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METHODOLOGY OF RESEARCH ON COUNTERING CYBERBULLYING IN THE CONTEXT OF A DIGITAL SECURITY STRATEGY

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The purpose of the article is to substantiate and develop a methodological approach for examining methods to counter cyberbullying within the framework of a digital safety strategy. The study investigates the digital behavior of Generations Z and Alpha regarding their interactions with cyberbullying and "bull-speech," while also identifying the key emotional, social, and communication factors that shape adolescents' reactions to online aggression. The factors identified will contribute to formulating strategic imperatives for ensuring the digital safety of adolescents.

The study employed a methodological approach based on a combination of validated psychological instruments, modern models for interpreting aggressive behavior, and methods for analyzing youth digital socialization, all while adhering to digital safety principles. The use of the Rosenberg Self-Esteem Scale, Howard's four-part typology of violence, and a system of exploratory questions makes it possible not only to document instances of online aggression but also to explain them through the lens of motivations, emotions, social connections, and communication barriers within the context of digital safety strategies.

The article examines the behavioral and psychological factors associated with the emergence and experience of cyber-hate among Ukrainian adolescents living in frontline regions during the armed conflict. The study's relevance stems from the increasing role of the digital environment in adolescent socialization, coupled with the rising risks of online hostility, discrimination, and aggressive communication amidst the war. The aim of testing the research hypothesis was to develop and empirically validate a factor model for identifying, classifying, and assessing key behavioral and psychological factors linked to experiences of cyber-hate.

The empirical basis of the study consisted of data from 4,684 respondents – Ukrainian adolescents living in frontline regions. Indicators regarding exposure to cyber-hate, emotional reactions, self-esteem, institutional trust, social media usage, and behavioral coping strategies were analyzed. Principal Component Analysis (PCA) with Varimax rotation was employed to identify the latent structure of the variables under study. Five interpretable factors were identified, collectively explaining 64.87% of the total variance: emotional reactivity; witnessing cyber-hate directed at acquaintances; active digital coping strategies; institutional coping strategies; and avoidance/ignoring.

It has been established that these factors shape two complementary dimensions: an internal one, linked to the psychological experience of cyber-hate, and an external one, linked to behavioral responses and the use of available coping resources. Based on this, two generalized configurations have been identified: risk-oriented and resource-oriented profiles. The results indicate that adolescents' vulnerability or resilience to cyber-hate is not linked to any single factor but rather to a configuration of internal and external resources – specifically self-esteem, digital competencies, institutional trust, and social support.The practical significance lies in the development of strategic imperatives for digital safety. Furthermore, the practical value of the findings lies in their potential application to the development of differentiated programs for psychosocial support, as well as the fostering of digital resilience, emotional self-regulation, and help-seeking mechanisms among adolescents.

The scientific novelty of the study lies in the construction of a multidimensional factor model that integrates the psychological and behavioral components of the experience of cyber-hatred within the context of formulating strategic imperatives for digital security.

Key words: cyber-hatred, cyber-hate, online hostility, adolescents, digital environment, factor analysis, principal component analysis, PCA, digital resilience, behavioral coping strategies, psychological resources, frontline regions

МЕТОДОЛОГІЯ ДОСЛІДЖЕННЯ ПРОТИДІЇ КІБЕРБУЛІНГУ В КОНТЕКСТІ СТРАТЕГІЇ ЦИФРОВОЇ БЕЗПЕКИ

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Метою статті є обґрунтування та розробка методичного підходу щодо дослідження методів протидії кібербулінгу в контексті стратегії забезпечення цифрової безпеки. Мета дослідження полягає у тому, щоб дослідити

цифрову поведінку молоді покоління Z та Альфа у контексті взаємодії з кібербулінгом та булспічем, а також виявляє ключові емоційні, соціальні і комунікаційні чинники, що формують реакції підлітків на прояви онлайн-агресії. Виявлені чинники сприятимуть формуванню стратегічних імперативів забезпечення цифрової безпеки підлітків.

У процесі дослідження було використано методичний підхід щодо проведення процедури дослідження, який ґрунтується на поєднанні валідних психологічних інструментів, сучасних моделей інтерпретації агресивної поведінки та підходів до аналізу цифрової соціалізації молоді в умовах дотримання принципів цифрової безпеки. Використання шкали самооцінки Розенберга, чотиристоронньої типології насильства Говарда та системи пошукових питань забезпечує можливість не лише фіксувати факти взаємодії з онлайн-агресією, але й пояснювати їх крізь призму мотивацій, емоцій, соціальних зв'язків і комунікаційних бар'єрів в контексті стратегії цифрової безпеки.

У статті досліджено поведінкові та психологічні чинники, пов'язані з виникненням і переживанням кіберненависті серед українських підлітків, які проживають у прифронтових регіонах України в умовах збройного конфлікту. Актуальність дослідження зумовлена посиленням ролі цифрового середовища у соціалізації підлітків та одночасним зростанням ризиків онлайн-ворожості, дискримінації й агресивної комунікації в умовах війни. Метою перевірки гіпотези дослідження було розроблення та емпірична перевірка факторної моделі для ідентифікації, класифікації та оцінювання ключових поведінкових і психологічних чинників, пов'язаних із досвідом кіберненависті.

