of mobile technologies in education on school students' educational outcomes and identify factors that can determine these patterns.

The tool used to summarize the results was a second-order meta-analysis or meta-review, addressing existing meta-analyses. Meta-review is a meta-analysis of statistically independent and methodologically comparable first-level meta-analyses aimed at investigating similar relationships between variables in different research contexts (Schmidt & Oh, 2013). First-order meta-analyses can reduce the influence of certain biases in empirical studies, but the potential for their influence remains. The remaining errors resulting from meta-analysis are usually called second-order biases. The elimination of the significance of this error is a task of the second-order meta-analysis, which in turn helps to reduce the heterogeneity of the overall result (Cooper & Koenka, 2012).

Purpose

This study aims to summarize the results of meta-analyses identifying the impact of the use of MD by school students on their educational outcomes.

Achieving this goal may enable us to answer some of the research questions related to education, including the following:

- What is the effectiveness of mobile learning compared to traditional teaching methods? How does it manifest itself at different levels of education?
- How can the effects of using MD for educational and extracurricular purposes be compared to school students' educational outcomes?
- Is there a difference in the effectiveness of mobile learning when studying different school subjects?
- Is there a relationship between the publication type and its results?

Methods

The study used the PRISMA statement (Preferred reporting items for systematic reviews and meta-analyses) (Moher et al., 2009; Liberati et al., 2009). Due to the limited scope of this article and in order to increase the transparency of research procedures, all meta-analysis data are published on the OSF portal (<https://osf.io/tyz95/>).

Search strategy

International databases were used for the search of meta-analyses (EBSCO, Google Scholar, ProQuest Dissertations and Theses; ResearchGate; RSCI). The supplementary materials of the article provide keywords for meta-analysis search. The search for sources was also carried out by reviewing the sources cited in the retrieved publications.

Selection of studies, inclusion and exclusion criteria

According to the PRISMA statement, the selection of meta-analyses and their assessment were independently carried out by three researchers according to the following criteria:

1. Period of publication of meta-analyses – 2010-2023.
2. Publishing languages – English, Russian.

3. Meta-analyses should focus on the impact of school children's use of mobile technologies on their educational activities and educational outcomes.

4. The results of meta-analyses should include statistics sufficient to calculate the effect size (for example, Cohen's d , Hedges's g , lower limit (LL), upper limit (UL), and standard error (SE), depending on this impact and variance values).

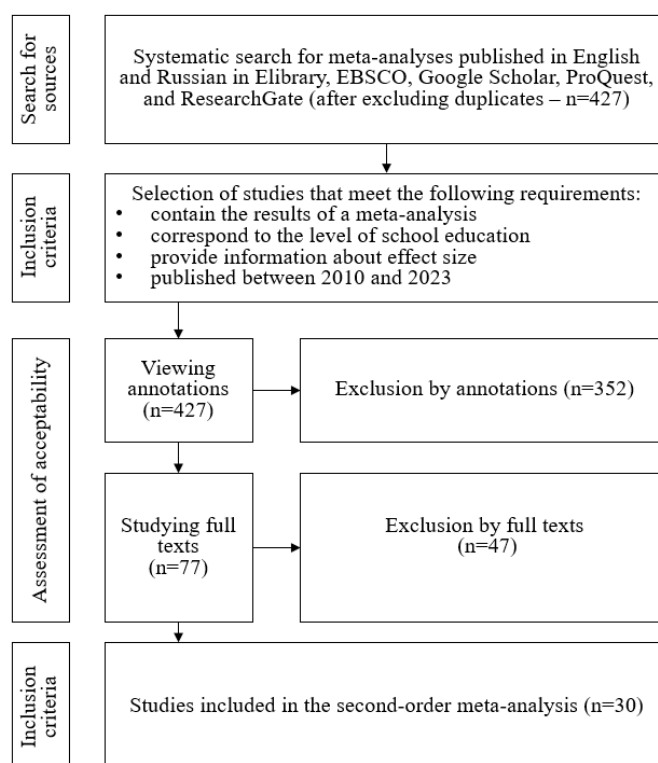
The degree of interobserver agreement was determined using Cohen's kappa interrater agreement coefficient ($\kappa = 0.87-0.92$). If there were differences of opinion between the researchers, they were resolved on the basis of consensus ratings.

The list of collected information included the year of publication, the number of studies included in the meta-analysis, the size of the total sample and country, the type and value of the effect size, standard error, the lower and upper limits of the confidence interval, the level of education, the type of educational outcomes, school subjects, the type of publication, the number of citations of a publication, and journal citation rates. If data were available, statistical parameters for different levels of education (primary, secondary, and high school) were included separately.

The initial search resulted in 427 sources (see Figure 1).

Figure 1

Flowchart of the process of searching, evaluating publications, including and excluding data



The review of the abstracts identified 352 studies that were not meta-analysis or that were not related to education. The remaining 77 documents were thoroughly examined. The criteria for the exclusion of publications were the text of the publication (neither English nor Russian – 2); not mobile, but other computer technologies – 19; the level of vocational or pre-school education – 8; specific samples of students (with disabilities) – 2; the absence of necessary statistical data and information on meta-analysis procedures – 11; the absence of correlations with educational outcomes – 5.

Finally, 30 meta-analysis publications were selected, including 36 effect sizes for different types of educational outcomes.

Analyzing agreements in studies included in primary meta-analyses

Second-order meta-analysis ideally involves generalization of meta-analyses based on non-overlapping samples of primary studies. In practice, however, this condition is extremely difficult to fulfil, and a general recommendation is to minimize the duplication of primary studies (Cooper & Koenka, 2012). The total number of primary studies overlapping in various meta-analysis was 161, with a total of 837 studies that became the primary basis for the second-order meta-analysis, which amounted to 19.24 %. The acceptable level of agreement between the main studies of the meta-analysis contained in the sample was assessed using covered area (CA) and corrected covered area (CCA) indices.

The CA index is calculated by the formula:

$$CA = \frac{N}{r * c} \quad (1)$$

The CCA index is calculated by the formula:

$$CCA = \frac{N-r}{r * c - r} \quad (2)$$

where N is the total number of primary studies included in the second-order meta-analysis (including duplication); r is the number of primary studies excluding duplication; and c is the number of meta-analyses included in the second-order meta-analysis (Hennessy et al, 2020).

According to D. Pieper and colleagues, CCA scores above 15 % are considered extremely high and characterize the lack of independence between the studies included in the meta-review, which reduces its quality (Pieper et al, 2014). The results of the index calculations showed a high degree of overlap between the primary studies included in the meta-analyses between (Sung et al., 2016) and (Sung et al., 2015), the index value was 35.40 %, as well as between (Sung et al., 2016) and (Yang, 2020) – 18.40 %. Therefore, the meta-analysis (Sung et al., 2016) was excluded from the sample.

Thus, we obtained a sample of 34 effect sizes based on various educational outcomes reported in 29 meta-analyses (see Table 1). The overall corrected covered area index was 1.31 %, indicating the independence of the included meta-analyses and close to zero duplication of their results.

Table 1
Studies included in the meta-review

Author	Year	N	Education level	Subjects	Type of educational outcomes	Publication type
Akçay et al., 2021	2021	22	Primary	Mathematics	Cognitive (grades, knowledge, outlook, etc.)	Article
Chen, 2022	2022	29	Primary, lower-secondary, upper-secondary, higher	Languages	Behavioral (skills, abilities, etc.)	Article
Chen et al., 2022	2020	63	Primary, lower-secondary, upper-secondary	Mixed	Cognitive	Theses
Cho et al., 2018	2018	20	Primary, lower-secondary, upper-secondary	Languages	Behavioral	Article
Feng et al., 2018	2018	34	Primary, lower-secondary, upper-secondary, higher	Mixed	No information available	Theses
Garzón et al., 2023	2023	62	All levels	Languages	No information available	Theses
Güler et al., 2022	2022	22	All levels	Mathematics	Cognitive	Article
Güzeller & Üstünel, 2016	2016	10	Primary, lower-secondary, upper-secondary, higher	Mixed	No information available	Article

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Author	Year	N	Education level	Subjects	Type of educational outcomes	Publication type
Kärchner et al., 2022	2022	58	Primary, lower-secondary, upper-secondary, higher	Mixed	Mixed	Article
Kates et al., 2018	2018	39	Primary, lower-secondary, upper-secondary, higher	No information available	Negative (grades, burnout, etc.)	Article
Lee et al., 2014	2014	44	No information available	Languages	No information available	Theses
Lei et al., 2022	2022	41	Primary, lower-secondary, upper-secondary, higher	Natural sciences	Cognitive	Article
Li et al., 2023	2023	50	Lower-secondary, higher	No information available	Negative	Article
Liao et al., 2020	2020	81	No information available	Mixed	No information available	Article
Mihaylova et al., 2022	2022	23	Primary, lower-secondary, upper-secondary, higher	Languages	Behavioral	Article
Petersen-Brown et al., 2019	2019	65	Pre-school, primary, lower-secondary, upper-secondary,	Mixed	Behavioral	Article

Author	Year	N	Education level	Subjects	Type of educational outcomes	Publication type
Romadiyah et al., 2022	2022	15	Primary, lower-secondary, upper-secondary	No information available	No information available	Article
Shi & Kopcha, 2022	2022	34	Primary, lower-secondary, upper-secondary	Natural sciences	No information available	Article
Sunday et al., 2021	2021	44	Higher	Mixed	Negative	Article
Sung et al., 2015	2015	44	All levels	Languages	Cognitive	Article
Sung et al., 2017	2017	48	All levels	Mixed	Mixed	Article
Talan, 2020	2020	104	Primary, lower-secondary, upper-secondary, higher	Mixed	No information available	Article
Talan et al., 2020	2020	154	All levels	Mixed	Cognitive	Article
Tamim et al., 2015	2015	27	Primary, lower-secondary	Mixed	No information available	Research report
Tingir et al., 2017	2017	14	Primary, lower-secondary, upper-secondary	Mixed	No information available	Article
Ulum, 2022	2022	27	Primary, lower-secondary	Mixed	No information available	Article
Wang et al., 2023	2023	78	Primary, lower-secondary	Mixed	Mixed	Article
Yang et al., 2020	2020	38	No information available	Mixed	Mixed	Article
Zheng et al., 2018	2018	34	Primary, lower-secondary, upper-secondary, higher	Mixed	Cognitive	Article

Note. *N* is the number of primary studies included in the meta-analysis.

Statistical data processing

The average effect sizes reported in each meta-analysis were analyzed, maintaining the method used to calculate it. Most of the meta-analysis included in the sample of this meta-review was based on the estimates of the effect size using Hedges's g , while the other studies used Cohen's d and correlation coefficient r . All effect size measures were converted to Hedges's g statistics (Borenstein et al., 2021). Standard errors were obtained from both the texts of the meta-analyses and independently calculated from the available confidence interval data. The study used a random effect model because it has greater generalization capacity (Borenstein et al., 2021). To evaluate heterogeneity, coefficients τ^2 and Q statistics were used, whose significance indicates inconsistencies in meta-analysis results. I^2 , measured as a percentage, was also used. The I^2 values above 75 % indicate a high degree of heterogeneity in the results of the first-order meta-analyses.

To assess the presence of publication bias, we used graphical analysis of the funnel plot, the Egger test, and Rosenthal's fail-safe N . The latter is based on the idea of creating a "virtual sample" of data, which allows us to calculate the number of studies with an insignificant result that could reduce the overall significance level of the effect measures in the meta-analysis to an insignificant level (Kornilov & Kornilova, 2010).

The role of mediating variables (moderators) has also been assessed, including educational levels, types of educational outcomes, school subjects, types of publication, number of citations of a publication, and journal citation rates. The Q coefficient was used to assess to what extent the effect sizes differed depending on moderators.

To perform statistical calculations, the programs Jamovi ver 2.4.8 and Comprehensive Meta-Analysis (CMA) 4.0 were used.

Results

Based on the selection and evaluation of the first-order meta-analysis, the study included 29 publications with a total sample of 454,824 students of various educational levels (pre-school, school, and higher education). Effect sizes in the sample ranged from 0.226 to 1.08. Overall, the confidence intervals for effect sizes showed that the null hypothesis was rejected in all cases (see Figure 2). The average effect size was 0.654 (95 % CI: 0.578–0.73). This value is within the range of 0.5 to 0.8, which is considered an average effect size. The analyzed meta-analyses were characterized by a high level of heterogeneity ($\tau^2 = 0,042$, $Q = 277,255$ at $df = 27$ and $p < 0,001$; $I^2 = 86,95\%$), which allows us to reject the null hypothesis of equality of the c in the meta-analysis sample.

Estimates of publication bias based on graphical analysis (see Figure 3) indicate a rather symmetric funnel plot of effect sizes. Analysis using Egger's test ($t = -1.085$, $p = 0.36$) indicated that there was insufficient statistical evidence to detect publication selection bias. Moreover, Rosenthal's fail-safe N showed that 21.989 studies would need to be added to confirm that the effect size was not significant. Thus, it can be concluded that publication bias has not been established.

Figure 2

Effect sizes and confidence intervals in the meta-analyses reviewed

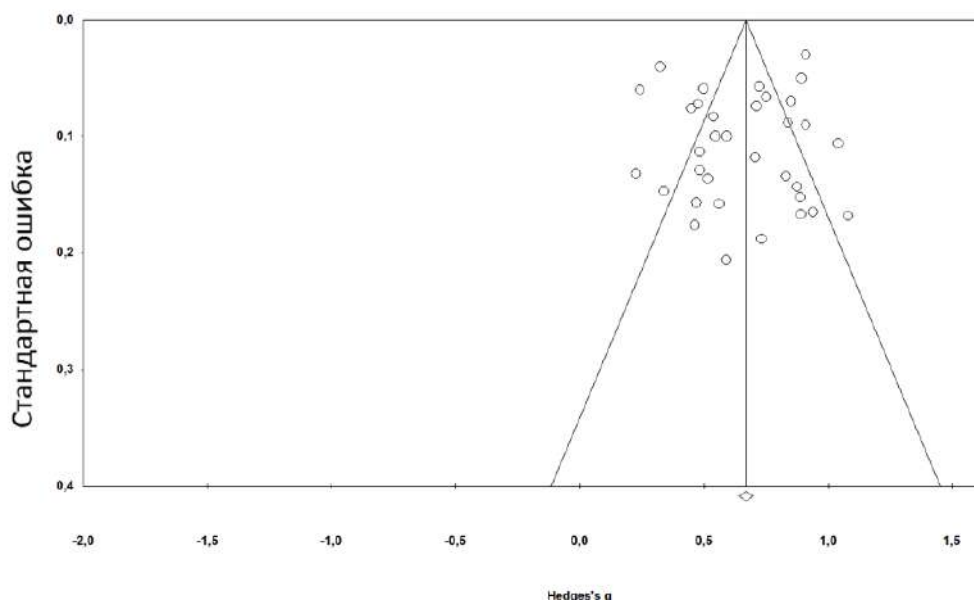
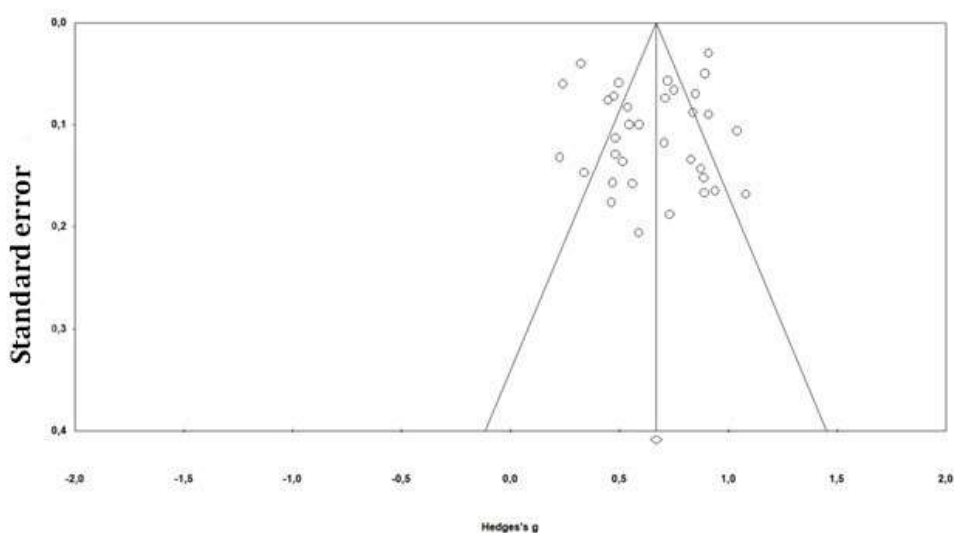


Figure 3

Funnel plot of effect sizes in meta-analyses reviewed



The next stage of the study analyzed changes in average effect sizes influenced by various characteristics of meta-analyses. Table 2 shows the results of a comparative analysis of moderators in which significant differences were identified.

Table 2
Results of the analysis of effect size mediation by categorical moderators

	k	g	Lower limit 95 % CI	Upper limit 95 % CI	Q	p
Type of educational outcome					15.77	0.008
No information available	12	0.75	0.64	0.87		
Cognitive	9	0.55	0.48	0.61		
Affective	3	0.48	0.35	0.61		
Behavioral	5	0.76	0.58	0.94		
Mixed	1	0.52	0.25	0.78		
Negative	4	0.58	0.20	0.95		
Subject area					11.31	0.023
No information available	5	0.58	0.24	0.92		
Mixed	17	0.63	0.53	0.73		
Languages	8	0.75	0.62	0.88		
Natural science	2	0.88	0.55	1.20		
Humanities	2	0.48	0.35	0.60		
Location					32.01	<0.001
No information available	16	0.76	0.68	0.84		
Multicultural	17	0.54	0.43	0.66		
Monocultural	1	0.91	0.85	0.97		
Publication type					10.43	0.01
Research article	30	0.66	0.56	0.75		
Theses	3	0.74	0.49	1.00		
Research report	1	0.23	0.08	0.37		

Note. *k* – number of first-order meta-analyses, *g* – average effect size, *CI* – confidence interval; *Q* – weighted sum of squared differences between the observed effect size and the weighted average effect size, *p* – significance level.

There were no significant differences in the average effect sizes, depending on the year of publication, the number of primary studies included in the meta-analysis, the level of education, or the publication rating (CiteScore). However, the effects varied

considerably in the meta-analysis of different educational outcomes. The largest average effect size was found in the educational outcomes associated with the development of skills and abilities, while the smallest one was found in the study of the impact of the use of MD on students' motivation, participation, and satisfaction. We should note that meta-analyses characterized by the negative effects of the use of MD in learning reveal comparable results to the effects of the use of mobile learning.

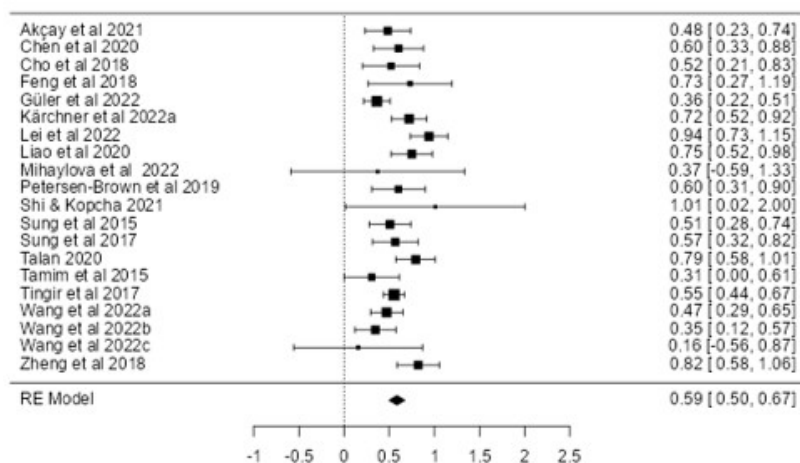
Significant differences were found in the average effect sizes depending on the subject area. Thus, the largest effect sizes were found when studying languages and natural sciences, while for the humanities the smallest average effect size was noted.

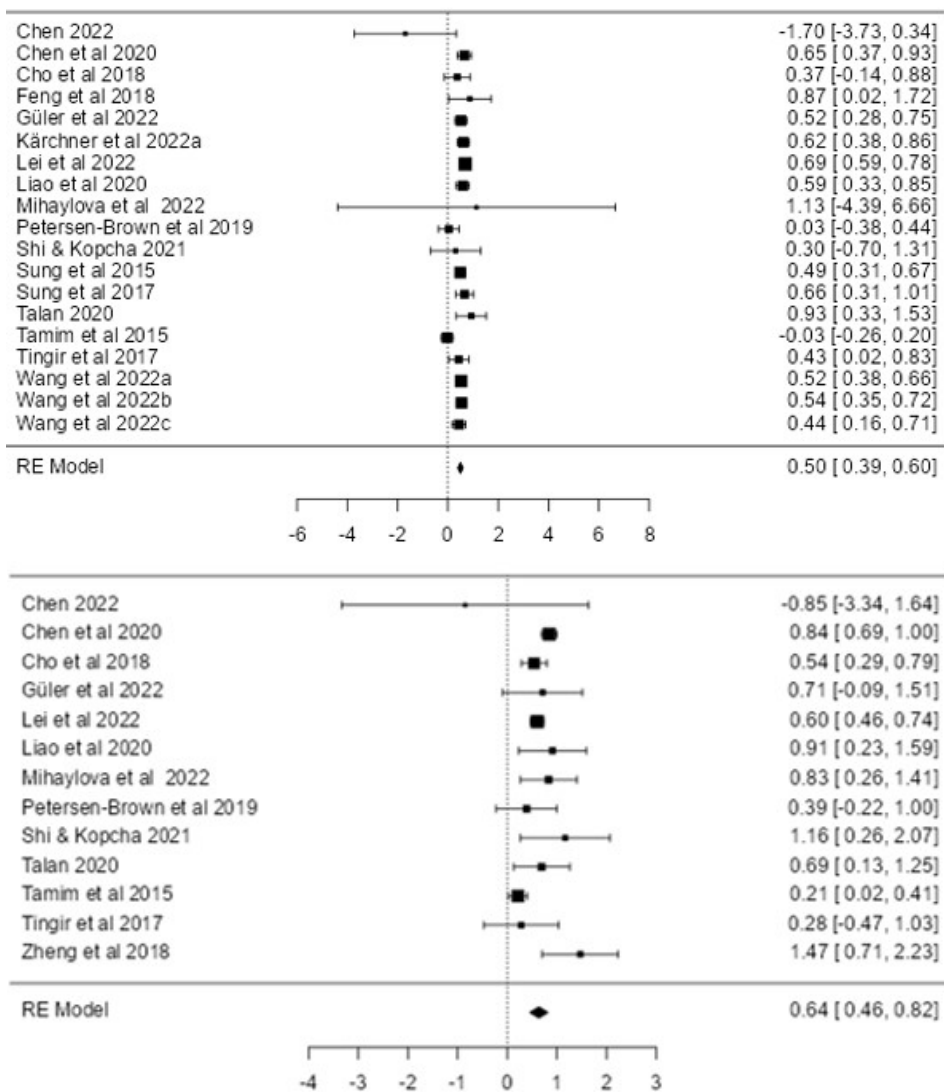
We should note that, although most formal publication parameters did not reveal significant differences in the average effect sizes, the type of publication became an important factor in mediating the results. Thus, the smallest effect size was reported in the research report, while the largest ones were found in conference proceedings. The smallest average effect sizes could also be found in meta-analyses, including primary research conducted in different countries and cultures.

We were also interested in data on the effect sizes of MD use in primary, secondary, and high schools (Figure 4). The evidence was found to be inconsistent. At the primary school level, the confidence intervals of the effect sizes of two meta-analyses cross the zero line, at the secondary school level - six meta-analyses, at the high school level - four meta-analyses.

Figure 4

Effect sizes and confidence intervals by school education levels





Note. a – primary school, b – secondary school, c – high school.

The effect sizes by educational levels are the largest in upper-secondary school ($g = 0.64$ with 95 % CI 0.46–0.82), medium in primary school ($g = 0.59$ with 95 % CI 0.50 –0.67), while in lower-secondary school they are the smallest ($g = 0.50$ with 95 % CI 0.39–0.60).

Discussion

In conducting this meta-review, data from 29 meta-analyses were studied, with the aim of identifying the effects of the use of mobile devices on student educational activities. We

found a predominant medium effect size in the constructive use of MD (mobile learning) and in the destructive forms of its use (dependence on MD, problematic MD use, etc.). At the same time, the average effect size practically retains its value at different stages of digital education, bringing the results of this study closer to the meta-analysis data by N. O. Gordeeva, based on a sample of Russian studies, and also revealing an average effect size (Gordeeva, 2018).

The scale and representativeness of the meta-analysis studies included in the meta-review enabled us to validate such a conclusion. We can argue that the use of MD by students may increase or inhibit their learning activities, depending on the degree of involvement of adults in managing students' digital behavior. Thus, V. I. Panov and colleagues understand digital behavior as a system of actions associated with the use of the digital environment (Panov et al., 2021). According to R. Barr, the creation of a harmonious family media environment by adults and its shared use with children already in childhood can contribute to their cognitive and emotional development, while the use of the digital environment to distract children or to participate in them uncontrollably becomes an obstacle to the social and emotional development of children (Barr, 2019). Furthermore, adult digital behavior itself becomes an important factor in children's mental development. Firstly, it serves as a model for the development of a child's digital behavior and, secondly, it may become an obstacle to the creation of a harmonious relationship between parents and children (Liu & Wu, 2023). Thus, researchers introduce the concept of "technofence" as a condition of either a parent or a child in which the use of technology interrupts interpersonal interactions and, in any case, has a negative impact on the child's emotions and memory (McDaniel & Radesky, 2018). At the same time, adults' attitudes towards MD play an important role in understanding the form of use of MD by school children (Spasskaya & Proekt, 2023; Wang, Lwin, Cayabyab, Hou & You, 2023). Therefore, there is a growing need to form constructive strategies for managing digital behavior of children.

The results of the meta-review showed differences in the degree of effectiveness of the use of MD in the study of various school subjects. Therefore, the greatest effectiveness is found in the study of natural sciences and languages, whereas in the study of the humanities, a weaker effect of the use of MD is observed. Mobile technologies significantly improve the teaching process of natural sciences by creating more accessible scientific experiment visualizations and using fundamentally new teaching methods by teachers (Mutambara & Bayaga 2021). The latter is particularly important for the application of MD to teaching, as confirmed by a meta-review by B. Öztürk and colleagues, who showed the important role of applied pedagogical technology in the use of problem-based learning supported by technology (Öztürk et al., 2022). Mobile learning can provide learners with access to resources, tools and collaboration opportunities, thereby developing research abilities, creativity, reflexion, critical thinking, and analysis (Afikah et al., 2022). The advantages of using MD for language learning (both native and foreign languages) have long been one of the most discussed issues in mobile language learning research

(Okumuş Dağdeler, 2023). The success of this field is also linked to the introduction of several effective applications for learning foreign languages (Lingualeo, Duolingo, Puzzle English, etc.). Research shows that the use of MD contributes to personalized learning and student autonomy, vocabulary development, reading skills, and speaking practice (Okumuş Dağdeler, 2023). At the same time, the field of humanities studies is less covered by mobile learning.

Another important result of the meta-review was the inconsistency of data in the meta-analyses of the impact of using MD by students in primary, lower-secondary and upper-secondary schools. The adolescence period is considered to be the most difficult period to implement mobile learning, as school students must adapt to new learning models and, on the one hand, adapt to the increase in academic workload and, on the other, to deal with the crisis of adolescence (Malkova & Naumova, 2012). It is noteworthy that in adolescence the range of digital activities of school children expands considerably and becomes more diverse (Soldatova et al., 2022). Adolescents show a reduced academic motivation, which can become a stronger input variable than the use of MD, which in turn often becomes a factor that distracts from educational activities (Avdeeva & Kornilova, 2022). At the same time, in secondary school, academic motivation increases, among other things, because school students with the lowest academic motivation leave school (Goshin et al., 2019), while in primary school, the use of MD takes place to a greater extent under adult supervision.

Finally, publishing characteristics become important factors that determine the effect sizes of meta-analyses. We found the largest effect size in a meta-analysis that reported a relationship between MD addiction and academic burnout among Chinese students (Li et al., 2023), while meta-analyses summarizing the results of primary studies conducted in different countries and cultures report smaller effect sizes. This result may indicate the importance of cultural factors in the research of strategies to use MD in the educational environment. In addition, the largest effect sizes are reported in conference proceedings and the smallest ones – in research reports. This result is related to one of the general limitations of meta-analysis as a methodology, as the insignificant research results are more frequently published in the so-called "archive box" and less often in scientific journals (van Aert et al., 2019; Kornilov & Kornilova, 2010).

Conclusion

The purpose of this meta-review was to summarize the results of meta-analyses aimed at identifying the impact of the use of MD by school children on their educational outcomes. According to results obtained in our study, the use of MD by school students has a moderate impact on their educational outcomes. Compared to traditional teaching methods, mobile learning technologies can be more effective in developing school children's skills, increasing their level of knowledge and academic performance, developing motivation for learning and participation in it. At the same time, in cases of

deviations in school children's digital behavior, the quality of their educational activities is at risk of deteriorating, resulting in a reduced academic motivation and education performance and an increase in academic burnout. The results raised questions about the development and implementation of a systematic approach to the targeted formation of digital behavior among children. The main components of such a system should be the subjects of the education process (students, teachers and parents), the educational environment and its possibilities, the technology and teaching methods used, the MDs themselves and their functionalities.

The contradictory conclusions found in summarizing the results of the meta-analysis included in the meta-review indicate the need to take into account a number of factors influencing the success of the use of MD in the educational process. Further research is required to investigate the use of MD by students in educational activities at different age levels, with different strategies of digital activity and mediation by adults, and in different cultures.

Some limitations of this meta-review must be noted, relating to the heterogeneity of generalized effect sizes and the apparent lack of information on a wide range of factors determining its variation. The difficulty of finding meta-analysis in the so-called "grey" literature indicates that there is a clear lack of application of meta-analysis approaches in unpublished studies (reports, dissertations, etc.). This meta-review did not take into account the characteristics of educational models and technologies used in mobile learning, MD types, and the gender-related aspects of the use of MD by students. Although meta-analysis does not provide a final answer to the question of the effectiveness of MD use in the educational process, it highlights promising areas of research on digital behavior among school children and the development of psychological and educational programs for the formation of digital culture in young generations.

Note. Sources marked with asterisks (*) indicate the studies included in the meta-review.

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Author Contribution

Yuliya L'vovna Proekt developed the research strategy and research protocol, analyzed and interpreted the results, and prepared the text of the manuscript.

Elena Borisovna Spasskaya analyzed the relevant literature, selected and evaluated meta-analyses, summarized the results of the study, and suggested the prospects of the study.

Nina Olegovna Ivanushkina analyzed the relevant literature, selected and evaluated meta-analyses, performed mathematical and statistical analysis of data.

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Involuntary Memorization and Context-Dependent Recognition of Lexical Information

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Abstract

Introduction. Two lines of research stand out in the field of context-dependent memory research: context-dependent reproduction and context-dependent recognition. Different environmental contexts influence the productivity of involuntary memory using free playback and recognition techniques. Our study aims to establish the influence of external contexts of involuntary memorization of lexical items on their subsequent recognition performance. **Methods.** The procedure varied the states of two variables: global context (room view) and local context (background color and localization of the word on the screen). In the first phase, 107 subjects performed a sensorimotor task that involved the identification of a target stimulus with a recognizable characteristic (the letter 'a' as part of a word). In the second stage, where contextual conditions varied, subjects were required to recognize previously presented words in a series of new distractor words. The recognition accuracy, the reaction time, and the response confidence were evaluated. **Results.** It was found that the empirical markers "recognition accuracy" and "reaction time" are uninformative in assessing mnemonic productivity. The analysis of the indicator "degree of confidence" showed that regardless of the retention / change of contexts, correct answers are given with greater confidence. Repetition of the local context in the situation of verbal stimuli recognition leads to a decrease in response time and an increase in confidence for words with the recognition feature that was relevant to the goal of the activity during memorization. Changing the global context does not induce a similar effect. **Discussion.** The main factors on which the recognition of lexical units during their unintentional memorization depends are the local context and the "key

feature" (E. Tulving) with which the response was associated during encoding. The study of the role of motor context in mnemonic activity may become a perspective in the study of the phenomenology of context-dependent memory.

Keywords

involuntary remembering, context-dependent memory, context-dependent recognition, recognition trait, local context, global context

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Introduction

Perception and encoding of information, as well as any other mental activity, are carried out under certain physical conditions, in a specific environment, in the context of the situation. Due to the triviality of this consideration, the role of contextual factors in mnemonic activity is often underestimated. At the same time, in many cases, the reconstructed context of memorization can serve as an effective clue that facilitates the retrieval of the necessary information.

A vivid example of contextually mediated memory is given by A. R. Luria (1994), who for many years studied Shereshevsky's phenomenal abilities: "*Experiments have shown that he can successfully...reproduce any long series of words given to him a week, a month, a year, many years ago. Some of these experiments, which invariably ended in success, were conducted 15-16 years (!) after the primary memorization of the series and without any warning. In such cases, Sh. sat down, closed his eyes, paused, and then said: "yes, yes... It was in your place in that apartment ... you were sitting at the table and I was on the rocking chair..., you were in a gray suit and you looked at me like that... there. I can see what you were saying to me..." - and what followed was an unmistakable reproduction*" (p. 10).

Paradoxically, it is sometimes more difficult to recover arbitrarily memorized material in consciousness than in the context associated with it, which, in most cases,

is remembered implicitly or, rather, involuntarily. This, in particular, is emphasized by J. Godefroy (1992): "*The context in which an event occurs is sometimes more important for memorization than the event itself*" (p. 351). Repetition of the encoding context in a playback situation often helps to retrieve the necessary information. Thus episodic memory helps to activate traces of semantic memory.

It is generally believed that studies of the phenomenology of context-dependent memory were initiated by E. Tulving, who proposed the so-called **principle of specificity of encoding**. According to this principle, the similarity of conditions during memorization of information and its retrieval contributes to the effectiveness of reproduction (Tulving & Thomson, 1971; Tulving & Thomson, 1973). The works of E. Tulving and his colleagues mainly concern the study of associative or otherwise key features that facilitate access to the information sought. For example, in one of the experiments, subjects were asked to memorize words grouped into semantic categories, indicating the name of each of them. In the test task, one group was shown the names of the categories as hints, while the other group was not given these names. It appeared that subjects in the experimental group reproduced more stimulus words compared to a control condition where participants were not given associative cues (Tulving & Pearlstone, 1966). "*The accessibility of a particular 'engram' for actualization,*" points out V. V. Nurkova (2009), "*is determined by the coincidence of the key elements of the situation of imprinting and reproduction*" (p. 60). However, it should be noted that "key elements" in E. Tulving's research referred rather to the structure of the mnemonic task rather than to the external conditions under which memorization and then reproduction took place. In other words, these elements ("attributes", in Tulving's terms) were not components of the situational context, but were part of the task condition itself.

A further study of contextual variables was associated with determining the role of local factors and conditions (mainly environmental) in the process of solving mnemonic tasks of different types. Since the 1970s, the field of phenomenology of context-dependent memory not only began to expand rapidly, but also ceased to be homogeneous. Within this field, two main streams of research can be distinguished: context-dependent reproduction and context-dependent recognition. This division is not accidental, since the retention of information in memory in experimental procedures is predominantly judged by the performance of reproduction or recognition. Furthermore, for a differentiated assessment of the effects of contextual dependence, the cognitive task to be solved in a memorization situation is essential. In one case, it requires consciousness control, that is, the material is memorized arbitrarily. In another case, no mnemonic task is set before the subject; in this case, an involuntary form of memorization takes place. The effects of context-dependent memory may differ markedly depending on the nature of the cognitive task solved at the moment of memorization, the method of evaluating the preservation of the material, and the contextual characteristics that, to a different extent, condition the capture and actualization of the information sought. This actually confirms the review of experimental works on context-dependent memory, devoted exclusively to

the influence of environmental variables or, otherwise, external-contextual factors (Smith & Vela, 2001).

The contexts of mnemonic activity can be not only the physical environment, dispositions of situation elements, and stimulus conditions, but also "internal" factors, such as psychophysiological state, mood, or emotions (Eich, 1995; Eich & Metcalfe, 1989; Balch, Myers, & Papotto, 1999; Isarida & Isarida, 1999). For example, reproduction has been shown to be more productive if the subject is in the same emotional state when explicating the material as he or she was at the time of memorization (Robinson & Rollings, 2011). The congruence effect (albeit of a different kind) is also expressed in the fact that emotionally positive material is learned better if the person is experiencing positive emotions, while negative information is more firmly memorized in an emotionally reduced state (see Izard, 2000. pp. 87, 88). S. Smith (1995) proposed the concept of mental context, which includes not only mood and psychophysiological state, but also motivational component, to designate the whole set of variables related to the subject of mnemonic activity.

As mentioned above, in research practice (as well as in everyday life), it is possible to judge the retention of memory traces on the basis of the productivity of free reproduction or recognition. The consideration of works performed using these methods of testing the retention of material will help to better understand the peculiarities of contextual effects arising in different types of mnemonic activity.

Context-sensitive playback

The study of the proper effects of the environmental context (physical environment) on memory performance was stimulated by the research of D. Godden & A. Baddeley (1975), the results of which later became widely known. In their experiment, subjects, who were divers, memorized words in two environments: underwater and on land. It turned out that reproduction was significantly more effective in the same environment in which memorization took place. (It was later experimentally shown that even mental representation of situational conditions of memorization, as in the case of Szareszewski, facilitates reproduction (Smith, 1979)). Most often in the psychological literature, the context-dependent memory effect is understood as an improvement in reproduction performance when the situational conditions of encoding and retrieval are consistent (identical or similar).

To be fair, it should be noted that the replication of the classic experiment by D. Godden and A. Baddeley did not reveal a pronounced effect of context dependence (Murre, 2021). The author of the study, without questioning the phenomenon of context-dependent memory, explains the result obtained by the significant influence of local determinants, which were somewhat different in the original study and its replication (type of aquatic environment, immersion depth, water temperature, retention interval time, etc.).

The context of place as a special case of environmental context was the subject of a recent study by Choi et al. (2023), who in a real-life everyday life setting recorded subjects'

location every 60 seconds for five weeks using GPS. The test trial required participants to recall their location at a specific time. The authors found: performance increased if the test measurements were taken in the same external context as the previous one.

Contextual variables can be not only the physical environment or location, but also any external factors such as acoustic, olfactory, and even gustatory stimuli. For example, in a study by Grant et al. (1998), students studied academic material (a paper on psychoimmunology) in quiet or noisy conditions, and contextual dependence was assessed using short answer and multiple choice tasks. It was found that regardless of the method of evaluating playback, performance was higher when the encoding and retrieval contexts were matched.

In turn, the study by Ocker & Kreidler (2018) aimed to identify the dependence of the quality of learning while watching a video on the taste of chewing gum. The expected context effect was not found: chewing gum at the time of learning and during playback has no positive effect on recall. The effect was not observed in other similar experiments (Tucha, Mecklinger, Hammerl & Lange, 2004; Miles & Johnson, 2007; Reinhart, 2015).

Several studies have provided evidence for the influence of odor context on reproduction (Hackländer & Bermeitinger, 2017; Cann & Ross, 1989; Ball, Shoker & Miles, (2010); Isarida et al., 2014; Parker, Ngu & Cassaday, 2001 and others), the color of the background against which the focal information was perceived (Isarida & Isarida, 2007), background music (Balch, Bowman & Mohler, 1992; Balch & Lewis, 1996; Mead & Ball, 2007), and video context (Sakai, Miyamoto, Isarida & Isarida, 2011).

A meta-analysis of 75 experimental studies showed that the effects of environmental context were significant in almost all studies, although their magnitude varied widely (Smith & Vela, 2001). When environmental influences are suppressed due to some factors, the effects of contextual dependence of playback are reduced. Such factors include associative processing of semantic information during memorization, inter-element encoding, and mental representation of elements not included in the encoding context. In other words, all cognitive activities that reduce receptivity to context shade and thus attenuate the effects of contextual variables (Smith & Vela, 2001).

Context-dependent recognition

Experimental evidence on the influence of external context on reproduction is generally not as inconsistent as the results of studies of context-dependent recognition, especially of verbal stimuli. Some studies have failed to detect context-dependent recognition (Baddeley, 1982; Godden & Baddeley, 1980; Smith, Glenberg, & Bjork, 1978).

A. Baddeley, using the technique of recognition rather than free reproduction, found no pronounced effect of context. In the author's opinion, physical conditions can significantly help in determining the place of a trace in the memory store but do not stimulate the recognition of the desired stimulus elements. In other words, the external context in the process of recognition does not provide additional advantages for trace actualization (Baddeley, 2001).

Indeed, during replay, any elements of the perceived situation in which the target information was memorized can serve as a means of facilitating (improving, increasing the efficiency of) its retrieval. In recognition tests, however, the stimulus presented is already a correct hint that does not simply lead to the correct answer, but represents such an answer. According to the "outshining" hypothesis, contextual information is "outshined" rather than disappeared during testing, so the possibility of influencing the choice of desired stimuli against the background of the recognition objects itself is lost (Smith, 1994). Due to this, contextual variables in recognition should have less weight than in playback. According to the results of the analysis of S. Smith & E. Vela (2001) mentioned above that the use of recognition decreases sensitivity to changes in external context, but at the same time it is maintained. A series of works carried out by K. Murnane & M. P. Phelps (1993, 1994, 1995) is evidence of this. The context in their procedures was configurations of stimuli presented on a screen. The target words were recognized in old and new configurations. In most of the experiments by C. Mournin and M. Phelps, it was found that the reconstructed contexts compared to the new contexts had a positive effect, namely that target words were recognized better in the old context. (Notably, the old contexts provoked false alarms, i.e., increased false choice reactions.) These results are consistent with data presented by Chun et al., who found that repetition of a previous distractor configuration acting as a contextual cue significantly speeds up target stimulus retrieval, while the configurations themselves are remembered implicitly (Chun, 2000; Chun & Jiang, 1998). There is other evidence in favor of recognizing context-dependent recognition of nonverbal information (Malpass, & Devine, 1981).

In a series of experiments using verbal stimulus material, data have been obtained demonstrating the effects of place context (Canas & Nelson, 1986; Emmerson, 1986; Smith, 1985; Smith, 1986), the effects of video context (Isarida et al., 2020), and the effects of environmental context (virtual/real) on recognition performance (Parker et al., 2020).

The severity of contextual effects should decrease with increasing cognitive load at the time of memorization. The more mental effort expended in processing perceived information, the less the dependence of encoding on environmental context is preserved. S. Smith (1986) demonstrated the influence of the level (depth) of information processing during memorization on recognition accuracy. Surface processing showed an effect of the situational context (place context), whereas deep processing of the material eliminated contextual dependence. However, this result was not replicated in other work (Smith, Vela & Williamson, 1988). Thus, the question of whether there is a dependence of recognition on external contextual factors still needs to be clarified.

Purpose and hypotheses of the study

Studies of the phenomenon of context-dependent recognition are mainly concerned with involuntary memorization, while the effects of context on involuntary memory are rarely the subject of independent study. The **aim of our study is to** determine the

influence of contextual conditions on the efficiency of lexical material recognition during its involuntary memorization.

Experimental works on this topic usually assess the volume of mnemonic production or the number of identified stimuli when using recognition tests. We decided to supplement the empirical markers of success with the indicators "reaction time" and "degree of confidence in the answer" in order to obtain a more detailed picture of the results. In addition, the motor response associated with the selection of a relevant stimulus can also be considered as a kind of context, so the procedural conditions were organized in such a way that it was possible to test the influence of this factor as well.

The external variables that may be relevant for context-dependent recognition, according to our assumption, refer to two different plans of the situation (episode): central and peripheral. The central plane consists of the characteristics of the immediate background against which the target information is perceived as a figure (mainly spatio-temporal, intensity, and chromatic characteristics). This is the *local context* of perception and involuntary memorization. The peripheral plane is formed by the object environment, which is the context of place or, otherwise, the *global context*.

On the basis of this, the following **hypotheses** were formulated before the experiment procedure:

1. The recognition efficiency will be greatest when the global and local contexts of involuntary memorization of lexical items cooperate.
2. Preserving local encoding context has a greater impact on word recognition productivity than preserving global context.
3. The efficiency of recognizing words that were accompanied by a motor response during memorization will be higher compared to words that are not associated with a response.

Methods

Test subjects

A total of 107 volunteers aged 17 to 36 years ($M = 22$) were recruited to participate in the experiment. Of these, 68 subjects were female. All participants had normal vision. The sample was divided into four experimental groups: EG1 (29 subjects), EG2 (29 subjects), EG3 (26 subjects), and EG4 (23 subjects). There was no payment for participation in the experiment.

Procedure and stimulus material

A computer program was written to perform the procedure, allowing to change the stimulus elements and their sequence, to set the time of stimulus presentation, to record

reaction time and response confidence, and to save the results in a database with the possibility of their further processing.

The experiment was carried out in two rooms: a workroom and a training room (computer class). The procedure was organized in two stages. The first stage took place in the workroom and was invariant for all groups. Participants were informed before the test began that the study was devoted to the study of attention. The second stage of the procedure was not reported.

During the first stage, 152 words with denotative (subject) meanings (*table, star, lake*, etc.) were successively presented on the monitor screen (screen diagonal 15.6 inches. Font size - 72, font - Times New Roman, color - black). Of these, 32 words, which were subsequently used in the second stage, were conventionally labeled «relevant», and the rest were labeled "irrelevant". The screen was divided into two equally sized windows: a yellow window on the left and an orange window on the right (Fig. 1). The colors and their localization did not change during the procedure. All words were presented in the center of one of the windows in pseudorandom order. No more than two consecutive stimuli were presented in the same screen window.

Figure 1
Screen view



Half of all words contained the letter "a". The relevant words in 50% of the cases (16 words) also contained the letter "a". All relevant words with the letter "a" were presented only in the right window of the screen on an orange background. Accordingly, relevant words without the letter "a" were presented only in the left window on a yellow background. For irrelevant words, this rule did not apply. A total of 76 words with the letter "a" were presented in each screen window.

To control for the possible effect of the edge factor, in the stimulus sheet, the relevant words in both the first and second phases occupied positions ranging from the 22nd to the 130th word.

According to the instructions, subjects had to respond by pressing the Enter key only to the presentation of words containing the letter "a". The reaction time and other indicators were not recorded in the first stage.

After completion of the first phase, the second phase of the procedure began 120 ± 10 seconds later, during which the irrelevant stimuli and the instruction to the subject were changed. The previous irrelevant stimuli were replaced with 120 new words. The background color localization and the list of relevant words were not changed. Instructions to the subject: "You should respond as quickly as possible by pressing the Enter key only to the words that were presented to you earlier. After that, you should evaluate the degree of confidence in the correctness of the recognition". The degree of confidence after each reaction was assessed on a scale of -2 to +2 ("not sure" / "rather not sure" / "rather sure" / "sure"). At this stage, the following was recorded: the number of correct choices, the number of incorrect choices (false alarms), reaction time (RT), and the degree of confidence in the response.

In the absence of a motor response, the word was exposed for 1600 ms, after which the next word was presented. After the motor response, the word was removed from the screen, and a response confidence scale was presented on a white background in the center of the screen. Using the ← or → keys, the appropriate value had to be selected. After pressing the Space key, a new word appeared.

The reaction time obviously depends on gaze fixation prior to stimulus exposure. If the localization of the word changes compared to the presentation of the preceding stimulus, this is highly likely to delay the sensorimotor response. If, however, the preceding word is exposed in the same screen window as the actual perceived word, no saccade time is spent. Given this fact, the number of relevant words presented in the same screen window as the preceding word and the number of relevant words that change localization relative to the preceding stimulus were equalized when composing the stimulus sequence.

The experimental design required the manipulation of two independent variables: the global context (GC) and the local context (LC). This distinction was explained both by differences in the number and nature of the association of context elements with target information and by the timing of context persistence. Unchanging contexts that include a large number of elements are usually referred to in the psychological literature as global contexts, whereas contexts that include a minimal number of informational features and that change in short time intervals are referred to as local contexts (Glenberg, 1979; Bergmann & Schubö, 2021).

The LC in our case means the color of the background on which the relevant words were presented. Since the localization of the background color did not change at the second stage, the LC was a combination of "localization+background". The HC was the type of room (workroom or classroom). Thus, each of the independent variables had two states: retention/context change in the second step of the procedure. When the LC was preserved, the relevant words in the second stage were presented at the same location

on the screen, against the same background, and at the same positions in the stimulus sequence as in the first stage. When the LC for relevant words was changed, the sequence number on the stimulus sheet was changed, the background color was changed to an alternative color, and the localization was changed accordingly. Maintenance of the HC meant that the second stage was conducted in the same room as the first stage (workroom). If the GC was changed, the second stage was held in a different room (study room).

The conditions of the second stage differed for the experimental groups. In EG1 in the second stage, LC and HC remained unchanged. In EG2, LC was changed and HC was preserved. In EG3, LC was maintained and GC was changed. In EG4, both LC and GC were changed. (See Table 1). The characteristics of the screen did not differ when the HC changed.

Table 1
Conditions of passing the second stage for different experimental groups

	Local Context (LC)	Global Context (GC)
EG1	+	+
EG2	-	+
EG3	+	-
EG4	-	-

Results

Since the groups differed in the number of participants, initially, for each experimental condition, the mean values were calculated for all reactions and separately for true responses and false alarms. The results are presented in Table 2.

Table 2
Average values of identification performance

EG	Average number of reactions	Average number of correct answers	Average number of false alarms
EG1	57,7	17,2	40,4
EG2	43,6	14,4	29,2
EG3	39,4	15,5	23,9
EG4	46,3	15,9	30,4

Table 2 shows that in EG1 subjects, the most number of answers, both true and false. The number of correct answers in each group turned out to be less than the number of false alarms. Calculating the significance of differences in the ratio of the total number of correct and erroneous answers (χ^2 criterion), showed that this ratio is different under different experimental conditions ($p < 0.01$).

The mean values and standard deviation were calculated to analyze the results for the BP parameter. The results outside the interval $\bar{x} \pm 2\sigma$ were excluded from further analysis. The outliers amounted to 5-6% of the extreme values for each EG. Table 3 shows the mean BP values for correct and incorrect answers for each group.

Table 3
Reaction time for correct and incorrect answers (ms)

	All reactions		Significance level
	Faithful	Erroneous	
EG1	868,3	878,6	0,399
EG2	877,1	844,0	0,217
EG3	906,3	931,8	0,052
EG4	878,3	926,3	0,003

The BP for correct and false answers was found to not differ significantly, except for EG4, where the BP for false alarms was significantly increased, compared to the BP for correct answers ($p = 0.003$) according to the Student's t-criterion.

In addition, the mean values of the degree of confidence in the answer and the significance levels of differences in this indicator for correct and incorrect answers were calculated. Data are summarized in Table 4.

Table 4
Degree of confidence in the answer

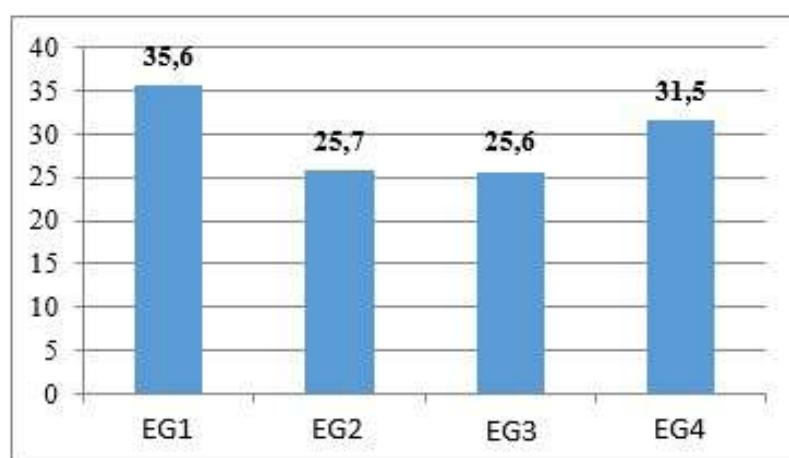
	All reactions		Significance level
	Faithful	Erroneous	
EG1	0,96	0,69	0,000
EG2	0,89	0,48	0,000
EG3	1,12	0,66	0,000
EG4	1,06	0,60	0,000

Confidence was found to be significantly higher ($p \leq 0.000$) for correct answers regardless of the experimental conditions (Student's t-test).

The subject of a separate analysis was reactions to words that had the letter "a" in their composition. Figure 1 shows the average values of the number of such reactions for different groups of subjects.

Figure 1

Average number of reactions to words with "a"



The average number of reactions to words with "a" was found to be higher in EG1. The number of such reactions is significantly influenced by contextual variables. The correlation between the factor and the result characteristics is statistically significant according to the χ^2 criterion ($p < 0.001$).

The analysis of BP for correct and incorrect responses to words with "a" revealed that in EG1 and EG3, where the local context was preserved, the fastest correct response was given (839.5 and 874.3 ms, respectively). However, there was a slowing of BP in these groups for correct responses to words without "a" (900.9 ms and 961.5 ms, respectively). There was only one statistically significant difference between the groups in terms of the timing of correct responses to words with "a": EG1 and EG2 ($p \leq 0.037$) (local context change). The BP in EG1 is significantly lower than in EG2 (839.5 and 879.2 ms, respectively). The other groups do not differ from each other in terms of BP for correct answers to words with "a".

The influence of HC can be seen against the background of preservation of LC (EG1 and EG3) and against the background of its change (EG2 and EG4). EG3 subjects were significantly slower to respond to words with "a" ($p = 0.000$). With the change in LC, the HC factor did not affect BP on words with "a" for correct and incorrect responses. At the same time, in EG2 and EG4, the RTs for words without "a" were significantly slower regardless of the correctness of the response (846.3 and 925.0 ms, respectively, at $p = 0.000$).

The degree of confidence in *correct answers* is significantly higher for both words with "a" and words without "a". This rule is partially violated in EG1 and EG3, where LC did not change. Here, the differences in confidence do not reach significance between the correct and incorrect responses to the presentation of words without "a". However, for EG1, EG2, and EG3, response confidence is significantly higher for responses for words with "a" than to words without "a". In EG4, this pattern was not found.

Changing the LC while maintaining the HC (EG1 and EG2) resulted in a significant decrease in response confidence when responding to words with "a" (1.014 and 0.860, $p = 0.004$), without "a" (0.626 and 0.401, $p = 0.002$), in both correct responses to words with "a" (0.91 and 0.70, $p = 0.002$) and incorrect responses to words without "a" (0.576 and 0.285, $p = 0.001$). Comparison of EG2 and EG3 also confirms the significant effect of LC on response confidence. Preservation of LC when GC is changed (condition in EG3) provides significantly higher confidence scores for responses to words with "a" (0.860 and 1.006, $p = 0.017$) and words without "a" (0.810 and 0.401, $p = 0.000$), both for correct responses ($p = 0.033$) and incorrect responses ($p = 0.000$). Against the background of LC preservation, the HC factor had no effect on the degree of confidence in the answer: EG1 and EG3 do not have significant differences in this parameter.

Discussion

The analysis of the data obtained allows us to state that changing the contextual conditions does not affect the accuracy of recognizing lexical units. Despite the fact that when the conditions of involuntary memorization and recognition are fully matched, i.e. when both the context of place and local context are preserved, an increase in the number of correct answers is observed, this result cannot be regarded as evidence of higher recognition efficiency. The increase in the number of correct responses in this case, is associated with an increase in the total number of responses, including erroneous responses. It can be assumed that the congruence of contextual conditions provokes more frequent responses when solving the recognition task. Meanwhile, under all contextual retention/change conditions, there is a significant increase in the proportion of false alarms in the total number of responses. This result is quite consistent with the data of McKenzie & Tiberghien, (2004) who showed in their work that when, according to the instruction, it is necessary to make a choice "as quickly as possible" (as in our case), the number of false alarms increases, and when a certain amount of time is given for the response, the number of recognition errors decreases. In addition, in our opinion, when solving the recognition task, the significance of the omission error for the subject is higher than the significance of the false alarm error. And the more choices are made, the greater the number of correct answers. The increase in the number of correct answers, or in other words, the decrease in errors of omission, paradoxically depends on the number of false alarms. Thus, we can state that the indicator of "recognition accuracy" is not informative for assessing the efficiency of lexical information recognition during its unintentional memorization.

As the results showed, the comparison of BP for correct and incorrect answers, in general, did not reveal significant differences. This is probably also due to the priority of the goal of correct guessing for the subjects. The test task involved the identification of the words being searched, and this task was facilitated by an increase in the total number of responses due to false alarms, rather than by an increase in reaction speed. In other words, performance on the test task required, first and foremost, correct word identification. Setting a fast response would have prevented a correct solution.

The results concerning the empirical marker "degree of confidence in the answer" were unambiguous. A pronounced effect was found in all groups: the confidence is significantly higher for correct answers. In turn, this suggests that subjects implicitly distinguish between their correct and incorrect responses. Similar results were previously obtained in other studies whose authors offer similar explanations (Aleshina, 2012; Odainik, 2013). We can quite agree with A. S. Odainik (2013), who points out: "*Confidence is a reaction to the effectiveness of a decision, and a person is able to distinguish between right and wrong answers without much effort, but the process of distinguishing itself is not realized*" (p. 24). In the model of decision-making in a situation of uncertainty, confidence is considered as an indicator of the right choice, and it is "*often the only psychological means of predicting and controlling the correctness of decisions*" (Skotnikova, 2019, p. 145).

Since the classical studies of P. I. Zinchenko (1961), it has been known that the efficiency of involuntary memorization depends directly on the nature of the cognitive activity performed by the subject. In our study, participants at the first stage solved the simplest task of visual search for a given target (the letter "a") as part of a word, which, in turn, had a certain localization on the corresponding background. In other words, the target letter was embedded in the context of the word and the word was embedded in the local context. This determined the perceptual conditions of the activity being performed. For the task solved in the first stage - distinguishing between words with and without the letter «a», the letter "a" was an identifying feature, the detection of which was accompanied by a motor reaction. Thus, a motor component was also included in the structure of cognitive action as its final link. Since the efficiency of involuntary memorization is related to the specificity of cognitive activity at the moment of encoding, it is to be expected that differences in mnemonic performance should be most noticeable for a) words with and without an identifying feature and b) words retaining or changing the local context. Indeed, it was found that subjects in each group more often randomly chose words with an identifying feature, i.e., with the letter "a", as the stimuli they were looking for. Overall, the number of such choices amounted to 63% of the total number of reactions. However, it cannot be claimed that changing or maintaining contexts has a significant effect on this.

An important result is that maintaining the local context increases confidence for responses to all words with "a", regardless of the correctness of the response, while changing the local context causes a marked decrease in confidence. This is not the case for place contexts. Furthermore, replicating the local context in the second stage

causes a significant decrease in reaction times for correct choices of recognition feature words compared to incorrect choices of similar words, while changing the local context significantly increases the correct reaction times.

Thus, the results of the study suggest that the key factors conditioning the recognition of lexical information during its involuntary memorization are the **local context** and the recognition **feature** that is relevant to the goal of the activity in the memorization situation.

Conclusion

Context effects manifest themselves in the solution of a wide variety of cognitive tasks (Agafonov, Zolotukhina, Kryukova, Burmistrov, 2023; Kryukova, Zolotukhina, Agafonov, Shilov, 2023). Meanwhile, contextual influences on problem solving have perhaps attracted the most interest among memory researchers. To date, a large body of data relating to the effects of environmental (external) contexts on the reproduction and recognition of both verbal and nonverbal information has been accumulated. The experiments conducted earlier are mainly related to the field of arbitrary memorization.

In our work, the object of the study was the involuntary form of memorization of lexical material. The ambiguity of the obtained results is caused by the difference in the informativeness of empirical indicators, the analysis of which allows us to evaluate the productivity of recognition in different ways under varying contextual conditions. In particular, the indicators of recognition accuracy and response time turned out to be uninformative, while the parameter "confidence in choosing an answer", although indirect, allowed us to detect differences indicating implicit processes involved in mnemonic activity.

The conceptual basis for explaining part of the results obtained was the main provisions of P. I. Zinchenko's concept and E. Tulving's principle of coding specificity. Not only the nature of cognitive activity and the information operated by the subject during unintentional memorization, but also the "key" (identifying) feature associated with the answer when solving a cognitive task determine the productivity of memorization.

A perspective in the study of context-dependent memory may be the study of the role of motor context. To date, there are no studies in which this kind of context has been the subject of special consideration.

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The authors declare that there is no conflict of interest.

Influence of Family Upbringing Factors on the Development of Digital Skills of a Child with Mental Retardation

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Abstract

Introduction. The article is devoted to the problem of mediating the development of digital skills of a child with mental retardation in the conditions of family upbringing. Family upbringing factors have a significant impact on the process of developing these skills in children: material and technical equipment of the family, parents' media activity and their digital skills, digital parental mediation strategies, parents' attitudes towards the possibilities of the digital environment in the child's socialization. The relevance and novelty of this study lies in describing a number of factors of family upbringing and identifying their relationship with digital skills of a child with mental retardation.

Methods. Two groups of parents participated in an online survey: those raising children and adolescents with mental retardation (N = 42 people) and parents of normally developing children and adolescents (N = 52 people). **Results.** The study showed that parents raising children with mental retardation are characterized by less media activity, predominance of communicative motive of Internet activity, and greater awareness of children's practices in the digital environment. At the same time, parents of children with intellectual disabilities use digital mediation strategies less often, and trust the Internet less as a source of development of cognitive sphere and formation of children's information processing skills. Parents of children with disabilities rate their digital skills higher than those of their children. The study proved the correlation of digital skills of a child with mental retardation with some factors of family upbringing. **Discussion.** The correlations found between the digital skills of children with mental retardation and the digital skills of parents, the number of digital devices in the family, and the availability and quality of

these digital tools indicate the need to develop and implement programs to educate parents, develop their digital skills, and master various digital mediation strategies in the process of raising a child with mental retardation.

Keywords

digital skills, digital divide, mental retardation, child with mental retardation, Internet space, media activism, digital parenting strategies, socialization

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Introduction

Digital environment is a space that provides conditions for compensating existing deficits, acquiring and expanding communicative experience, receiving education, and developing interests. The attention of researchers to the problem of digital skills of a child with mental retardation is determined, on the one hand, by the increased importance of the digital environment, and on the other hand, by the specific socio-psychological conditions of family upbringing and the reduced ability to develop cognitive skills in children of this group.

Digital skills

Digital skills reflect the ability to use skills and knowledge in analyzing, selecting and making sense of data (Trofimova, 2021). These are skills that allow "to form and distribute digital content, ensure cooperation and collaboration and solve different kinds of problems in the framework of successful creative self-realization, education, work and social activity" (Khablieva, 2022, p. 37).

Digital technologies and persons with disabilities

The significant role of digital skills and accessibility of digital technologies for persons with disabilities (hereinafter referred to as disabled persons) for their equality, achieving independence is emphasized in various foreign studies (Khanlou, Khan, Vazquez & Zangeneh, 2021; Sallafranque-St-Louis & Normand, 2017; Lussier-Desrochers et al., 2017).

Digital technology now offers individuals with developmental disabilities many more opportunities to compensate for their disabilities than ever before (Khanlou et al., 2021). The degree of digital skill development, interface sophistication, and accessibility of digital devices have been identified as critical factors for the social and economic inclusion of individuals with developmental disabilities (Khanlou et al., 2021). Social media has a powerful communicative resource and can greatly facilitate individuals with intellectual disabilities to develop relationships, thereby reducing their social isolation (Sallafranque-St-Louis & Normand, 2017). However, a 'digital divide' in the use of information and communication technologies can form between people with intellectual disabilities and others (Lussier-Desrochers et al., 2017).

Russian science also considers the advantages of using digital technologies in the correctional and educational process of persons with disabilities and, at the same time, emphasizes the difficulties and risks of their use (Volkova, Pisarenko, 2017; Volkova, Koroleva, Bogdanovskaya, Ikonnikova & Mashkova, 2019).

Virtual communication of persons with intellectual disabilities is "an adaptive and compensatory resource that helps to overcome communication difficulties" (Volkova et al., 2019, p. 100), and digital technologies for children and adolescents with disabilities can be "a significant factor in compensating for the consequences of their sensory, emotional, cognitive and social deprivation" (Volkova et al., 2019, p. 103), have a positive impact on education in general (Tokareva, Malyarchuk, 2021). At the same time, there are invariably difficulties associated with the organization of training of persons with disabilities with the use of digital technologies.

An obstacle to the full integration of a person into the digital society is the lack of digital skills, which, according to M.V. Tokareva and N.N. Malyarchuk, are not formed in the process of education in children with mental retardation. Children with mental retardation often "do not possess even a basic set of digital competencies" (Tokareva and Malyarchuk, 2021, p. 187). Despite this, adolescents and young men with mental retardation more often than representatives of other nosological groups visit dating sites, which indicates that, although poorly realized, there is a motivation to communicate in an online context (Kuzmina, 2020).

In addition, individuals with disabilities, compared to their normatively developing peers, are "more prone to problematic Internet use" (Volkova et al., 2019, p. 112). Unsupervised Internet use does contain many risks, especially for individuals with cognitive impairments, who are characterized by impulsivity, reduced ability to exercise self-control (Good & Fang, 2015).

Various aspects of the development of digital skills of a child with mental retardation are reflected in a number of works by domestic scientists and, as a rule, they are associated with the specifics of their psychophysical development (Tokareva and Malyarchuk, 2021), with the competencies of teachers and the quality or imperfection of applied computer technologies due to the lack of their adaptation to the needs and capabilities of persons with disabilities (Kovbasa, Popova, 2021; Sayfutdiyeva, Fatikhova, 2017), with the emergence of risks: online aggression, Internet addiction and victimization of the individual in the process of using digital tools (Volkova et al., 2019; Kuzmina, 2020; Kuzmina, 2021). The reason for the high level of riskiness is often low computer literacy and uncontrolled use of the Internet by children and adolescents with disabilities.

Digital parental mediation

The development of digital skills in a child with mental retardation is carried out in specific conditions and requires more active involvement of parents. The problem of Parental mediation or mediation, which is understood as a set of parental strategies to benefit and minimize the risks of using modern digital tools (Zaman, Nouwen, Vanattenhoven, Ferrer & Looy, 2016) is widely presented in foreign studies (Wolfers, Kitzmann, Sauer & Sommer, 2020; Üstündağ-Alkan, Aslan, Turgut & Kurşun, 2021; Yuen, Park & Cheng, 2018; Caivano, Leduc, & Talwar, 2020) and in some domestic studies (Seck, Kakady, 2020; Pisarenko, Zaichenko, 2021; Soldatova, Nestik, Rasskazova, & Zotova, 2013).

Parental mediation of children's use of digital devices has come to be seen as a "new" and "specific" type of parenting at the present stage (Nikken, 2017). The traditional classification of parental mediation strategies includes three main types: restrictive mediation, which involves strict control and restrictions; active mediation, which is based on discussion and conversations about the content viewed; and collaborative use, in which parents shape the child's interest, participate together in playing games and exploring content (Zaman et al., 2016). A restrictive strategy can be a technical restriction, such as blocking websites, and a social restriction involving digital bans and time control.

However, there are not enough works in the scientific literature aimed at studying the relationship between the digital skills of a child with mental retardation and parental mediation, as well as other factors of family upbringing. Partially the problem of digital parental mediation is considered in the works of T. I. Kuzmina (2020; 2021), in which attention is paid to the function of parental control. The process of digital skills development in the family environment is not limited to the influence of parents' mediation strategies on it, so other factors should be considered as external (family) factors mediating the process of using digital devices by the younger generation and the development of their digital skills.

The digital development of a modern child is carried out so rapidly that very quickly they begin to surpass their parents in terms of digital competence, which forms a digital gap between generations (Soldatova et al., 2013; Deursen & Dijk, 2014), which

negatively affects the educational process and the system of interpersonal relations, as the universality of the parent is reduced (Seck & Kakady, 2020), and, therefore, the need to develop digital skills not only for adolescents, but also for their parents is formed (Soldatova & Rasskazova, 2014). An important factor that has a significant impact on the child's behavior in the digital environment is the parents' attitudes towards technology (Lauricella, 2015), as well as attitudes towards the possibilities of the digital environment to solve the child's socialization issues (Pisarenko and Zaichenko, 2021).

The material and technical support of the family can also be considered as an important factor that creates conditions for the child to interact with the digital environment and develop appropriate skills. Under logistical support we understand the number of digital devices (computer, tablet, laptop), their availability and quality. With a large number of electronic devices in the family, parental control over the use of these devices by children is weakened (Klimenko, Savenysheva, 2020).

The main family factors influencing a child's interaction with the digital environment and the development of digital skills are family logistics, general aspects of parents' media consumption (Internet activity, motives for media consumption) and their digital skills, as well as peculiarities of parental mediation and their attitudes towards the digital environment. The latter is also related to the peculiarities of parents' perception of their children's capabilities. Thus, parents often overestimate the capabilities of their children with disabilities, which leads to setting unattainable goals for them (Kiseleva, Rogunova, 2022) or unrealistic and distorted perception of their children's individual characteristics (Zhiginas, Grebennikova, Shelekhov, 2020).

The purpose of the empirical study is to identify the characteristics of different factors of family upbringing and to examine their relationship with the level of digital skills of a child with mental retardation.

Methods

Parents with children between the ages of 7 and 15 participated in the survey:

- The experimental group (EG) was parents (n = 42) raising children and adolescents with mild mental retardation, studying under the adapted basic general education program (variant 1);
- Control group (CG) - parents of students with normal development (n = 52).

The age of parents in both groups is represented by approximately the same distribution. The average age of parents in the experimental group was 39 years, standard deviation ± 11.7 , and that of parents in the control group was 36 years, standard deviation ± 10.2 . Among the families raising children and adolescents with normal development, complete families predominate (84.6%), while in the experimental group 45.2% of complete and 42.8% of incomplete families, 12% of children are raised by guardians.

The main method was an anonymous survey of parents via Google Forms. Survey structure: the questionnaire included 20 questions divided into the following blocks:

- *socio-demographic indicators of the family* (gender and education of the parent, age of the child, locality of their residence);
- *material and technical equipment* (number of information devices in the family, their quality and accessibility for parents and child);
- *Self-assessment of parents' digital skills and assessment of their children's skills*;
- *general aspects of parents' media consumption* (time spent in the digital space, number of subscribers/friends in the social network, motives for parents' activity in the Internet space);
- *features of parental mediation and their attitudes towards the potential of the digital environment to address issues of child socialization*.

The Fisher angular transformation test was used to compare samples by frequency of occurrence of the effect of interest, the Mann-Whitney test was used to compare samples, and correlation analysis was performed on the basis of the Spearman criterion.

Results

Among the parents of both groups the majority of respondents are female (EG – 85.7%, CG – 88.4%). The respondents live in the territory of the Orenburg Oblast, the Republic of Bashkortostan, Moscow and St. Petersburg.

Parents' educational backgrounds are presented in Table 1.

Table 1

Education of parents of experimental and control groups (in %)

Level of education	Parents of students with mental retardation	Parents of students with normal development
General secondary education	6	1,5
Secondary vocational education	50	13,6
Incomplete higher education	16,6	1,9
Higher education	28,6	82,6

Analysis of the results of the study of socio-demographic indicators of families has shown that the level of education of parents raising children with mental retardation is lower than the level of education of parents of children with normal development.

The results of the assessment of the logistical provision of the family with digital tools are presented in Table 2.

Table 2

Assessment of the material and technical provision of the family with digital means (in %)

Answer options	Parents of students with mental retardation	Parents of students with normal development
<i>Indicate the number of digital devices in the household (computer, tablet, laptop, etc. - except phones)</i>		
1	31,1	40,4
2	35,7	36,5
3	19	15,4
4	7,1	5,8
5	7,1	1,9
<i>Evaluate the availability and quality of modern information devices you use (smartphone, PC, tablet, etc.) (on a 5-point scale, where 5 is a high level and 1 is a low level).</i>		
5	52,4	38,5
4	16,7	34,1
3	14,3	21,2
2	7,4	1,9
1	9,5	3,8
<i>Rate the availability and quality of modern information devices (smartphone, PC, tablet, etc.) used by your child (on a 5-point scale, where 5 is high and 1 is low).</i>		
5	50	38,5
4	11,9	40,4
3	19	13,5
2	11,9	5,8
1	7,1	1,9

The number of digital devices (computer, tablet, laptop) in families raising children and adolescents with mental retardation is slightly higher (average number of devices per family – 2.2 devices) than in families raising children with normal development (average number – 1.9 devices).

Subjective assessment of parents' satisfaction with the indicator of accessibility and quality of modern information devices used shows that about 70% of parents of both groups are sufficiently satisfied. There are more parents of the experimental group, who evaluate this indicator for themselves and their children as high as possible (5 points), and on the contrary, very low (1 point) than parents of the control group (the reliability of differences is not confirmed). At the same time, 4.8% of parents note that their children do not have their own phone and/or device with Internet access.

The level of parents' activity in the Internet space was determined on the basis of the parameters proposed in the study by A. I. Luchinkina. I. Luchinkina's parameters for taking into account the time of stay (Luchinkina, 2014). The results are presented in Table 3.

Table 3

Results of the study of general aspects of media consumption of parents of the experimental and control groups (in %)

Activity level	Answeroptions	<i>How much time do you spend daily in the Internet space (messaging, social networks, websites, etc.)?</i>	
		Parents of students with mental retardation	Parents of students with normal development
very high	Practically all day long.	0	7,7
	8 hours or more	7,1	3,8
high	About five hours	16,7	15,4
average	2-3 hours	31	46,2
	About 1 hour	31	23,1
low	Not every day.	14,3	1,9

Activity level	Answer options	<i>How much time do you spend daily in the Internet space (messaging, social networks, websites, etc.)?</i>	
		<i>What is the number of followers/friends you have on the social network you are most active on?</i>	
low	Up to 10	26,2	17,3
	10 to 30	14,3	17,3
	30 to 50	16,7	15,4
average	50 to 100	26,2	11,5
	100 to 200	7,1	19,2
high	200 to 500	4,8	9,6
	500 to 1,000	2,4	5,8
	From 1,000 to 1,500	0	0
very high	1,500 to 2,000	0	0
	More than 2,000	2,4	1,9

Parents bringing up a child with mental retardation, in terms of time spent in the Internet space, insignificantly differ in their activity compared to parents with normally developing children (the reliability of differences is not confirmed). Thus, a low level of media activity is characteristic only for 14.3% of EG parents and for 1.9% of CG parents.

The results of the assessment of parents' motives for activities in the Internet space are presented in Table 4.

Table 4
Results of the study of parents' media consumption motives (in %)

Answer options	Parents of students with mental retardation	Parents of students with normal development	$\varphi^*_{ЭМП}$ (0,01)
<i>What do you do most often on the Internet?</i>			
<i>(the most popular motives for activity in the digital environment are presented)</i>			
Socializing with loved ones, friends	73,8	46,2	2,757
Looking for information about what I care about at the moment	66,7	55,8	–
I go in to buy something, to order something	50	63,5	–
I read the news, I watch the conversations	52,4	53,8	–
Looking for information for work or study	50	51,9	–
Looking for information that is needed for my child (help with learning, homework)	40,5	53,8	–
I watch movies, series, films, programs.	35,7	34,6	–

Answer options	Parents of students with mental retardation	Parents of students with normal development	$\varphi^*_{ЭМП}$ (0,01)
Seeking information needed for my child's education and development	31	19,2	–
I use e-mail	21,4	57,7	3,678
Self-development	16,7	44,2	2,955

There are no differences between the groups in the frequency of occurrence of educational and professional ("I look for information for work or study"), cognitive ("I read news, watch discussions"), situational ("I look for information about what concerns me at the moment") and entertainment ("I watch movies, serials, films, programs) motives of media consumption in parents' answers. The most expressed motive among parents of students with mental retardation is the communicative motive ("I communicate with relatives and friends"). Parents of the control group have the most expressed motive of self-development and use of e-mail, which is most likely due to the need to realize professional tasks.

Analysis of answers to the open-ended question: "What actions do you take to protect your child from harmful information on the Internet?" allowed us to identify the following groups of mediation strategies:

active positive strategy (conducting conversations, explanations, discussing the choice of material to view on the Internet) - 28.5% in EG and 42.3% in CG;

restrictive strategy (technical limitations): blocking sites, installing special programs – 30.9% in EG and 44.2% in CG;

restrictive strategy (social restrictions): prohibition of use - 9.5% in EG and 3.8% in CG, time restriction - 6.9% in EG and 9.6% in CG, control and viewing of information – 9.5% in EG.

9.5% of parents of students with mental retardation and 3.8% of parents of normatively developing children do not use any actions to protect their child from harmful information;

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2.3% of EG parents claim that their child does not use the Internet; 7.6% of CG parents did not provide an answer to this question. 3.8% of CG parents use the strategy of active inclusion of the child in different activities (creativity, sports), and 2.3% of EG parents prefer sharing devices.

The results of the survey on other aspects of digital mediation for parents are presented in Table 5.