Емпіричну основу дослідження становили дані 4 684 респондентів – українських підлітків, які проживають у прифронтових регіонах. Проаналізовано показники контакту з кіберненавистю, емоційних реакцій, самооцінки, інституційної довіри, використання соціальних мереж і поведінкових стратегій подолання. Для виявлення латентної структури досліджуваних показників застосовано метод аналізу головних компонент (Principal Component Analysis, PCA) з Varimax-обертанням. У результаті виокремлено п'ять інтерпретованих факторів, які сукупно пояснюють 64,87% загальної дисперсії: емоційна реактивність; спостереження кіберненависті, спрямованої на знайомих людей; активні цифрові стратегії подолання; інституційні стратегії подолання; уникнення/ігнорування.

Встановлено, що зазначені фактори формують два взаємодоповнювальні виміри – внутрішній, пов'язаний із психологічним переживанням кіберненависті, та зовнішній, пов'язаний із поведінковим реагуванням і використанням доступних ресурсів подолання. На цій основі визначено дві узагальнені конфігурації – ризик-орієнтований та ресурсно-орієнтований профілі. Результати свідчать, що вразливість або стійкість підлітків до кіберненависті пов'язана не з одним окремим чинником, а з конфігурацією внутрішніх і зовнішніх ресурсів, зокрема самооцінки, цифрових компетентностей, інституційної довіри та соціальної підтримки.

Практична значущість полягає у розробці стратегічних імперативів цифрової безпеки. Крім того, досягнення практичного значення отриманих результатів полягає у можливості їх використання для розроблення диференційованих програм психосоціальної підтримки, розвитку цифрової стійкості, емоційної саморегуляції та механізмів звернення по допомогу серед підлітків.

Наукова новизна дослідження полягає у побудові багатовимірної факторної моделі, яка інтегрує психологічні та поведінкові компоненти досвіду кіберненависті в контексті формування стратегічних імперативів цифрової безпеки.

Ключові слова: кіберненависть, кіберхейт, онлайн-ворожість, підлітки, цифрове середовище, факторний аналіз, аналіз головних компонент, PCA, цифрова стійкість, поведінкові стратегії подолання, психологічні ресурси, прифронтові регіони

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INTRODUCTION

The rapid digitalization of social, educational, professional, and communication processes has brought not only expanded opportunities for interaction and access to information but also new forms of social and psychological threats within the digital environment. One such threat is cyberbullying, which involves the systematic use of digital technologies to disseminate offensive messages, humiliate, harass, socially isolate, threaten, or otherwise exert psychological pressure on an individual. Unlike traditional bullying, cyberbullying is characterized by the rapid dissemination of information, a potentially unlimited audience, the possibility of anonymous communication, and the persistent availability of digital content. These characteristics significantly complicate the timely detection and cessation of cyberbullying.

The issue of cyberbullying has become particularly relevant given the growing role of digital platforms, social networks, messaging applications, and online communities in everyday communication. The shift of a significant proportion of social interaction into the digital realm creates conditions in which interpersonal conflicts and aggressive behavior can rapidly escalate into widespread public exposure. Victims of cyberbullying may adopt various response strategies, including ignoring the behavior, avoiding contact, blocking the aggressor, reporting incidents to platform administrators, seeking assistance from parents, educators, or other support figures, or directly confronting the perpetrator. The diversity of these behavioral responses necessitates their systematic study as a crucial component of digital safety.

The urgency of this issue is further compounded by the fact that traditional approaches to digital security primarily focus on the technological protection of information, accounts, devices, and network infrastructure. At the same time, the secure functioning of the digital environment depends largely on users' behavior, particularly their level of digital literacy, ability to recognize threats, capacity to respond appropriately to aggression, and timely use of

available protective mechanisms. In this context, countering cyberbullying should be viewed not merely as a distinct area of psychological or social prevention but as an integral component of a comprehensive digital security strategy.

A strategic approach to countering cyberbullying entails a shift from a predominantly reactive response to incidents that have already occurred toward a system focused on the proactive identification of risks, the promotion of safe digital behavior, and the development of early-warning mechanisms. Particular importance should be attached to identifying typical behavioral patterns among victims of cyberbullying, determining the factors that influence the choice of specific response strategies, and assessing the potential impact of such responses on levels of digital vulnerability. This approach enables a transition from one-size-fits-all countermeasures to differentiated digital safety strategies tailored to specific behavioral patterns and levels of risk.

The interplay between individual, social, technological, and institutional mechanisms for countering cyberbullying requires particular attention. The effectiveness of digital protection depends not only on platforms' capabilities for blocking and reporting harmful content but also on the availability of social support, users' willingness to seek help, their level of digital competence, the functioning of educational and social institutions, and the existence of clear procedures for responding to digital incidents. Therefore, a digital safety strategy should be developed as a comprehensive system of interconnected technological, organizational, educational, social, and behavioral measures.

The research problem lies in the need to provide a theoretical and empirical basis for mechanisms to counter cyberbullying while taking into account the behavioral responses of victims and integrating these mechanisms into the broader digital security system. The lack of systematic understanding of the relationships among different forms of cyberbullying, behavioral response patterns, levels of digital vulnerability, and available protection mechanisms necessitates a comprehensive approach to the development of appropriate strategic solutions.

LITERATURE REVIEW

The issue of cyberbullying has emerged at the intersection of research on digital communication, behavioral psychology, social interaction, information security, and the protection of children and young people. The growth of social networks, messaging applications, online games, and other digital platforms has transformed traditional forms of interpersonal aggression by providing new channels for dissemination, a potentially larger audience, and the capacity for harmful content to persist over time. UNICEF defines cyberbullying as bullying that involves the use of digital technologies and may occur through social networks, messaging platforms, gaming environments, and mobile devices [1].