Table 5
Features of digital parental mediation (in %)

Answer options	Parents of students with mental retardation	Parents of students with normal development
<i>Evaluate your awareness of the sites your child visits (on a 5-point scale, where 1 is low and 5 is high)</i>		
5	42,9	23,1
4	23,8	30,8
3	21,4	30,8
2	2,4	13,5
1	9,5	1,9
<i>Do you control what and how much time your child does on the Internet?</i>		
Yeah, always.	45,2	13,5
Yes, but it's not always possible	50	82,7
No, there's no way to control that	0	3,8
The child doesn't use the Internet	2,4	0
The child is in control of himself	2,4	0

Answer options	Parents of students with mental retardation	Parents of students with normal development
<i>Rate your digital skills (on a 5-point scale, where 1 is low and 5 is high)</i>		
5	35,7	26,9
4	26,1	38,5
3	26,1	28,8
2	9,5	1,9
1	2,3	3,8

Both higher ratings of one's awareness of sites visited by the child and lower ratings are more common among parents raising a child with mental retardation, emphasizing the heterogeneity of the group.

Parents raising children and adolescents with mental retardation, compared to parents of the control group, are more often categorical about controlling their child's activities on the Internet and confident in the possibility of such control ($\varphi^*_{\text{ЭМП}} = 3.485$; $U_{\text{ЭМП}} = 722$, $p \leq 0.01$). The majority of parents raising children and adolescents with normal development are involved in controlling their child's activities in the digital environment, but realize that their abilities in this matter are limited.

Parents' self-assessment of their digital skills showed that a higher number of parents in the experimental group attributed a high level of their development compared to the control group.

Parents of the experimental group evaluate their digital skills higher than those of their children, which is quite natural and can be explained by underdevelopment of thinking operations, weakness of motivation, underdevelopment of self-control, and lack of initiative of children and adolescents with mental retardation. 33.3% of parents believe that their digital skills are higher than those of their children, and 16.6% of parents believe the opposite, thus emphasizing the idea of a digital generation gap. Among parents of normatively developing children, 19.2% of respondents confirm the digital divide.

The results of the study of parents' attitudes towards the Internet resource for solving child socialization issues showed that there are significant differences in attitudes between the groups of parents. Parents raising children and adolescents with mental retardation have more trust in the Internet as a platform to develop diligence (reliability of differences with the control group ($U_{\text{ЭМН}} = 728, p \leq 0.01$). And parents raising children with normal development have more faith in the Internet as a source that creates conditions for the formation of information processing skills ($U_{\text{ЭМН}} = 727, p \leq 0.01$).

The results of correlation analysis of the indicators are presented in Table 6.

Table 6

Results of correlation analysis of family upbringing factors and digital skills of children with mental retardation ($p \leq 0.05$)

	Parents' digital skills	Accessibility and quality of modern information devices used by the child	Number of digital devices in the household
Digital skills of children with mental retardation	$r_s = 0.506$	$r_s = 0.41$	$r_s = -0.58$

The study confirmed the correlation between the level of digital skills of children with mental retardation and the factors of family upbringing (digital skills of parents themselves and logistical provision of digital tools).

Discussion

The results of the study showed significant variation in such factors of family upbringing as material and technical support and socio-demographic indicators of families raising children with mental retardation. Thus, there is a large number of single-parent and large families, and most parents have secondary vocational education. The low general educational and cultural level of families raising a child with mental retardation has long been known due to studies in this area (Shipitsyna, Sorokin, 2008; Koroleva, 2014), but a comparison of data obtained in different years with the results of this study shows significant changes in the status of modern families towards their improvement.

Analysis of the material and technical provision of families shows that parents raising a child with mental retardation are quite satisfied with the availability and quality of modern information devices. Moreover, the number of digital devices in these families

is somewhat higher than in families raising children with normal development. This can be explained by the number of children: thus, the number of large families (3 or more children) in the experimental group amounted to 40.3%, while in the control group – only 15.2%.

The absence of their own phone among children with mental retardation may be related to the material and technical level of family life, as well as to the system of parents' restrictions on the use of digital means by their children. In general, it is possible to note a high variability of material and technical provision of digital means for families raising children with mental retardation. In the study by I.N. Nurlygayanov and E.N. Solomina (2022) noted that the greatest difficulties in organizing distance learning with students with mental retardation are the difficulties of the material and technical plan: the absence or lack of technical means is emphasized by 48.8% of teachers-oligofrenopedagogues, the difficulties in using technical equipment by the students themselves are considered by 25.5% of teachers.

The specifics of the activity of parents of students with mental retardation in the sphere of media consumption is characterized by a slightly reduced activity compared to the activity of parents of the control group, as well as the presence of specific motivation. The prevalence of the communicative motive in the parents of the experimental group over the others may be the fact of manifestation of the rehabilitation activity of the family, aimed at finding moral and social support, expressing an active position in establishing and maintaining contacts with the surrounding people. Communication skills are the most important component of the rehabilitation culture of the family of a child with disabilities and allow to establish relationships, resolve conflicts, etc. (Starobina, 2018).

The motive of self-development is much less frequent in the experimental sample, which, together with parents' lower activity on the Internet, is a factor weakening the digital potential of the family. It is known that parents' behavior is a role model for their children. Parents' attitudes towards digital devices, time of use, and motives for their online activities can significantly determine not only the nature of their mediation, but also set the vector of their children's digital activities. Evidence for this is the correlation between the digital skills of children with mental retardation and those of their parents. "Parents' help and their digital competence" are significant factors in "the development of children's digital skills and cybersocialization" (Pisarenko, Zaichenko, 2021, p. 59). The work of G.F. Bedulina and S.A. Lazukov (2020) also proves the influence of parents' digital skills and the nature of their media activity on adolescents' socialization in the conditions of information society.

Parents of students with mental retardation tend to evaluate their digital skills highly, despite the fact that their level of education is rather low. Such a distorted view of their skills is most likely determined by not very high requirements to them. It is also possible that their high estimation arose against the background of comparison with the digital skills of their own child.

Despite the child's intellectual disabilities, 16.6% of parents noted a higher level of development of digital skills in their children, which seems to "fit" into the general idea of the digital divide between children and their parents (Soldatova, Rasskazova, 2014; Deursen & Dijk, 2014), but in this situation rather states the fact of overestimation or distortion in the perception of their child's abilities.

Parents of children with mental retardation monitor their children's Internet time to a much greater extent than parents of children with normal development. However, parents of normally developing children use a restrictive strategy and an active positive strategy to protect their child from harmful information more often. This illustrates the fact that parents of children with mental retardation underestimate their role as mediators in this issue and the difficulties in selecting adequate educational strategies, including in the sphere of digital socialization of a child with mental retardation.

As the results of our study show, a large number of electronic devices in the family negatively affects the level of digital skills of children themselves: a strong negative correlation between children's digital skills and the number of digital devices in the family was confirmed. At the same time, a positive correlation was found between the digital skills of children with mental retardation and the availability/quality of modern information devices used by the child.

The distrust of parents of students with mental retardation to the Internet space in solving such socialization tasks as the development of cognitive sphere and the formation of information processing skills is quite logical. However, this may indicate that parents underestimate the digital environment for solving the tasks of compensating for the existing deficits of a child with mental retardation and the ineffectiveness of digital parental mediation strategies. This is confirmed by the results of a study by T. I. Kuzmina (2020; 2021), who notes that only 18.4% of parents block "harmful" sites; 40.5% of parents of adolescents with mental retardation do not limit the time spent online.

Conclusion

The analysis of the study results reveals differences between the experimental and control groups of parents in terms of the degree of development of their own digital skills, the level of their activity in the digital environment and media consumption motives, the digital mediation strategies used and attitudes towards the possibilities of the digital environment in the process of the child's socialization. The leading factors of family upbringing that have a significant impact on the process of developing digital skills of children and adolescents with mental retardation are the digital skills of the parents themselves, the number of digital devices (computer, tablet, laptop) in the family, as well as their quality and accessibility for the child.

Research Perspectives

The present study does not exhaust the stated problem. Further work involves identifying other factors of family upbringing and expanding the research sample to include parents raising children of different nosological groups. The results of the study will make it possible to develop and implement programs to educate parents and train them in digital mediation strategies to improve the conditions of family upbringing and create the necessary basis for socialization of a child with disabilities in a digital society.

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Parental Burnout and Proactive Coping Behavior of Mothers Raising a Child with Autism Spectrum Disorder

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Abstract

Introduction. Currently, a significant number of children with autism spectrum disorders (ASD) have been identified. The appearance of a child with such a disorder in a family creates an unfavorable situation for parents and contributes to parental burnout.

Methods. The sample consisted of 75 mothers who raised children with ASD (age of the interviewees 36.52 ± 6.54 years, age of the children 6.1 ± 1.72 years). The Parental Burnout Questionnaire (I. N. Efimova) and the Proactive Coping Behavior Questionnaire (E. Greenglas, R. Schwarzer, S. Taubert, adapted by E. S. Starchenkova) were used for diagnosis. The KRUSkal-Wallis test and regression analysis were used for statistical processing. **Results.** It was found that mothers raising two children are less characterized by depersonalization than mothers with one or three children, one of whom suffers from ASD. A predictor that reduces emotional exhaustion and depersonalization is proactive coping. The cause of increased depersonalization is the search for instrumental support, without actually reinforcing it in the actions of caring for a sick child. Proactive parenting, strategic planning, and seeking emotional support are the real parenting accomplishments.

Discussion. Parental burnout of mothers raising a child with ASD is determined in most cases by a lack of proactive coping. Parental burnout has a multifactorial origin and

occurs in response to a prolonged imbalance between stressors and mother's resources. The obtained data indicate the need to create programs of psychological support for mothers raising a child with ASD. Programs should aim to develop parental competence and proactive coping to prevent burnout.

Keywords

autism spectrum disorder, parental burnout, family situation, child-parent relationships, depersonalization, emotional exhaustion, proactive coping, coping behaviors

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Introduction

Data from Rosstat of Russia for 2023 indicate that the number of children in the Russian Federation is about 31 million, of whom more than 300 thousand have been diagnosed with autism spectrum disorders (ASD). The study of manifestations in parental burnout of mothers who have a child with ASD is associated with the presence of a significant number of such children with this disease.

The appearance of a child with ASD in the family creates a special situation: the child and his/her environment are under the influence of severe stress caused by the disease. Parents may experience negative emotions - despair, guilt, feelings of inferiority. Anxiety and worry about the child's health, excessive efforts to care for the child affect the decreased ability to qualitatively meet their own needs. Family and parental dysfunction, as well as factors contributing to dysfunction, can contribute to emotional and physical exhaustion, decreased strength, and, ultimately, parental burnout (Fadeeva, 2021, Konischeva, 2022). Stress scores are higher in families raising children with ASD than in

families raising children with other developmental disabilities, such as Down syndrome or cerebral palsy (Hayes & Watson, 2013).

Factors influencing the emergence of burnout in parents raising children with ASD

Symptomatology of autism spectrum disorders affects key areas of functioning, manifests early in life, and persists throughout life. ASD is a systemic and intractable disorder that contributes to the increasing number of problems parents face when raising children with ASD (Morozov, Morozova, TaASDova, Chigrina, 2023).

Current research suggests that key deficits in autistic disorders become sources of stress and pave the way for parental burnout (Morozov, Morozova, TaASDova, Chigrina, 2023). The deficits are, first of all, the child's difficulties in understanding emotions, communicative intentions of others and social rules, as well as difficulties in social interaction and communication. Delayed speech development often results in a child with ASD having difficulty asking for help, expressing his or her own wishes, or refusing something. Furthermore, parental anxiety, which reduces resistance to stress, is caused by the poorly formed ability of children with ASD to perform self-care and hygiene procedures. The selectivity of children with ASD in eating, the preference for eating alone, aggravates social isolation and creates additional difficulties for the family. Furthermore, children with ASD are characterized by sleep disorders, manifested in the inability to fall asleep at the right time. All of the above characteristics are physically exhausting and emotionally draining for family members.

Peculiarities of Parental Attitudes towards a child with ASD

The attitude of parents towards a child with ASD due to the large number of difficulties faced by parents and the high level of family tension becomes special (Pervushina, Kiseleva, MuASDhova, Dorosheva, 2021).

Mothers' attitudes towards children with autism spectrum disorder are contradictory. T. N. Vysotina (2012) found that maternal attitude combines emotional acceptance and rejection of the child at the same time. Researchers have also identified emotional detachment from children and a high level of maternal anxiety, which contribute to manifestations of parental burnout (Gorina, Grinina, Rudzinskaya, 2019). Mothers raising a child with an autism spectrum disorder have less control over their actions, downplay the severity of the condition, and in most cases do not comply with the doctor's recommendations (Bogacheva, Ivanov, 2019). Attitudes towards the family role of the mother of a child with ASD are contradictory. Negativism, excessive concentration on the child, and emotional distance are expressed (Bragina, Belozeroва, Prokofieva, 2021).

Considering the causes of parental burnout, G. G. Phillipova (2017) suggests its interrelation with the mother's demands to herself, which are determined by social patterns. Perception of parental functions as a form of labor duty also leads to maternal burnout (Bazaleva, 2009).

Parental burnout as a multifactorial phenomenon occurs in response to a long-term imbalance between stressors and parental resources (Kisova, Koneva, 2022). Raising a child with ASD is a risk factor that contributes to the symptoms of parental burnout. That said, burnout can be prevented if parents have psychological resources (Kwiatkowski & Sekułowicz, 2017; Lebert-Charron, Dorard, Boujur, & Wendland, 2018; Mikolajczak, Gross & Roskam, 2021; Mikolajczak, Raes, Avalosse & Roskam, 2017).

Proactive coping behavior

Coping strategies for mothers raising children with ASD are related to the ability of mothers to cope with stressful situations. Coping manifests itself in psychological coping, including a set of ways and techniques of coping with manifestations of distress. Coping is a diverse form of human activity, covering all types of interaction with difficulties that need to be resolved, avoided or brought under control (Korytova, Korytova, Eremina, 2019; Eremina, 2017).

Cooperative behavior is a conscious regulation designed to change the existing life situation (Vodopyanova, 2009; Vodopyanova, Starchenkova, 2008). The main goal of this regulation is to adapt the needs of the personality to the proposed conditions and to change the conditions for the sake of satisfaction of internal needs. To obtain the result, the personality must take an active position, whereas any other position will not lead to a complete change of the situation and obtaining positive emotions (Vodopyanova, 2009; Vodopyanova, Starchenkova, 2008).

Proactive coping behavior is predominantly future-oriented and consists of efforts to shape and develop general personality resources (Konischeva, 2022). Proactive coping promotes the setting of personally meaningful goals and can initiate constructive courses of action. Proactive coping increases a person's overall potential for activity and stress tolerance (Podobina, 2005). The proactive level of coping reflects the anticipation of future uncertainty in all its facets and the variability of life's course. Proactive coping reduces mental tension due to thoughtful accumulation of resources, their distribution, and combination. The process of working with resources is dynamic, always colliding person and situation, subjectivity with objectivity (Starchenkova, 2009; Belinskaya, Vecherin, 2018; Belinskaya, Vecherin, Agadullina, 2018). Proactive coping is built on goal setting and proactive self-regulation, which help to achieve goals and allocate resources correctly.

Another important aspect of proactive coping is seeking instrumental and emotional support. It is also aimed at recognizing and preventing possible stresses. Having identified possible risks, one can properly allocate resources, prepare for their accumulation at the right time (Eremina, 2015; 2016).

Proactive coping is a resource component. Therefore, it is important and necessary to study both psychological factors that contribute to parental burnout in mothers raising a child with ASD and the proactive coping behavior. We hypothesized that the use of proactive coping behavior contributes to reducing parental burnout in mothers raising a child with autism spectrum disorder.

Purpose of the study

The purpose of the study is to identify the relationship between parental burnout and proactive coping behavior in mothers raising a child with ASD.

The hypothesis of the study was the assumption of a positive role of proactive coping behavior in reducing symptoms of parental burnout.

Methods

Sampling

A total of 127 mothers with children with ASD participated in the study on a voluntary basis. Women who raised more than 3 children were excluded from the sample, as well as women who were in common-law marriages or additionally had a child with other conditions. Furthermore, mothers whose children had had ASD for less than 1 year were excluded, as the short duration of the disease could have influenced the results of the study.

The final sample consisted of 75 mothers aged 36.52 ± 6.54 years with a child with preschool-age autism spectrum disorder. The age of the children was 6.1 ± 1.72 years. Of these: 16 girls, 59 boys.

The empirical study was conducted on the basis of the KGBU "Altai Krai Center for Psychological, Pedagogical and Medico-Social Assistance".

The questionnaire to describe the characteristics of the sample included information on age, marital status, education level, availability of work and number of children (Table 1).

Table 1
Description of the study sample

Parameter	Significance	Amount of people	%
Age	up to 30 years old	16	21
	under 35	36	48
	over 35	23	31
	Average	5	6
Level of education	secondary vocational	28	37
	Higher	42	57

Parameter	Significance	Amount of people	%
Marital status	married	52	69
	unmarried	23	31
Job availability	Yes	16	21
	No	59	79
Number of children	1	27	36
	2	37	49
	3	11	15

Research methods

In this work, two diagnostic tools were used:

1. "Parental Burnout" questionnaire by I.N. Efimova. The questionnaire was used to study the level of parental burnout and its symptoms: emotional exhaustion, depersonalization, reduction of parental achievements (Efimova, 2013).
2. The Proactive Coping Inventory (PCI) was developed by E. Greenglass, R. Schwarzer and S. Taubert in adaptation of E. Starchenkova. S. Taubert, adapted by E. S. Starchenkova. It was used to study the following types of proactive coping: proactive coping, reflexive coping, strategic planning, preventive coping, search for instrumental support, and search for emotional support (Starchenkova, 2009). Psychodiagnostics with the help of the questionnaire allows us to obtain complete information about the peculiarities of proactive coping of mothers.

Research procedure

The survey was conducted in individual written form. The duration of the survey was 30-40 minutes. After participating in the study, participants were offered to receive a psychologist's consultation on the results of the questionnaires.

Data analysis

Statistical processing of the data was carried out in the SPSS Statistics 23 program. The nonparametric KRUSkal-Wallis test was used to identify differences between groups, regression analysis was used to identify predictors of parental burnout symptoms.

Results

The KRUSkal-Wallis test was used to identify differences in the expression of parental burnout symptoms and types of proactive coping behavior depending on

sociodemographic variables of women raising a child with autism spectrum disorder. Socio-demographic characteristics (age, level of education, marital status, employment, number of children) were included as a grouping factor, and symptoms of parental burnout and types of proactive coping behavior were included as independent variables.

Significant differences were found for the depersonalization parameter in mothers with different numbers of children (Table 2). No significant differences were found for other sociodemographic parameters.

Table 2

Comparative analysis of parental burnout symptoms in mothers with different numbers of children

Symptoms of parental burnout	Number of children	Average rank	χ^2	p
Emotional exhaustion	1	40,02	337	0,185
	2	33,89		
	3	46,86		
Depersonalization	1	41,81	5,72*	0,05
	2	32,39		
	3	47,50		
Reduction in parental achievement	1	33,11	3,41	0,181
	2	42,69		
	3	34,23		

Note. p - level of reliability of differences, "*" - $p < 0.05$

Mothers raising two children are less depersonalized than mothers with one or three children. Depersonalization is manifested in impersonal and formal character of mother's relations with children. Caring for children at the appearance of this symptom of emotional burnout is expressed in the performance of formal tasks, for example, "to dress" or "to feed". The presence of a second normotypical child in the family is a factor restraining the development of the depersonalization symptom. In a relationship with a

normotypical child, a woman can fulfill a number of emotional needs that are frustrated in a relationship with a child with ASD. Mothers raising three children have the highest level of depersonalization, which may be related to the large number of tasks in a large family, especially in the presence of a child with ASD.

In the next stage of the study, a linear regression analysis was performed, in which types of proactive coping behavior were included as independent variables and indicators of parental burnout symptoms were added to the model as dependent variables using the inclusion method with a probability of $F = 0.05$. As a result, three reliable regression models were obtained for symptoms of parental burnout: emotional exhaustion, depersonalization, and reduction of parental achievements.

As shown in Table 3, proactive cooperation is the factor that reduces emotional exhaustion.

Table 3
Predictors of emotional exhaustion (n = 75)

Predictors	B	Beta	p
Proactive coping	-0,603	-0,396	0,004
Reflexive coping	0,185	0,111	0,386
Strategic planning	-0,572	-0,154	0,228
Preventive coping	-0,110	-0,061	0,678
Finding instrumental support	0,580	0,237	0,065
Finding emotional support	-0,436	-0,138	0,292
(Constant)	45,127		0,01

Model scores: $R^2 = 0.296$; $R^2_{adj} = 0.234$; $F = 4.761$; $p = 0.001$

Therefore, manifestations of emotional exhaustion in mothers are associated with a lack of resources to set and achieving personal goals.

Proactive coping is a significant resource for coping with emotional exhaustion. Goal-setting, self-regulation, planning, and activation of resources to achieve a goal helps a mother raising a child with autism spectrum disorder to cope with emotional oversaturation, feelings of emptiness, and exhaustion of her own emotional resources.

A linear regression model was developed for the symptom of parental burnout - depersonalization. The factor reducing depersonalization is "Proactive coping" and the factor contributing to depersonalization manifestations is "Finding instrumental support". The contributing factor to depersonalization is:

- (a) Lack of resources to set and achieve personal goals;
- b) obtaining information for coping with stress (Table 4).

Table 4
Predictors of depersonalization (n = 75)

Predictors	B	Beta	p
Proactive coping	-0,245	-0,363	0,011
Reflexive coping	0,088	0,119	0,367
Strategic planning	-0,391	-0,237	0,074
Preventive coping	0,167	0,208	0,170
Finding instrumental support	0,403	0,371	0,006
Finding emotional support	-0,255	-0,182	0,179
(Constant)	9,271		0,01

Model scores: $R^2 = 0.499$; $R^2_{adj} = 0.249$; $F = 3.759$; $p = 0.003$

These indicators reflect contradictory trends related to the search for instrumental support, which does not prevent, but, on the contrary, contributes to the manifestations of depersonalization. It seems that mothers of children with ASD spend a lot of effort and energy to find information about the child's treatment, the causes of the disease, and to get advice about caring for the child. At the same time, interaction with the child is characterized by emotional distancing, formal performance of parental duties. It can be assumed that the mother's experience of long-term stress associated with a complex and difficult-to-correct diagnosis, insufficient resources, contradictions in instrumental support use, and the inability to put the information and advice received into practice contribute to the development and maintenance of the depersonalization symptom. At the same time, proactive coping behavior, goal-setting, self-regulation, ability to plan and activate resources to achieve a goal help a mother raising a child with autism spectrum disorder to cope with depersonalization symptoms.

Further, we obtained a linear regression model for the symptom of parental burnout "Reduction of parental achievements". The resource component of parental achievements is "Proactive coping", "Strategic planning", "Search for emotional support". At the same time, the reduction of parental achievements contributes:

- (a) Lack of resources to set and achieve personal goals;
- b) lack of a well thought out plan of action;
- c) a lack of seeking emotional support and socializing with others;
- d) obtaining information for coping with stress (Table 5).

Table 5
Predictors of parental achievement reduction (n = 75)

Predictors	B	Beta	p
Proactive coping	0,464	0,451	0,001
Reflexive coping	-0,236	-0,209	0,088
Strategic planning	0,615	0,245	0,046
Preventive coping	-0,076	-0,062	0,654
Finding instrumental support	-0,437	-0,264	0,031
Finding emotional support	0,638	0,299	0,018
(Constant)	18,345		0,001

Model parameters: $R^2 = 0.601$; $R^2_{adj} = 0.361$; $F = 6.401$; $p = 0.001$

Mothers have a decreased sense of competence in the fulfillment of the parental role, as well as dissatisfaction with themselves. The need for emotional support is significant, but at the same time, in most cases mothers do not discuss with close people the difficulties that arise in interaction with the child and in the distribution of family responsibilities. In addition, mothers often conceal the presence of the child's illness.

Discussion

The birth and upbringing of a child with autism spectrum disorder is associated with the family's experience of chronic stress and with the development of symptoms of parental burnout. Emotional burnout is especially relevant for mothers.

The study obtained data that the symptoms of parental burnout are not related to the parameters of age, education level, marital status, and job availability. Mothers who raise two children are less susceptible to the emergence of a depersonalization symptom than mothers with one or three children. The presence of a second normotypical child in the family is a factor that inhibits the development of the depersonalization symptom. In a relationship with a normotypical child, a woman can fulfill several emotional needs that are frustrated in a relationship with a child with ASD. Having a normotypical child in the family allows parents to realize frustrated parental attitudes, get an emotional response and feel parental competence. Having many children is also associated with the risk of depersonalization, which requires further research.

The results of the regression analysis suggest that the lack of resources for setting and achieving personal goals is a predictor of mothers' emotional exhaustion. Depersonalization is associated with a lack of resources for setting and achieving personal goals and an orientation toward instrumental coping. The lack of resources to set and achieving personal goals, lack of a clearly thought-out, goal-oriented action plan, inconsistencies in seeking emotional support, and the desire to obtaining information to cope with stress but not actually apply it when raising a child with ASD contribute to the reduction of parental achievement. Proactive coping of mothers of children with disabilities is characterized by active coping, planning, searching for instrumental support (Kurowska, Kózka, Majda, 2021).

Parents of children with ASD experience chronic fatigue, which prevents them from coping with responsibilities, as well as meeting both the needs of children and their own (Bobrova, Dovbnaya, Morozova, Sotova, 2022; Pustovaya, Pustovaya, Gutkevich, 2021). Robinson M., Neece (2015) note high levels of parental stress in families raising a child with developmental disabilities. Often parents' perceptions of the real needs of children with ASD and opportunities to meet the needs do not always correspond to reality (Geiger, Smith, Creaghead, 2002; Thomas, Elli, McLaurin, 2007; Wallace-Watkin, Whitehouse, Waddington, 2021).

The mother's attitude toward a child with ASD acts as an important factor of parental burnout (Ilyina, Gurieva, 2019; Anikina, Pshonova, 2019; Efimova, 2013). Therefore, the relationship between emotional burnout and parental neglect, violence, and avoidance has been revealed (Maslach & Leiter, 2016; Mikolajczak, Gross & Roskam, 2019). Parental burnout has been found to be often underdiagnosed, while it can be devastating to the functioning and health. Researchers have categorized risk factors for manifestations of parental burnout as suicidal ideation, sleep disturbances, and subdepressive behaviors. Parental burnout contributes to increased conflict in the family, as an well as increased

incidence of violence against the child (Balandova, 2020; Mikolajczak & Roskam, 2018; Mikolajczak & Roskam, 2020; Mikolajczak, Aunola, Sorkkila & Roskam, 2023).

The problem of parental burnout of fathers is also of interest. Today, partnership families oriented on equal contribution of spouses to the family well-being are widely spread, it is shown that parental burnout of fathers has a moderately positive relationship with the appearance of deviations in the emotional sphere in the child, as well as the emergence of difficulties associated with social interaction (Lee Pace, Lee, Knauer H, 2018), this problem requires further study.

Emotional exhaustion, muted emotional reactions, decreased own resources, formal compliance with parental responsibilities, and decreased sense of parental competence are psychological features defined by a lack of proactive coping. The lack of proactive coping manifests itself in the inability to set goals and use available resources for positive change in a problematic situation. Mothers raising children with autism spectrum disorders often experience uncertainty about the correctness of parenting, which is accompanied by feelings of guilt, helplessness, shame, fear, including fear of seeking help from professionals. These reasons are the basis for the development of chronic stress and symptoms of parental burnout. The obtained results are consistent with the findings of Crnic, Ross (2017), who noted the relationship of parental burnout and parent's self-efficacy.

Mothers of children with ASD often use nonconstructive coping strategies of mental withdrawal from the problem, denial, behavioral withdrawal, and taking sedatives (Stallman, Beaudequin, Hermens, & Eisenberg, 2021).

The notion that proactive coping behavior reduces mental tension by means of thoughtful accumulation of resources, their distribution and combination is considered in a number of publications (Starchenkova, 2009). Our results support the hypothesis about the positive role of proactive coping behavior in reducing symptoms of parental burnout.

Conclusion

The study developed three regression models of parental burnout symptoms: emotional exhaustion, depersonalization, and reduction of parental achievements. We determined the positive role of proactive coping behavior in reducing the symptoms of parental burnout.

The results of the study indicate the need to create special psychological support programs for mothers raising a child with autism spectrum disorders, aimed at improving parental competence and reducing manifestations of parental burnout.

Limitations of the study

The limitations of the study are the small sample size, as well as its geographical representation, limited to the territory of Altai Krai. In addition, there is insufficient balance of samples by sociodemographic characteristics, participation in the study only of mothers, and lack of study of parental burnout in fathers.

Research Perspectives

The prospects of the study are related to the expansion of the sample in the aspect of studying child-parent relations in dynamics, personality characteristics of mothers, and family differences in the context of creating comprehensive psychological support programs, including the development of proactive coping behavior, for parents who have children with autism spectrum disorders.

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The author has no conflicts of interest to declare.

Emotional Burnout in Military Doctors with Different Models of Trust Relationships

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Abstract

Introduction. Although the scientific community is highly interested in studying burnout and trust issues in medical research, there is insufficient information on the relationship between the characteristics of professional burnout and trust in its broadest sense among medical professionals. This study focuses on manifestations of emotional burnout among military doctors with different models of trust relationships. **Methods.** The study used the following diagnostic tools: (a) the Maslach Burnout Inventory (MBI; K. Maslach & S. Jackson, modified by N. E. Vodop'yanova); (b) the questionnaire for Assessing Self-Trust by T. P. Skripkina; (c) the Rotter Interpersonal Trust Scale, modified by S. G. Dostovalova. The sample comprised 41 military doctors. During the study, the sample was divided into three subgroups according to trust relationship models. **Results.** Specialists with a balance between self-trust and trust in the world had lower levels of depersonalization and emotional exhaustion. Military doctors with higher levels of self-trust and trust in the world had the highest scores of exhaustion and depersonalization, consistent with theoretical ideas about the role of trust. The scores of professional burnout were lower among respondents who had high levels of self-trust and trust in the world. The lowest scores of depersonalization and reduced personal accomplishment were obtained in the subgroup of military doctors with high levels of self-trust and trust in the world. The highest scores of depersonalization were obtained in the subgroup of military doctors

with a higher level of self-trust, compared to the level of trust in the world. Military doctors with average levels of self-trust and trust in the world had the highest scores of reduced personal accomplishment. **Discussion.** Building trust relationships with themselves and the world helps military doctors to reduce the development of symptoms of professional burnout. The results of the study expand the knowledge of the relationship between trust and professional burnout in medical practice, especially among military doctors.

Keywords

emotional burnout, exhaustion, depersonalization, reduced personal accomplishment, self-trust, trust in the world, value-related attitude, military doctors

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Introduction

Many authors have widely considered the problem of professional burnout in medical practice. Physician burnout has a negative impact not only on the health and psychological well-being of the specialists themselves (Toker et al., 2012; Verougstraete & Hachimi Idrissi, 2020; Matyushkina, Roi, Rakhmanina, & Kholmogorova, 2020), but also on their professional activity and its results (Panagioti et al., 2018). As a result of professional burnout, the risk of workplace errors increases (Hudson & Moore, 2011; Kobyakova et al., 2016).

Burnout factors are associated with the specificities of the work environment, work process, organizational environment (Gluschkoff, Hakanen, Elovainio, Vänskä & Heponiemi, 2022), and personal traits of professionals. Factors in the organizational environment include uncertainty, unpredictability at work, type of work, working with patients under critical conditions (Gimenez Lozano, Martínez Ramón & Morales Rodríguez, 2021). Factors causing burnout among doctors include specialists' young age, dissatisfaction with work and its conditions, such as wages, overtime work, and long working hours (Amofo et al., 2015). In addition, the protective factors that prevent the development of burnout syndrome are also mentioned, including experience, scientific activity, having a family, organization of resting conditions (Kobyakova et al., 2019), psychologically beneficial working environment, internal strategies to overcome difficulties, well-developed self-regulation, self-efficacy resources, and adjustment-related resources (Gimenez Lozano et al., 2021).

Burnout phenomenon is characterized by an increase in emotional, physical, and motivational exhaustion resulting from the influence of low-intensity chronic professional stress. One of the most common burnout models is the three-component model proposed by K. Maslach and S. Jackson, which includes emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981).

Despite the great attention paid to professional burnout, the development mechanisms of burnout in connection with other psychological phenomena that are not directly related to the professional sphere, such as trust, are not yet sufficiently studied. In turn, trust refers to complex psychological phenomena and is considered from different perspectives in the context of different approaches. One of the most common approaches to studying this phenomenon in Russian literature is to define trust as a relationship (Skripkina 1998, Antonenko 2019). T. P. Skripkina is one of the first to propose an independent sociopsychological phenomenon of trust containing a bipolar value-related attitude toward self and the world (Skripkina, 2000). This approach considers trust as a multi-level structure based on fundamental attitudes and biosocial characteristics derived from genetic background and basic security needs. Secondary attitudes, containing self-trust and trust in the world, arise during internalization (Skripkina, 2000). According to the concept proposed by T. P. Skripkina, the typology of the trust relationship system is built on the basis of the determination of a ratio between the levels of self-trust and trust in the world. The world means the part of the world where a person interacts at a given moment. Depending on the levels of self-trust and trust in the world, six types of trust have been identified (Skripkina, 2019). A balance between self-trust and trust in the world not only helps maintain the stability of the individual, but also ensures the sustainability of a particular activity. T.S. Pukhareva (2013) writes that trust as a means of integrating individuals' relations to themselves and ensuring their integrity contributes to the formation and stability of the psychological structure of professional activities. A. A. Aldasheva (2016) also notes that self-trust in the professional sphere plays an important role in performing professional tasks and is an indicator of the ability to control and accept the results of the activities performed, as well as the ability to build and choose appropriate behavioral strategies according to the circumstances. The characteristics listed are, to some extent, indicators of a specialist's adjustment and can be resources to reduce the impact of professional stress factors, including those that cause burnout.

Current research into the relationship between trust and burnout among medical professionals deals mainly with the area of organizational trust. For example, some authors point to the relationships between burnout and low levels of trust in colleagues, employers, and institutions among nurses (Özgür & Tektaş, 2018). Another study found that doctors who perceived less patient trust had higher levels of burnout (Huang et al., 2019). The researchers also point out that a high level of trust of doctors in the organization is related to greater job satisfaction, reduced perceived stress and fewer intentions to leave the practice (Linzer et al., 2019).

The specificity of the work of military personnel, especially military medical personnel, enables us to take into account the characteristics of emotional exhaustion syndrome in this group, as well as associations with trust compared to civilian doctors. For example, a study of burnout among civilian and military nurses found that military hospital personnel had higher levels of emotional exhaustion and depersonalization (Lang et al., 2010). Another study on burnout among military doctors showed that self-care, team-care, health leadership, and shared leadership act as protective factors (Adler et al., 2017). Studies of clinical and command medical officers conducted by I. V. Fedotkina, L. O. Marchenko, and L. V. Vaigacheva showed that symptoms of occupational burnout were associated with risks, aggression, search for thrills, dependences, high anxiety, isolation, and low self-esteem (Fedotkina et al., 2019). These personality traits are to some extent related to the complex phenomenon of trust as a sociopsychological attitude towards self and the world. It has been shown that high levels of social anxiety are associated with low scores of extraversion, trust, and openness (Kaplan et al., 2015).

In a comparative analysis of civilian and military doctors' professionograms we found that the activities of military doctors are most strictly regulated, structured, and characterized by the existence of career prospects associated with the increase in the military ranks, a factor that reduces the risk of emotional burnout among military doctors (Skripkina & Khersonsky, 2023). As a result, the article shows that the presence of career prospects can structure the future, significantly reducing burnout rates.

Aim of the study

This study aims to investigate the relationship between burnout symptoms and the models of trust relationships among military doctors. The study of the relationship between burnout and the models of trust relationships will broaden understanding of the impact of factors of the military professional environment on the development of burnout among doctors and may be used to develop prevention programs for emotional burnout among military doctors.

Methods

The total sample comprised military doctors (N = 41) aged from 22 to 69 years ($M_{age} = 49.1$; $Me_{age} = 50$; $SD_{age} = 10.3$).

The following diagnostic tools were used in the study to measure indicators of emotional burnout and the level of self-trust and trust in others:

1. **The questionnaire for Assessing Self-Trust** (Skripkina, 2000). The questionnaire contains 73 statements requiring the respondents to evaluate their agreement (true/false). Based on answers to the questions, the instrument contains 11 scales to assess self-trust in (1) professional activities, (2) intellectual sphere, (3) everyday problems, (4) relationships with friends, (5) relationships with subordinates, (6) relationships

with superiors, (7) family relations, (8) relationships with children, (9) relationships with parents, (10) opposite-sex relationships, and (11) interesting leisure activities. The total self-trust score was calculated on the basis of these scales.

2. **The Rotter Interpersonal Trust Scale modified by S. G. Dostovalov** (Dostovalov, 2000). The scale measures the level of social trust of respondents, i.e. their trust in others. The instrument contains 25 statements, each assessing the level of agreement using a scale of 1 indicating "fully agree" to 4 indicating "fully disagree". Higher overall scale scores indicate higher social trust in respondents.

3. **The Maslach Burnout Inventory (MBI; K. Maslach & S. Jackson) modified by Vodopyanova** (Vodop'yanova & Starchenkova, 2017). The Inventory assesses the severity of emotional burnout according to the following three characteristics: emotional exhaustion, depersonalization, and reduced personal accomplishment. The higher the levels of emotional exhaustion and depersonalization, the more these symptoms of emotional burnout are pronounced. At the same time, the scale of reduced personal accomplishment is reversed.

In line with the established empirical objectives, we conducted a study of trust-related attitudes among military doctors (the questionnaire for Assessing Self-Trust by T. P. Skripkina and the Rotter Interpersonal Trust Scale). These instruments assessed the level of the following two parameters: self-trust ranging from high to low and the level of trust in the world. The results of the study also enabled us to construct trust relationship models characteristic of this sample.

Results

Respondents were divided into the following three groups based on test results:

- Group A – respondents with a balance between self-trust and trust in the world.
- Group B – respondents with high levels of self-trust and trust in the world.
- Group C – respondents with a higher level of self-trust, compared to the level of trust in the world.

We should note that this sample did not include respondents whose level of self-trust was lower than the level of trust in the world. We assume that this empirical fact is related to the characteristics of military doctors' professional activities. In their professional activities, they rely mainly on themselves, which is obviously an important quality associated with their profession.

Our findings indicated that the majority of respondents were characterized by a balance between the level of self-trust and the level of trust in the world – 78 %; 14.6 % of respondents had a higher level of self-trust, compared to the level of trust in the world; 7.3 % of respondents had high levels of self-trust and trust in the world (Table 1).

Table 1
Models of trust relationships among military doctors

Subgroups	Trust indicator	n	%
A	Average levels of self-trust and trust in the world	32	78 %
B	High levels of self-trust and trust in the world	3	7.3 %
C	The level of self-trust is higher than the level of trust in the world	6	14.6 %

In line with the objectives of our study, we performed a comparative analysis of the emotional burnout characteristics among military doctors with different models of trust relationships.

The Shapiro-Wilk test was used for testing distribution. During testing, we found that distribution was different from normal for all scales ($p < 0.001$). Therefore, non-parametric methods of statistical inference were used for further analysis. The Kruskal–Wallis test was used to compare burnout scores among the groups of doctors with different models of trust relationships. For pairwise comparisons between groups with different models, the Mann–Whitney test was used.

The comparative analysis (Kruskal–Wallis H test) of emotional burnout indicators among military doctors with different models of trust relationships showed a number of significant differences (Table 2). Thus, (a) depersonalization is higher in military doctors with a higher level of self-trust compared to the level of trust in the world (Group C); depersonalization is lower in military doctors with high levels of self-trust and trust in the world (Group B) ($p = 0.002$). (b) The scores of reduced personal accomplishment are lower among military doctors with high levels of self-trust and trust in the world (Group B); the scores of reduced personal accomplishment are higher in military doctors with average levels of self-trust and trust in the world (Group A) ($p = 0.033$).

Table 2
Comparative analysis of indicators of emotional burnout among military doctors with different models of trust relationships (Kruskal–Wallis H test)

	Group A (N=32)		Group B (N=3)		Group C (N=6)		Significance of differences	
	M	SD	M	SD	M	SD	Kruskal– Wallis H test	p-value
Emotional exhaustion	18.7	6.54	15.5	2.12	19.8	6.2	3.89	0.143
Deperso- nalization	6.6	5.08	3	4.24	8.58	3.73	12.05	0.002
Reduced personal accomp- lishment	37.2	6.28	45	1.41	39.8	7.51	6.8	0.033

However, a pairwise comparison revealed that:

- The emotional exhaustion of military doctors with high levels of self-trust and trust in the world is lower at the level of significant tendencies than that of military doctors with average levels of self-trust and trust in the world ($U = 18$, $p = 0.074$) and significantly lower compared to military doctors with a higher level of self-trust compared to the level of trust in the world ($U = 0$, $p = 0.016$), despite the absence of significant differences in the overall analysis.
- Depersonalization among military doctors with high levels of self-trust and trust in the world is significantly lower compared to military doctors with average levels of self-trust and trust in the world ($U = 0$, $p = 0.004$) and military doctors with a higher level of self-trust compared to the level of trust in the world ($U = 0$, $p = 0.017$). Moreover, depersonalization is significantly higher among military doctors with a higher level of self-trust compared to the level of trust in the world, compared to military doctors with average levels of self-trust and trust in the world ($U = 46.5$, $p = 0.042$);

- The scores of reduced personal accomplishment among military doctors with high levels of self-trust and trust in the world are significantly lower compared to military doctors with average levels of self-trust and trust in the world ($U = 7.5$, $p = 0.015$) and to military doctors with a higher level of self-trust compared to the level of trust in the world ($U = 0$, $p = 0.013$).

Therefore, all indicators of emotional burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment) were found to be less pronounced among respondents with high levels of self-trust and trust in the world (Group B) than among respondents with average levels of self-trust and trust in the world (Group A) and with a higher level of self-trust compared to the level of trust in the world (Group C). Depersonalization was also less pronounced among military doctors with an average level of self-trust (Group A) than among doctors with a higher level of self-trust compared to the level of trust in the world (Group C).

The lowest scores of depersonalization and reduced personal accomplishment were observed among military doctors with high levels of self-trust and trust in the world (Group B). The highest scores of depersonalization were observed in military doctors with a higher level of self-trust compared to the level of trust in the world (Group C). The most pronounced reduced personal accomplishment was observed among military doctors with average levels of self-trust and trust in the world (Group A).

Discussion

Despite an obvious interest of the psychological scientific community in the issues of professional burnout and trust in medical practice, to date, only few studies have been conducted on the relationship between physician burnout and trust. In this study, we tried to investigate the relationship between the characteristics of trust models and the occurrence of various aspects of professional burnout. The data obtained confirm previous theoretical and empirical studies of the socio-psychological phenomenon of trust and the success of subjects' interactions with objective and social environments, particularly in professional activities (Aldasheva, 2016; Pukhareva, 2013; Huang et al., 2019).

Many Russian authors focus on studying the emotional exhaustion of military personnel. Thus, N. N. Vorob'eva studied the relationship between personality traits and emotional burnout in military personnel (2017). M. E. Zelenova and A. V. Zakharov present the results of a study on the relationship between emotional burnout and stress in military professional activities. They also considered health issues in military personnel under professional stress (Zelenova & Zakharov, 2014). The phenomenology of emotional burnout in military personnel is discussed in the works by I. A. Machul'skaya et al. (2015). N. N. Sudilovskaya and A. M. Khizmatulina (2017) reported that both doctors and nurses had an average level of severity of emotional burnout syndrome. In the study, they refer not only to structural but also procedural aspects of the phenomenon of emotional

burnout and note the prevalence of the resistance phase in the two groups of medical personnel examined.

We should note that most studies on trust in medicine are aimed at studying patients trust phenomenon, rather than at studying the models of trust relationships in medical personnel. Thus, A. N. Sukhova and L. N. Karashchuk (Sukhov & Karashchuk, 2022) analyzed the existing methods to studying the content of trust in various fields of science and focused on a psychological component of the content of this phenomenon.

E. A. Evstifeeva et al. (2020), in a study aimed at investigating professional burnout among oncologists, note that doctors have a low level of reflexivity and do not tend to trust interpersonal contacts. Almost two-thirds of oncologists examined have already developed emotional burnout syndrome. This study shows that with low interpersonal trust in a doctor's professional activity, the probability of professional burnout increases, as also confirmed by our research results.

Thus, we found that in military doctors, in terms of emotional exhaustion and depersonalization, the least burnout occurs among specialists with a balance between the levels of self-trust and trust in the world (high or average scores) compared to those with a higher level of self-trust compared to the level of trust in the world. At the same time, military doctors who have high levels of self-trust and trust in the world are less prone to depersonalization and reduced personal accomplishment than those who have average levels of self-trust and trust in the world. Reduced personal accomplishment, which results in a reduction in the sense of competence and a negative assessment of professional achievements, was most prominent in the group of doctors with average levels of self-trust and trust in the world. Thus, military doctors with higher levels of self-trust focusing primarily on themselves, have less trust in others and have higher mental and emotional exhaustion, and more depersonalize patients than those who have equal average or high levels of trust in themselves and others. At the same time, however, they are less likely to devalue their achievements and performance compared to doctors with average levels of self-trust and trust in the world, which is probably a compensation to ensure adaptive functioning in difficult situations of professional choice.

An interesting fact is that in the sample of military doctors studied, there are no specialists who have low levels of self-trust and trust in the world, or those who have a higher level of trust in the world compared to the level of self-trust. This can be explained in part by the personal characteristics of the subjects who choose self-development in the military sphere, and in part by the phenomenon of professional deformation influenced by working conditions, which requires independent research.

Conclusion

The characteristics of the professional activities of military doctors form self-trust in the performance of their professional functions. We should note that a balance between self-trust and trust in the world is characteristic of most respondents.

The study results indicated that a high level of such a professional burnout indicator as depersonalization was identified among military doctors with a higher level of self-trust compared to the level of trust in the world and is lower among military doctors with high levels of self-trust and trust in the world. In general, we found that the depersonalization of military doctors with high levels of self-trust and trust in the world is significantly lower compared to military doctors with average levels of self-trust and trust in the world and to military doctors with a higher level of self-trust compared to the level of trust in the world. The depersonalization score is significantly higher among military doctors with a higher level of self-trust compared to the level of trust in the world than among military doctors having average levels of self-trust and trust in the world.

Emotional exhaustion among military doctors with high levels of self-trust and trust in the world is lower at the level of significant tendencies compared to military doctors with average levels of self-trust and trust in the world and significantly lower than among military doctors with a higher level of self-trust compared to trust in the world, despite the lack of significant differences.

Reduced personal accomplishment is lower among military doctors with high levels of self-trust and trust in the world and higher in military doctors with average levels of self-trust and trust in the world.

The lowest scores of depersonalization and reduced personal accomplishment are observed among military doctors with high levels of self-trust and trust in the world (Group B); the highest scores of depersonalization are observed in military doctors with a higher level of self-trust compared to the level of trust in the world (Group C), and the most pronounced reduced personal accomplishment is observed among military doctors with average levels of self-trust and trust in the world (Group A).

Our research has enabled us to emphasize the interdependence of manifestations of burnout aspects and the relationship of trust attitudes among military doctors (the ratio between the levels of self-trust and trust in the world).

The results of this work contribute to the development of the idea of the basic role of self-trust and trust in others in doctors' professional activities and of the relationship between professional burnout and the ability of doctors to rely on themselves and others simultaneously. The results of the study clearly show that deformations in manifestations of these attitudes are associated with physician burnout.

The results can be used for the development of burnout prevention programmes for military doctors, taking into account identified characteristics, and for career guidance. Further research in this field is expected to lead to the study of phenomena that mediate the process of development of burnout in combination with the types of trust attitudes in medical practice.

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Tat'yana Petrovna Skripkina contributed to the concept and design of the study, carried out critical analysis, edited the final version of the manuscript.

Il'ya Igorevich Khersonskii contributed to the analysis of literature, collected and analyzed the data, wrote the text of the manuscript.

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The authors have no conflicts of interest to declare.

Meaning-in-Life Orientations in Adolescents with Different Cultural and Ethnic Characteristics

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Abstract

Introduction. Socio-economic and political transformations change moral and ethical values directly. This study aims to identify the values and meanings in life in Armenian, Georgian, and Russian adolescents. **Methods.** The respondents (n = 69) were Russian, Armenian, and Georgian adolescents aged 14–15 years. Diagnostic tools: (1) the Meaning-in-Life Orientations test by D. A. Leontiev (MLO); (2) scale survey for Studying Ethnic Identity in Adolescents by O. L. Romanova; (3) the inventory for Studying the System of Life Meanings by V. Yu. Kotlyakov; and (4) the Cultural Value Orientations test by J. Townsend modified by L. G. Pochebut. Statistical analysis of the results was conducted using the Kruskal-Wallis H test. **Results.** The level of the sense of belonging to a specific ethnic group is higher in Georgian (85 %) adolescents, compared to Armenian (70 %) and Russian (60 %) adolescents. Georgian adolescents are more satisfied with self-realization, compared to Armenian and Russian adolescents. **Discussion.** The findings indicate that Georgian adolescents have a more pronounced indicator of meaningfulness of life, compared to Armenian and Russian adolescents. Russian adolescents emphasize the importance of using Russian in the communication process. Georgian adolescents see life as a means of self-realization and gaining a high social status more than Russian and Armenian adolescents. Compared to other groups, Armenian adolescents define meaning in life in terms of altruism and family well-being, while Russian adolescents are more interested in finding meaning in life and freedom. Georgian and Armenian adolescents are oriented toward the past, cultural and national traditions. Russian adolescents are

oriented toward the future, quick results in their activities, and are more characterized by the desire for freedom, autonomy, and material rewards.

Keywords

meaning-in-life orientations, cultural and ethnic characteristics, value- and meaning-related sphere, ethnic identity, ethnic socialization, civic and state identity, adolescence

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Introduction

The constant changes in the political, economic and social spheres of society make young people doubt about the validity of universally accepted values and encourage a change in perspective of the goals and meanings in life. Studying the issue of the orientation of adolescents toward their life purposes is one of the urgent issues since the social, economic and political changes taking place in the country and in the world directly change moral and ethical values. “The events that occurred after the collapse of the Soviet Union have demonstrated that modern consciousness is being transformed” (Demintseva, E., 2018, p. 3).

Cultural values have a sustainable and autonomous influence on society, determined by meaning-in-life orientations (Inglehart & Baker 2000). The intercultural differences of the young generation of migrants identified by the authors are part of the host country’s national culture. National culture should be deliberately formed by educational institutions and the media. Problems relating to the teaching of migrant children, their socialization and adaptation to a foreign cultural environment, and the conflict-free coexistence of inter-ethnic interactions of adolescents with different cultural and ethnic characteristics are studied. The Crul & Shneider study (2009) points out that second and third generations of migrants tend to integrate and assimilate European culture traditions and values. A similar problem of full integration of first- and second-generation migrants into European countries has been the subject of a conceptual and empirical study by Fajth & Lessard-Ph (2022). Migrant children are more flexible and variable in choosing meaningful life values and can lose their ethnic identity (Levitt, 2009).

The interdisciplinary problem of studying the dynamics of change in attitudes, stereotypes, and meaning-in-life orientations in first-generation and subsequent generations of migrants and their children living in Russia has not received sufficient

attention. Few studies by Russian authors are related to the continuity of traditional family values and the social and financial well-being of immigrants and their children.

The attitudes of young immigrants to traditional family values, pre-marital romantic relationships under social networks and closer contact with representatives of the titular ethnic group have changed (Varshaver, Rocheva, & Ivanova, 2021). The distribution of children in elite educational institutions is determined not only by ethnicity but also by the social status and financial situation of their parents (Alexandrov, D., Ivaniushina, V., & Kazartseva, E., 2015).

The value-normative orientations outlined in the previous phases of the development of our society no longer provide a stable basis for the formation of conscious guidelines of life for modern adolescents (Spasennikov, 2021). In Russian society, there is a tendency to violate social spiritual unity, re-evaluate life priorities, and deform traditional moral standards and ethical attitudes.

In the works of Russian social psychologists Shamionov, Bocharova, and Nevsky (2021, p. 91), the hypothesis was verified that "indicators of life orientations and social identity categories are closely related to civic, protest and leisure activities". The authors showed that categories of social identity play an important role in expressing various forms of activity of older adolescents and young people in virtual and real environments.

The problem of finding meaning in life is an important part of the socialization process of adolescents. Adolescents actively form a worldview and ideas about life plans, self-determination in a profession. The study of the characteristics of meaning-in-life orientations among adolescents is extremely important to understand the direction of the development of society as a whole.

The modern Russian state is multi-ethnic and represents cultural diversity, original traditions, ethnocultural values, which have a direct influence on the development of the individual's value-related sphere and life orientations of modern adolescents. The work of Russian scientists focuses on the characteristics of the development of Russian national values and national identity in adolescence (Abakumova & Ermakov, 2003; Zinchenko & Shaigerova, 2019; Soldatova, Chigar'kova, & Ilyukhina, 2022, etc.). Understanding the forms and development patterns of modern adolescents can be achieved through an interdisciplinary study of their meaning-in-life orientations, the whole value- and meaning-related sphere, identifying specific and general features taking into account the influence of cultural and national characteristics and sociocultural spaces in which they develop (Bicherova, Golubeva, & Feshchenko, 2019; Dagbaeva, 2018; Zinchenko & Shaigerova, 2019; Roslyakova, 2022).

On the basis of the interdisciplinary synthesis of the views of Russian scientists, it is possible to describe the basic elements of the structure of cultural and ethnic characteristics, which constitute in themselves the components of the system (national consciousness, characteristics, interests, orientations, feelings, emotions, traditions, and habits) and their dynamic (functional) manifestations.

Russian sociocultural, regional, and ethnic studies address the main issues related to the study of the corporate ethnic culture of market consumer behavior (Berberyan, 2019; Volkov, Gurba & Guskov, 2022). In the work of Russian scientists, much less attention is paid to the construction of the value- and meaning-related context of life orientations of adolescents with different cultural and ethnic characteristics based on the development of traditional cultural values and norms of the Russian state civic identity.

The study hypothesis assumes that there are significant differences in the level of ethnic identity among Armenian, Georgian, and Russian adolescents, which are related to meaning-in-life orientations.

This study aims to identify the characteristics of meaning-in-life orientations in adolescents with different cultural and ethnic characteristics in the process of ethnic socialization.

Methods

Sample

The total number of adolescents who participated in the study was 69, including 23 Armenian, 28 Russian, and 18 Georgian adolescents aged 14-15 years. The empirical study was conducted at the Lyceum No. 27 named after the hero of the Soviet Union I. E. Kustov in Bryansk and in the public organizations of the Armenian Community and the Georgian Ethnocultural Community.

Diagnostic tools

The study used the following diagnostic tools to assess the value- and meaning-related sphere in adolescents of different ethnic groups:

- The Meaning-in-Life Orientations (MLO) test by D. A. Leontiev. The test contains the integral scale of General Meaningfulness of Life and 5 subscales - Life Goals (the presence of goals and plans for life); Life Process (the individual's satisfaction with the fullness of his/her life); Life Effectiveness (the individual's satisfaction with the results of his/her activity); Internal Locus of Control (confidence in individual abilities); External Locus of Control (confidence in individual life management ability).
- The scale survey for Studying Ethnic Identity in Adolescents by O. L. Romanova to determine self-identification of adolescents by understanding the characteristics of their ethnic groups.
- The inventory for Studying the System of Life Meanings by V. Yu. Kotlyakov.
- The Cultural Value Orientations test by J. Townsend (modified by L. G. Pochebut) to determine the main trends in the formation and development of the studied culture.

The reasons for these methodological tools were based on the use of valid standardized test methods (Golubeva, 2019), the concept of empirical research that takes into account ethnic socialization and generational continuity (Spasennikov, 2021), and the analysis of qualitative and quantitative measurements in psychological and educational research (Spasenniko & Morozova, 2020).

The statistical data processing was performed with the SPSS statistics program and the Kruskal-Wallis H test.

Results

Meaning-in-life orientations (MLO)

Table 1 presents the results of the meaning-in-life orientations study using the MLO test by D. A. Leontiev and the scores obtained for the high level of meaning-in-life orientations in adolescents.

Table 1

Results of the meaning-in-life orientations study in adolescents of different ethnic groups (high level, %)

Scale	Mean	High score, n (%)
Russian adolescent (n = 28)		
Life Goals	32.8	n = 12 (44 %)
Fullness of Life	31.0	n = 12 (44 %)
Life Effectiveness	25.9	n = 11 (39 %)
Internal Locus of Control	23.4	n = 10 (35 %)
External Locus of Control	32.7	n = 15 (52 %)
General Meaningfulness of Life	104.9	n = 12 (43 %)

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Scale	Mean	High score, n (%)
Armenian adolescent (n = 23)		
Life Goals	33.0	n = 13 (55 %)
Fullness of Life	28.5	n = 11 (46 %)
Life Effectiveness	26.9	n = 10 (42 %)
Internal Locus of Control	21.6	n = 8 (36 %)
External Locus of Control	34.2	n = 13 (57 %)
General Meaningfulness of Life	107.5	n = 11 (47 %)
Georgian adolescent (n = 18)		
Life Goals	35.3	n = 9 (50 %)
Fullness of Life	32.5	n = 8 (44 %)
Life Effectiveness	27.5	n = 10 (56 %)
Internal Locus of Control	23.7	n = 7 (39 %)
External Locus of Control	36.0	n = 10 (56 %)
General Meaningfulness of Life	112.10	n = 9 (45 %)

About half of adolescents of different ethnic groups had high scores on the Life Goals scale, indicating the understanding and meaningfulness of these goals. The meaningfulness of goals is higher among Armenian adolescents (55%), compared to Georgian (50%) and Russian adolescents (44%).

In about half of the participants, the scores on the Fullness of Life scale showed a high level of interest and emotional fulfillment in life (44 % of Russian, 46 % of Armenian, and 44 % of Georgian adolescents). The subjects regard the process of life as interesting, emotionally rich, and meaningful.

A high degree of satisfaction with the results of life was found in 39 % of Russians, 42 % of Armenians, and 56 % of Georgian adolescents. This indicates that the adolescents positively assessed the period of their lives they had passed and were satisfied with their results and events in their lives.

In all three groups of adolescents (Russian, Armenian, and Georgian), we observed a predominance of high scores on the External Locus of Control scale over high scores on the Internal Locus of Control scale.

On the Internal Locus of Control scale, a high level was observed among 35 % of Russian adolescents, 36 % of Armenian adolescents and 39 % of Georgian adolescents. This could indicate that a third of the sampled young people have an idea of themselves as strong individuals with sufficient freedom of choice to build their lives according to their goals and ideas about the meaning of life.

A high level on the External Locus of Control scale was found in 52 % of Russian, 57 % of Armenian, and 56 % of Georgian adolescents. These respondents believe that a person has control of his/her life and the freedom to make decisions and execute them.

Among Russian, Armenian, and Georgian adolescents such scales as Life Goals, Fullness of Life, and External Locus of Control are the most pronounced. We can conclude that adolescent responders are generally able to make future plans and determine their goals in life. Adolescents define their past as interesting, emotional and full of events. We can assume that adolescents are independent, have enough freedom and responsibility and can choose a path of life in accordance with their goals and values. According to the MLO test, lower scores are observed in adolescents in such components of meaning-in-life orientations as Life Effectiveness and Internal Locus of Control.

Ethnic identity

Table 2 presents the results of studying ethnic identity in adolescents of different ethnic groups obtained using the scale survey for Studying Ethnic Identity in Adolescents by O. L. Romanova. Ethnic identity represents an individual's sense of belonging to a specific ethnic group, importance of a particular nationality, familiarization with the spiritual and material values of a specific ethnos.

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Table 2

The results of studying ethnic identity in Georgian, Armenian, and Russian adolescents (test by O. L. Romanova)

Characteristic	Level of ethnic identity								
	Georgian adolescents			Armenian adolescents			Russian adolescents		
	HL (%)	ML (%)	LL (%)	HL (%)	ML (%)	LL (%)	HL (%)	ML (%)	LL (%)
Sense of belonging to a specific ethnic group	85	10	5	70	15	15	60	20	20
Importance of nationality	20	45	35	30	55	15	45	35	20
Relationship between ethnic majority and minority groups	65	25	10	55	35	10	30	55	15
Use of a particular language	60	20	20	60	30	10	20	30	50

Note: HL - high level of ethnic identity; ML - average level of ethnic identity; LL - low level of ethnic identity

Armenian (70 %), Georgian (85 %), and Russian (60 %) adolescents have a high sense of belonging to their ethnic groups.

The importance of nationality is average among Armenian (55 %), Georgian (45 %), and Russian (35 %) adolescents; 65 % of Georgian, 55 % of Armenian and 30 % of Russian adolescents show a high understanding of the importance of relationships between ethnic majority and minority groups.

Meanings in life

Table 3 presents the results of studying the system of meanings in life in adolescents with different cultural and ethnic characteristics using the test by V. Yu. Kotlyakov.

Table 3

Results of studying the system of meanings in life in Georgian, Armenian, and Russian adolescents (test by V. Yu. Kotlyakov)

Category of meanings in life	Georgian adolescents (mean)	Armenian adolescents (mean)	Russian adolescents (mean)
Altruistic	19.2	10.6	18.6
Existential	18.9	18.6	11.2
Hedonistic	16.9	14.3	13.4
Self-realization	2.7	3.5	16.3
Status	4	14.2	15.6
Communicative	5	4.3	3.6
Family	2.5	2.1	16.7
Cognitive	14.5	16.1	16.1

The results presented in Table 3 enabled us to draw the following conclusions: such categories of meanings in life as altruistic and existential ones are weak in Georgian adolescents; hedonistic and cognitive meanings in life are adequately represented; meanings in life related to status, self-realization, communication, family, as well as cognitive meanings in life dominate.

Armenian adolescents have dominant categories of self-realization, communication, and family; altruism, status, and cognitive meanings in life are adequately represented; existential meanings in life are weak.

Russian adolescents have dominant categories of communicative meanings in life; altruistic meanings in life are weakly represented; meanings in life related to status, family, and self-realization as well as existential, hedonistic, and cognitive meanings in life are adequately represented.

Cultural value orientations

The results of the Cultural Value Orientations test by J. Townsend modified by L. G. Pochebut showed the following: (1) According to adolescents' ideas about the orientation of modern people when making decisions, about 60 % of Armenians, 57 % of Georgians, and 50 % of Russian adolescents indicated that modern people are oriented in their lives toward the present. The data presented indicate that adolescents of all ethnic groups are primarily focused on the present. (2) The results of the answers to the question, "In my culture, people believe that if they are not managed, they are likely to commit sudden acts" showed that the majority of Georgians (60 %), half of Armenians (53 %) and 60 % of Russian adolescents believe that if people are not managed in their culture, they can commit "bad" acts. (3) The results of the answers to the question, "In my culture, people consider the most important thing in their relationships..." are as follows: 47 % of Georgians and Russians, as well as 60 % of Armenian adolescents believe that the individuality and originality of the person are important in human relations. In addition, 36 % of Georgians, 40 % Armenians, and 30 % of Russian adolescents consider it important to have a large family in our society. Fewer respondents (17 % of Georgians, 13 % of Armenians, and 17 % of Russian adolescents) believe that a person's inheritance and origin are important when building relationships. (4) Adolescents with different cultural and ethnic characteristics, answering the question, "In my culture, people believe...", expressed their opinion as follows: 63 % of Georgians, 70 % of Armenians and 60 % of Russians believe that personal development has become the most important goal in modern life. Georgians (50 %), Armenians (53 %), and Russians (57 %) expressed the importance of practical activities and achievement in many areas of life.

Only 10 % of adolescents of all ethnic groups indicated that human existence itself is sufficient for life.

The orientation towards the past, commitment to traditions, interest in their history were revealed in 20 % of Armenians, 20 % of Georgians, and 27 % Russian adolescents. Such respondents pointed out the importance of family and kinship ties.

Comparison of groups

Table 4 shows the results of applying the Kruskal-Wallis H test for comparing the meaning-in-life orientations of teenagers of three groups (Armenians, Georgians, and Russians).

As Table 4 shows, there are significant differences in the following characteristics of the Meaning-in-Life Orientations (MLO) test by D. A. Leontiev:

- The Life Effectiveness scale ($H = 14.846$, at $p < 0.05$). Georgian adolescents perceive the results of their lives more productively than Russian and Armenian adolescents who are not very satisfied with the results of their lives.

- Statistical differences were found for the overall score of meaningfulness of life ($H = 13.147$, at $p = 0$). We can assume that Georgian adolescents have a more meaningful life, compared to Russians and Armenians.

Table 4

Statistical analysis of the results of the meaning-in-life orientations study among adolescents of three groups (Armenians, Georgians, and Russians).

Diagnostic tools	Georgian adolescents (mean)	Armenian adolescents (mean)	Russian adolescents (mean)	H test	Significance level
Meaning-in-Life Orientations (MLO) test by D. A. Leontiev					
Goals	35.3	33.0	32.8	2.625	0.269
Process	32.5	28.5	31.0	1.028	0.598
Effectiveness	27.5	26.9	25.9	14.846	0.029
Internal Locus of Control	23.7	21.6	23.4	0.681	0.712
External Locus of Control	36.0	34.2	32.7	1.291	0.524
	112.10	107.5	104.9	13.147	.000
Scale survey for Studying Ethnic Identity in Adolescents by O. L. Romanova					
Sense of belonging to a specific ethnic group	1.37	1.44	1.17	1.971	.578
Importance of nationality	4.41	5.5	3.62	5.164	.160
Relationship between ethnic majority and minority groups	4.52	2.17	1.64	4.932	.177
Use of a particular language	4.5	5.1	5.63	6.798	.033

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Diagnostic tools	Georgian adolescents (mean)	Armenian adolescents (mean)	Russian adolescents (mean)	H test	Significance level
Inventory for Studying the System of Life Meanings by V. Yu. Kotlyakov					
Altruistic	19.2	10.6	18.6	6.832	.035
Existential	18.9	18.6	11.2	7.961	.011
Hedonistic	16.9	14.3	13.4	4.972	.290
Self-realization	2.7	3.5	16.3	8.728	.016
Status	4	14.2	15.6	11.012	.026
Communication skills	5	4.3	3.6	6.084	.193
Family	2.5	2.1	16.7	4.462	.047
Cognitive	14.5	16.1	16.1	5.890	.207
Cultural Value Orientations test by J. Townsend (modified by L. G. Pochebut)					
Traditional culture	1.7	1.65	1.0	5.967	0.049
Modern culture	2.3	2.3	2.3	0.120	0.942
Dynamically developing culture	1.0	0.91	1.8	12.644	0.002

Significant differences were found for the Use of a Particular Language scale (test by O. L. Romanova) ($H = 6.798$, at $p < 0.05$). Russian adolescents indicated that in communication with others, they need to use their mother tongue more than Georgian and Armenian adolescents.

According to the inventory for Studying the System of Life Meanings by V. Yu. Kotlyakov, we revealed differences in such scales as Altruistic Meanings in Life ($H = 6.832$, at $p < 0.05$), Existential Meanings in Life ($H = 7.961$, at $p < 0.05$), Self-Realization ($H = 8.728$, at $p < 0.05$), Status-Related Meanings in Life ($H = 11.012$, at $p < 0.05$) and Family-Related Meanings in Life ($H = 4.462$, at $p < 0.05$). Unlike other respondents, Georgian adolescents were more concerned with self-realization and achieving a high status in society. Armenian adolescents saw more importance in altruism and family well-being,

compared to other ethnic groups. Russian teenagers were more interested in finding the meaning of life and freedom.

Additionally, significant differences were found on the Traditional Culture scale ($H = 5.967$, at $p < 0.05$) of the Cultural Value Orientations test by J. Townsend modified by L.G. Pochebut). The data obtained indicate that Georgian and Armenian adolescents were more interested in the past, followed traditions, and the history of their countries. Unlike Russian adolescents, the subjects of these groups place great importance on the traditional nature of family role relationships, family ties and religious orientations.

Significant differences were also found on the Dynamically Developing Culture scale ($H = 12.644$, at $p < 0.01$). Therefore, Russian adolescents were more focused on the future and quick results. They are characterized by a desire for freedom, autonomy, and fast material rewards.

Discussion

The results of the empirical study of meaning-in-life orientations in adolescents with different cultural and ethnic characteristics are consistent with the theoretical provisions and conclusions of a few studies of migrant ethnocultural traditions in the works by Aleksandrov, Ivanishina, and Kazartseva (2015); Dementseva (2018); Varshaver, Rocheva, and Ivanova (2021). Our study enables us to supplement the scientific results of other authors on the successful socialization of migrants. It was shown that the priority of teaching adolescents from migrant families is to develop the cultural and patriotic norms and values of the Russian state, first and foremost, as well as to develop spiritual and moral education, the formation of a sense of belonging to their ethnic group.

In the study of meaning-in-life orientations of adolescents with different cultural and ethnic characteristics, the following characteristics were revealed:

- The general level of meaningfulness of life is the same for adolescents of all ethnic groups.
- Interest in life among Georgian and Armenian adolescents is higher than among Russian adolescents.
- Among Georgian adolescents, the dominant categories of life meanings are status, self-realization, family, as well as communicative and cognitive meanings in life.
- Among Armenian adolescents, the dominant categories of life meanings are self-realization, family, as well as communicative meanings in life.
- Among Russian adolescents, the dominant categories of life meanings are status, self-realization, family, as well as communicative and existential meanings in life.

Differences in the meaning-in-life orientations in adolescents with different cultural and ethnic characteristics are as follows:

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- Georgian adolescents are more satisfied with self-realization than Armenians and Russians.
- Georgian adolescents have higher scores of meaningfulness of life compared to Armenian and Russian adolescents.
- Russian adolescents note the importance of using the Russian language in the process of communication.
- In contrast to other respondents, Georgian adolescents view the meaning of life more in self-realization and in achieving a high social status.
- Armenian adolescents define the meaning of life in altruism and family well-being to a greater extent, compared to other groups of adolescents.
- Russian adolescents are more interested in finding the meaning of life and freedom.
- Georgian and Armenian adolescents are oriented toward the past, adhere to cultural and national traditions.
- Russian adolescents are focused on the future and achieving quick results in their activities.
- Russian adolescents are more likely to strive for freedom, autonomy and material reward.

The successful ethnic socialization of Armenian, Georgian, and Russian adolescents is related to the need to take into account the sense of belonging to the ethnic group, the meaning-in-life system, cultural and ethnic characteristics, as well as the development of cultural, state, civic, and patriotic norms and values.

Conclusion

The theoretical conclusion of this study is that there are differences in the level of expression of ethnic identity among Armenian, Georgian, and Russian adolescents determined by meaning-in-life orientations, ethnic and cultural traditions and ethnic identity.

Based on the empirical results obtained, we conclude that in educational activities of educational and cultural institutions, special attention should be paid to the implementation of ethnic socialization programs for the development of the values and meanings of adolescents, taking into account their cultural and ethnic characteristics. This will not only enable adolescents to realize their life situations, to determine their personal attitudes toward the world's values, to formulate the main future-related tasks, but to develop a respectful attitude towards the cultural and national traditions and values of other peoples, as well as the cultural, civic and patriotic norms and values of the Russian state.

A promising direction for further research is to study the problem of strengthening the civic identity of modern teenagers in order to further strengthen Russian society,

eliminating destructive manifestations of ethnic egoism, ethnic indifference, ethnic fanaticism, national and religious extremism.

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Elena Mikhailovna Feshchenko developed the research methodology, selected diagnostic tools, and contributed to secondary data processing (25%).

Galina Fedorovna Golubeva overviewed the relevant literature, formulated conclusions, and prepared the final version of the text of the manuscript (25%).

Valerii Valentinovich Spasennikov contributed to the research design, formulated the concept, subject, and hypothesis of the study (25%).

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The Role of Group Size and Composition of Work Groups in the Implementation of their Functions in Relation to Group Members

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Abstract

Introduction. This paper presents the results of a study of the relationship of the size (the total number of group members and the number of informal subgroup members) and gender and age composition of work groups with the extent to which they implement functions in relation to group members. The functions include (1) creating possibilities for realization of individual goals and meeting individual needs; (2) protection from external social threats; (3) informing (providing information to) members; (4) educating members; (5) adaptation of (providing adaptive capacities to) members; and (6) providing control and regulation. **Methods.** The study was conducted in 49 departments of companies with 4 to 14 employees ($n = 290$; 75.35 % women and 24.65 % men aged 21–70 years). In the first stage of the study, the Group Profile computer program was used, which included a formalized algorithm for identifying informal subgroups in the group. In the second stage, a printed form of a questionnaire on group functions related to group members was used. Data were analyzed using descriptive statistics, the Pearson Chi-square test, the nonparametric Mann-Whitney U-test, and the bias-corrected bootstrap. **Results.** The number of members included in informal subgroups (in relation to total group size) has a direct positive effect, while the total group size has an indirect negative effect (mediated by the number of group members in subgroups) on the functions that work groups carry out in relation to group members. None of the functions correlated with the gender-related heterogeneity of groups. However, the function of providing information to members negatively correlated with the age-related heterogeneity of groups. **Discussion.** This study presents the first step toward understanding the antecedents of the functions

that work groups implement in relation to group members. The results obtained can be used by managers and psychologists to solve practical problems. Further studies will investigate group composition based on other properties and group socio-psychological characteristics as antecedents of the functions that work groups carry out in relation to group members.

Keywords

work group, informal subgroup, group size, individuals in informal subgroups, group composition, group functions

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Introduction

Professional activities and an important part of the daily life of most people take place in work groups. They form a specific microenvironment with many dimensions that affect group members. The question arises in this respect: What contribution do work groups make to the activities, behaviors, mental state, and development of the members of these groups? This question directly refers to the problem of the functions of groups in relation to their members.

Researchers and practitioners often pay attention to the reasons for integrating people into small groups, including the following: a) achieving personal goals using group resources (Baron, Byrne, & Johnson, 2003; Robbins, 2006); b) meeting social needs in a group context (Baron et al., 2003; Oyster, 2004; Robbins, 2006); c) acquiring necessary information, new knowledge, and skills through social learning (Baron et al., 2003); d) desire for security in the face of social threats (Gebert & von Rosenstiel, 2006; Robbins, 2006); (e) self-determination through group identification (Baron et al., 2003); f) increased status and self-esteem (Robbins, 2006).

These reasons for integrating people into groups reflect, in essence, the functions of groups in relation to individuals, i.e. the benefits that groups can provide to group

members. Certain functions are implemented not only by groups in which people want to enter, but also by groups they enter unintentionally. For example, when a person gets a job, he/she is driven mainly by material, career and other reasons, and not by considerations for finding a 'favorable' group for him/her. A person does not know in which work group he/she will find himself/herself. However, entering a specific group, he/she expects to receive certain positive effects for himself/herself from its membership.

The issues of the functions of small groups (including work groups) in relation to their members have not been sufficiently addressed in the scientific literature. However, this problem is important, since its study allows us to more deeply understand the activity of the group itself and its role in the life of its members. Several aspects of this problem can be distinguished, including (a) antecedents and conditions for the extent to which the group carries out each function, (b) importance of a particular function for group members, (c) associations among functions, (d) direct and indirect effects of each function, and (e) dysfunctions, etc. Thus, the antecedents of the implementation of functions by work groups may be qualitative and structural (for example, size, composition, internal communication network) and socio-psychological (for example, group norms and values, trust, conflict) characteristics of these groups, and conditions – the form of organizing joint activities (for example, joint-individual or joint-interacting), the method of stimulating workers (for example, according to individual or group results), etc. In this study, we take the first step toward understanding the antecedents of group functions, starting with group size and composition.

This study **aims** to examine the relationship of the size and gender and age composition of work groups with the extent to which they implement functions in relation to group members.

Functions of small groups and informal subgroups in relation to their members

In the context of this study, function is understood as the contribution of a system (group) in relation to its elements (group members). In other words, a function is such a relationship between the whole (group) and its parts (members), in which the very existence or some type of manifestation of the whole ensures the existence or some form of manifestation of the parts.

By generalizing the ideas on the reasons for integrating individuals into groups, the following functions of small groups (including work groups) in relation to group members have been identified: (1) creating possibilities for realizing of individual goals and meeting individual needs; (2) protection from external social threats; (3) informing (providing information to) members; (4) educating members; (5) adaptation of (providing adaptive capacities to) members; and (6) providing control and regulation (Sidorenkov, 2010; Sidorenkov & Borokhovski, 2024).

The function of creating possibilities for realizing individual goals and meeting individual needs involves the extent to which group members can meet their actual

needs (especially social needs) and achieve the goals they cannot achieve apart from a group. The internal environment of a group must meet the needs of group members (Hackman, 1987). If the group environment constantly frustrates its members, then this negatively affects the moral and psychological state of individuals and the results of group activities. Therefore, the main objective of the function of creating possibilities for realizing individual goals and meeting individual needs is the self-satisfaction of group members in a group context.

The function of providing protection from external social threats implies providing group protection and support for individual members when they are threatened by out-group members or other outsiders. This function is mainly implemented by the group when unreasonable threats from other individuals or groups arise, for example, in the form of obvious gratuitous aggression or unfounded claims. The protection functions can be implemented by the group as a whole or part of the group, i.e. by some group members. The content of this function indicates that its main objective is to provide individual group members with a sense of psychological and physical safety.