In contemporary scholarly literature, cyberbullying is viewed not merely as a distinct form of aggressive behavior but as a complex socio-psychological phenomenon with consequences that may affect psychological well-being, educational performance, social relationships, and behavioral coping strategies. Of particular significance in this context is the systematic review of meta-analyses by Kasturiratna et al. [2], published in *Nature Human Behaviour* in 2024. The authors synthesized 56 meta-analyses and 296 effect sizes, covering studies with sample sizes ranging from 421 to more than 1,1 million participants. The results demonstrated associations between cyberbullying and a range of psychological and behavioral outcomes while also highlighting the importance of the social environment, parental support, and the school context in relation to cyberbullying risk. The authors also emphasize the potential of intervention programs while noting the need for further development of the evidence base.

An important area of contemporary research concerns factors within the digital environment that contribute to the emergence of cyberbullying. A systematic review of online disinhibition and cyberbullying among adolescents revealed a positive association between online disinhibition and cyberbullying behavior. However, specific characteristics of the digital environment appear to operate differently: the role of anonymity has produced inconsistent findings across studies, whereas communication asynchronicity has been found to influence cyberbullying both directly and indirectly through moral disengagement.

These findings are important for the development of digital safety strategies because they demonstrate that the technological environment is not behaviorally neutral. Features of digital communication can alter perceptions of responsibility, social control, and the consequences of aggressive actions. Consequently, combating cyberbullying requires consideration not only of the aggressor's behavior or the victim's characteristics but also of the architecture of the digital environment in which harmful behavior emerges and spreads.

A separate body of research focuses on the behavior of individuals who have experienced cyberbullying. Significant contributions in this area have been made by Wachs et al. [3], who proposed examining responses to digital aggression through the framework of coping strategies. A study involving 1,480 adolescents aged 12–17 identified six strategies for coping with cyber-hate: seeking remote assistance, assertiveness, helplessness/self-blame, close social support, technical coping, and retaliation. Technical coping, assertiveness, and close social support were among the most frequently employed strategies; however, retaliation was also reported among affected adolescents.

This research is particularly important for the development of a behavior-oriented approach to digital safety. It demonstrates that users are not merely passive targets of digital threats but actively choose how to respond to them. Consequently, the effectiveness of cyberbullying countermeasures may depend on users' familiarity with available protection tools, access to social support, and ability to adopt constructive behavioral patterns.

Further development of this line of inquiry is presented in a 2022 study by Wachs et al. [4], which surveyed 6,829 adolescents aged 12–18 from countries in Asia, Europe, and North America. The authors found that the use of

technical coping strategies and help-seeking behavior was associated with a lower likelihood of involvement in cyber-hate, whether as a victim, aggressor, or victim-aggressor. Conversely, feelings of helplessness and a desire for revenge were associated with a higher likelihood of involvement. Close social support also served a protective function for certain groups. The authors concluded that differentiated prevention programs are needed to account for the specific ways in which adolescents respond to such situations.

These findings underscore the importance of incorporating a behavioral component into digital safety frameworks. Given that some response patterns may provide protection whereas others may potentially escalate conflict, strategies for countering cyberbullying should go beyond merely blocking harmful content and actively promote constructive behavioral patterns.

A related line of research is represented by the study of Gámez-Guadix, Wachs, and Wright [5], which examines the psychometric properties of a cyber-hate coping questionnaire and its relationship to the well-being of Spanish adolescents. The authors define cyber-hate as a form of online aggression directed at an individual or group on the basis of race, ethnicity, nationality, sexual orientation, gender, religion, or disability. The study highlights the need for a comprehensive assessment of coping behaviors as a prerequisite for developing more targeted prevention strategies.

A 2024 systematic review by Chicote-Beato et al. [6], focusing on cyberbullying prevention programs in primary education, also emphasizes the importance of a comprehensive approach. Among the 17 programs analyzed, positive outcomes were associated particularly with the development of emotional competence, self-regulation skills, safe online behavior, and a positive school climate. The authors also emphasize the importance of collaboration between families and educational institutions.

A particularly promising avenue is the use of digital technologies to combat cyberbullying itself. Among contemporary technological tools, the authors highlight serious games, virtual reality, and artificial intelligence. Thus, digital technologies can serve not only as environments in which risks emerge but also as tools for prevention and the promotion of safe behavior.

This principle is fundamental to the concept of digital safety because it shifts the traditional understanding of technology from a "source of risk" toward a more comprehensive model in which technology is viewed as both a source of risk and a tool for prevention. Algorithmic systems for detecting harmful content, digital educational platforms, reporting mechanisms, automated blocking, and personalized learning can be integrated into a multilayered system for combating cyberbullying.

International regulatory and institutional frameworks play a significant role in shaping this strategic approach. The Council of Europe views child safety in the digital environment within the broader context of human rights protection, digital literacy, and the responsibilities of states, educational institutions, and other stakeholders within the digital ecosystem. Cyberbullying is identified as a key risk associated with the digital environment, alongside issues such as personal data protection, cybercrime, and other forms of digital violence.

UNICEF, for its part, emphasizes the need for a comprehensive child protection system in the digital environment, as the rapid development of technology creates new challenges for legislation, social services, education, and protection mechanisms [7]. The organization identifies risks such as cyberbullying, privacy violations, and other forms of online violence.

A synthesis of academic sources allows five main areas of research on this issue to be identified:

1. *Behavioral and psychological area* – research into the causes of cyberbullying, the behavior of aggressors and victims, psychological consequences, and coping mechanisms.
2. *Social area* – analysis of the roles of family, peers, the educational environment, social support, and digital communities.
3. *Technological area* – research into tools for blocking and reporting harmful content, content moderation, automated detection, artificial intelligence, virtual reality, and digital educational platforms.
4. *Educational and preventive area* – promotion of digital literacy, self-regulation, emotional competence, safe online behavior, and the ability to seek help in a timely manner.
5. *Strategic and managerial area* – integration of technological, behavioral, social, and institutional mechanisms into a comprehensive digital safety system.

Thus, an analysis of contemporary scholarly sources reveals a gradual shift from viewing cyberbullying merely as a distinct form of deviant or aggressive behavior toward understanding it as a complex threat to the digital environment that requires a system of preventive, technological, educational, social, and institutional measures. However, the integration of victims' behavioral patterns into strategic digital security management systems remains insufficiently explored.

This approach enables the synthesis of findings from psychological and social research on cyberbullying with technological and managerial aspects of digital security, thereby establishing a methodological foundation for developing a differentiated strategy for countering digital aggression.

METHODS

Methodology. The chosen research methodology is based on a combination of validated psychological instruments, modern models for interpreting aggressive behavior, and approaches to analyzing the digital socialization

of young people. The use of the Rosenberg Self-Esteem Scale [8, 9], Howard's four-part typology of violence, and a system of exploratory questions makes it possible not only to document instances of online aggression but also to explain them through the lens of motivations, emotions, social connections, and communication barriers. This methodological configuration enables the creation of a comprehensive model of behavior for Generation Z and Generation Alpha adolescents and provides a basis for the future development of effective prevention strategies and communication support.

RESULTS

The aim of the article is to substantiate and develop a methodological approach to studying methods of countering cyberbullying within the framework of a digital security strategy. The research hypothesis was tested by analyzing the digital behavior of Generations Z and Alpha in relation to their experiences of cyberbullying and "bull-speech," as well as by identifying the key emotional, social, and communicative factors that shape adolescents' responses to instances of online aggression. Amid the rapid development of digital platforms and the growing role of social media in young people's daily lives, their experiences with negative online content may determine their subsequent needs for support and information, as well as their ability to develop safe communication skills. The study focuses on understanding how young users perceive and interpret bullying, the situations they encounter most frequently, the emotions they experience, and the protection or avoidance strategies they adopt.

A second key aspect of the study involves identifying communication barriers, information needs, and the level of trust that young people place in various sources of support. This makes it possible to assess the potential effectiveness of educational and preventive initiatives. Given that contemporary youth are highly responsive to the information environment, algorithm-mediated interactions, and social validation, it is important to investigate which information-delivery methods, campaign formats, and communication channels they find most engaging, as well as how negative experiences on social media influence their behavior, self-esteem, and willingness to seek help

The object of the study is the digital behavior of adolescents belonging to Generations Z and Alpha, manifested through their interaction with online communication environments, social networks, and digital platforms in the context of exposure to cyberbullying and "bull-speech" (abusive online speech). This object encompasses a set of adolescents' socio-behavioral and emotional-cognitive characteristics that determine their responses to negative online content, patterns of self-presentation, levels of digital literacy, trust in information sources, and propensity to employ various strategies for countering online aggression. Their behavior is shaped by emotional, social, and cultural factors, making it a key element in understanding the mechanisms underlying the spread and experience of cyberbullying and bull-speech.

The subject of the study comprises the factors, mechanisms, and specific characteristics of adolescents' interactions with cyberbullying and bull-speech, as well as their emotional, behavioral, and communicative responses to manifestations of online aggression.

The scope of the study includes:

– motives and emotions arising among adolescents when they encounter negative online content;
– characteristics of adolescents' perceptions of various forms of bull-speech and cyberbullying;
– patterns of behavioral responses (avoidance, blocking, counteraction, emotional impulsivity, etc.);
– barriers to seeking help;
– levels of trust in various sources and channels of support;
– the impact of the digital environment on self-esteem, social relationships, and psychological well-being;
– adolescents' communication preferences that determine the effectiveness of preventive measures.

Thus, the subject matter encompasses not only adolescents' experiences of exposure to online aggression but also the broader complex of emotional, social, and communicative processes that shape their responses and attitudes toward this issue.

The study also analyzes adolescents' digital behavior, specifically the intensity and nature of their social media use, the popularity of different platforms, and typical forms of online interaction.

Research objectives:

1. To identify the most common forms and sources of «bull-speech» and cyberbullying encountered by adolescents in the digital environment.
2. To assess adolescents' emotional reactions to instances of online aggression, including feelings of fear, helplessness, and anger, as well as the desire to either resist or avoid such situations.
3. To determine the behavioral strategies adolescents use to respond to cyberbullying and bull-speech (e.g., blocking, ignoring, seeking help, counter-attacking, passive observation).
4. To examine adolescents' level of trust in various sources of support, such as parents, teachers, peers, psychologists, online platforms, and institutional resources.
5. To identify communication barriers that prevent adolescents from seeking support or reporting incidents of cyberbullying.
6. To analyze adolescents' information needs regarding internet safety, media literacy, emotional self-regulation skills, and strategies for countering online aggression.

7. To formulate recommendations for developing and promoting initiatives aimed at preventing cyberbullying and bull-speech among adolescents, taking into account their communication preferences and psychological characteristics.

8. Develop a strategic communication approach that fosters a safe, tolerant, and supportive online environment for young people.