The function of informing members contributes to receiving information about: (a) individual in-group members; (b) certain aspects of in-group activity; and (c) the wider social environment, in particular out-groups and their members. The function of providing information creates the prerequisites for a high-quality exchange of information within the group, which in turn contributes to a successful interaction between members and achievement of group tasks (Wittenbaum, Hollingshead, & Botero, 2004). The main objective of this function is therefore to ensure that individuals have the necessary information for joint activities and to establish relationships with other in-group and out-group members.

The function of educating members contributes to the formation of work, professional, and socio-psychological knowledge and skills among group members. The first type of knowledge and skills is related to the mastery of tasks and conditions for their implementation by individuals. The second type is related to the rules and methods of interaction and relationships in various areas of group activity. In a group context, the formation of work, professional, and socio-psychological knowledge and skills may occur spontaneously, for example, in the process of joint activities (Hackman, 1987) or as part of targeted group training, for example, in team building (Klein et al., 2009). Consequently, the main objective of the function of educating members is the development of individuals in the subject-related and social spheres.

The function of adaption of group members is related to the extent to which a group contributes to interpersonal and instrumental (Riddle, Anderson, & Martin, 2000), socio-psychological, subject- and activity-related (Sidorenkov, 2010), short-term and long-term (Thoms, Pinto, Parente, & Druskat, 2002) adaptation of both full and new members. The main objective of the function of providing adaptive capacities to members is (a) to enable a group member to find a certain place in the system of interpersonal relations in the group in accordance with his/her interests and capabilities, on the one hand,

and the group as a whole, on the other; (b) to ensure that individual activities meet the requirements of group activities.

The function of providing control and regulation results in the desire of the group as a whole or its trusted members to monitor the mutually shared goals, standards and positions of all members on issues of common interest to the group. Furthermore, the function of providing control and regulation includes the influence of the group on its members in order to strengthen appropriate and sanction inappropriate behavior, communication or joint activities. The influence of a group on a member of this group is carried out in the form of an openly expressed collective opinion or a certain action (inaction). It may be positive and expressed in the form of approval, but it may be negative, i.e. manifested in the form of censure and criticism (Rusalinova, Govorova, & Ilyina, 1983), sanctions against group members (Hollinger & Clark, 1982). The main objective of the function of providing control and regulation is therefore to ensure that the behavior and work activities of individual members are consistent with the objectives, interests, norms and thus the stability of the functioning of the group.

The role of the size and composition of work groups in the implementation of their functions

Researchers often focus on the role of group size and composition for its socio-psychological characteristics, processes, and performance. For example, a significant correlation has been found between the size of work groups and intragroup conflicts (Choi & Cho, 2010; Sidorenkov, Borokhovski, & Kovalenko, 2018), group attraction (Kristof-Brown, Barrick, & Stevens, 2005), and self-satisfaction of group members (Roodt, Krug, & Otto, 2021). There are also relationships between group composition based on certain characteristics of group members and conflicts (Sidorenkov et al., 2018; Vodosek, 2007; Woehr, Arciniega, & Poling, 2013) and trust (Zheng & Wang, 2021) in groups, cohesion (Thatcher & Patel, 2011) and effectiveness (Fuel, Pardo-del-Val, & Revuelto-Taboada, 2022) of groups. Group size and composition are sometimes considered as moderators of the relationship between certain variables. For example, group size mediates the relationship between cohesion (Chaudhary, Chopra, & Kaur, 2022), trust (Morrissette & Kisamore, 2020) on the one hand, and group performance on the other. Composition (gender, age, education, and organizational tenure) contributes to the positive effect of distributive injustice on task conflict (Spell, Bezrukova, Haar, & Spell, 2011).

We hypothesize that the size and gender and age composition of work groups are related to the extent to which they implement functions in relation to group members. Firstly, small groups can implement certain functions more effectively than large groups because they can pay more attention to all members of the group, making them more effective in performing certain tasks (the function of creating possibilities for realizing individual goals and meeting individual needs, the function of providing protection from external and intragroup social threats) or control each member of the group (the function

of providing control and regulation). The exception, in our view, are the functions of providing information to members, educating members, and providing adaptive capacities to members, since in a large group, the members have more opportunities (a) to receive information, which strengthens the function of providing information to members, (b) to observe a wide range of behaviors and activities of other members, to receive the necessary assistance, etc., which contributes to their learning and (c) to find a more satisfactory place for them in the structure of interpersonal relationships, which entails their successful adaptation.

The extent to which a group implements its functions may also depend on the number of group members of informal subgroups. Research has shown that in all work groups there are informal subgroups (Luan, Ren, & Hao, 2019; Sidorenkov, Sidorenkova, & Ulyanova, 2014), with the number increasing with the total group size (Sidorenkov & Shtroo, 2023). It can be assumed that the more group members are in informal subgroups, the more groups are able to implement their functions in relation to group members. This consideration can be argued briefly as follows. The informal subgroup implements all the same functions in relation to its members as the group as a whole (Sidorenkov, 2010). Furthermore, informal subgroups implement many functions more successfully than the group as a whole. Function implementation by subgroups is likely to compensate for the lack of function implementation by the group as a whole, at least in relation to the members of subgroups.

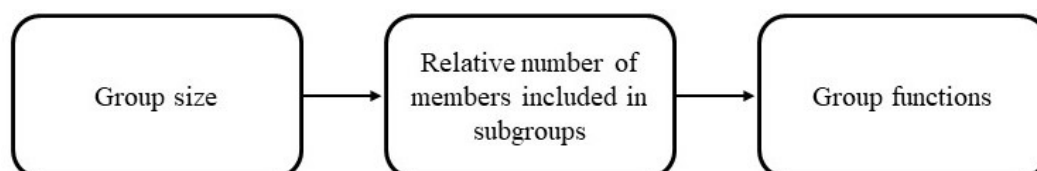
Secondly, the heterogeneity of groups related to the gender and age of their members may be negatively associated with the implementation of group functions in relation to the members of these groups. This is because behind the diversity of individuals in terms of gender and age, there is a hidden diversity in certain social attitudes, values, and stereotypes. With the wide diversity of its members, the group cannot meet the functional needs and expectations of each participant in the same way (i.e., implement its functions).

Research hypotheses

We formulated the following research hypotheses:

- **Hypothesis 1a.** The size of work groups is negatively related to their functions in relation to group members (with the exception of the functions of providing information to members, educating members, and providing adaptive capacities to members).
- **Hypothesis 1b.** The number of members included in informal subgroups (in relation to total group size) is positively related to the functions of work groups in relation to their members.
- **Hypothesis 1c.** The relationship between the size and functions of work groups is mediated by the relative number of members included in informal subgroups (Fig. 1).

Figure 1
Schematic representation of indirect association in H1c



- **Hypothesis 2a.** Gender-related heterogeneity of work groups is negatively associated with group functions.
- **Hypothesis 2b.** Age-related heterogeneity of work groups is negatively associated with group functions.

Methods

The study was conducted in 49 office departments of a government agency and three commercial companies with different profiles organizations' activities. The group size varied from 4 to 14 participants. Since the profile of the activities of organizations is quite different, the sample is representative in terms of ownership form and economic sectors. At the same time, the sample is unified in terms of the type of work activity, as the activities of all groups studied relate to office work.

The study sample comprised 290 employees, of whom 73.35 % were women and 24.65 % were men aged 21 to 70 ($M = 36.83$, $SD = 10.58$). Almost all regular employees participated in the study, except three who were absent due to illness or worked remotely.

To identify informal subgroups and their composition, the study used a formalized algorithm developed for this purpose (Gorbatenko & Gorbatenko, 1984). The Questionnaire on Group Functions in Relation to Group Members was developed to measure six functions of groups. The questionnaire contains six corresponding sub-scales, each with two items with reverse wording. An exception is the sub-scale of creating possibilities for realizing individual goals and meeting individual needs, which contains four items. Examples of items are as follows:

- "It is quite difficult for me to achieve my individual goals in this group" (subscale of the function of creating possibilities for realizing individual goals and meeting individual needs);
- "If another team employee (client, etc.) treats me with disrespect, aggression, etc., I doubt that the members of our group will stand up for me" (subscale of the function of providing protection from external and intragroup social threats);
- "Sometimes I am not sufficiently informed of what is happening in the group" (subscale of the function of providing information to members);

- “This group gives me little opportunity to gain new experiences, knowledge and skills” (subscale of the function of educating members);
- “If a new member enters the group, it is unlikely that many members will assist him/her in his work” (subscale of the function of providing adaptive capacities to members);
- “If some members violate the unspoken rules of behavior and communication, this does not lead to an appropriate reaction in our group” (subscale of the function of providing control and regulation).

A 6-point scale was used to assess the items – from 1 (completely agree) to 6 (completely disagree).

The mean scores of the content validity of the questionnaire, which was assessed by three experts on a five-point scale, was maximum (5.0) for 12 items, and 4.66 for two items. The CFA procedure confirmed the six-factor structure of the questionnaire: $df = 62$, $\chi^2 = 133.46$, $CFI = .971$, $TLI = .958$, $RMSEA = .062$ [.048-.078], $p = .000$. The Cronbach’s alpha coefficients of the subscales (Table 1) were above .800, except for subscale of the function of providing control and regulation.

The study was conducted at work in accordance with the administration of the relevant organizations and with the oral consent of the participants. The study was conducted individually. Each participant first worked on a laptop using the Group Profile computer program (Sidorenkov & Pavlenko, 2015), which includes a formal algorithm to identify informal subgroups in a group. He/she then filled out a printed questionnaire on the functions of the group in relation to its members.

Results

Of the 49 studied groups, 47 were identified as informal subgroups, which number varied from 1 to 3 in different groups. Therefore, there were no subgroups identified in two groups; they were therefore excluded from further analysis. Most subgroups were identified as dyads (43.3 %) and triads (32.8 %), and significantly fewer subgroups consisted of four (19.4 %) and five individuals (4.5 %). 64.8 % of the employees were in informal subgroups.

Table 1 shows descriptive statistics, Pearson correlation coefficients, and Cronbach’s alpha coefficients at the levels of work groups and informal subgroups, respectively. The relative size of informal subgroups was calculated as the ratio of the number of members in subgroups to the total group size. Two groups with no subgroups were excluded from the calculation. All variables were normalized before correlation analysis (converted to T-scores).

Table 1

Descriptive statistics, Cronbach's alpha coefficients and Pearson correlation coefficients

Variables	M	SD	2	3	4	5	6	7	8	9	10
1. Group size	6.14	2.45	-.41**	.09	-.03	-.17	.06	-.25	-.22	-.08	-.08
2. Relative number of members included in subgroups	.69	.23	-	-.04	.04	.39**	.29*	.44**	.45**	.19	.34*
3. Gender composition	.25	.19		-	-.05	.09	.18	.01	.06	-.11	.13
4. Age composition	20.68	8.65			-	.46**	-.03	-.25	-.17	.06	-.17
5. Informing function	8.16	2.86				.861	.57***	.79***	.71***	.31*	.63***
6. Education function	9.19	2.68					.804	.52***	.56***	.42**	.55***
7. Creating possibilities function	17.51	4.72						.850	.70***	.33*	.72***
8. Protecting function	9.10	2.74							.921	.52***	.67***
9. Control and regulation function	9.38	2.32								.706	.46**
10. Adaptation function	9.91	2.41									.942

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

According to Hypothesis 1a, the size of work groups is negatively associated with their functions in relation to group members (with the exception of the functions of providing information to members, educating members, and providing adaptive capacities to members). Table 2 shows that group size is not significantly associated with any of the functions. Therefore, Hypothesis 1a was not confirmed.

However, we hypothesized that the lack of linear relationships can be the result of unequal sample sizes. It turned out that in our sample more than half of the groups ($N = 27$) consisted of 4–5 employees. Therefore, we divided the sample ($M \pm 1SD$) into relatively small (4–5 people) and large (8–14 people) groups. Pairwise comparisons (Mann-Whitney U test) of each function in small and large groups (Table 2) showed a statistically significant difference (albeit small) between the degree to which these categories of groups implement the following two functions: (a) creating possibilities for realizing individual goals and meeting individual needs and (b) providing protection from external and intragroup social threats. Furthermore, as the average rank indicates, these functions are implemented by small groups much better than by large groups. For other functions

there is no significant difference between these categories of groups. This result does not contradict Hypothesis 1a and enables us to clarify its formulation – compared to large groups, small groups implement better their functions in relation to group members (with the exception of the functions of providing information to members, educating members, and providing adaptive capacities to members).

Table 2

Comparison of functions of relatively small (N = 27) and large (N = 11) groups

Functions	Z	p	Mean Rank
Informing function	-1.759	.082	21.52/14.55
Education function	-.32	.974	19.46/19.59
Creating possibilities	-2.302	.021	22.15/13.00
Protecting function	-1.965	.049	21.76/13.95
Control and regulation	-.725	.468	20.33/17.45
Adaptation function	-1.015	.310	20.67/16.64

Hypothesis 1b suggests that the number of members included in informal subgroups (in relation to total group size) is positively associated with the functions that groups implement in relation to group members. It was found (Table 1) that the relative number of members included in informal subgroups was significantly positively associated with five functions of work groups but does not significantly correlate with the function of providing control and regulation. Thus, Hypothesis 1b was confirmed for five functions.

Hypothesis 1c suggests that the relationship group size and work group functions is mediated by the relative number of members included in informal subgroups. To test this hypothesis, the bias-corrected bootstrap (determining confidence intervals for statistical estimates) was used (Hayes, 2018). The analysis was conducted using PROCESS macro (Model 4) for the SPSS Statistics 23 software package. Variables were mean centered before analysis. If zero was outside the confidence interval, the mediation effect was significant. Table 3 shows that the number of members of subgroups (from the total group size) significantly mediates the relationship between the total group size and almost all the functions, with the exception of the function of providing control and regulation. Moreover, in all cases, the indirect effect is negative. Therefore, Hypothesis 1c was confirmed for five of the six group functions.

Table 3
Indirect effect of the group size on functions of work groups

Function models	Score		95% CI	
	<i>b</i>	<i>SE</i>	Boot LLCI	Boot ULCI
Informing function	-.090	.052	-.219	-.012
Education function	-.084	.047	-.199	-.016
Creating possibilities	-.211	.121	-.510	-.039
Protecting function	-.127	.064	-.283	-.034
Control and regulation	-.039	.044	-.139	.031
Adaptation function	-.086	.049	-.206	-.013

The degree of age-related heterogeneity/homogeneity of groups, measured in years (quantitative variable), was assessed by calculating the coefficient of variation. The higher this coefficient, the higher the diversity of group members in terms of this personal characteristic. Group gender-related heterogeneity (categorical variable) was determined by calculating the Blau index (Blau, 1977). It can vary from zero (complete homogeneity, 0/100) to 0.5 (maximum heterogeneity, 50/50). Hypotheses 2a and 2b suggest that group gender- and age-related heterogeneity, respectively, is negatively associated with group functions. No significant relationship was found between this compositional variable and any group function (Table 1). Thus, hypothesis 2a was not confirmed. However, a significant negative relationship was found between age-related heterogeneity of groups and the function of providing information to members (Table 1). This result enables us to conclude that hypothesis 2b was confirmed but only for the only group function.

Discussion

Due to the limited number of studies on small group functions (including work groups) and the lack of literature on the antecedents of group functions, it is difficult to fully discuss our findings and to correlate the results presented with data from other studies. Nevertheless, we tried to analyze them.

We found that the extent to which groups implement certain functions depends on their size. Thus, small groups, compared to large ones, implement better the function of creating possibilities for realizing individual goals and meeting individual needs and the function of providing protection from external and intragroup social threats. Most small formal groups may provide more favorable conditions for group members to meet some

of their social needs, including the need for inclusion, control, and/or affect (Schutz, 1958), positive self-esteem (Tajfel & Turner, 1986), belonging (Cooper & Thatcher, 2010), self-presentation (Roberts, 2005). These favorable conditions are first and foremost the capacity of the group to build stronger informal and close relationships and to pay greater attention to the individual needs of members. Most small groups also have stronger cohesiveness (Neubert, 1999), which may contribute to the function of providing protection from external and intragroup social threats. In large groups, in turn, losses in coordination and motivation (Gooding & Wagner 1985) and in group prejudice (Mullen et al. 1992) increase and the exchange of information deteriorates (De Dreu, 2007). These negative phenomena are expected to reduce the ability of the group to implement most of its functions.

We also found that the number of members included in informal subgroups (in relation to total group size) has a positive effect on five functions of the group (except for the function of providing control and regulation). That is, the more employees are in subgroups, the better the work groups are able to perform their functions. This result indirectly shows that informal subgroups perform most of the functions in relation to their members better than groups in relation to all group members (Sidorenkov & Borokhovski, 2024), and thereby compensate for the weak implementation of their functions by groups. In other words, the more members are included in subgroups and the more they are covered by their subgroup functions, the more members understand the overall implementation of group functions. Furthermore, the relative size of informal subgroups mediates the indirect relationship between the group size and its five functions (except for the function of providing control and regulation). This indirect effect is negative. That is, the greater the group size, the fewer employees are included in informal subgroups and, as a result, the groups perform each of the five functions worse in relation to their members. Furthermore, there is a negative relationship between the group size and the number of subgroup members.

Particular attention should be paid to the function of providing control and regulation, which stands out among other functions. In other words, unlike other functions, this function does not directly affect the functional needs (in the broad sense) of the member (Sidorenkov & Borokhovski, 2024). If the majority of group members are personally interested in meeting social needs, obtaining important information, etc., then to a lesser extent they prefer that groups or subgroups control and influence them. Therefore, we consider that this function does not depend directly or indirectly on the group size and subgroup size.

As the results showed, group gender- and age-related heterogeneity is not associated with group functions. The exception is the function of providing information to members, which negatively depends on age-related heterogeneity. That is, the more group members differ in age, the worse the groups implement this function. The age

diversity of individuals is likely to hidden their diversity in attitudes, stereotypes, or other characteristics, making it difficult to distribute information within the group and thereby members do not receive the necessary information according to their expectations.

The research results presented in this paper contribute to some theoretical knowledge of the activities of small groups and their role in individuals' lives in a group context. Specifically, the first step has been taken to understand the ancestors of the functions of groups in relation to their members. In other words, it has been shown that most of the functions implemented by groups are indirectly dependent on their size and directly on the size of subgroups. Moreover, group age-related heterogeneity negatively affects the implementation of the function of providing information to members.

The ideas and results of this study can be used by managers, HR managers, and psychologists to solve some practical problems. Knowledge of the group size/function relationship, subgroup size/function relationship, and group composition/function relationship makes it possible to predict the extent to which groups implement certain functions in relation to their members. In turn, knowledge of how a group implements certain functions is a kind of "litmus test" that indicates favorable or unfavorable "state" of the group as a whole from the point of view of: a) the mental state of its members (e.g. the function of providing protection from external and intragroup social threats and the function of providing adaptive capacities to members); b) the development of group members (e.g. the function of educating members); and c) the stability of group members functioning (e.g. the function of providing control and regulation).

Research limitations

The study has some limitations. In our sample, most of the groups studied were small. Uneven sampling of groups throughout the sample could affect the results of the study. In addition, we studied only groups of office workers. However, in groups with other conditions for organizing the joint activities of group members, there may be specific characteristics of the relationship between the size and age and gender composition of groups and the implementation of their functions.

Future Research

Our future research can make further strides towards understanding the role of (a) group compositions in terms of other characteristics of group members (e.g., education, personal traits, values) as an antecedent to the functions of work groups and (b) socio-psychological characteristics of groups (e.g., certain group norms, trust within the group, relations between subgroups) as predictors of the implementation of group functions in relation to their members.

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Author Contribution

Andrey Vladimirovich Sidorenkov developed the concept and purpose of the study, analyzed the relevant literature, planned and organized the study, performed statistical analysis of data, and wrote the manuscript text.

Yulia Vladimirovna Obukhova collected the data, performed primary data analysis, wrote and edited the manuscript text.

Anastasiya Ambartsumovna Eribekyan collected the data, performed primary data analysis.

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Conflict of Interest Information

The authors have no conflicts of interest to declare.

Value-meaning sphere of the population of local armed conflict areas: psychological analysis

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Annotation

Introduction. Direct participation in risky and traumatizing events, such as local armed conflicts, has a certain effect on the psyche not only of the participants in hostilities, but also of the civilian population, who remained to live and work in the conflict zone. The purpose of our study is to obtain empirical data on the value-sense sphere of the population of the areas of local armed conflicts, that is, living directly in the epicenter of military events. **Methods.** The sample consisted of 211 people aged 21–53 years, including: 67 men and 144 women. A conversation and associative experiment were used. **Results.** It was revealed that the fear of death leads the population to the realization of meaning-life values, prompts to determine the most important in their lives. Peaceful residents depending on their stay in the territories with a high degree of combat intensity experience unfavorable well-being, decrease in activity, deterioration of mood and depressive states, unproductive behavioral strategies prevail in them, which influences priority life goals, evaluation of the current period of life. **Discussion.** During an armed conflict, the meaning of life of people who live in the epicenter of war is, first of all, in survival and preservation of the family. People mostly live one day at a time, not really thinking about their future, and they are more concerned about the future of their children. The results obtained by us can be used to develop various directions of psychological assistance to the population of local armed conflicts.

Keywords

local conflict, armed conflict, value and meaning sphere, war, civilians, values, meanings, fear of death

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Introduction

War is an extraordinary, extreme environment in which only those who have a high level of adaptive capacity, as well as a quick response to stimuli can survive (Horowitz, 1985). A person who finds himself in a war zone is under the influence of stressors and meets with their incredible "attack": he hears the constant sounds of sirens, replaced by the same unbearable sounds of shelling, experiences constant fear for himself and his loved ones, fear of the unknown; a person is covered with complete helplessness through the understanding of the impossibility of changing something or influencing the situation, and resorts to minute-by-minute monitoring of information channels on the current situation. Even the lull that occurs between firings causes tension and expectation of the worst (Ermine, 2022).

Both Russian and foreign scientists are engaged in the study of psychological consequences of armed conflicts. Thus, among the domestic works V. I. Ekimova and E. P. Luchnikova studied complex psychological trauma as a consequence of extreme stress (Ekimova, Luchnikova, 2020); M. Sh. Magomed-Eminov analyzed modern models of psychological trauma from the point of view of the cultural-activity paradigm (Magomed-Eminov, 2014); V. Y. Rybnikov and A. A. Kuzmenko considered the manifestations of protective and coping behavior under stress in different categories of military personnel (Rybnikov, Kuzmenko, 2013); N. V. Tarabrina and I. S. Khazhuev studied posttraumatic stress and protective and coping behavior in the population living in a long-term emergency situation (Tarabrina, Khazhuev, 2015).

Among foreign researchers, the works of R. M. Bhat et al. who investigated the impact of armed conflict on the mental life of student youth in Kashmir (Bhat et al., 2017); A. Richards, who studied the manifestations of PTSD in IDPs in Colombia Richards et al., (2011); I. A. Gutierrez and A. Adler, identifying the acute stress reactions of adolescents in complex living environments (Gutierrez & Adler, 2022); Y. Wang, examining the impact of distance learning on the mental health of students in conflict countries (Wang, 2023).

The experience of countries faced with the psychological consequences of local armed conflicts has shown that direct participation in risky and traumatic events has a certain effect on the psyche, including on the value-sense sphere not only of the combatants, but also of the civilian population who remained to live and work in the conflict zone.

Purpose of the study

The purpose of the study is to analyze the psychological consequences of local armed conflicts in relation to the value-sense sphere of civilians.

Theoretical review

Value and meaning sphere

To characterize the value-meaning sphere in scientific discourse such synonymous concepts are used as: "value orientations" (M. Rokich, M. S. Yanitsky), "meaning-life orientations", "motivational and meaning sphere", "meaning formations" (A. G. Asmolov), "personal meanings" (A. N. Leontiev), "generalized meaning formations" (B. S. Bratus), "meaning field" (G. V. Birenbaum, B. V. Bratus), "meaning field" (G. V. Birenbaum, B. V. Zeigarnik), "meaning-life strategies" (I. V. Abakumova, E. N. Ryadinskaya, A. A. Levshina, L. Yu. Krutoleva), "meaning-forming strategies" (P. N. Ermakov), "operational meanings" (V. V. Znakov).

Thus, V. A. Kutyrev states that "based on the common core of the concepts "meaning-life orientation", "type", "paradigm" (sometimes "attitude"), we can use these concepts as synonyms" (Kutyrev, 1990, p. 116). A. Maslow (Maslow, 1970) does not separate such concepts as values and value orientations, motivation and needs, and V. Frankl (Frankl, 1982) identifies values and meanings of personality. For these scientists, these are aspects of the same phenomenon.

The value and meaning sphere is represented through the central formation of personality, its basic core, and includes two components – personal values and the system of personal meanings, which sets the direction of life activity.

The concept of "meaning-life orientation" is identified with the concept of "value orientation" in the segment of meaning-life values. Meaning-life orientation is a kind of realized at the level of preferences orientation to a certain number of highly significant

values-meanings (Roshchin, 2010). Meaning-life orientations are associated with the test of meaning-life orientations (SZHO) by D. A. Leontiev (Leontiev, 2006).

A similar concept of "meaning-positive concept" is found in a number of works by other authors (Zelenkova, 1988; Gumnitsky, 1981; Nemirovsky, 1990; Palm, 1998). "Meaning-life concept" is an analog of the concept of "understanding of the meaning of life" or "representation of the meaning of life". For example, the authors distinguish only two concepts of the meaning of life - religious-idealistic and materialistic (Gumnitsky, 1981).

Identification and differentiation of meaning-life orientations and meaning-life concepts are attempts to solve the question about the unity of the value and meaning sphere.

Under meaning-life strategies we understand a stable system of personal meanings of an individual formed in the course of ontogenesis, which allows optimizing or minimizing the subject's activity in relations with reality and manifested in the attitude to the goal, process and result of activity, as well as in the attitude to life and self (Abakumova, Ryadinskaya, 2017).

By values in this study we understand the motives of activity and behavior. A person's orientation in the world and aspiration to achieve certain goals strictly correlate with the values included in the personal structure. This definition was adhered to by B. S. Bratus, L. S. Vygotsky, A. N. Leontiev, G. Allport, S. L. Rubinstein, V. V. Stolin, V. Frankl) (Bitter, 2014).

Local armed conflict

To further illuminate the category "local armed conflict" we will consider a number of concepts that will help characterize the essence of the phenomenon under study: "war", "conflict", "internal armed conflict", "civil war".

In the studies of R. Barthes, K. Marx, F. Nietzsche, A. Schopenhauer, war is defined as confrontation, struggle, conflict and is considered as one of the factors of impact on personality, society (Zhurba, 2022).

Conflict is a socio-psychological phenomenon, complex and multidimensional, caused by various reasons and motives. They can be psychological, economic, political, value, religious and unite different parties such as individuals, social groups, national-ethnic communities, states and groups of countries (Alenevsky, 2017).

Internal armed conflict is an extreme form of resolving contradictions between military and political groups within a country, when both sides actively use military force (Abakumova, Ryadinskaya, 2017).

The current wars are called hybrid wars because they include means of "hard" and "soft" force, military and information - a combination that has been present in one way or another in all wars at different times. Hybrid warfare is a modern military strategy that combines the simultaneous application of conventional militarized forces with the use of irregular formations, cyberspace operations, as well as information operations and

means of economic and diplomatic pressure on the enemy. Modern wars are shifting the center of gravity from the physical force component, which prevails in traditional wars, to the mental and informational components.

The 2000s were characterized by a number of political, economic, demographic crises. Natural disasters, economic cataclysms and outbreaks of military conflicts were observed all over the planet, environmental problems were aggravated and various diseases spread among people. For example, for the first time in many years, the majority of American citizens feel insecure and are in a state of constant anxiety and depression or become aggressive criminals. As a consequence, contradictions between the need to adopt new life values and distrust of the value paradigm offered by society are manifested in the youth environment (Berk & Asarnow, 2015).

Armed conflicts and the value-sense sphere of personality

A person realizes meaning-life values only "in the face of death" (Heidegger, 2007). The fear of death prompts a person to rise above the ordinary, above himself, to determine the most important thing in his life. The very tragic human existence emphasizes the value of conscience, freedom, teaches a person to be resolute in achieving life goals. M. Heidegger's inherently humanistic philosophy is aimed at harmonious human existence in the world, creating conditions for human creativity and self-sufficiency.

Participation of servicemen in combat operations has a significant impact on the change of their value and meaning sphere, leads them to rethinking of life orientations, basic values and meanings. Psychological testing of servicepersons who experienced combat stress showed that they perceived their life as devoid of meaning, in general they were dissatisfied with their existence, and the ongoing events of peaceful life did not interest them and did not cause an emotional reaction (Utyuganov, 2010).

Similar tendencies were noted in the study of N. V. Yakushkin (2006), who studied the value and meaning characteristics of soldiers who participated in combat operations in Afghanistan and underwent combat stress. The soldiers had a feeling of dissatisfaction with life, they seemed disconnected from the general flow of life. Interest in the future was low because they were not sure about it, and in the present, the respondents did not get satisfaction from self-actualization. The findings of these studies indicate violations in the value and meaning sphere of servicepersons with posttraumatic stress disorder, which are manifested in unstructured value orientations, uncertainty of values or their absence, and perception of life as devoid of meaning (Yakushkin, 2006).

For example, the transformation of the value-sense sphere occurred among residents as a result of the military actions in the Chechen Republic.

As a result of the hostilities, many Chechens and their relatives were jeopardized: they lost relatives and homes and became disabled. Creating and maintaining peace between peoples has become an important condition for the well-being of every Chechen (Tagirova, 2013).

Residents of areas with an intense degree of shelling experience unfavorable well-being, decreased activity, deterioration of mood and depressive states (Ryadinskaya, 2018). In such extreme conditions, residents are more likely to use unproductive behavioral strategies: emotional coping and avoidance. All this affects their ego-, group- and socio-centers, priority life goals, assessment of the current period of life, understanding of the past and sense of responsibility for successes and failures.

Socio-political factors influence the change of political order and determine the features and level of social development in a particular historical period (Novak, 1994). If a society experiences some crisis processes, there is a revision of life values of the young generation (Banach, 2006). Modern psychological studies pay special attention to the long-term effects of wars on children and adolescents, who may face unexpected traumatic events, as well as long-term adverse development of them, which may be the reason for the formation of unproductive behavioral strategies (Husain, 1998). Typically, adolescents experiencing war suffer from stress, depression, anxiety, PTSD, loss of identity, closing in on themselves, choosing voluntary social isolation, and antisocial behavior. All of these manifestations, according to researchers, are "normal reactions to abnormal events" (Joshi & O'Donnell, 2003).

Psychological traumas suffered by adolescents during the war have lasting effects on their psyche and can be an obstacle in future life, choice of goals and life strategies (Murthy & Lakshminarayana, 2006; Allport, Vernon & Lindzey, 1970). Lack of resources to provide basic needs (shelter, water, food, education, rights, etc.); broken family relationships (loss, separation, displacement); stigmatization, discrimination, violence; and a pessimistic outlook on life (experiencing loss, grief, destruction) affect adolescents' attitudes toward life and meaning-life choices (Smith, 2001).

During the war period, adolescents have acute emotional reactions to what is happening, emotional swings, hysterics, overexcitement, stupor, fear, etc. Under the influence of dramatic events, the ability to empathize may be lost and derealizations may occur as a protective reaction of the psyche. Those adolescents who are safe away from the hostilities experience guilt or a "survivor's complex".

Emotional resilience helps individuals cope with the negative experiences they have had, allows them to adjust to new realities, and accept difficulties as temporary. In addition, this ability can influence decision making under severe life stressors (Kaplan, Turner, Norman & Stillson, 1996).

War is uncertainty, as well as the destruction of life plans and the future of the individual, which can cause anxiety and confusion not only in adults, but also in children and adolescents. A study by K. Zhurba (2022) found that adolescents experiencing armed conflict suffer from stress, depression, anxiety, loss of identity, shutting down, choosing voluntary social isolation and antisocial behavior. The biggest stressors for adolescents are: sirens, bombing and shelling, even if they are far away; panic of adults; sabotage and terrorist attacks of all kinds; curfews and wartime restrictions; destruction of residential buildings; the need to stay in bomb shelters; information about mass violence, captives,

torture, losses. For children under occupation, such stressors are the consequences of war, mass violence, survival in emergency situations, constant threats to life, loss of relatives, risks associated with evacuation, memories (Seino, 2008). The formation of meaning-life values is a condition for the survival of adolescents during the war, because their realization allows to form emotional stability, allows to plan life and take into account the experience of survival of past generations in the conditions of war, while creating their own experience of survival (Zhurba, 2022).

Methods

As part of the theoretical understanding of the problem of the impact of local armed conflicts on the value-thought sphere of civilians, we conducted a structured conversation and an associative experiment, in which 211 people participated:

- 95 people living in areas of intensive shelling (Group 1);
- 116 respondents from low-fire areas (Group 2).

The age of respondents ranged from 21 to 53 years old, the majority (64%) had higher education, 67 men and 144 women.

During the interview, residents were asked questions about their plans for the future, goals in life, difficulties in meeting basic needs, attitudes towards restricted movement, the possibility of changing their place of residence due to the armed conflict.

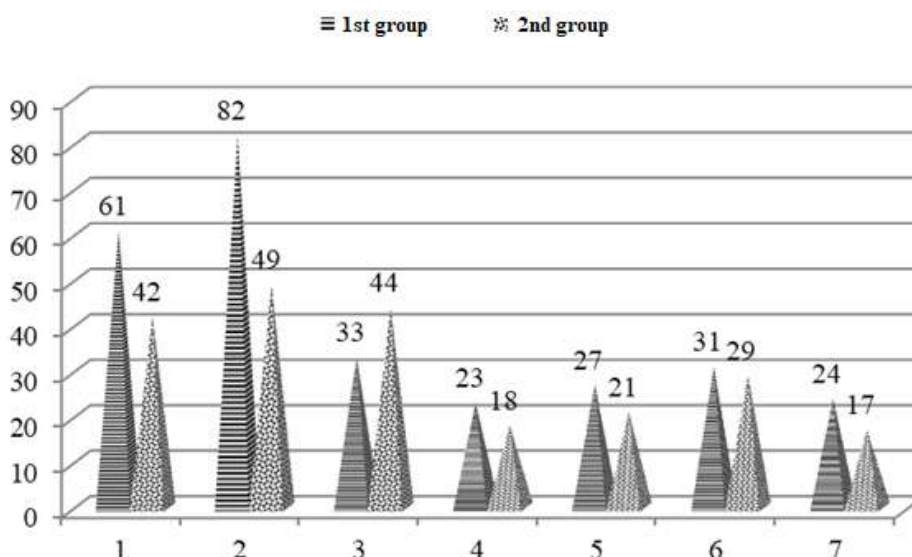
Results

The results of the interview, and more precisely the expression of the respondents' answers revealed in the course of the interview, are presented in Figure 1.

During the interview it was found that the majority of residents (61%) from the areas of intensive shelling have a blurred view of their future (and the goal is the same, almost all of them – to survive. For example, respondents said: *"It will be as it will be"*, *"We'll live – we'll see"*, *"I don't guess what will happen next"*, *"I just live"*, *"I don't expect anything good from life, I just go with the flow"*, *"I'd like to live until morning - that's the whole life"*, *"We don't plan anything with our family, we live as it turns out"*. Many residents (39%) said that they are most worried about children whose lives are deprived of basic conditions for development - education is in a distance format, communication with peers is limited, and there is a constant threat to life. The most common phrases were: *"What our children have seen in these ten years"*, *"We want our children to study and live in peaceful conditions"*, *"Let our children live for us"* and others.

Figure 1

Expression of respondents' answers revealed in the course of the interview (in %)



Note: 1 – Blurred idea of their future, 2 – Goal – to survive, 3 – Satisfaction with life, 4 – Desire to change place of residence, 5 – Fatigue from uncertainty, 6 – Lack of meaning in life, 7 – Fear of death, Group 1 – residents living in areas of intensive shelling, Group 2 – residents living in areas with little shelling.

About a quarter of respondents (23%) are thinking about leaving for another region of Russia, safer, where it is possible to organize normal life activities for themselves and relatives. This is evidenced by the phrases: "We want to move, we don't have the strength to live like this anymore", "We want a normal life", "We are thinking about changing our place of residence, our children need to study normally and build a future".

One third of respondents (33%) are satisfied with their life at the moment.

27% of respondents noted that they are tired of uncertainty, of living in constant fear, including the fear of losing someone from their relatives. Respondents are more concerned about the lives of family members than their own, and this trend was especially evident in the responses of people over 40 years of age.

Residents from safer neighborhoods (areas that have not been shelled much, where educational institutions are still working) have more optimistic answers, although they do not differ much from the previous ones. The majority of respondents (62%) hope that the war will soon be over and it will be possible to establish their lives; respondents do not think about tomorrow, preferring to live in the present.

18% of respondents from this group dream of settling their lives in another, safer place. The respondents also believe that they lack material resources to realize their plans,

as the opportunities of the region where they live are limited. About half of the residents of this group (44%) are satisfied with their lives.

It should be noted that respondents have a fear of death, clearly stated by 24% of residents of the first group and 17% - of the second group.

Results of the associative experiment

To investigate subjective semantic fields of words formed and functioning in human consciousness, as well as the nature of semantic relations of words within a semantic field, we used the method of associative experiment. The associative experiment acts as one of the most reliable and effective methods providing access to the study of knowledge and consciousness structures (Belyanin, 2009).

Respondents were offered to write associations to the words "life" and "war". It should be noted that the associations of residents are diverse in nature. We have generalized the associations of residents and grouped them into certain clusters. The results of generalization and grouping are presented in Table 1.

Table 1
Results of the associative experiment

Words	Associations	
	Group 1	Group 2
Life	close, relatives (39%);	birth, joy, love (27%);
	existence (26%);	way, road, movement, meaning (24%);
	process, path, mission (19%);	family and relatives (16%);
	instant, moment, second (9%);	existence, fate (15%);
	beginning, miracle (7%).	struggle, warmth, air, beginning (11%);
		uncertainty (7%).

GENERAL PSYCHOLOGY, PERSONALITY PSYCHOLOGY, PHILOSOPHY AND PSYCHOLOGY

Words	Associations	
	Group 1	Group 2
	death (25%);	death (24%);
	pain, loss, separation (22%);	people (22%);
	weapons, destruction (15%);	weapons (18);
War	grief (19%);	victims, losses (15%);
	fear, death, (11%);	horror, grief, death (12%);
	fascists (5%);	destruction (6%);
	isolation, chaos (3%).	politics (3%).

The results show that respondents of both groups describe the concept of "life" in a positive modality. Residents note that in extreme conditions of existence, when deadly shells fly over you, life acquires a special value, because it can be interrupted at any second.

In the first group (respondents living in areas of intensive shelling), as we can see, the majority of respondents associate their life with their relatives (39%), which was reflected in the interview. A quarter of respondents (26%) noted that life for them is just existence ("the main thing is to survive"), which is most likely related to difficult living conditions. 19% of residents consider life to be a certain process and mission that requires them to be included and respond in a timely manner (explanations of the experiment participants).