In this study, the Rosenberg Self-Esteem Scale (RSES) was used to quantify the general self-esteem levels of adolescents from Generations Z and Alpha and to determine how the self-esteem factor correlates with their emotional and behavioral reactions to cyberbullying and bullspeech. The scale possesses well-documented reliability; various studies report internal consistency values (Cronbach's α) ranging approximately from 0,77 to 0,88. Furthermore, the scale's validity and structure have been confirmed in adolescent samples; for instance, a study involving Norwegian adolescents found that a two-factor model separating positive and negative items (representing «self-value» and «self-competence» components) provided the best fit [9].

The cross-cultural and age-related characteristics of the scale should also be noted. The RSES has demonstrated its applicability across various countries and populations, including both adolescents and adults. The instrument's validity has also been confirmed for the Ukrainian audience: an adaptation study conducted by Veldbrecht, Zinchenko, and Tavrovetska [10] showed that the Ukrainian version of the RSES exhibits high internal consistency (Cronbach's $\alpha = 0,88$) and adequate test-retest reliability. Given this, the use of the RSES in the present study is methodologically justified [11].

The study presented here employed a modified version of the Rosenberg Self-Esteem Scale, differing from the original in its response format. Instead of the classic four-point Likert scale («strongly agree» to «strongly disagree»), the questionnaire utilized a five-point scale: «strongly disagree», «disagree», «hard to say», «agree», and «strongly agree». While this modification alters the technical approach to data coding and may influence the distribution of responses, it does not compromise the scale's fundamental conceptual structure, which aims to measure global self-esteem as an individual's generalized attitude toward their own worth and competence.

Using a five-point scale offers several methodological advantages when studying an adolescent population. First, the inclusion of a neutral midpoint («hard to say») allows respondents to select an option reflecting uncertainty or ambivalence regarding the statements. This is particularly significant for adolescents, who are often in the process of developing their self-esteem and may wish to avoid making categorical judgments about personal qualities. Second, a five-point scale helps mitigate the forced polarization of responses sometimes observed with four-point instruments, where respondents are compelled to choose between a positive and a negative stance even when their true attitude is not clear-cut.

To assess the motives and forms of adolescent aggressive behavior in the digital environment, this study employed the four-part typology of violence proposed by Howard. This approach made it possible not only to identify the specific types of aggression most frequently enacted or experienced by adolescents of Generations Z and Alpha but also to understand the motivational mechanisms underlying various forms of violence ranging from direct physical aggression to socially mediated or digital manifestations. This study utilized Howard's [12] four-part typology of violence to analyze the motives behind adolescent involvement in cyberbullying and online aggression. This model allows for the interpretation of aggressive actions not merely as isolated behavioral acts, but as the result of an interplay between motivational and emotional factors. The four-part typology of violence (QVT) distinguishes four types of aggression based on associated emotional experiences and underlying motivations: impulsive-appetitive (Imp/Ap), impulsive-aversive (Imp/Av), controlled-appetitive (Con/Ap), and controlled-aversive (Con/Av). This approach provides a deeper understanding of why adolescents engage in aggressive actions within the digital environment, particularly when driven by a desire for self-assertion, emotional release, or the pursuit of social attention [12, 13].

Subsequent empirical work confirms the relevance and validity of this typology. In particular, a study by Bant et al. [14] demonstrated that the four-part model is replicable across adolescent and youth samples and enables the differentiation of various patterns of aggressive behavior in everyday social interactions. The authors showed that aggression motivated by a desire for arousal or social dominance differs significantly from aggression arising as an impulsive reaction to stress or humiliation [14]. This is particularly significant for analyzing online interactions among adolescents, as digital platforms facilitate both planned and impulsive aggression, while anonymity can amplify appetitive motives.

Furthermore, psychological mechanisms associated with shame and guilt also play a role in shaping online aggressive behavior. Research by Adinugroho, Christiani, and Nurrachman [15, 16] highlights that specific internal states can either trigger reactive aggression or, conversely, inhibit it. Integrating these emotional mechanisms with Howard's four-part typology allows for a more precise explanation of the motives behind adolescent cyberbullying, specifically, whether individuals act impulsively and aversively in response to negative experiences or exhibit appetitive, often socially driven, aggression. This study formulated six key hypotheses reflecting the complex, multi-level nature of the digital environment's impact on the emotional, behavioral, and social spheres of Generation Z and Alpha adolescents. These hypotheses encompass psychological, communicative, and socio-institutional aspects of young people's interactions with cyberbullying and «bull-speech», while also incorporating contemporary theoretical models.

Hypothesis 1 posits that the intensity of social media usage and the extent of adolescents' engagement with digital platforms are directly linked to the frequency of their exposure to online aggression. Given that social media serves as a primary arena for youth social interaction, it is expected that increased frequency and activity on these platforms will correlate with a rise in cyberbullying incidents and a broader range of «bull-speech» forms encountered.

Hypothesis 2 examines the relationship between adolescents' global self-esteem and their emotional and behavioral responses to online aggression. Drawing on the validated RSES self-esteem scale, it is hypothesized that young people with lower self-esteem will experience more intense negative emotions in response to cyberbullying and will more frequently employ passive coping strategies.

Hypothesis 3 explores a mediation mechanism: adolescents' emotional reactions to bull-speech act as a mediator between their self-esteem levels and their chosen behavioral strategies. In other words, emotional experiences, such as fear, shame, anxiety, anger, or distress, influence whether an adolescent opts for avoidance, blocking, aggressive retaliation, or seeking help. This provides deeper insight into the psychological mechanisms through which self-esteem shapes online behavior.

Hypothesis 4 concerns the motivational mechanisms of online aggression and is based on Howard's four-part typology of violence (Imp/Ap, Imp/Av, Con/Ap, Con/Av). It posits that distinct motivational patterns, impulsive-appetitive, impulsive-aversive, controlled-appetitive, or controlled-aversive are associated with specific forms of adolescent involvement in cyberbullying, whether through direct aggression, supporting the behavior, or witnessing it.

Hypothesis 5 focuses on the role of social institutions and the level of adolescent trust. It assumes that higher levels of trust in parents, schools, psychologists, or law enforcement agencies increase the likelihood that adolescents will seek help in cyberbullying situations. Trust serves as a key communicative and socio-psychological factor determining the accessibility and effectiveness of institutional support.

Hypothesis 6 examines the multifaceted nature of the impact of cyberbullying: frequent exposure to abusive online speech among adolescents is associated not only with emotional consequences but also with behavioral changes and the emergence of a need for psychological, informational, and social support. Thus, cyberbullying is viewed as a multidimensional phenomenon that affects psycho-emotional stability, social behavior, and the level of demand for assistance [17].

The target population consisted of young people, primarily school students. The sample size was N = 5,092 respondents aged 14 to 21. A mixed sampling method was employed, recruiting participants through both educational institutions and online platforms (social networks and instant messengers); to enhance validity and minimize bias, a randomization procedure was applied to the selection of educational institutions and online channels. Geographically, the study covered all regions of Ukraine, excluding temporarily occupied territories (TOT) and active combat zones. The sample is representative of Ukraine's youth population based on key socio-demographic indicators, specifically gender, age, and settlement type (urban/rural), ensuring high validity when generalizing the results to the broader population. The theoretical sampling error is 1,9% at a 95% confidence interval.

The study results revealed that cyberbullying occurs most frequently on social networks. Analysis of the survey data showed that the majority of respondents most often encounter cyberbullying on TikTok (this platform was cited in 28,5% of cyberbullying cases). Online instant messengers, such as WhatsApp, Telegram, and Signal ranked second in prevalence, with 17% of respondents reporting encounters with cyberbullying on these platforms (as shown in Fig. 1).

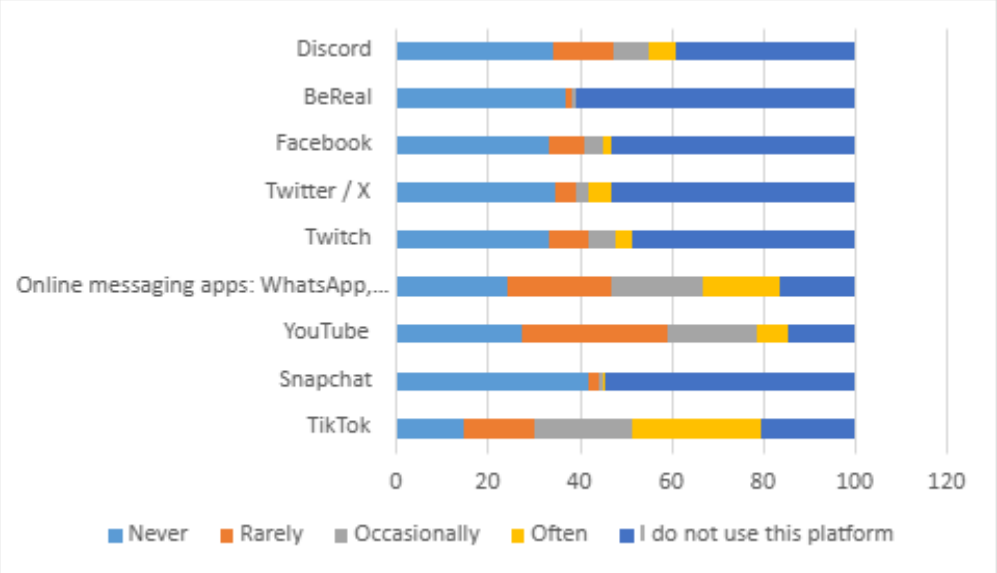


Fig. 1. Frequency of observing cyberbullying on various platforms

Source: Authors' own contribution

The results lead to the conclusion that cyberbullying occurs most frequently on the social network TikTok and in online messaging apps.

The primary settings where respondents encountered cyberbullying were social media comments, websites, forums, or blogs (38,4%). Online games rank second in terms of cyberbullying prevalence (27,5%), followed in third place by offensive posts or videos on social media or other websites (22,5%), as shown in Figure 2.