"War" for a significant part of the respondents of the first group (25%) is perceived as something terrible, leading to death, causing pain from separation from loved ones, their physical loss (22%). War is grief (19%), fear (15%) and death (11%).

The associations of the respondents of the second group (from areas that have not been shelled much) are somewhat different. Almost a third of residents (27%) consider life as a joyful moment associated with joy and love, almost for a quarter of respondents (24%) life is a meaningful movement, it is a road forward. Family and relatives are also an

important part of life for these people (16%), for some it is a struggle (11%) and for some (11%) it is uncertainty.

The concept of "war", as well as in the first group, has a negative character. Most respondents associate it with death, weapons, victims, horror and destruction.

Discussion

In an armed conflict, the meaning of life for people living in the epicenter of military events is, above all, survival and preservation of the family. People live one day at a time, not really thinking about their future, but more concerned about the future of their children. For them, war is a real threat to life, a terrible event in which they are forced to become participants.

The assumption that the fear of death leads a person to realize the meaning and life values and encourages him/her to determine the most important thing in his/her life was confirmed.

This is consistent with the studies of other authors who consider similar problems. In some works the analysis of psychological consequences of different degrees of severity in men and women is presented, which showed that men are more resistant to the risk of developing delayed reactions as a response to the impact of stressors, but in the development of the disorder men demonstrate more severe symptomatology than women, they undergo greater transformation of the value and meaning sphere (Tushkova & Bundalo, 2008).

Our findings also confirm the results of research on stress reactions in young mothers from Kabul (Afghanistan). The authors found that women experiencing negative consequences of traumatic events have similar psychological manifestations to those living in shelled areas (Seino, 2008).

Similar results were obtained by the authors examining the relationship between reactions to catastrophes and unemployment. It was found that territorial proximity to the epicenter of events is associated with the manifestation of severe stress reactions and subsequent difficulty in finding a job (Serrano & Leiva-Bianchi & Ahumada & Araque-Pinilla, 2021).

Furthermore, in the context of our study, the findings of a number of scholars studying veterans aged 60 years and older are interesting. Delayed psychological reactions have been found to be prevalent and more likely to provoke depression, substance use disorders, suicide attempts, loss of meaning in life, disbelief in the future, non-suicidal self-harm, and suicidal ideation (Moye & Kaiser & Cook & Pietrzak, 2022).

The obtained results have theoretical and practical significance. With the help of conversation and associative experiment, the range of psychological characteristics of civilians living in the armed conflict, their attitude to life, plans for the future, the presence of goals in life, difficulties in satisfying basic needs was expanded.

Conclusion

Depending on the stay in the territories with high intensity of hostilities, civilians experience unfavorable well-being, decreased activity, deterioration of mood and depressive states, unproductive behavioral strategies in the form of emotional adjustment and avoidance prevail, which has an impact on priority life goals, assessment of the current period of life, understanding of the past and sense of responsibility for successes and failures. Special attention in modern psychological research is emphasized on the category of civilians in adolescence. They suffer from stress, depression, anxiety, PTSD, loss of identity, closing in on themselves, choosing voluntary social isolation, and antisocial behavior. The traumas suffered by adolescents during war have lasting effects on their psyche and can become an obstacle in future life, choice of goals and life strategies. The meaning of life and the main values for residents living directly in the epicenter of military events are, first of all, survival and preservation of the family. People are concerned about the future of their children. The development of various directions of psychological assistance to this category of population is a prospect for further work.

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Irina V. Abakumova – general management of the study, reviewing and editing of the article, final approval of the version for publication.

Evgenia N. Ryadinskaya – development of research methodology, preparation of the experiment program, data analysis, visualization of results, preparation of the text of the article.

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Imaginative Thinking and The Image of The World of Younger Schoolchildren in a Visual Educational Environment

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Abstract

Introduction. The problem of forming an image of the world and imaginative thinking is particularly relevant in modern conditions of transformation of education and changes in the forms and methods of information presentation. The current approaches to the formation of imaginative thinking and the image of the world are considered, first of all, traditional educational technologies. In our research, visual tools and strategies that form the conditions of the visual educational environment play an important role. **Methods.** The study involved 120 primary school students from the Children's Art School (60 people) and the Rostov-on-Don secondary School (60 people). The "Worldview" methodology and the "Assessment of imaginative thinking" methodology were used to study the image of the world. Methods of mathematical statistics (descriptive statistics, Pearson Chi-criterion, Mann-Whitney U-criterion, analysis of variance) were used in processing the results. **Results.** It was revealed that the younger students from the Children's Art School and secondary school have a dominant "Landscape" picture of the world. For schoolchildren from the Children's Art School, the choice of an image in the form of a "Landscape" picture of the world is more pronounced. Schoolchildren from the Children's Art School are characterized by a high level of development of imaginative thinking. The analysis of variance showed significant differences between groups of schoolchildren in terms of imaginative thinking. For schoolchildren with a "Landscape" and "Mediated" picture of the world, a higher level of imaginative thinking is characteristic. **Discussion.** The results obtained confirm that in the conditions of a visual educational environment, there is a more intensive development of imaginative thinking and the image of the world. The results are also consistent with the research of other authors dealing with this problem.

Keywords

visual educational environment, visual strategies, visual activity, imaginative thinking, image of the world, thinking, primary school students, "Landscape" picture of the world

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Introduction

Currently, intensive transformations of education are taking place, primarily due to the fact that digital technologies are becoming part not only of the educational process, but also part of the lifestyle, the life world of a person, acquiring the status of a psychological reality (Klochko, 2016). Distance learning technologies are developing (Abakumova et al., 2019; Efremova, Shapovalova & Huseynova, 2020; Fedotova, Belousova & Vyshkvyrkina, 2022; Salomon, 2000; Sudarwati, 2018), their implementation and scientific reflection having become a global reality (Arsenijević et al., 2022; Jiang et al., 2022; Selco & Habbak, 2021). Many researchers believe that the number of pedagogical innovations that ensure the development of creative capacity includes visualization (Makarova, Makarova, & Varaksa, 2017), visual thinking strategies (Maldonado López, Ledesma Chaves & Gil Cordero, 2023; Clarke, Flaherty & Yankey, 2006) thus indicating the importance of using visual resources for formation of students' interest. The role of the digital visual environment for student collaboration is explored (Liu, Lee & Huang, 2023). Caldwell, Whewell & Heaton (2020) show the influence of visual posts on creative thinking, Boldt & Strub (2023) stating the connection between drawing and thinking, the development of creative thinking in visual activity.

There is a sufficient amount of research devoted to the problems of imaginative thinking. On the one hand, these are classic works on the study of thinking: O.K. Tikhomirov (2002), J. O'Connor & I. McDermott (2012), J. Gharajedaghi (2011), M. G. Luchs (2015), D. H. Meadows (2008), M. Resnick (2003). On the other hand, it is a huge library of research on various types of thinking. If we are talking about visual activity, then the development of imaginative thinking is of primer interest (Boldt & Strub, 2023; Belousova & Muratova, 2014; Belousova, Yamanova & Sinchenko, 2021; Caldwell et al., 2020; Liu et al., 2023; Littlemore & Low, 2006; Makarova et al., 2017; Pishchik & Molokhina, 2017).

The methodology of thinking development involves the use of cognitive maps (Davydova, 2022, Dautov, 2018; Dautov, 2021; Tolman, 1948). Cognitive maps are a form of visualization of students' ideas about the world to solve tasks and problems. The

modern generation is brought up on visual culture and is visual (Lima, Jouini, Namaci & Fabiani, 2014); we can talk about the role of visualization associated with the use of visual activity, drawing as the main means by which the image of the world is developed, or cognitive maps and imaginative thinking as the ability to solve problems in a figurative way.

The educational environment and educational technologies play an important role for the emotional and cognitive development of younger schoolchildren (Belousova, Kozukhar & Ryumshina, 2015; Yasvin, 2002). The creation of a developing educational environment is associated with the creation of psychological foundations for supporting the development of younger schoolchildren and elaboration of their needs for self-study and the formation of appropriate intellectual, communicative and practical skills. The formation of an educational environment for the development of a child's personality and psyche implies the need to design the interaction of a child with adults, as well as interaction between children. At the same time, such interaction (learner–learner, learner–adult) includes the implementation, among other things, of the intellectual sphere in the form of solving cognitive tasks of various types. Cognitive tasks may differ in the type of psychological mechanisms that implement them (tasks of the sensorimotor, sensory-perceptual level, mnemonic, mental, imaginative). The nature of the tasks determines the type of mental processes that ensure the decision process (Belousova et al., 2015).

The use of visual thinking strategies based on the visual activity of students increases the possibilities not only of perceiving and processing information, but also the ability to form a general idea of the world, solve problems (Maldonado Lopez et al., 2023; Ellborg, 2018), generate deep thinking when solving problems and generalize basic ideas (Maldonado López et al., 2023), develop thinking (Abaho, Olomi & Urassa, 2015; Karimi et al., 2016).

In the conditions of a Children's art school, the educational environment involves the development of skills and competencies of visual activity, drawing skills, assuming clearer observation and detailing of the surrounding worldview. Visual activity is based on imaginative cognition of reality, which can be carried out at any level, including thinking. Visual activity involves specific ways of forming mental operations, such as analysis, synthesis, comparison, generalization, which are carried out through the transformation and generalization of the content of the reflection of the figurative form (Tikhomirov, 2002).

We believe that a visual picture of the image of the world and the formation of imaginative thinking are formed due to the use by schoolchildren visualization strategies related to the use of drawings, graphs, various color solutions, visual narratives of the surrounding world, the use of the ability to generate thinking when solving problems and generalize basic ideas in a figurative form.

In psychology, various concepts related to the problem of forming an image of the surrounding world are used. In Russian psychology, such a concept is quite often the

image of the world, which is described as a certain set or multilevel ordered system of human representations about the world, oneself, and other people, refracting through itself any external influence (Smirnov, 1985). In foreign psychology, based on the ideas of E.C. Tolman (1948), the concept of a cognitive map is more often used as a kind of subjective representation of the surrounding world (Davydova, 2022; Dautov, 2018; Dautov, 2021).

We assume that visual activity at the school of arts, characterizing the visual educational environment, can act as a factor influencing the development of the image of the world and imaginative thinking of younger schoolchildren, contributing to the development of imaginative thinking of students and certain types of worldview. We also assume that the level of imaginative thinking for the dominant types of the worldview in the visual educational environment may be higher compared to the subdominant ones.

The purpose of our research was to study the features of the image of the world and imaginative thinking of younger schoolchildren in a visual educational environment.

Methods

Sample

The sample consisted of students from the Children's Art School (60 people) and secondary school No. 3 in Rostov-on-Don (60 people). A total of 120 primary school age students participated in the study. In art school, a child learns various types of fine arts: painting, graphics, sculpture, works of decorative and applied art. In secondary school, visual activities are not so constant and purposeful.

Methodological tools

The methodological tools are presented by the following methods:

- The projective method of the "Picture of the world" (Romanova, Potemkina, 1991). The "Picture of the world" method involves the allocation of five main types of drawings:

The "Planetary" picture of the world is an image of the globe, other planets of the solar system – a cognitive picture of the world, in the form of generally accepted normative knowledge acquired at school;

A "Landscape" picture of the world – in the form of an urban or rural landscape with the presence of people, animals, trees, flowers, etc. – according to self-reports - the desired picture of your environment;

The "Immediate environment" worldview includes the environment around oneself, one's home, as it really is, or situational, unexpected images, a lamp, a burning candle coming from a person's feelings are possible;

A "Mediated or Metaphorical" picture of the world that conveys a complex semantic content presented in the form of a complex image;

"Abstract, schematic", characterized by laconism of construction, in the form of some abstract image, sign, symbol (Romanova, Potemkina, 1991).

- The test "Assessment of imaginative thinking" (Rogov, 2014). The test "Assessment of imaginative thinking" allows us to identify the level of development of conceptual thinking, the ability to operate with images of objects and the method of classifying them to a certain class of concepts. Depending on the points received, the level of thinking development is estimated as: average (20-36 points), above average (37-40 points), high – more than 40 points (Rogov, 2014).

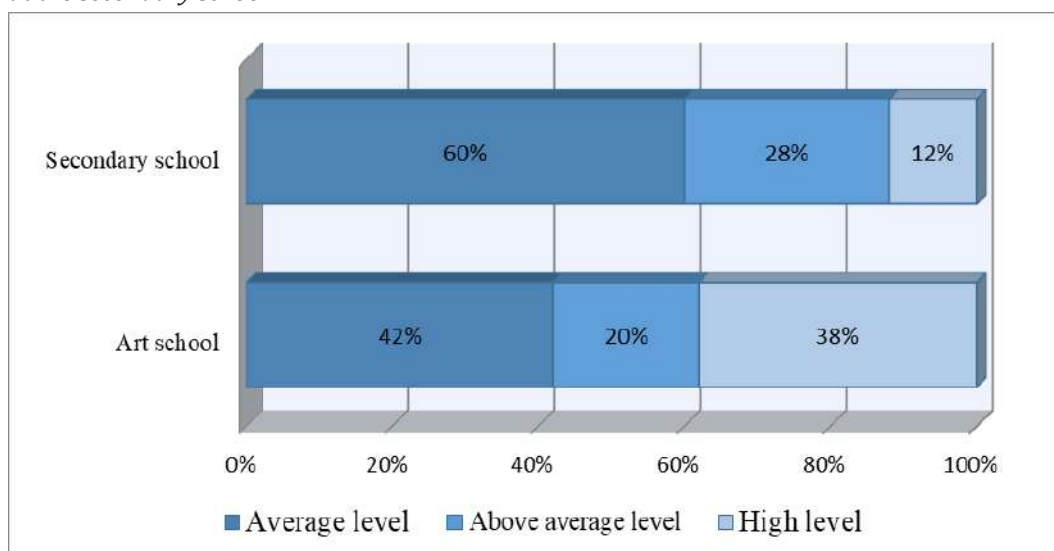
Methods of mathematical statistics (descriptive statistics, Pearson Chi-criterion, Mann-Whitney U-criterion, analysis of variance) were used in processing the results of the study. The analysis of the results was carried out using the computer program for statistical data processing "SPSS 23.0 for Windows".

Results

The study of imaginative thinking showed that younger schoolchildren are generally characterized by an average (61 people), above average (29 people) and a high level (30 people) of the development of imaginative thinking (Figure 1).

Figure 1

Features of the imaginative thinking of younger schoolchildren studying at the School of Arts and at the secondary school



This indicates that elementary school students successfully implement the main function of imaginative thinking, transform existing images, create new ones and operate

on them in the process of solving problems. The results of the study using the method of "Assessment of imaginative thinking" are presented in Table 1.

Table 1

The levels of imaginative thinking of younger students studying at the School of Arts and the secondary school

The level of imaginative thinking	The School of Arts			The secondary school		
	The number of students, people.	%	Average value (points)	The number of students, people	%	Average value (points)
Average	25	42	30,08	36	60	29,33
Above average	12	20	37,67	17	28	38,12
High	23	38	43,65	7	12	43,42

Figure 1 shows that younger students from the School of arts are characterized by a higher level of development of imaginative thinking than the secondary school students: 58% of the School of arts students have a level of development of imaginative thinking above average (38% of students – high level, 20% – above average), while this indicator is typical for 40% of the secondary school students (12% – high level, 28% – above average).

The use of the Mann-Whitney statistical criterion allowed us to establish that there are significant differences in the level of development of imaginative thinking in younger schoolchildren studying at School of arts and the secondary school ($U = 1307,500$, $r \leq 0.01$).

Table 2

Differences in the level of development of imaginative thinking of schoolchildren studying at the School of arts and the secondary school

Variable	The School of Arts for children	The secondary school	Mann Criterion–Whitney U	The Significance of Differences
Imaginative thinking	36,8	33,49	1307,500	0,010**

Note. ** *The level of statistical significance is $p \leq 0.01$*

The analysis of the features of the images presented by schoolchildren in the drawings of the "Picture of the World" method made it possible to identify four pictures of the world: "Planetary", "Landscape", "Immediate environment" and "Indirect" (Figure 2, Table 3).

For younger students studying at the School of Arts and the secondary school, a "Landscape" picture of the image of the world is characteristic. The "planetary" picture of the world, the picture of the "Immediate Environment" and the "Mediated" picture of the world are depicted less often by younger schoolchildren. It should also be noted that the "Abstract" (or schematic) picture of the world is not presented. The results obtained are quite consistent with the basic patterns of mental development of younger schoolchildren, showing the predominant development of visually effective thinking (Obukhova, 1995; Tikhomirov, 2002), the period of specific operations (Kraig, Bokum, 2019; Piaget, 2004).

The results of the study of the image of the world of younger schoolchildren are presented in Table 3. The "planetary" picture of the world (the image of the globe, other planets of the solar system) is typical for 7% of the School of Arts students, and for 15% of the secondary school students. These students have a predominant cognitive picture of the world, in the form of generally accepted normative knowledge acquired at school.

Figure 2

Features of the image of the world of younger students of the School of Arts and the secondary school

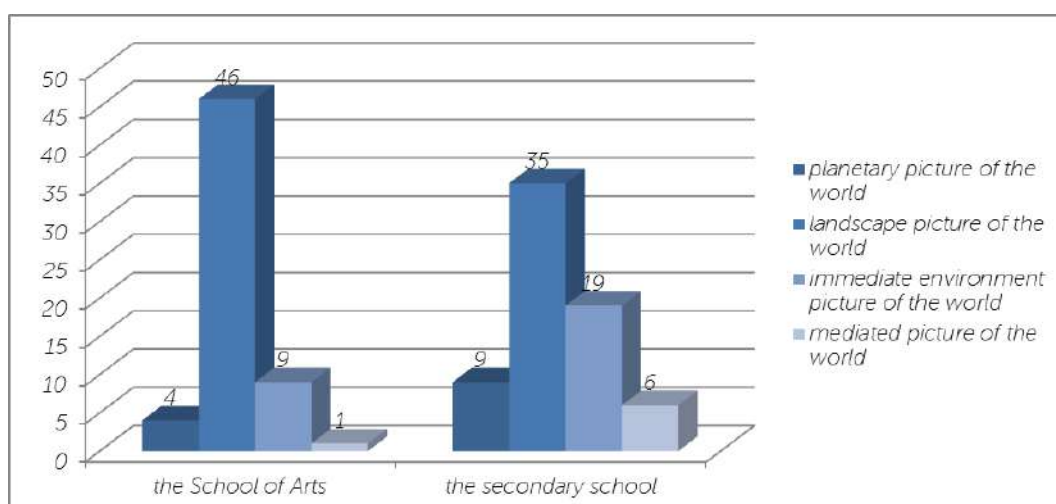


Table 3

Features of the image of the world of primary school children

The picture of the world	The School of Arts		The secondary school	
	The number of students	%	The number of students	%
Planetary	4	6,7	9	15,0
Landscape	46	76,7	35	58,3
Immediate environment	9	15,0	10	16,7
Mediated	1	1,7	6	10,0

A "landscape" picture of the world (in a form of an urban or rural landscape with the presence of people, animals, trees, flowers, etc.) is typical for 76% of primary school students of the the School of Arts, and for 58% of the secondary school students. For most younger students, it is important to build the desired picture of their environment. The "immediate environment" (the situation around oneself, one's home, as it really is, or situational) is typical for 15% of primary school students of the School of arts and 17% of the secondary school students. An "indirect" or metaphorical picture of the world, conveying a complex semantic content presented in the form of some complex image, was depicted by 1 student of the the School of Arts, and 6 students of the secondary educational school.

The calculation of Pearson's Chi criterion allowed us to establish the existence of a tendency towards the significance of differences in the landscape picture of the world among younger schoolchildren studying at the Children's School of Arts and the secondary school ($\chi^2 = 7,041, 0.05 \leq r \leq 0.1$).

The next step in our analysis was to study the features of imaginative thinking in schoolchildren with different types of worldview. The average values of the level of development of imaginative thinking of the younger schoolchildren with a different image of the world are presented in Table 4.

Table 4

Imaginative thinking of younger students with a different image of the world

The picture of the world	Children's Art School		The picture of the world	
	The number, people	The average value of imaginative thinking	The number, people	The average value of imaginative thinking
Mediated	1	47,00	6	37,67
Planetary	4	32,50	9	30,78
Immediate environment	9	36,56	10	31,00
Landscape	46	37,00	35	34,14

For schoolchildren who have depicted indirect and landscape pictures of the world, a higher level of development of imaginative thinking is characteristic.

To identify the connection between the imaginative thinking of younger schoolchildren with a different image of the world, a one-factor analysis of variance (ANOVA) was conducted, the results of which are presented in Table 5.

Table 5

The significance of differences in the imaginative thinking of younger schoolchildren with a different image of the world according to the results of the analysis of variance

Nº	World view	The number of people	The average value of imaginative thinking	The significance of differences between the groups
1	Mediated	7	39,00	(Fisher variance analysis)0,049*
2	Planetary	13	31,31	
3	Immediate environment	19	33,63	
4	Landscape	81	35,77	

Note. *The level of statistical significance $r \leq 0.05$

The Fisher analysis of variance allowed us to establish significant differences between the groups in terms of imaginative thinking ($F = 2.695$, $r \leq 0.05$). Schoolchildren depicting landscape and mediated worldviews are characterized by a higher level of imaginative thinking than schoolchildren depicting a planetary picture and a picture of the immediate environment.

Discussion

The analysis of the results obtained according to tables 1-2 indicates that the solution of tasks based on visual material, the transformation of situations in terms of images is performed by the students of the School of Arts more effectively than by students of the secondary educational schools. Imaginative thinking is a complex, multidimensional, multifunctional education (Obukhova, 1995; Tikhomirov, 2002), which is of great importance for the mental development of a person at all stages of his\her ontogenesis. The development of imaginative thinking among younger students of the Children's Art School is at a higher level than among students of secondary school.

The results obtained, firstly, correspond to classic theories (Vygotsky, 2005; Kraig, Bokum, 2019; Obukhova, 1995; Piaget, 2004): at primary school age, thinking becomes the dominant function in the mental development of younger schoolchildren, determining the functioning of consciousness and the development of the child's personality, intellectualization of mental functions occurs, in which thinking has a system-forming character, mediating the development of other mental processes (Vygotsky, 2005). At this age, the processes of detecting contradictions intensify (Krasnoryadtseva, 2012), intellectual emotions develop (Tikhomirov, 2002), and various types of thinking crystallize (Kraig, Bokum, 2019; Obukhova, 1995; Piaget, 2004).

Our results highlight the fact that visual-imaginative thinking is one of the main forms of thinking in primary school age. In the process of learning at school, younger schoolchildren acquire concepts (Vygotsky, 2005; Davydov, 2001; Piaget, 2004), thinking becomes arbitrary, reflexive, verbal-logical, from empirical it is transformed into theoretical (Davydov, 2001), but imaginative thinking continues to play an essential role in educational activities and the life of schoolchildren (Davydov, 2001; Tikhomirov, 2002).

The results presented are consistent with the Boldt & Strub (2023) study, which showed the importance of experience and abilities to draw and to visual activity for the development of divergent thinking.

An attempt to study the features of the image of the world (Table 3) showed that for younger schoolchildren studying at the School of Arts and the secondary schools, a "Landscape" picture of the image of the world is characteristic. The "planetary" picture of the world, the picture of the "Immediate environment" and the "Mediated" picture of the world are depicted by the younger schoolchildren less often. It should also be noted that the "Abstract" (or schematic) picture of the world is not represented. The results obtained are quite consistent with the basic patterns of mental development of younger schoolchildren, showing the predominant development of imaginative thinking (Obukhova, 1995; Tikhomirov, 2002), the period of specific operations (Kraig, Bokum, 2019; Piaget, 2004).

In existing studies of the image of the world, it has been shown that the image of the world differs due to different cultural and historical conditions of their formation (culture,

language, nationality, society) (Mochalova, 2015; Belousova, Pishik, 2006), as well as due to various psychological factors (personal, age, environmental, etc.) (Naryshkin, 2005, Poddyakov, 2003). There are works devoted to the study of the peculiarities of the image of the world of student youth (Belousova, Pishik, 2006; Tushnova, 2015). Some characteristics of the image of the world of teenagers were revealed in the works (Mamaichuk, Krainyukov, 2014; Tushnova, Mochalova, 2017). At the same time, according to Poddyakov A. N. (2003) and Krainyukov S. V. (2019), the problem of the image of the world of younger schoolchildren requires close study.

The presented results allow us to assert that the dominance and high level of representation of the "Landscape" picture of the world is characteristic for students of the Art School. We believe that such a vision of the world has been formed through constant visual activities, educational visualization strategies, constant observation of the outside world, the practice of creating images of surrounding objects and phenomena, and imaginative practice.

The next aspect of our analysis led us to understand that the schoolchildren who prefer a Landscape picture of the world have a higher level of imaginative thinking. In other words, the landscape picture of the world of younger schoolchildren suggests a higher level of development of imaginative thinking.

Thus, in the conditions of a visual educational environment, there is a more intensive development of imaginative thinking and an image of the world, which is characterized by a vision of the world as a concretized reality filled with objects and phenomena.

Conclusion

Thus, the analysis of the development of the world image and imaginative thinking of younger schoolchildren studying at the Children's Art School and the Secondary School showed the influence of the visual educational environment on the development of thinking and worldview:

1. For younger students studying at both the Children's Art School and the secondary school, there is a predominance of average, above average and high levels of development of imaginative thinking. At the same time, it was revealed that there are significant differences in the development of imaginative thinking: younger schoolchildren from the Children's Art School are characterized by a higher level of development of imaginative thinking than for secondary school students. In other words, solving problems in images, based on visual material, transforming situations in terms of images, is performed by the students of the Art school more effectively than by the students of the secondary school.
2. For younger students studying at both the Children's Art School and the secondary school, the predominant development of the "Landscape" picture of the world is characteristic. In second place is the "Planetary" picture of the world. The

"Immediate environment" and "Indirect" worldview are represented to a lesser extent, but the "Abstract" (or schematic) worldview is not represented at all in younger schoolchildren, which corresponds to the age level of development.

3. There are significant differences in the choice of a landscape picture of the world: schoolchildren of the Children's Art School more often chose a "Landscape" picture of the world, for students of the Art school building the desired picture of their environment is more typical than for students of the secondary school.

4. The analysis of variance allowed us to establish significant differences between groups of schoolchildren with different types of worldview in terms of imaginative thinking and the existence of a connection between the features of the worldview and the development of imaginative thinking: for schoolchildren depicting "Landscape" and "Mediated" worldviews, a higher level of imaginative thinking is characteristic.

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Problematic Smartphone Use: Relationships With Emotional Intelligence, Self-Confidence, and Conflict Behavior in Belarusians and Russians

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Abstract

Introduction. Smartphones have become one of the most important digital devices in modern life. Excessive smartphone use can be associated with negative emotions and other psychological problems. This study aims to identify the relationships between problematic smartphone use and emotional intelligence, self-confidence, conflict management modes and social networking addiction among Belarusian and Russian respondents, and to detect common and different characteristics in these relationships between the two analyzed samples. **Methods.** A total of 1448 respondents participated in the online survey (Belarusian respondents: $n = 726$; Russian respondents: $n = 722$). Diagnostic tools: (a) Short Version of the Smartphone Addiction Questionnaire by V. P. Sheinov, (b) Emotional Intelligence Test by N. Hall, (c) Self-Confidence Test by V. G. Romek, (d) Thomas-Kilmann Conflict Mode Instrument (modified by N. V. Grishina), and (e) Social Networking Addiction Questionnaire, SNA-15 by V. P. Sheinov and A. S. Dziavitsyn. **Results.** 1) Problematic smartphone use is negatively associated with emotional intelligence and self-confidence in the samples of Belarusian and Russian respondents. 2) Conflict management modes are weakly correlated with problematic smartphone use (only the negative correlation between problematic smartphone use and collaboration among Russian women, as well as the positive correlation with avoidance in the overall Belarusian sample and in the sub-sample of Belarusian men

are statistically significant). 3) Belarusian and Russian respondents showed significant correlations among all factors of problematic smartphone use (loss of self-control, fear of refusal to use a smartphone, and euphoria caused by smartphone use) and all factors of social network addiction (user psychological state, network user communication, and acquiring information). **Discussion.** Results can be used for preventive and corrective development activities to prevent problematic smartphone use among young people.

Keywords

problematic smartphone use, smartphone addiction, emotional intellect, self-confidence, behavior in conflict, social networking addiction, Belarusians, Russians

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Introduction

Smartphones have become one of the most important digital devices in modern life. Smartphones perform many functions by providing their owners with permanent access to the Internet, maintaining social networks, and acquiring information quickly. Smartphones are used in professional activities, offer users a variety of entertainment and pleasure, help with navigation. The advantages of smartphones are obvious. They are portable, convenient, personalized and always available. Most teenagers (82 %) prefer smartphones to access to the Internet (Soldatova, Chigar'kova, Koshevaya, & Nikonova, 2022, p. 24-25).

Thanks to its functionality, smartphones today are not only tools, but also part of individual self (Nijssen, Schaap, & Verheijen, 2018). Gadgets "change into unique 'psychological tools' and change the quality characteristics of mental phenomena and processes" (Regush, Alekseeva, Veretina, Orlova, & Pezhemskaya, 2019 p. 20). Smartphones are increasingly being used in the education process (Babak 2021; Men'shikov, Sutyagin, & Lisun 2022; Starun & Voistinova 2021).

However, excessive smartphone use can lead to social isolation, negative emotional states, and other psychological problems. It is being discussed whether digital technology can reduce cognitive functions and lead to 'digital dementia'. A special term has appeared in scientific literature – 'problematic smartphone use' (Panova & Carbonell, 2018). However, some authors (Peraman & Parasuraman, 2016) believe that excessive

smartphone use is a form of psychological or behavioral addiction. Excessive smartphone use can be associated with social networking addiction and Internet addiction. Other researchers believe that the terminology associated with the use of smartphones is not completely correct and can cause difficulties both in research and in the stigmatization of users. Therefore, they suggest replacing the concept of 'smartphone addiction' with the concept of 'problematic smartphone use' (Peraman & Parasuraman, 2016).

In our view, the concepts of 'problematic smartphone use' and 'smartphone addiction' can be used as interchangeable synonyms. However, they have specificities.

Problematic smartphone use includes concerns about mobile communication, excessive spending of money or time, and smartphone use in socially or physically inappropriate situations (e.g., driving). Excessive smartphone use can lead to adverse effects on social relationships, mental or physical health, and can cause anxiety if the smartphone opportunity is excluded (Csibi, Griffiths, Demetrovics, & Szabo, 2021). People addicted to smartphones behave differently than chemical and other addicts. People are not addicted to smartphones, but to the opportunities that smartphones provide – participating in social networking, gambling, pornography viewing, etc. (Panova & Carbonell, 2018). Therefore, the concept of 'problematic smartphone use' is preferred.

The model of non-medical smartphone addiction is based on factor analysis of a large amount of empirical material (Sheinov & Dziavitsyn, 2021, p. 174), and is radically different from the structure of social networking addiction and repeats the structure of medical addiction (ibid., p. 192).

With regard to the Internet environment, the concept of immersion in the web environment is introduced into scientific discourse and is proposed to be considered as "a new psychological phenomenon with its own psychological content, different from phenomena such as Internet addiction, problematic Internet use, etc." (Regush et al., 2021, p. 107). The introduction of the concept of immersion in the web environment as a broader concept, free from negative and clinical connotations, and characterizing individual activities seems appropriate, as "it allows us to identify the interaction of modern people with the Internet environment" (ibid., p. 110).

People's digital hyperconnectivity is expressed by the number of hours spent on monitor screens and smartphones. Hyperconnectivity refers to the level of user activity "when the time of networking corresponds to the time without computer screens" (Soldatova, Chigar'kova, Koshevaya, & Nikonova, 2022, p. 21). However, as the authors note, understanding the phenomenon of hyperconnectivity "should not be limited to the number of hours spent on gadgets". The authors describe hyperconnectivity as "one of the key dimensions of digital socialization and also reflects qualitative changes determined by the evolution of special relationships between adolescents and their personalized digital devices" (Soldatova et al., 2022, p. 38–39). The smartphone has become the main tool to expand the abilities of a child and to perform a variety of activities that were inaccessible to children of the same age a few decades ago. It is no coincidence that smartphones

are at immediate access almost 24 hours a day, making them an integral companion of children, part of their personality, and a very functional technology addition that modern children learn to manage independently" (ibid.).

The importance of smartphones in a person's life does not reduce the dangers of hyperconnectivity. We are not addicted to smartphones, but to a normal and healthy need for social interaction, and satisfaction can be achieved through a smartphone (Veissière & Stendel, 2018). Healthy needs can become unhealthy addictions, and excessive use of smartphones can harm mental health. In particular, smartphone use is related to the dopamine reward system, which have similar patterns to drug use and other addictions (Veissière & Stendel, 2018, p. 4).

Pre-school children and young adults are at greatest risk of problematic smartphone use (Csibi et al., 2021). The problematic smartphone use by children and young people and the resulting addiction raise increasing concern among psychologists, parents, teachers, and the public. There are serious reasons for this. Smartphone addiction is positively associated with depression, anxiety, stress, dissatisfaction in life, and self-control (Sheinov, 2021, p. 97). Smartphone addiction is also associated with many other negative diseases. At the same time, it was revealed that the conflict component of the 20–34 age group is lower than that of the 3–11 age group and that of the 12–19 age group, where it is significantly higher than that of the older age group. These results, the authors note, may reflect a decline in parental control, indicating that partners, employers and/or friends can confront individuals of this age group when they notice an excessive use of an individual's smartphone. These findings are consistent with other studies reporting that positive parental supervision can prevent excessive smartphone use (Csibi et al., 2021).

Previous studies have identified correlations between smartphone addiction and *emotional intelligence, self-doubt, and conflicts* that require research attention.

In modern psychology, *emotional intelligence* is defined as the ability of individuals to understand and manage their own and other people's emotions (Lyusin, 2004) and their accurate perception and use (Mayer, 2008). There is increasing evidence that EI plays an important role in the development of drug addiction and behavioral addictions. Henning et al. studies on the importance of EI and related addiction have shown that significant empirical data have been collected, indicating that low EI is an important risk factor for the development of addiction. This indicates the need to pay more attention to the mechanisms of EI in addiction and the potential utility of EI training in addiction treatment (Henning et al., 2021). Another study found that higher smartphone addiction correlates with lower emotional intelligence and self-control ($R = -0.418$, $p < 0.001$). Furthermore, the study found that when respondents' emotional intelligence was higher, self-control was also higher ($R = 0.502$, $p < 0.001$) (Choi et al., 2014). An inverse relationship between smartphone addiction and emotional intelligence scores in the emotional awareness subscale has been found (Morales et al., 2020). Emotional intelligence subscales showed a negative correlation with smartphone addiction in student nurses. Thus, the higher the

level of use of emotions and emotional regulation, the lower the smartphone addiction scores of respondents (Lee & Gu, 2018). Smartphone addiction is negatively associated not only with emotional intelligence, but also with critical thinking. Higher smartphone addiction scores predict lower levels of emotional intelligence and lower critical thinking skills (Lee & Kim, 2017). Another study supports the idea that emotional intelligence scores are negatively associated with problematic Internet use and problematic smartphone use (Arrivillaga, Rey, & Extremera, 2020). In general, there is a negative correlation between virtual world orientation and awareness and emotional expression through the subfactors of emotional intelligence (Yoo et al., 2017).

Self-doubt. The preference for the virtual world over the real world is one of the main characteristics of smartphone addiction. Smartphone addicts lose confidence in their relationships with others (Shim, 2019). Meanwhile, smartphone addiction is more common among people with low self-esteem, and smartphone use helps them to connect to others in the virtual world and increase self-esteem (Lee et al., 2018). Potential factors that lead to excessive smartphone use include personal factors (prolonged leisure time and low self-confidence) and social factors (social pressure and fear of losing friends) (Alotaibi, 2022). Excessive smartphone use can reduce self-confidence and lead to smartphone addiction (Peraman & Parasuraman, 2016).

Conflicts. A study by S. Mahapatra showed that the adverse effects of smartphone addiction include poor academic performance, personal and family conflicts (Mahapatra, 2019). Y.-R. Lee, J.-S. Park, has confirmed that conflict management modes and smartphone addiction have a direct significant relationship (Lee & Park, 2018). A study by R. Alan and H. S. Guzel showed that participants with no confident style of coping with stress have higher smartphone addiction scores than those who have chosen other methods of conflict resolution (Alan & Guzel, 2020).

These results have been obtained in previous studies. The natural question is whether such correlations will be observed in Belarusian and Russian samples. Do Belarusians and Russians have the same or different characteristics? The importance of these correlations determines the relevance of such research.

This **study aims** to identify the relationships between problematic smartphone use and emotional intelligence, self-confidence, conflict behavior types and social networking addiction among Belarusian and Russian respondents, and to detect common and different characteristics in these relationships between the two analyzed samples.

The study of a Belarusian-Russian sample was carried out for several reasons. The young generations of the two neighboring countries that were part of the USSR until 1990 "grew up in completely different socio-political, economic, and cultural realities" (Odintsova et al., 2021, p. 169). Research into the problem of personal resources for the spiritually closest peoples "is very few and focuses on ethnic groups as a whole" (ibid.). The article we cited did not deal with the study of the characteristics of digital behavior of the population of both countries. The comparative analysis of correlations between smartphone addiction and personal traits in a Belarusian-Russian sample appears urgent.

Methods

Sample

A total of 1448 respondents participated in the online survey, of whom 66.3% were women (Belarusian respondents: $n = 726$, 59.6% females; Russian respondents: $n = 722$, 72.9% females). The mean age of Belarusian respondents was 22.8 years (min = 15, max = 63; $SD = 7.18$); the mean age of Russian respondents was 21.8 years (min = 15, max = 69; $SD = 7.78$). The majority of respondents were students.

Diagnostic tools

- **Short Version of the Smartphone Addiction Questionnaire** (Sheinov, 2021) to assess smartphone addiction. The study used a factorial model of smartphone addiction, which included the following three factors: fear of refusal to use a smartphone, loss of self-control, and euphoria caused by smartphone use (Sheinov & Dziavitsyn 2021, p. 174).
- **Social Networking Addiction Questionnaire, SNA-15** (Sheinov & Dziavitsyn 2021a) to assess social networking addiction. The study used a *three-factor model of social networking addiction*. The model includes the following three factors: network user communication, his/her psychological state and information (acquiring information) (Sheinov & Dziavitsyn, 2021b).
- **Self-Confidence Test by V. G. Romek** (Romek, 1998, pp. 87-108) for assessing self-confidence. The test includes the following components of self-confidence: general confidence, social courage, and initiative in social contacts.
- **Emotional Intelligence Test by N. Hall** (Hall, 2002, pp. 57–59; Fetiskin, Kozlov, & Manuilov, 2002) to assess the following five components: *emotional awareness, emotional self-management, self-motivation, empathy, recognizing other people's emotions*. Based on the assessment of these components, an integrated emotional intelligence indicator is calculated.
- **Thomas-Kilmann Conflict Mode Instrument** (Thomas & Kilmann, 1974, 2007), modified by N. V. Grishina (Greben, 2007, pp. 381–388) to assess conflict management modes, including *competition, accommodation, compromise, avoidance, and collaboration*.