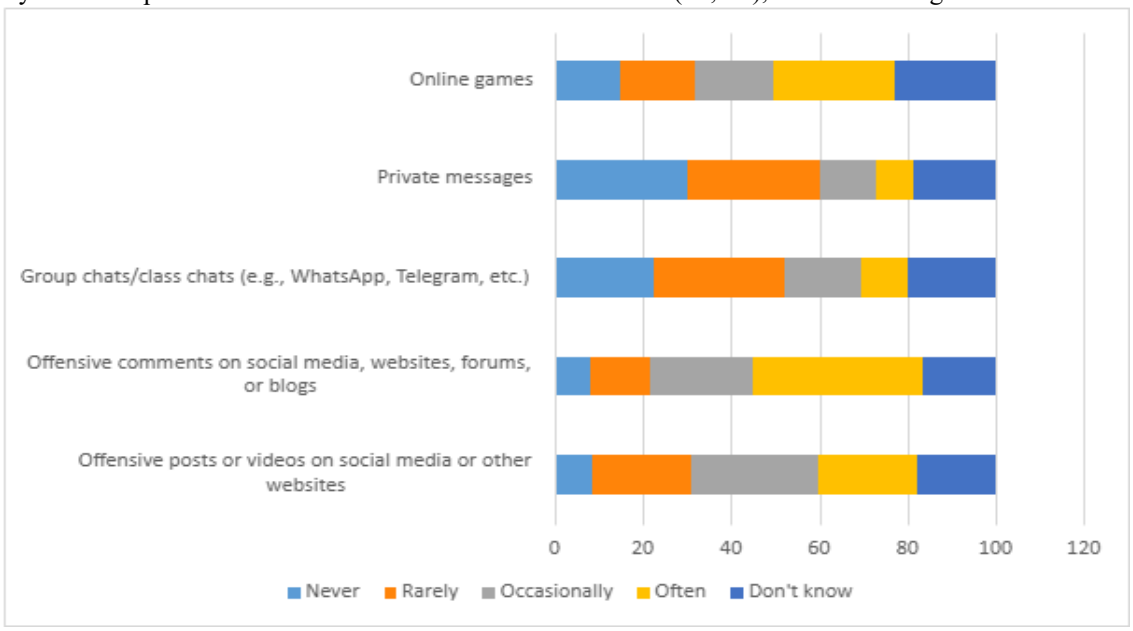


Fig. 2. Distribution of respondents' answers regarding the main locations of cyberbullying
Source: Authors' own contribution

The main themes of cyberbullying are as follows (see Fig. 2.3): politics or political views (35,3% and 31,3%, respectively); body size and physique (27,8%); homosexuality or sexuality in general (18,9%); refugees or migrants from another country (16,1%); people of a different skin color (14%); remarks directed at members of a specific religion (10,7%); comments related to a person's age (10,8%); bullying of people with disabilities (6,8%); and remarks directed at women (6,3%).

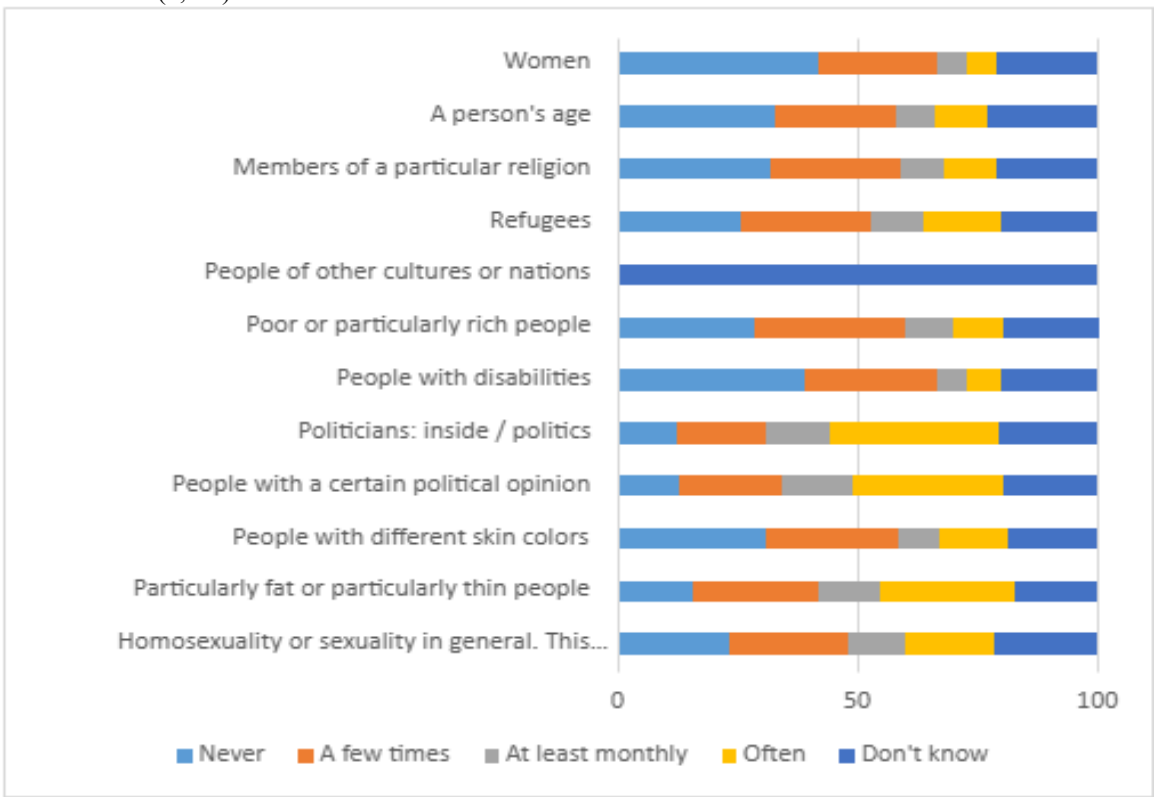


Fig. 3. Distribution of respondents' answers regarding the main topics of cyberbullying
Source: Authors' own contribution

The study's key findings indicate that the issues underlying the hate speech experienced by respondents stem from cross-cultural perceptions and the influence of destructive behavioral patterns, stereotypes, and misconceptions among social media audiences. Instances of cyber-hate involving the mockery of physical imperfections, disabilities, skin color, and gender differences constitute racial discrimination and are chauvinistic in nature. Such phenomena are unacceptable in modern society and are governed not only by cultural norms and traditions but also by civil legislation.