Research procedure

The study of samples of Belarusian and Russian men and women was carried out using an anonymous, voluntary, remote method, using Google Forms. Data collection was carried out simultaneously in Russian and Belarusian samples in 2022. Individual results were automatically sent to all respondents within an hour.

Statistical analysis was carried out with SPSS-22 software.

Results

The test showed that the empirical distribution of all samples representing the characteristics studied was different from normal. Therefore, all correlations were calculated using the non-parametric Mann-Kendall test. The choice of Mann-Kendall test correlations is convenient in capturing both linear and non-linear relationships.

Let us present the results of the correlation calculation in the samples of Belarusian and Russian respondents.

Relationships of problematic smartphone use with social networking addiction, self-confidence, conflict management modes, and age

The data presented in Table 1 indicate that problematic smartphone use strongly correlates with social networking addiction among Belarusian and Russian respondents, and the strongest correlation is among Russian men.

Table 1

Correlations of problematic smartphone use with social networking addiction, self-confidence, conflict management modes, and age among Belarusians and Russians

	Social networking addiction	Self-confidence			Conflict management modes				Age	
		General confidence	Social courage	Initiative in social contacts	Competition	Collaboration	Compromise	Avoidance		Accommodation
Belarus (overall sample)	0.480**	-0.194**	-0.254**	-0.043	-0.026	-0.006	-0.024	0.065*	0.017	-0.053*
Belarus (men)	0.448**	-0.220**	-0.312**	-0.083*	-0.038	0.018	-0.060	0.100*	0.022	0.003
Belarus (women)	0.491**	-0.180**	-0.206**	-0.029	0.010	-0.038	-0.029	0.029	0.020	-0.125**

	Social networking addiction	Self-confidence			Conflict management modes					Age
		General confidence	Social courage	Initiative in social contacts	Competition	Collaboration	Compromise	Avoidance	Accommodation	
Russia (overall sample)	0.494**	-0.252**	-0.214**	-0.056*	-0.015	-0.029	0.003	0.021	0.000	-0.125**
Russia (men)	0.517**	-0.335**	-0.245**	-0.103*	0.009	-0.011	0.015	-0.008	0.006	-0.087
Russia (women)	0.466**	-0.208**	-0.169**	-0.032	0.021	-0.064*	-0.017	0.008	0.004	-0.153**

Note. In Tables 1-4, significant correlations are in bold font; * $p \leq 0.05$, ** $p \leq 0.01$.

The correlation between problematic smartphone use and self-confidence is negative in both Belarusian and Russian samples. This correlation scores are slightly higher among Russians. Social courage is more than initiative in social contacts associated with problematic smartphone use and reduces it.

Conflict management modes have weak correlations with problematic smartphone use. Only a negative correlation with collaboration in the sub-sample of Russian women and a positive correlation with avoidance in the overall sample of Belarusians and in the sub-sample of Belarusian men reach the statistical significance level.

A negative correlation between problematic smartphone use and age was found among Belarusian and Russian respondents. More specifically, as numerical values show, such a correlation can be found in the sub-samples of Belarusian and Russian women.

Relationships between smartphone addiction and emotional intelligence addiction

As the data presented in Table 2 show, problematic smartphone use is negatively correlated with emotional intelligence in both Belarusian and Russian overall samples, as well as in the subsamples of Belarusian and Russian men and women. This correlation is the strongest among Russian men.

Table 2
Correlations between smartphone addiction and emotional intelligence of Belarusians and Russians

	Integral emotional intelligence	Emotional awareness	Emotional self-management	Self-motivation	Empathy	Recognizing other people's emotions
Belarus (overall sample)	-0.148**	-0.058*	-0.193**	-0.182**	-0.052*	-0.074**
Belarus (men)	-0.196**	-0.117**	-0.203**	-0.213**	-0.135**	-0.126**
Belarus (women)	-0.098**	-0.018	-0.148**	-0.134**	-0.006	-0.045
Russia (overall sample)	-0.144**	-0.022	-0.207**	-0.164**	-0.053*	-0.097**
Russia (men)	-0.235**	-0.089	-0.255**	-0.206**	-0.169**	-0.219**

	Integral emotional intelligence	Emotional awareness	Emotional self-management	Self-motivation	Empathy	Recognizing other people's emotions
Russia (women)	-0.106**	-0.013	-0.151**	-0.133**	-0.043	-0.077*

Analysis of correlations between problematic smartphone use and individual components of emotional intelligence showed that emotional self-management and self-motivation had the strongest negative correlations with problematic smartphone use.

The recognition of other people's emotions and empathy of others have weaker but also negative correlations with problematic smartphone use. Such correlations do not reach statistical significance for the scores of recognition of other people's emotions in the sub-sample of Belarusian women and for empathy scores in the sub-samples of Belarusian and Russian women.

To a lesser extent, problematic smartphone use was negatively associated with emotional awareness. This relationship reaches statistical significance only in the general sample of Belarusians and in the sub-sample of Belarusian men.

Thus, despite the fact that the mean scores of smartphone addiction among Belarusians (equal to 13.65) and Russians (equal to 14.82) are not statistically different ($p = 0.130$), there are both similarities and certain differences in the correlations of smartphone addiction with social networking addiction, self-confidence and the level of emotional intelligence of Belarusians and Russians.

Relationships of the components of problematic smartphone use with the components of social networking addiction and integral personal traits of respondents

Let us present the results of the correlation analysis of relationships of smartphone addiction factors and social networking addiction factors and integral indicators of personal traits of Belarusian and Russian respondents (Tables 3 and 4).

Table 3

Correlations of problematic smartphone use components with the components of social networking addiction and integral indicators of personal traits of Belarusians

Smartphone addiction factors	Social networking addiction (integral indicator and factors)				Self-confidence	Emotional intelligence
	Integral indicator	Network user psychological state	Network user communication	Acquiring information		
Overall sample						
Loss of self-control	0.404**	0.426**	0.261**	0.293**	-0.189**	-0.132**
Fear of refusal to use a smartphone	0.380**	0.393**	0.253**	0.280**	-0.142**	-0.140**
Euphoria caused by smartphone use	0.427**	0.432**	0.284**	0.318**	-0.144**	-0.116**
Men						
Loss of self-control	0.370**	0.393**	0.247**	0.271**	-0.199**	-0.139**
Fear of refusal to use a smartphone	0.339**	0.332**	0.239**	0.286**	-0.117**	-0.154**
Euphoria caused by smartphone use	0.395**	0.393**	0.272**	0.317**	-0.192**	-0.217**

Smartphone addiction factors	Social networking addiction (integral indicator and factors)				Self-confidence	Emotional intelligence
	Integral indicator	Network user psychological state	Network user communication	Acquiring information		
Women						
Loss of self-control	0.414**	0.441**	0.234**	0.300*	-0.181**	-0.110**
Fear of refusal to use a smartphone	0.386**	0.414**	0.221**	0.270**	-0.156**	-0.121**
Euphoria caused by smartphone use	0.438**	0.450**	0.263**	0.313**	-0.111**	-0.042

As Tables 3 and 4 show, there are significant positive correlations between all factors of problematic smartphone use and all factors of social networking addiction among both Belarusians and Russians. The strongest correlations were observed between the factors of problematic smartphone use – loss of self-control, fear of refusal to use a smartphone, and euphoria caused by smartphone use – and the factor of psychological state of a social network user. The data also show that all three factors of smartphone addiction are strongly correlated with the factors of ‘acquiring information’ and ‘network user communication’ in both Belarusian and Russian samples.

Table 4

Correlations of problematic smartphone use components with the components of social networking addiction and integral indicators of personal traits of Russians

eSmartphone addiction factors	Social networking addiction (integral indicator and factors)				Self-confidence	Emotional intelligence
	Integral indicator	Network user psychological state	Net-work user communication	Acquiring information		
Overall sample						
Loss of self-control	0.410**	0.440**	0.252**	0.300**	-0.244**	-0.130**
Fear of refusal to use a smartphone	0.426**	0.449**	0.297**	0.313**	-0.204**	-0.148**
Euphoria caused by smartphone use	0.450**	0.461**	0.304**	0.341**	-0.191**	-0.104**
Men						
Loss of self-control	0.446**	0.468**	0.277**	0.334**	-0.318**	-0.220**
Fear of refusal to use a smartphone	0.449**	0.447**	0.394**	0.321**	-0.247*	-0.206**
Euphoria caused by smartphone use	0.465**	0.459**	.361**	0.361**	-0.273**	-0.176**

eSmartphone addiction factors	Social networking addiction (integral indicator and factors)				Self-confidence	Emotional intelligence
	Integral indicator	Network user psychological state	Net-work user communication	Acquiring information		
Women						
Loss of self-control	0.378**	0.412**	0.214**	0.266**	-0.205**	-0.089**
Fear of refusal to use a smartphone	0.397**	0.433**	0.241**	0.287**	-0.175**	-0.119**
Euphoria caused by smartphone use	0.421**	0.441**	0.257**	0.312**	-0.147**	-0.072*

Note. Significant correlations are in bold font; * $p < 0.05$. ** $p < 0.01$.

Belarusians and Russians found significant negative correlations of the three factors of smartphone addiction with self-confidence and emotional intelligence among male and female respondents.

Discussion

In this study we found a negative relationship between smartphone addiction and age in men and women. These study results confirm previously obtained data on the negative relationship between smartphone addiction and age in women (cited from: Sheinov & Dziavitsyn, 2021, p. 171). This fact requires research attention and understanding. The older Belarusian and Russian women are, the less they are exposed to smartphone

addiction. Perhaps this is partly explained by the expansion of women's responsibilities with age, including the responsibilities relating to motherhood and childcare, which are further entrusted to women. They have less time for a smartphone and it becomes often out of sight.

Relationship with emotional intelligence

As the study showed, problematic smartphone use is negatively associated with emotional intelligence and the following its components: emotional self-management, empathy, self-motivation, and recognition of other people's emotions. This fact is consistent with the result of a previous study (Turkle, 2017) that shows that "because of excessive communication via smartphones, people are less sensitive to each other, resulting in a loss of empathy and a deterioration of emotional contact with others" (cited by Sheinov, 2020, p. 120). This study confirms previous findings that the higher the level of problematic smartphone use, the lower the emotional intelligence score, and the higher the emotional intelligence score, the lower the smartphone addiction score (Choi et al., 2014; Lee & Kim, 2017; Yoo et al., 2017; Morales et al., 2020). This provides further evidence that emotional intelligence plays an important role in the development and manifestation of problematic smartphone use. Emotional intelligence development is a means of preventing and correcting smartphone addiction.

The results of our study are consistent with the statement that "...in digital interactions, the cognitive component of emotional intelligence prevails" (Minyurova et al., 2021, p. 163). The study found that the recognition of other people's emotions and the ability to affect the emotions of others are less correlated with the problematic smartphone use. Problematic smartphone use is even less associated with respondents' emotional awareness.

Negative relationships between problematic smartphone use and self-confidence have previously been found in a number of studies (Lee et al. 2018; Shim 2019; Peraman & Parasuraman, 2016). The results presented in this paper support the proposal that a positive self-appraisal reduces problematic smartphone use. At the same time, smartphone addicts lose self-confidence and social courage over time.

Relationship with conflict management modes

With a few exceptions, the study did not show a significant correlation between problematic smartphone use and conflict management modes among Belarusians and Russians (Table 1). The exception is a positive relationship with avoidance in the

overall sample of Belarusians and in the sub-sample of Belarusian men. This relationship seems to be quite logical. Avoidance in real conflict situations can potentially increase the desire to interact with gadgets. However, such a relationship has not been observed among Russians. Another exception is a negative relationship between the problematic smartphone use and collaboration in the sub-sample of Russian women. This relationship seems, undoubtedly, quite logical. If avoidance in real conflict situations can potentially increase the desire to interact with gadgets, then the desire to collaborate in real conflict situations will reduce the desire to escape into smartphones.

The strong correlation between smartphone use and social networking addiction found in the study is logical. Smartphone addiction is rooted in the desire for communication with others and the need to be seen, heard, directed, and controlled by others (Veissière & Stendel, 2018). A strong significant correlation between all factors of problematic smartphone use and all factors of social networking addiction in the Belarusian and Russian samples indicates further evidence that all factors of problematic smartphone use (fear of refusal to use a smartphone, loss of self-control, and euphoria caused by smartphone use) are independent, causing the problem of excessive smartphone use.

This idea was confirmed by a significant negative correlation between the three factors of smartphone addiction and self-confidence and emotional intelligence among male and female respondents in Belarusian and Russian samples. The higher the scores of self-confidence and emotional intelligence, the lower the scores of loss of self-control when using a smartphone, and the less pronounced fear of refusal to use a smartphone and euphoria caused by smartphone use.

Conclusions

The study found that the mean smartphone addiction scores were significantly different ($p = 0.130$) among Belarusians and Russians. Significant similarities have been found in the relationships between problematic smartphone use and social networking addiction and the personality traits of Belarusian and Russian men and women.

The analysis of the results of the study led us to draw the following conclusions:

1. Problematic smartphone use can manifest itself as a psychological addiction to smartphones or smartphone addiction, and is associated with a number of personality traits and social networking addiction among Belarusians and Russians.
2. Problematic smartphone use is negatively associated with emotional intelligence and its following components: emotional self-management, self-motivation, empathy, recognizing other people's emotions. To a lesser extent, smartphone

addiction is negatively associated with emotional awareness scale, reaching statistical significance only in the overall sample of Belarusians and in the sub-sample of Belarusian men.

3. Problematic smartphone use is negatively associated with self-confidence in the samples of Belarusian and Russian respondents. Social courage, rather than initiative in social contacts, is related to smartphone addiction.

4. The negative relationship between problematic smartphone use and collaboration among Russian women, and the positive relationship between smartphone addiction and avoidance in the overall sample of Belarusians and in the sub-sample of Belarusian men have reached the statistical significance level.

5. There are strong significant correlations between all factors of problematic smartphone use (loss of self-control, fear of refusal to use a smartphone, and euphoria caused by smartphone use) and all factors of social networking addiction (user psychological state, network user communication, and acquiring information) both among Belarusians and Russians.

Thus, all factors of problematic smartphone use have independent significance in determining the problems caused by excessive smartphone use. The collected data may be useful for preventive, correctional, and developmental work to prevent problematic smartphone use among Belarusian and Russian youth.

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Author Contribution

Viktor Pavlovich Sheinov developed the methodological concept of the study, overviewed relevant literature, organized the study, collected and described initial data, performed mathematical processing and analyzed the results, wrote the text of the manuscript.

Nina Arkad'evna Nizovskikh collected initial data, analyzed and discussed the results, wrote the text, prepared and edited the manuscript.

Anton Sergeevich Dziavitsyn developed the initial data processing programs and promptly delivered the test results to respondents online.

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Conflict of Interest Information

The authors have no conflicts of interest to declare.

Choosing Interaction Positions: Dark Triad and Light Triad as Behavioral Predictors

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Abstract

Introduction. It is important to identify factors that influence the choice of interaction positions and behavioral strategies. The Dark Triad (Machiavellianism, narcissism, and non-clinical psychopathy) and the Light Triad (faith in humanity, humanism, and Kantianism) can act as integrated factors in choosing an interaction position. This study represents the first attempt to investigate the role of the Dark Triad and Light Triad in students' choice of interaction positions – coercion, manipulation, non-violence, and non-interference.

Methods. The sample comprised of 206 students of Cherepovets State University (range: 17–24 years, mean age: 18.4 years). Research methods: (a) Short Dark Triad by Jones and Paulhus (modified by Egorova, Sitnikova, and Parshikova), (b) the Light Triad Scale by Kaufman, Yaden, Hyde, Tsukayama, and (c) the questionnaire to identify interaction positions developed by the authors. Methods of descriptive statistics, correlation and regression analysis were used. **Results.** When choosing interaction positions, students prefer the positions of non-violence and non-interference rather than positions of coercion and manipulation. The Light Triad traits prevail over the Dark Triad traits. The Dark Triad is positively correlated with the positions of coercion and manipulation while the Light Triad is negatively correlated. The main role in choosing the positions of coercion and manipulation is played by psychopathy, Machiavellianism and a low level of Kantianism. The Light Triad is positively associated with the position of non-violence. The greatest influence on its choice is the belief in humanity, as long as there are no traits of non-clinical psychopathy. The position of non-interference had no positive connections with the Dark Triad and Light Triad. However, its choice can be influenced in some cases by such a trait of the Dark Triad as Machiavellianism. **Discussion.** The Dark Triad and Light Triad play an important role in students' choice of interaction positions. The results

obtained in this study can be used both for scientific and practical purposes to develop a non-violent position among students.

Keywords

Dark Triad, Light Triad, Machiavellianism, narcissism, psychopathy, faith in humanity, humanism, Kantianism, interaction positions

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Introduction

Interaction is the mutual influence of people on each other to achieve certain goals. G. M. Andreeva classifies it as one of the three aspects of communication and understands it as an aspect of communication “which includes not only the exchange of information, but also the organization of joint actions that allow partners to implement some common activities for them” (Andreeva, 2014, p. 67). In terms of content, G. M. Andreeva states that there are two types of interaction – cooperation and competition.

In interaction, people can take different positions. Interaction positions represent the integration of a person’s position in the system of social relations and his/her relations to different aspects of reality. The objectives of subjects may be different and often do not coincide. The contradiction between the objectives of subjects leads to the emergence of contradictions that are resolved by the individual adopting one position or another and selecting the appropriate behavior strategy. The most typical positions of interaction are positions of **coercion, manipulation, non-violence, and humility (non-interference)**. Coercion is a variety of forms of psychological and physical pressure on a person. Manipulation is a kind of pressure based on deception. Non-violence in the process of interaction with others which manifests itself in the rejection of coercion and various forms of pressure in the account of the personality of another. Non-interference is passive acceptance of an event as it is, without any active action.

The preferences of a person for a position are determined by many factors (Maralov, Kudaka, Smirnova et al., 2022; Maralov, Sitarov, Romanyuk et al., 2023). Among them, integrated factors are particularly important, including, for example, five- and six-factor personality models (extraversion, neuroticism, conscientiousness, agreeableness, openness to experience, + honesty/humility), psychological capital (self-efficacy, hope, optimism, stability), resilience (involvement, control of the situation, willingness to take risks). This also includes the Dark Triad and Light Triad.

Dark Triad

The Dark Triad includes the following three traits: narcissism, Machiavellianism, and psychopathy. It should be praised for highlighting the characteristics of the Dark Triad to D. Paulhus and C. Williams (Paulhus & Williams 2002). They believe that these characteristics are similar in their manifestations and have some independence at the same time. Machiavellianism manifests itself in the desire to manipulate others, narcissism – in the desire to see oneself as an exceptional person, psychopathy – in arrogance, inattention to the problems of others, in impulsiveness and aggression. Based on these ideas, two Dark Triad inventories were developed. These are the Short Dark Triad by D. N. Jones and D. L. Paulhus (Jones & Paulhus, 2014), modified by M. S. Egorova, M. A. Sitnikova and M. A. Parshikova (2015), and the Dark Triad Dirty Dozen by P. K. Jonason, G. D. Webster (Jonason & Webster, 2010), modified by T. V. Kornilova and co-authors (Kornilova et al., 2015).

Research on the Dark Triad suggests that narcissism, Machiavellianism and psychopathy, although different traits, nevertheless share common intersection points. This dark core, according to the research of D. N. Jones and A. H. Figueredo (Jones & Figueredo, 2013), is manipulation/callousness, which explains the coincidence of antagonistic traits. It has been found (Jones & Neria, 2015) that the common factor of manipulation/callousness is positively associated with the general aggression index. Psychopathy was positively associated with physical aggression, and narcissism was negatively associated with hostility, and Machiavellianism was positively associated with hostility. Psychopathy and Machiavellianism were also closely associated with various forms of coercion, explained by a low degree of agreeableness (Pailing, Boon, & Egan, 2014). Psychopathy and Machiavellianism were also associated with low self-control, a tendency to underestimate the future consequences of actions, and a high level of attention deficit disorder (Jonason & Tost, 2010).

N. Aghababaei and A. Błachnio (2015) examined the relationship of the Dark Triad traits with eudaimonic (pursuing of happiness) and hedonic (pursuit of pleasure) well-being. The results showed that narcissism was positively associated with both types of well-being. Although psychopathy was associated with lower levels of both eudaimonic and hedonic well-being, Machiavellianism was generally not associated with outcomes of well-being.

The relationship between the characteristics of the Dark Triad traits and the relationships and characteristics of human interactions deserves special attention in this context. In particular, E. B. Hadházi et al. (2023) found a correlation between the Dark Triad traits and unethical behavior attitudes such as “disclosing confidential information”, “shifting the blame for one’s mistakes onto an innocent colleague” and “taking credit for someone else’s work”. Jonason, Luevano, and Adams (2012) found that the Dark Triad is positively associated with short-term romantic preferences and negatively associated with long-term relationships preferences. A study of the characteristics of communication

at work shows that representatives of the Dark Triad prefer manipulation in its various forms. Psychopathy is related to the preference for hard manipulation tactics, and Machiavellianism and narcissism – to soft ones (Jonason, Slomski, & Partyka, 2012). The Dark Triad was also found to be differentially associated with manifestations of affective and cognitive empathy. M. Wai and N. Tiliopoulos (Wai & Tiliopoulos, 2012) found that all Dark Triad individuals showed deficits in affective empathy, but there were few signs of impaired cognitive empathy.

We should note that the Dark Triad does not contribute to the establishment of positive interpersonal relationships.

Light Triad

The identification and study of the Dark Triad of personality naturally raises the question: If there is a dark triad, why can there be no light triad? The Light Triad was discovered by a team of authors consisting of S. B. Kaufman, D. B. Yaden, E. Hyde, E. Tsukayama in 2019 (Kaufman, Yaden, Hyde, & Tsukayama, 2019). The Light Triad of personality includes the following three traits: **faith in humanity, humanism and Kantianism** (after the German philosopher I. Kant). Faith in humanity is the belief that a person is fundamentally good; humanism is the belief that a person deserves respect and recognition; and Kantianism is a view of a person as an intrinsic value, a purpose, not a means of achieving a goal. In order to diagnose the Light Triad traits, the authors developed a special inventory that gained popularity among research specialists. The Russian-language version of the Light Triad Scale was tested by N. R. Ilyichev and A. A. Zolotareva, who used a scale consisting of 8 items to measure faith in humanity, humanism and Kantianism (Il'ichev & Zolotareva, 2023). Its version was proposed by V. Vyazovkina, D.S. Kornienko and A.N. Nevryuev (Vyazovkina, Kornienko, & Nevryuev, 2023). The authors tried to adapt all the scales of the Light Triad Scale for the needs of Russian psychology.

Currently, the Dark Triad is studied more extensively than the Light Triad. Some authors try to find the bright side of the Dark Triad. In particular, Yu. V. Krasavtseva and T. V. Kornilova (Krasavtseva & Kornilova, 2019) regard narcissism as the 'light' aspect of the Dark Triad.

Indeed, the concept of S. B. Kaufman and others identifying the Light Triad traits is not the only concept. There are other approaches. In 2021, J. Musek and D. K. Grum, in contrast to the Dark Triad traits, identified three characteristics borrowed from the five-factor personality model: emotional stability (low neuroticism), agreeableness, and conscientiousness. These traits were the basis of the Light Triad. The Light Triad traits are positively associated with overall life satisfaction and traditional, social, cognitive, democratic values and tend to be negatively associated with status- or power-related values. V. Gouveia et al. (Gouveia et al., 2021) offer their approach to identifying the Light Triad traits; they consider altruism, forgiveness and gratitude as the Light Triad traits.

At the same time, most researchers who identify the Light Triad traits adhere to the concept by B. Kaufman, which has become dominant. In this approach, it is established

that people with predominant light personality traits are characterized by partner ability, trust in others, high levels of life satisfaction, and positive self-esteem (Neumann et al., 2020). In romantic relationships, these characteristics were also found to predict long-term relationships (Sevi & Doğruyol, 2020), and in workplace research, it was shown that they contributed to the higher workers' self-assessments of social well-being (Javanmard, Borjali, Eskandari, & Farokhi, 2020). A study by De Holanda Coelho, Hanel, Monteiro et al., 2021 found that, overall, the Light Triad traits were more closely related to values than the Dark Triad traits. R. Gerimski and D. Krok (Gerymski & Krok, 2019) have identified the association of the Light Triad with compassion, kindness, and friendliness.

The available research does not provide us with a complete picture of the role of the Dark Triad and Light Triad in choosing interaction positions by people, in our case students. Nevertheless, the dispersed data obtained by several authors convince us, firstly, of the need to carry out a special study and, secondly, provide the basis for some hypotheses.

Purpose

This study aimed to identify the role of the Dark and Light Triad in students' choice of interaction positions.

Research hypotheses

Our research hypotheses were as follows: Hypothesis 1: The Dark Triad is more related to the choice of the positions of coercion and manipulation, while psychopathy has a greater influence on the choice of the coercion position, and Machiavellianism has a greater influence on the choice of the manipulation position. Hypothesis 2: The Light Triad and all its three components (faith in humanity, humanism, and Kantianism) will largely contribute to the choice of the non-violence position. Hypothesis 3: The non-interference position should not have positive correlations with the Dark Triad and Light Triad; as special studies show, its choice is determined by other factors (Maralov et al., 2022).

Methods

Sample

The study was conducted in April-May 2023 and comprised of 206 students of pedagogical, psychological, and psychological-pedagogical training profiles of Cherepovets State University (Cherepovets, Vologda region, Russian Federation) aged 17 to 24 years (mean age = 18.4 years, SD = 1.09), of whom 176 were women (85.44 %) and 30 were men (14.56 %).

Diagnostic tools

The methodology of this study is a system approach, whereby each triad is regarded as a system in relationships with a particular interaction position. Specific research tools were as follows:

1. **The Short Dark Triad (SD3) by D. Jones and D. Paulhus** (Jones & Paulhus, 2014) modified by M. S. Egorova, M. A. Sitnikova, and O. V. Parshikova (2015). The inventory includes 27 questions. The students were given the following instructions: "Dear students, we draw your attention to a number of statements concerning the life and activities of people. You must express the degree of your agreement with each of the above-mentioned statements with a measurement scale, which is given in a special form, of the following type: completely disagree – 1 point; disagree – 2 points; agree and disagree equally – 3 points; agree – 4 points, completely agree – 5 points". For each property studied, the total points were calculated and then converted into a standard ten-point scale.
2. **The Light Triad Scale (LTS) by S. B. Kaufman et al.** (Kaufman, Yaden, Hyde & Tsukayama, 2019). The Scale is a list of 12 questions, with answers ranging from completely not agreed to completely agreed. Students received instructions similar to those from the previous inventory. The sum of points for each trait (faith in humanity, humanism, and Kantianism) was calculated. The results were converted into a standard ten-point scale.
3. **The questionnaire to identify interaction positions developed by the authors** (Maralov & Sitarov, 2018). The test represents 40 questions/statements. For each statement, four answer options were offered, allowing the subject to distinguish between the preferences of different interaction positions – coercion, manipulation, non-violence, and non-interference. Each scale involved calculating a total score and then converting it into a standard ten-point scale.

Statistical analysis

The results were processed using mathematical statistics methods in Microsoft Excel. Average values, standard deviations, and linear Pearson correlation coefficients were calculated and regression analysis was performed.

Results

Table 1 shows the means and standard deviations of interaction positions, Dark Triad and Light Triad.

Table 1
Means and standard deviations of interaction positions, Dark Triad and Light Triad

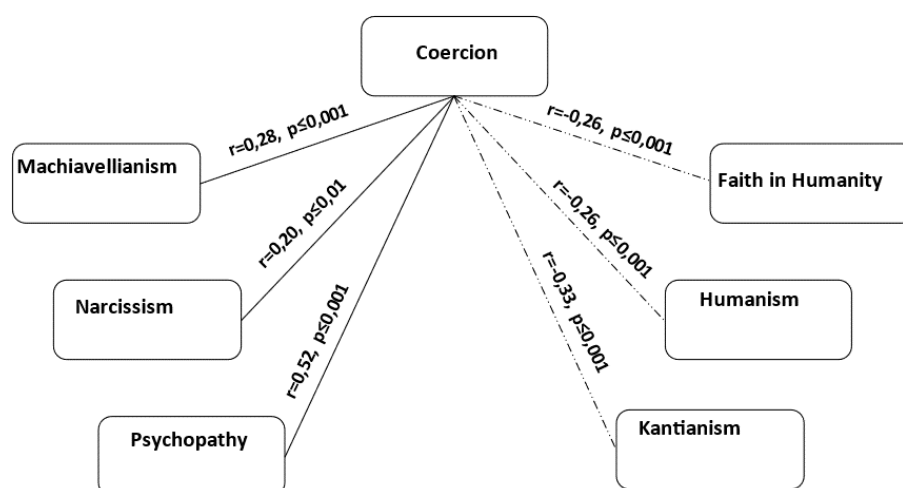
Positions:				
	Coercion	Manipulation	Non-violence	Non-interference
M	5.18	5.41	5.92	6.08
SD	2.27	2.14	1.89	1.84
Dark Triad:				
	Machiavellianism	Narcissism	Psychopathy	
M	6.08	5.72	4.40	
SD	1.21	1.07	1.09	
Light Triad:				
	Faith in humanity	Humanism	Kantianism	
M	7.32	7.85	7.65	
SD	1.35	1.31	1.31	

As shown in Table 1, students more often use the positions of non-interference and non-violence in interactions ($M = 6.08$, $SD = 1.84$; $M = 5.92$, $SD = 1.89$). The choice of the non-interference position indicates students' increasing prudence when making decisions, while the choice of the non-violent position indicates the desire to resolve existing contradictions peacefully through compromise and cooperation. The coercion position is used less often than others ($M = 5.18$, $SD = 2.27$), which involves the use of various forms of pressure on the individual. A comparative analysis of the Dark Triad and Light Triad showed that students clearly prefer the Light Triad. In this case, the results for all indicators are significantly higher than means. Humanism dominates ($M = 7.85$, $SD = 1.31$), followed by Kantianism ($M = 7.65$, $SD = 1.31$); faith in humanity is used less frequently ($M = 7.32$, $SD = 1.35$). The Dark Triad scores are lower, which is quite normal for people training in higher education programs and preparing to work in the 'person-person' field. Machiavellianism is used most often ($M = 6.08$, $SD = 1.21$), followed by narcissism ($M = 5.72$, $SD = 1.07$); psychopathy is used less frequently ($M = 4.40$, $SD = 1.09$).

Let us solve the main task of this study – to identify the interrelationships between the interaction positions and the Dark Triad and Light Triad and the characteristics of their influence on the implementation of this choice. The results of the correlation analysis using the linear Pearson correlation coefficient are shown in Figures 1–4.

Figure 1

*The relationship between the coercion position and the Dark Triad and Light Triad**



Note. Here and further in the figures, the solid line indicates direct correlations, and the dotted line indicates reverse correlations.

Figure 1 shows the relationship between the position of coercion and the Dark Triad and Light Triad. Positive correlations were found with all Dark Triad traits and negative correlations with all Light Triad traits. There was a weak positive correlation between the position of coercion and Machiavellianism ($r = 0.28$, $p \leq 0.001$) and narcissism ($r = 0.2$, $p \leq 0.001$), and a moderate one – with psychopathy ($r = 0.52$, $p \leq 0.001$). The correlations with faith in humanity ($r = -0.26$, $p \leq 0.001$), humanism ($r = -0.26$, $p \leq 0.001$) and Kantianism ($r = -0.33$, $p \leq 0.001$) were weakly negative.

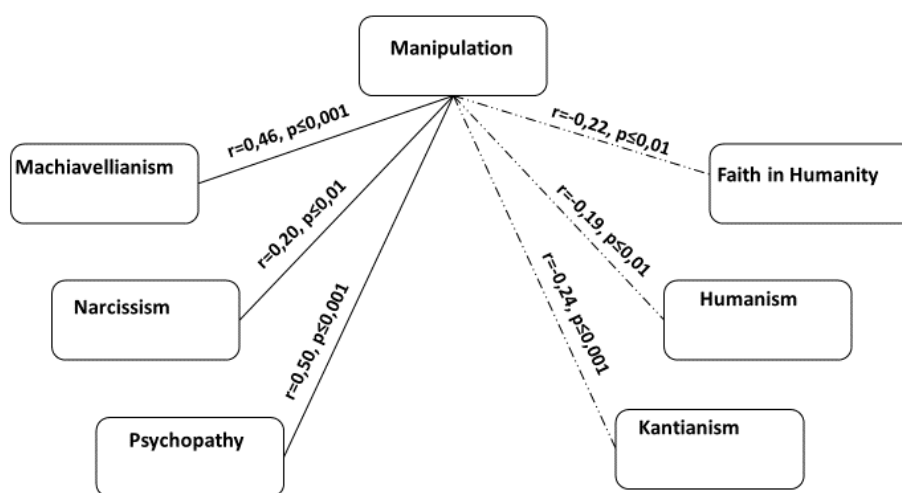
The results of the correlation analysis were supplemented by regression analysis. The study shows that the best results are obtained not by creating a general model of the Dark and Light Triad, but by creating models that separately reflect the influence of the Dark Triad and Light Triad on the choice of the coercive position. We have used this analysis principle for personality triads in all other studies on the influence of personality triads on the choice of interaction positions.

As a result, statistically significant regression models ($p = 0.000$) were generated and factors as predictors of students' choice of the coercive position were identified. It was found that non-clinical psychopathy has the greatest impact on the choice of the coercive position ($\beta_3 = 0.96$, $p = 0.000$), Machiavellianism has a small effect ($\beta_1 = 0.24$, $p = 0.04$) and narcissism has the smallest effect ($\beta_2 = 0.2$, $p = 0.067$). Among the characteristics of the Light Triad, Kantianism had the greatest negative effect ($\beta_6 = -0.43$, $p = 0.002$).

Figure 2 shows the relationship between the manipulation position and the Dark Triad and Light Triad.

Figure 2

Relationship between the manipulation position and the Dark Triad and Light Triad



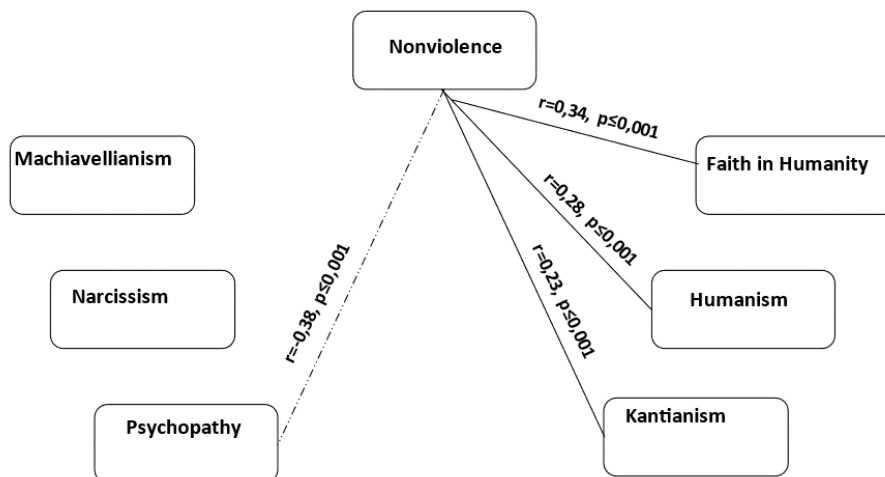
As in the previous case, manipulation had positive correlations with the Dark Triad and negative correlations with the Light Triad. As expected, according to the research hypothesis, along with psychopathy ($r = 0.50, p \leq 0.001$), there was a moderate correlation with Machiavellianism ($r = 0.46, p \leq 0.001$) and a weak positive correlation with narcissism ($r = 0.20, p \leq 0.01$). Of the Light Triad traits, there was a weak negative correlation between manipulation and humanism ($r = -0.19, p \leq 0.01$), faith in humanity ($r = -0.22, p \leq 0.01$) and Kantianism ($r = -0.24, p \leq 0.01$). Regression analysis yielded the following results: As with the choice of coercion, the dominant role is played by non-clinical psychopathy ($\beta_3 = 0.76, p = 0.000$). At the same time the share of Machiavellianism increased ($\beta_1 = 0.57, p = 0.000$) and the impact of narcissism remains at the same level ($\beta_2 = 0.20, p = 0.08$), with a negative impact of Kantianism ($\beta_6 = -0.31, p = 0.02$).

Figure 3 shows the results of the correlation analysis of the non-violence position with the traits of the Dark Triad and Light Triad.

As shown in Figure 3, the non-violence position is positively correlated with all Light Triad traits. The strongest relationship was found between non-violence and faith in humanity ($r = 0.34, p \leq 0.001$), followed by humanism ($r = 0.28, p \leq 0.001$) and Kantianism ($r = 0.23, p \leq 0.001$). The negative correlation coefficient between non-violence and psychopathy was obtained ($r = -0.38, p \leq 0.001$).

Figure 3

Relationship between the non-violence position and the Dark Triad and Light Triad



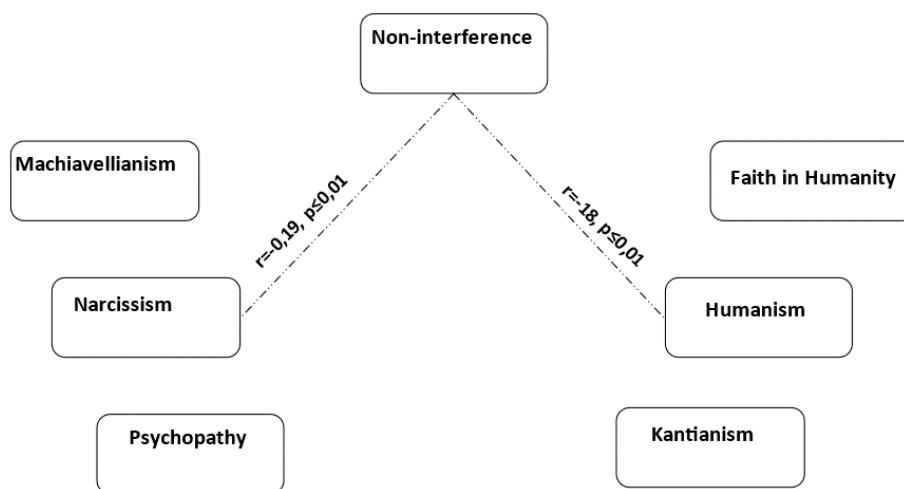
Regression analysis has shown that two factors play a fundamental role in the choice of the non-violent position, one with a positive impact and the other with a negative impact. The positive factor includes faith in humanity ($\beta_4 = 0.38, p = 0.002$); the negative factor includes psychopathy ($\beta_3 = -0.68, p = 0.000$). In other words, the non-violence

position may be preferred by students who do not have psychopathy traits, who have a positive attitude toward others and regard them as fundamentally good, fair and worthy of respect.

Similarly, let us consider the relationship between the non-interference position and the Dark and Light Triad.

Figure 4

Relationship between the non-interference position and the Dark Triad and Light Triad



The non-interference position (Fig. 4) had a single weak negative correlation with the Dark Triad traits – with narcissism ($r = -0.19, p \leq 0.01$), and with the Light Triad traits – with humanism ($r = -0.18, p \leq 0.01$). At the same time, regression analysis showed an interesting point that was not provided by the hypothesis of the study. A positive impact of Machiavellianism on the choice of the non-interference position was found. This influence is not strong, but, nevertheless, it takes place ($\beta_3 = 0.21, p = 0.05$) despite the fact that in the process of correlation analysis no significant correlation coefficient was obtained between the non-interference position and Machiavellianism ($r = -0.11$, not significant). It was also found that a high level of narcissism interfered with the choice of the non-interference position ($\beta_2 = -0.35, p = 0.004$).

Discussion

In modern psychology, attempts are made to establish the relationship between the Dark Triad and Light Triad and individual behavior in different fields of life: in political affairs

(Peterson & Palmer, 2021), in business activities (Cooke, 2020, Baldacchino, 2023), in intimate interpersonal relations (Sevi, Urganci, & Sakman, 2020; Grigoropoulos, 2023). The relationship between the Dark and Light Triad traits and value orientations is studied (Ucar, Malatyali, Planali, & Kanik, 2023). Particular attention is paid to the identification of the roles of the Dark Triad and Light Triad in the manifestation of aggression, manipulation, and non-violent forms of behavior.

The Dark Triad is associated with interpersonal manipulation that requires orientation skills in social situations (Rauthmann, 2011). Psychopathy is associated with hard manipulation tactics, while Machiavellianism and narcissism are associated with soft manipulation tactics (Jonason, Slomski, & Partyka, 2012). Carton & Egan (2017) found that low agreeableness was positively associated with psychopathy, and psychopathy was strongly associated with both psychological and physical/sexual abuse. Moreover, according to Jones & Neria (2015), psychopathy is a predictor of physical aggression. Narcissism is negatively associated with hostility, and Machiavellianism is positively associated with hostility.

The results of this study made it possible to significantly clarify the existing facts on the impact of the Dark Triad traits on the choice of the positions of coercion and manipulation. It was established that two factors – psychopathy and Machiavellianism – play the leading role. Furthermore, the value of Machiavellianism increases slightly when choosing manipulation, as the hypotheses suggested, but the influence of psychopathy decreases slightly. The manifestation of psychopathy and Machiavellianism is accompanied by a low level of Kantianism. In other words, students who prefer to choose coercion and manipulation positions in the interaction process tend to view others as a means of achieving their own goals.

The Light Triad is positively correlated with high levels of spirituality, empathy, compassion, and benevolence, i.e., the parameters that may characterize a non-violent position (Kaufman, Yaden, Hyde, & Tsukayama, 2019). According to a study (Il'ichev & Zolotareva, 2023), the Light Triad scales are positively associated with the Big Five personality factors except neuroticism. Dickinson (2023) proved that the Dark traits, compared to the Light traits, predict a lower level of prosociality and increased readiness to make immoral choices.

The present study revealed that in the absence of a pronounced Light Triad and at the same time psychopathy, the person will prefer a non-violent position, which manifests itself in a friendly attitude, in taking the personality of another into account as much as possible, and in using various non-violent actions in the form of help, support, and cooperation. In this case, as the regression analysis results show, the main role belongs to faith in humanity. In real life, this feature manifests itself by focusing on positive personality traits, tolerance, understanding, and forgiveness.

The non-interference position showed no positive correlations with the Dark Triad and Light Triad. Only two negative correlations have been found here – with narcissism

and humanism. At the same time, regression analysis revealed that there was a small but significant effect of Machiavellianism on the choice of the non-interference position with the negative impact of narcissism. This can be interpreted as the ability of some Machiavellian persons to use non-interference as a special form of manipulation. As evidenced by special studies (Maralov et al., 2022), non-interference is not positively associated with the Dark Triad and Light Triad. However, it is positively associated with the neuropsychological system of Behavioral Inhibition System (BIS) and with neuroticism, that is, with emotional instability and increased anxiety.

Therefore, the hypotheses proposed were only partially confirmed.

The Dark Triad is more related to the choice of the positions of coercion and manipulation, where psychopathy and Machiavellianism play the leading role with a low level of Kantianism, which was not provided by the first hypothesis.

The non-interference position did not reveal any positive connections with the Dark Triad and Light Triad. At the same time, it can be used as a specific form of manipulation by people who are exposed to the manifestation of Machiavellianism, but not narcissism, which was not provided by the hypothesis.

Conclusion

Students' choice of interaction positions is largely associated with the Dark Triad and Light Triad.

The dominance of the Dark Triad, in particular its components such as psychopathy and Machiavellianism, is related to the choice of positions of coercion, manipulation, or both, depending on the particular situation of interaction. Their influence on the choice of these positions was mediated by a low level of Kantianism, manifested in the desire to consider others as a means of achieving their own goals.

The domination of the Light Triad is associated with the choice of the non-violence position. In addition, one of the traits of Light Triad is of great importance – the faith in humanity, which is combined with the lack of tendency to manifest non-clinical psychopathy.

The non-interference position had no positive correlations with the traits of the Dark Triad and Light Triad. However, we found that, in some cases, students with a Machiavellian personality type would prefer it as a specific form of manipulation.

Further research will be undertaken to identify the influence of students' value orientation and basic beliefs on the manifestation of the traits of the Dark Triad and Light Triad.

The results of the study can be used for scientific and practical purposes, especially in the development of humanistic attitudes and non-violent interactions among students.

Limitations

The main **limitation** of this study is the predominance of women in the study population, which is associated with the characteristics of Russian education, where mainly women receive pedagogical, psychological, and psychological-pedagogical education. Consequently, the recommendations relate mainly to working with the female population. On the other hand, the significant correlations can provide grounds to extrapolate the data obtained in this study to the entire student population.

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Author Contribution

Vladimir Georgievich Maralov formulated the basic concept of research, developed research methodology, chose diagnostic tools, processed the data, formulated conclusions, and edited the final version of the manuscript

Marina Aleksandrovna Kudaka contributed to the analysis of literature, collected and processed the data, prepared the initial version of the manuscript.

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Conflict of Interest Information

The authors have no conflicts of interest to declare.

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Self-defeating Humor Offline and Online: Ontological Predictors and Links with Self-Attitude among Young People

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Abstract

Introduction. Self-defeating humor is a person's humiliation of self through jokes or actions. Self-defeating humor is a common thing in interpersonal communication (offline) and in Internet communication (online) among young people. Humor is a mirror of self-attitude. We suggest that the preference for a self-defeating humor style is associated with a negative self-attitude, and it is an attempt to protect oneself with a "mask", including a "False Self", or with actual psychological problems. **Purpose of the study** is to identify the ontological predictors of the choice of a self-defeating humor style and to define its links with self-attitude and self-esteem. **Methods.** There were 174 respondents, the average age was 19.2 years. We used Humor Styles Questionnaire by R. Martin; psychometric method «Ontological security» by N.V. Kopteva; self-attitude test questionnaire by S. R. Pantileev; Rosenberg's self-esteem scale (RSES) (Russian adaptation by A. A. Zolotareva); a questionnaire to specify how people use self-defeating humor in communication and behavior. We used correlation analysis and regression analysis to process the results. **Results.** Self-defeating humor has significant negative correlations with the general level of ontological security, self-worth and self-esteem. Self-defeating humor has significant positive correlations with the "False Self", internal conflict and self-blame. Regression analysis revealed that the first model with the variable "False Self" explains the variability of the use of self-defeating humor by 34.6%, the second model with the variable "False Self" and the variable of self-blame has a higher coefficient of determination and explains the variability of self-defeating humor by 37.4%. **Discussion.**

The preferment of self-defeating humor style is affected by a low level of ontological security, negative self-attitude and low self-esteem. Self-defeating humor may indicate negative experiences associated with a lack of self-worth, self-condemnation, self-rejection, lack of inner support and connections with other people. Self-defeating humor through jokes or memes is a way to release of accumulated inner tension.

Keywords

self-defeating humor style, Self-defeating humor, humor styles, ontological security, self-attitude, self-worth, self-blame, self-esteem, False Self

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Introduction

Self-defeating humor style destroys the personality of the humorist. Although a moment of humiliating self-mockery may seem like the best way to save his identity.

Humor is one of the most important aspects of life (Wilkins & Eisenbraun, 2009), and humor allows us to express ourselves in different ways. Encouraging others, oneself, overcoming difficulties and conflicts, sharing values, building and maintaining relationships (or destroying relationships) with other people, expressing oneself through creativity – humor is associated with all aspects of life (Ivanova, Enikolopov & Mitina, 2014; Leist & Müller, 2013; Martin, 2009; Lavreshina & Dikaya, 2016). R. Martin (2009) identifies 4 types of humor: adaptive – affiliative and self-supportive, and maladaptive – aggressive and self-defeating types of humor. Maladaptive humor styles damage an individual's relationships with society and with himself.

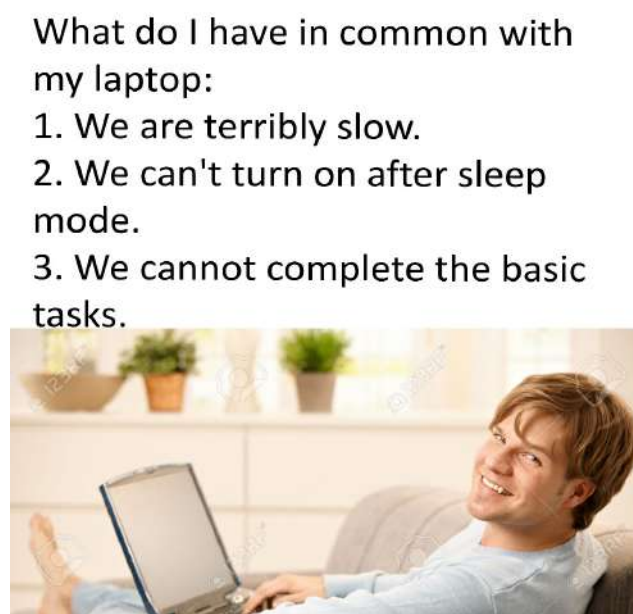
Self-defeating humor

Self-defeating humor style is the humor "at the expense of one's self" (Cortello, 2019). Jokes or actions of a self-defeating humorist are directed against oneself (Ivanova et al., 2013). So, a young people who favors a self-defeating style of humor can:

1. Tell others something funny about their own weaknesses, mistakes, personal qualities or failures in order to provoke an emotional response from them;
2. Provoke situations that expose them to ridicule, intentionally expose themselves as the object of jokes;
3. "Clowning", exposing themselves as a "fool" or buffoon in the team and maintaining an assumed cheerfulness at the moment of self-defeating jokes or actions;
4. Support critical remarks or aggressive jokes of other people in their direction;
5. Save memes and self-defeating jokes on personal pages in social networks and send self-defeating memes to friends. Examples of self-defeating memes are presented in Figure 1.

Figure 1

Examples of self-defeating memes



**What do I have in common with
my laptop:**

- 1. We are terribly slow.**
- 2. We can't turn on after sleep
mode.**
- 3. We cannot complete the basic
tasks.**



**I am a genuine
pearl !!!**



im at the
rock bottom

Self-defeating humor is an individual's humiliation of themselves (Cortello, 2019), "ingratiating" themselves to others in order to gain their recognition (Zhang et al., 2021; Martin, 2009) and approval at the expense of their own reputation (Sergeev et al., 2012). A self-defeating humor style is maladaptive and prevents close and sincere contact with others (Meyer et al., 2017; Tucker et al., 2014). However, unlike other styles of humor, self-defeating humor may act as a defensive response to avoid dealing with particular social problems or to hide negative feelings hurt by communication (Kester, 2021, Shaikh & Vyas, 2022; Sergeev et al., 2012). In the short term, self-defeating jokes help with relieving the tension that comes with communication (Hazova, 2012). But in the long run, self-defeating humor can increase feelings of loneliness and insignificance, negatively affect an individual's self-image and self-worth (Zhang et al., 2021). Self-defeating humor may increase suicidal ideation – in fact, it's a self-destructive style of humor (Tucker et al., 2014) (even though it's an unintentional self-destruction) (Baumeister & Scher, 1988).

Ontological security

How is it possible that for the sake of seeking the approval of others, a person resorts to self-defeating humor, a form of self-destructive behavior? R. D. Laing writes that the reason for ingratiating oneself to others is fear: "...for why else would anyone act in accordance with anyone else's intentions rather than his own" (Laing, 1995, p. 46). Is it a true human desire: to humiliate oneself with jokes in order to build relationships with other people? Or are we dealing with a facade of personality that protects a person's True Self?

The use of defensive denial, lack of self-worth, loss of vital contact with people and the world, experiencing deep anxieties, and feeling "more dead than alive" are characteristics of the ontologically insecure individual (Kopteva, 2009, p. 1; Kopteva, 2010a; Kopteva, 2010b; Baumeister & Scher, 1988). Ontological security, on the other hand, is a person's experience of "self" as alive and valuable in this safe world "together", in unity with other people; it is the axiom of experiencing the wholeness of one's being (Kopteva, 2009). "True Self" of the ontologically secure individual experiences its integrity and autonomy. "False Self" experiences derealization, alienation from other people, loss of connection with the world (Oakes, 2021).

False Self

"False Self" – one of the ways a person can avoid being themselves (Laing, 1995). "False Self" becomes fixed when the individual chooses to act in accordance with the wants and needs of others instead of self-representation and self-expression in the world (maybe the person is acting out of fear or trying to protect themselves). "False Self" is alienated from other people and detached from Self. "False Self" tries to make contact with others by acting as a "mask" but will never achieve commonality with people and the world (Kopteva, 2017). "False Self" – is a marker of a person's disembodied and untrue existence.

Research problem

If a person's humor is a "mirror" of their self-attitude (Zhambulova, 2019, p. 64), can we say that there are hidden intrapersonal processes behind the choice of humor style? We want to examine whether self-defeating humor is related to negative self-attitude and low self-esteem of individuals and whether low ontological security is a predictor of it. And if self-defeating humor is a form of "defensive denial that allows one to hide negative feelings or avoid constructive problem solving" (Sergeev et al., 2012, p. 75), is self-defeating humor related to the "False Self"? We suggest that preference for a self-defeating humor style is negatively related to self-attitude and self-esteem, and that the predictor of humor style choice is an increased manifestation of the "False Self" (which is a reflection of low ontological security).

Aim of the study is to determine whether low ontological security is a predictor of choosing a self-defeating style of humor and to identify its links to self-attitude and self-esteem.

Methods

Sample

The total number of respondents was 174. The average age was 19.2 years. In the total sample there were 17 men (10% of the sample), 157 women (90% of the sample). Respondents participated in the survey by voluntary choice.

Methodology

We used the following diagnostic methods:

1. Questionnaire to clarify how people use self-defeating humor. The questionnaire was based on a literature review and interviews of young people who prefer self-defeating humor style. For each of the questionnaire statements the respondent expressed the degree of occurrence on a scale from 1 ("Rarely") to 10 ("Often").

Questionnaire

1. I make jokes about my actions, personality traits, or characteristics in the company of friends or peers;
2. I make jokes about myself to attract attention in the company of friends or peers;
3. I feel good when my joke on myself gets the company's attention and builds rapport with people;
4. I joke about myself during the conversation to avoid talking about my true feelings or thoughts;

5. Sometimes I think I destroy myself with my jokes;
6. I'd rather make jokes about myself than others make jokes about me;
7. I make myself look like a buffoon or clown on purpose;
8. The image of a buffoon helps me to favor other people towards me;
9. I actually feel bad when I realize that all my self-jokes and cheerfulness throughout the day was an illusion;
10. I make cruel or rude jokes about myself to amuse the company;
11. I'm a terrible person;
12. Life would be easier if I wasn't me;
13. I'm attracted to self-deprecating, depressing memes;
14. When I feel bad, I humiliate myself even more.

2. Humor Styles Questionnaire (HSQ) by R. Martin to identify the dominant style of humor;

3. Psychometric method "Ontological security" (OS(PM)) (N.V. Kopteva);

4. Self-attitude test questionnaire by S. R. Pantileev;

5. Rosenberg's self-esteem scale (RSES) (Russian adaptation by A. A. Zolotareva).

We collected data through Google Forms. The calculation of quantitative data was performed in Excel program; mathematical processing of data was performed in SPSS Statistica 27. We applied nonparametric Spearman's criterion and regression analysis.

Results

Self-defeating humor and ontological security: correlation analysis

The first step of the analysis – to find out the strength of the correlation between the use of self-defeating humor and ontological security.

Correlation analysis using Spearman's criteria showed that there were statistically significant correlations with all scales of the psychometric method "Ontological security" and the scale of self-defeating style of humor. The results are presented in Table 1.

Self-defeating humor style has a significant negative correlation with the general level of ontological security ($-0.377, p \leq 0.01$) and autonomy ($-0.304, p \leq 0.01$). Correlations of self-defeating humor are also found with the scales of "Vital Contact with the World" ($-0.264, p \leq 0.01$), and "Vital Contact with People" ($-0.187, p \leq 0.05$).

The main result is the significant positive correlation of self-defeating humor with the "False Self" scale ($0.560, p \leq 0.01$).

Table 1

Correlations of the "Self-defeating humor" scale of the Humor Styles Questionnaire with the scales of the "Ontological security" methodology

Scales	Self-defeating humor
General ontological security	-,377**
Vital contacts with the world	-,264**
Vital contacts with people	-,187*
Autonomy	-,304**
False Self	,560**

Note: ** correlation is significant at the 0.01 level (two-sided), * correlation is significant at the 0.05 level (two-sided).

The results show that the more pronounced the ontological insecurity, the more a person will use self-defeating humor. The stronger the sense of pointlessness, the lack of self-worth, the feeling of being "more dead than alive" in the inner experience of the individual – the more self-humiliation there will be in jokes or actions. Disconnection with other people, dependency on circumstances (low autonomy) will also contribute to a preference for a destructive style of humor.

Correlations of the scales "Vital contacts with the world" and "Vital contacts with people" are rather weak. Experiencing "feeling at home in the world", experiencing oneself "together with other people in the world" is not closely related to the use of self-defeating humor.

The connection between self-defeating humor and the "False Self" is strong. Feeling of inner emptiness and detachment from one's own body, behavior and "Self" in the inner experience of a person, the discrepancy between his real Self and the behavior transmitted outwardly increases the probability of choosing self-defeating humor for one's jokes.

Self-defeating humor and self-attitude: correlation analysis

The second stage is the study of the strength of correlations between the scale of self-defeating humor and self-attitude (according to the Test-questionnaire of self-attitude of S. R. Pantelev). The results of correlation analysis using Spearman's criteria are presented in Table 2.

Table 2

Correlations of the "Self-defeating humor" scale of the Humor Styles Questionnaire with the scales of Test-questionnaire of self-attitude

Scales	Self-defeating humor
Internal honesty	-,359**
Self-confidence	-,402**
Self-guidance	-,353**
Reflective Self-Relationship	-,400**
Self-worth	-,439**
Self-acceptance	-,223**
Self-attachment	-,222**
Internal conflict	,447**
Self-blame	,460**

Note: ** correlation is significant at the 0.01 level (two-sided), * correlation is significant at the 0.05 level (two-sided).

The scale of self-defeating humor has significant negative correlations with positive aspects of self-attitude such as:

- Internal honesty (-0,359, $\rho \leq 0,01$),
- Self-confidence (-0,402, $\rho \leq 0,01$),
- Self-guidance (-0,353, $\rho \leq 0,01$),
- Reflective Self-Relationship (-0,400, $\rho \leq 0,01$),
- Self-worth (-0,439, $\rho \leq 0,01$).

Weak negative correlations were found with self-acceptance ($-0.223, \rho \leq 0.01$) and self-attachment ($-0.222, \rho \leq 0.01$).

Significant positive correlations of self-defeating style of humor were found with such negative aspects of self-attitude as internal conflict ($0.447, \rho \leq 0.01$) and self-blame ($0.460, \rho \leq 0.01$).

The tendency to use a self-defeating humor style in communication is related to the specifics of self-attitude. The less the person feels the value of one's own personality, life, and activities, and the less one believes in the value of one's self to others, the more one will be inclined to use self-defeating humor. Significant negative correlation with self-worth is the most important. Excessive use of self-defeating humor may be a marker of destructive experiences of self insignificance and lack of self-value. The more likely a person's internal description of themselves as insecure, non-self-sufficient, lazy – the more likely the person might use self-defeating jokes. The less one believes that their personality, character, activities are capable of respect, sympathy, approval, and understanding from others – the more often they will resort to self-abasement through humor (devaluing their experiences and achievements and demeaning their personality). Passivity and lack of confidence in their own ability to change their lives will also contribute to a higher incidence of self-humiliation.

A pile of negative experiences toward one's self is associated with the use of self-defeating humor. The higher a person's experience of internal conflicts, doubts, disagreement with oneself, anxiety and depression accompanied by feelings of guilt, the more he or she will be inclined to use self-defeating humor. Blaming oneself for one's own failures also contributes to the manifestation of self-humiliation.

The antipodes of self-acceptance can also be manifested through the use of self-defeating humor. However, the relationship of self-acceptance and self-defeating humor is not as significant as the relationship of self-defeating humor and self-worth. Psychotherapy with young people who overuse self-defeating humor should primarily focus on reinforcing or building the person's basic self-worth.

Self-defeating humor and Self-esteem: correlation analysis

Next, we determined the strength of the correlation between the use of self-defeating humor and a measure of self-esteem using the Rosenberg Self-Esteem Scale.

Correlation analysis using Spearman's criterion showed that the use of self-defeating humor had a significant negative correlation with the self-esteem score ($-0.473, \rho \leq 0.01$). The results are presented in Table 3.

Table 3

Correlations of the Self-defeating humor scale of the Humor Styles Questionnaire and Self-esteem scale

Scale	Self-defeating humor
Self-esteem	-,473**

Note: ** correlation is significant at the 0.01 level (two-sided), * correlation is significant at the 0.05 level (two-sided).

The lower one's self-esteem, the more one is inclined to use self-defeating humor.

Self-defeating humor and specifics of its use (questionnaire): correlation analysis

As an indirect assessment of the display of self-defeating humor in real life we used the method of correlations – using Spearman's criteria we determined the correlation with the respondents' evaluation of the questionnaire statements.

Table 4 shows that all the scores of the statements have statically significant positive correlations with self-defeating humor at $p \leq 0.01$. The statements of the questionnaire are a reflection of the real behavior of people using self-defeating humor.

Table 4

Correlations of the Self-defeating humor scale of the Humor Styles Questionnaire and evaluation of the questionnaire statements

Questionnaire statements	Self-defeating humor
I make jokes about my actions, personality traits, or characteristics in the company of friends or peers,	,548**
I make jokes about myself to attract attention in the company of friends or peers;	,529**
I feel good when my joke on myself gets the company's attention and builds rapport with people;	,506**
I joke about myself during the conversation to avoid talking about my true feelings or thoughts;	,440**
Sometimes I think I destroy myself with my jokes;	,463**

Questionnaire statements	Self-defeating humor
I'd rather make jokes about myself than others make jokes about me;	,389**
I make myself look like a buffoon or clown on purpose;	,523**
The image of a buffoon helps me to favor other people towards me;	,573**
I actually feel bad when I realize that all my self-jokes and cheerfulness throughout the day was an illusion;	,451**
I make cruel or rude jokes about myself to amuse the company;	,565**
I'm a terrible person;	,386**
Life would be easier if I wasn't me;	,413**
I'm attracted to self-deprecating, depressing memes;	,430**
When I feel bad, I humiliate myself even more.	,448**

Note: ** correlation is significant at the 0.01 level (two-sided), * correlation is significant at the 0.05 level (two-sided).

Statements 1–3 and statement 10: person who uses self-defeating humor in familiar company uses his or her actions, personality traits, or characteristics as the object of mockery for the sake of attracting attention. When such a mockery succeeds in making the members of the company laugh, the mocker feels "good", gets satisfaction, although he can joke about himself both cruelly and rudely.

Statements 7 and 8: a person who uses self-defeating humor is willing to consciously choose the role of buffoon or "clown" in order to gain favor with others. The buffoonery and cheerfulness may end up being a sham (statement 9), and the humorist gradually destroys himself with jokes (statement 5), humorist at the end of the day feels like a terrible person (statement 11) who wishes he could stop being himself (statement 12) – and those feelings only leads to even deeper self-deprecation (statement 14).

The following statements have the most significant correlations with self-defeating humor: 5. Sometimes I think I destroy myself with my jokes, 9. I actually feel bad when I realize that all my self-jokes and cheerfulness throughout the day was an illusion, 11. I'm a terrible person, 12. Life would be easier if I wasn't me, 13. I'm attracted to self-deprecating, depressing memes; 14. When I feel bad, I humiliate myself even more.

Specific characteristics of self-defeating humor (questionnaire statements) and Self-attitude, Self-esteem, ontological aspects: correlation analysis

We analyzed the correlations between the scores of 14 statements of our questionnaire and the scales of 1) Self-attitude test questionnaire, 2) psychometric methodic "Ontological security" and 3) Rosenberg's self-esteem scale. Correlation analysis using Spearman's criteria showed the large number of correlations. Table 5 shows only statistically significant correlations with a coefficient higher than 0.3.

Table 5
Evaluation of the questionnaire statements and aspects of self-attitude, self-esteem and ontological aspects

Scales / Questionnaire statements	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Self-attitude test questionnaire													
Internal honesty									-.369**		-.312**		-.326**	
Self-confidence									-.309**		-.317**	-.387**	-.335**	-.392**
Self-guidance											-.327**	-.361**	-.339**	-.373**
Reflective Self-Relationship						-.317**			-.330**		-.335**	-.360**	-.358**	-.302**
Self-worth					-.323**				-.362**		-.430**	-.360**	-.378**	-.421**
Self-acceptance														-.339**

Scales / Questionnaire statements	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Self-attachment									-.315**		-.334**	-.352**		-.367**
Internal conflict				.321**	.316**				.414**		.390**	.451**	.392**	.484**
Self-blame				.367**	.345**	.352**	.309**		.505**		.569**	.534**	.483**	.582**
Psychometric method "Ontological security" (OS(PM)) (N.V. Kopteva);														
General ontological security				-.385**	-.433**	-.375**	-.426**	-.327**	-.458**	-.352**	-.475**	-.556**	-.516**	-.541**
Vital contacts with the world					-.340**		-.342**		-.352**		-.385**	-.493**	-.476**	-.463**
Vital contacts with people							-.340**		-.309**		-.320**	-.414**	-.402**	-.367**
Autonomy		-.307**			-.318**	-.336**	-.373**		-.348**	-.333**	-.334**	-.444**	-.398**	-.495**
False Self			.442**		.442**	.360**	.348**	.340**	.516**	.361**	.528**	.538**	.533**	.525**
Rosenberg's self-esteem scale														
Self-esteem	-.317**			-.377**	-.394**	-.380**	-.365**	-.393**	-.429**	-.347**	-.501**	-.519**	-.447**	-.538**

Note: ** correlation is significant at the 0.01 level (two-sided), * correlation is significant at the 0.05 level (two-sided).

According to the number and strength of correlations we can see that such scales as Internal conflict, Self-blame, General ontological security, False Self and Self-esteem are most related to the scores of the questionnaire statements. These results confirm that the questionnaire clarify and enrich the characteristics of self-defeating humor and the feelings behind it.

Ontological security, Self-attitude and Self-esteem: correlation analysis

The final step of correlation analysis using Spearman's criterion was to identify the relationships between the ontological security scales and self-esteem. Table 6 shows statistically significant correlations with a coefficient higher than 0.3.

Table 6

Correlations of the scales of the psychometric method "Ontological security", Self-attitude test questionnaire and Self-esteem scale

Scales	General ontological security	Vital contacts with the world	Vital contacts with people	Autonomy	False Self
Internal honesty					-,425**
Self-confidence	,518**	,515**	,378**	,449**	-,547**
Self-guidance	,523**	,543**	,405**	,467**	-,414**
Reflective Self-Relationship	,470**	,403**	,418**	,357**	-,502**
Self-worth	,489**	,352**	,385**	,418**	-,529**
Self-acceptance					
Self-attachment	,374**	,445**		,345**	-,347**
Internal conflict	-,467**	-,407**		-,406**	,633**
Self-blame	-,466**	-,410**		-,411**	,569**
Self-esteem	,710**	,673**	,488**	,694**	-,607**

Note: ** correlation is significant at the 0.01 level (two-sided), * correlation is significant at the 0.05 level (two-sided).

Many statistically significant correlations were found between almost all scales of Self-attitude test questionnaire and the method "Ontological security", except for the self-acceptance scale.

«False Self» has the strongest correlations as follows: negative medium strength correlations with self-confidence ($-0.547, \rho \leq 0.01$), self-worth ($-0.529, \rho \leq 0.01$), positive medium strength correlations with internal conflict ($0.633, \rho \leq 0.01$) and self-blame ($0.569, \rho \leq 0.01$).

Regression analysis

To find ontological predictors of self-defeating humor and to test the hypothesis that self-defeating humor is influenced by increased "False Self", self-blame and intrapersonal conflict, we applied multiple regression analysis using the stepwise inclusion method. The results of the regression analysis are presented in Table 7.

Table 7
Results of the regression analysis

N ^o	R ²	Model	Coefficients ^a		t	Value
			Unstandardized coefficients	Standardized coefficients		
			B	Std. error	Beta	
1	,346	(Const.)	11,054	1,714		6,448 ,000
		False Self	,793	,083	,588	9,545 ,000
2	,374	(Const.)	9,513	1,771		5,371 ,000
		False Self	,640	,098	,475	6,497 ,000
		Self-blame	,866	,313	,203	2,772 ,006

a. Dependent variable: Self-defeating humor

As a result of two iterations, it was found that self-defeating humor was significantly influenced by indicators such as False self and self-blame, while the indicator of intrapersonal conflict did not show a significant result and was excluded from both obtained models.

The first of the models contains only one variable, "False Self" which changes self-defeating humor by 0.793 when it changes by one unit. This variant of the model has a coefficient of determination of 0.346 and explains the variability of the dependent variable by 34.6%. The second model included, in addition to the variable "False Self", also a measure of self-blame, with a change of one unit changing the dependent variable by .866. At the same time, the weight of the "False Self" in this model has decreased by .640. This means that if a person has self-blame, their "False Self" has less influence on self-defeating humor. At the same time, this model has a higher coefficient of determination compared to the model containing only the "False Self" variable – 0.374. It explains the variability of self-defeating humor by 37.4%.

Discussion

Self-defeating humor and ontological security

The findings of the study confirmed the connection between the use of self-defeating humor and ontological security. Positive correlation between the "False Self" and the self-defeating humor confirms our hypothesis: the excessive use of self-defeating humor reflects the experience of ontological insecurity, alienation from Self, acting as a way of denial or avoidance of problems. Regression analysis confirmed that "False Self" as a component of ontological security contributes significantly to the choice of a specifically self-defeating style of humor. A person who uses self-defeating humor in interpersonal communication or Internet communication has a low level of ontological security.

During the pre-interview, one respondent said:

«My True Self is weaker than my False Self, and I don't really want to show it to anyone. Not many people are interested in me. And every time I reveal my True Self, I only get pain. So that's why the image [of buffoon] appeared.

The use of self-defeating humor is caused precisely by intrapersonal problems, the dynamics of self-relationship of the individual, but not by problems of relationships with other people (The scale "Vital contacts with people" did not show such significant correlations). In the questionnaire, statements related to a person's attitude to Self have significant relationships with all scales of the self-attitude, ontological security and self-esteem questionnaires. But statements related to the use of self-defeating humor in the company have much lower correlations with these scales. The social aspect of interaction

is not important itself to self-defeating humorists. Self-defeating humorists are not really looking to socialize or gain social approval with a good joke. The use of self-defeating humor is a way of stabilizing the psyche in the conditions when the False Self fails to compensate for low levels of ontological security; it is a way of protecting against low self-esteem, self-blame, and inner conflict.

As shown by Greenberg et al. (1992), self-esteem buffers anxiety under stressful conditions. Low ontological security generates background anxiety. False Self generally copes with it, but in stressful situations anxiety takes over and self-blame increases. The self-defeating humorist, in order to assuage anxiety and guilt, lowers his self-esteem in the outside world, devaluing himself as if to blow off steam. However, this devaluation creates a new circle of self-blame.

In speech self-defeating humor can realize communicative strategies of self-pity, buffoonery, self-maliciousness, and self-beating as negative manipulative communicative demonstrativeness (Tislenkova, 2024). Humorists are characterized by jokes about their actions and personality traits, about making a buffoon or clown of themselves on purpose for the sake of making others laugh.

Self-defeating humor and self-attitude

Ontological security is related to self-attitude; self-attitude is "a general global sense of 'for or against oneself'" (Kopteva, 2009, p. 7; Kopteva, 2011), and ontological security is a perceived world security and attachment to the world. In our study, we found a connection between the overall level of ontological security and all the parameters of self-attitude.

The strongest negative correlation of self-defeating humor was found with self-esteem, positive relationships were found with internal conflict and self-blame. Self-blame has a major contribution to the preference for self-defeating humor.

Self-defeating humor has a strong negative correlation with self-worth but a lower correlation with self-acceptance. In psychotherapy, it will be important to build on a basic, unconditional sense of a person's self-worth and to form a stable Self-Image based on it. Reliance on "acceptance" may not be effective until a stable, objective "True Self" has been created. As one respondent said: "How can I accept what is absent?".

Self-defeating humor "has a bad reputation" (Cortello, 2019). People who use self-defeating humor are characterized by insecurity, distancing themselves from problems, feelings of helplessness, increased self-blame (Hazova, 2012). A study of self-attitude among adolescents with different humor styles (Zhambulova, 2019) showed a predominance of negative self-attitude among those who use self-defeating humor. These findings are in line with the results of our study.

Other studies have found negative correlations of self-defeating humor with creative abilities (Cortello, 2019), quality of life, and psychological well-being (Ivanova et al., 2013).

The results of our study also relate to works that have found that self-defeating humor has a negative correlation with self-esteem (Ivanova et al., 2013; Shaikh & Vyas, 2022), quality of life and well-being and positive correlation with self-judgment, neuroticism, depression, external locus of control (Ivanova et al., 2013; Martin, 2009; Kester, 2021; Shaikh & Vyas, 2022), and anxiety, including social anxiety (Tucker et al., 2013). Self-defeating style of humor is related to feelings of insignificance, unimportance, and loneliness (MacDonald, Kumar & Schermer, 2020). When a person feels that they do not matter to others in their lives (Deas et al., 2023), they may resort to this style of humor.

Self-defeating humor is associated with a whole pile of negative emotions towards one's self, up to self-hatred (Omarova, 2021). The constant use of a self-defeating style of humor over time only reinforces the humorist's negative self-esteem due to the focus on their faults and weaknesses (Meyer et al., 2017; Rnic et al., 2016), whether or not these jokes amuse others.

Self-defeating humor is related to suicidal behavior (Tucker et al., 2014; Govorov & Ivanova, 2023; Hart & Richman, 2020). On the one hand, jokes about suicide allow to get around stigmatization and express one's experiences. On the other hand, the maladaptiveness of self-defeating humor leads to increased feelings of loneliness and social rejection (Wilkins & Eisenbraun, 2009).

There is a growing interest in finding the correlation between self-defeating humor and affective disorders (Ivanova, Enikolopov & Mitina, 2014), especially smiling depression: in both cases, smiling acts as a mask to reduce the significance of inner feelings or to completely isolate one's True Self from others (Govorov & Ivanova, 2024).

The overuse of self-defeating humor is actually an admitting of one's own faults and a release of perceived incompleteness while communicating. Comparing oneself to others, especially when the self-image is not formed, leads to discomfort, stress and confusion. Lack of self-acceptance, self-awareness and authenticity leads to self-defeating humor. Self-defeating humor protects and hides true feelings (Martin et al., 2003; Barnett & Deutsch, 2016).

Correlation with the questionnaire statements

The conducted correlation analysis between the statements' scores and the "Self-defeating humor" scale has shown that all statements of our questionnaire can be used to explore self-defeating humor in detail. Manifestations of self-defeating through humor can be significant signs of low ontological security. Self-defeating humorists may be characterized by the experience of "self-destruction" by jokes, especially when they already feel bad; "pretending" daytime cheerfulness in the collective, as well as manifestations of the "False Self" ("Life would be easier if I wasn't me") against the background of a weakened "True Self" ("I am a terrible person").

In today's conditions of rapid digitalization, the amount of time young people spend on social media is increasing significantly (Astapenko, 2021), where it becomes possible to

express experiences through Internet-memes or relevant posts on personal pages – young people who prefer a self-defeating style of humor are also attracted to depressing memes.

Conclusion

Nowadays there is a passion for self-defeating humor among young people: there are a lot of Internet memes that emphasize one's weaknesses, demeaning life conditions or personal qualities. In offline communication in youth companies there are people who take on the role of a "clown" and buffoon: they expose their lives as the subject of jokes, willingly talk about failures in a humorous way, humiliate abilities and achievements in every possible way.

Behind the self-deprecating memes and making oneself a "clown" there are low levels of ontological security, a developed False Self, a high degree of self-blame and low self-esteem. Self-defeating humor is a "symptom" of negative self-attitude, including low self-worth, and low self-esteem.

The use of self-defeating humor creates a loop. When the humorist feels bad – he/she humiliates himself/herself even more, including in company, but then inevitably realizes that jokes on himself/herself were not real jokes, but a way to compensate destructive experiences of low self-esteem, alienation and his/her own internal conflict, and from this he/she feels subjectively worse. In our opinion, a way out of the loop is possible. Recognizing one's self-worth and reducing self-blame are the main targets of psychotherapy. The outcome of psychotherapy can be a state of experiencing one's true embodiment, a sense of self-worth by the very fact of life and birth. This state can be described as:

"Yes, I can exist and express myself in this world without judgment, I am valuable, and though it is difficult, I will do my best to live in alignment with my True Self!"

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Evgeny A. Pronenko critically revised the methodology of the article, critically revised the content of the article, prepared and wrote the text of the article, statistically processed the data, described and analyzed the results, and approved the version of the article for publication.

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Conflict of Interest Information

The authors have no conflicts of interest to declare.