Consequently, it can be concluded that the surveyed audience is forming a subculture within cyberspace that runs counter to societal ethical and moral norms, comprising members of Generation Z and Generation Alpha. Understanding the causes of this phenomenon requires further research to identify the sources and motivations behind the observed levels of cyber-aggression and cyber-hate. While this behavior may be linked to the fact that the majority of respondents are adolescents -manifesting as teenage nihilism -it could also reflect a decline in the general level of culture among this new generation.

In addition, social media content contributes to the formation of certain behavioral patterns and cognitive reactions to certain emotional influences in adolescents, the frequency of which can shape corresponding impulses and behavioral reactions [18]. This process can lead to the development of entirely different interpersonal dynamics in cyberspace, characterized by unique perceptions of online culture, ethics, and communication.

The correlation and regression analyses unequivocally confirm hypothesis H1: more intensive social media use is statistically significantly associated with more frequent exposure to cyber-hate. Although the correlation coefficients are moderate (r = 0,11 - 0,29), they remain stable and demonstrate a consistently positive relationship. The results indicate that both the frequency of social media use and the intensity of interaction within the digital environment make independent contributions to the increased risk of exposure to bullying: both predictors are statistically significant in the multiple regression model (β = 0,081 and β = 0,200; p < 0,001). This implies that, regardless of other factors, adolescents who spend more time on social media and interact more actively with content encounter instances of online aggression more frequently.

Correlational analyses confirm this trend in greater detail. The social media usage index (SocMedia_Use_Index) is statistically significantly associated with the index of platforms where adolescents encountered bullying (Hate_Platform_Index) at a level of r = 0,115 (p < 0,001). Social media interaction intensity (SocMedia_Intensity_Index) showed even stronger associations with both the number of platforms where bullying was recorded (r = 0,213; p <0,001) and the range of thematic types of aggression (Hate_Topic_Index), with the latter showing the strongest link (r = 0,290; p < 0,001). Thus, more active social media users not only experience online aggression more frequently but also encounter a wider spectrum of its thematic forms.

The heatmap shown in Figure 4 demonstrates that all correlations among the four analyzed indices are positive. These indices include: SocMedia_Use_Index (level of social media usage), SocMedia_Intensity_Index (usage intensity), Hate_Platform_Index (hate-on-platforms index), and Hate_Topic_Index (hate-by-topic index). The strongest association with a coefficient of 0,521 was found between the two hate indices (Hate_Platform_Index and Hate_Topic_Index), directly indicating their close interconnection. Conversely, the indices reflecting social media usage (SocMedia_Use_Index and SocMedia_Intensity_Index) show weak yet significant positive associations with both hate indices, with correlations not exceeding 0,29. It is worth noting that social media usage intensity exhibits a slightly stronger association with hate metrics than the simple level of usage.

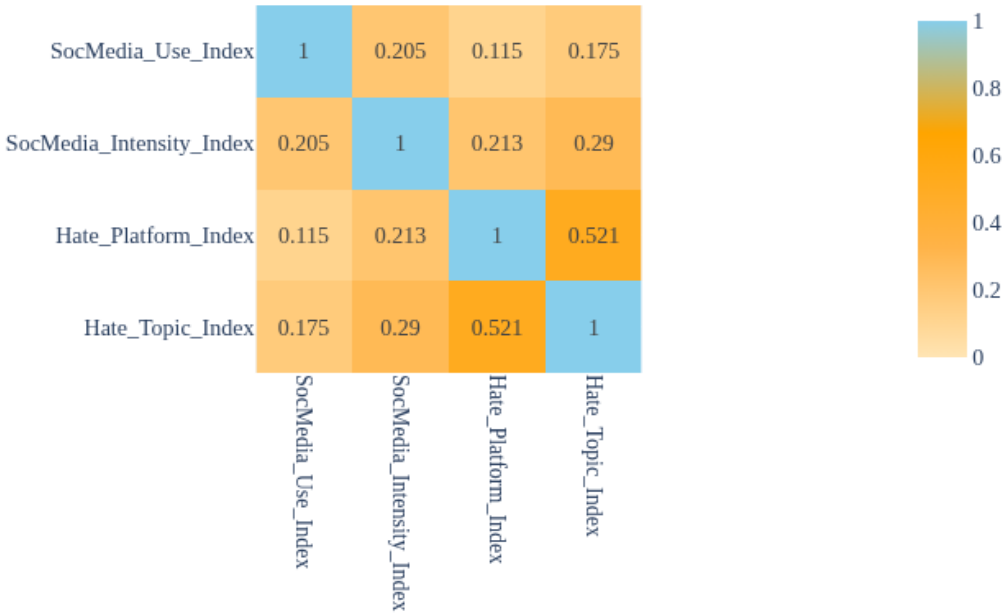


Fig. 4. Heat map of the correlation between social media usage indices and cyber-hate across platforms
Source: Authors' own contribution

The results of the regression models align with these findings: although the overall explanatory power is relatively low ($R^2 \approx 0,05$), social media nonetheless acts as a significant risk factor. The frequency and intensity of social media use are statistically significant predictors of both the number of platforms where adolescents experience bullying and the thematic diversity of the harassment. The data indicate the structural role of digital interaction in heightening vulnerability to online aggression.

Group analysis (ANOVA, GLM) further confirmed the existence of substantial intergroup differences. Students with the lowest level of social media use report the least exposure to bullying, whereas groups of «moderate» and «high» users demonstrate statistically significantly higher rates across all indicators. The most pronounced differences are observed in the thematic scope of the bullying, consistent with the correlation analysis results. The group characterized by intensive social media use («High use») consistently proves to be the most vulnerable, regarding both the number of platforms involved and the thematic range of the aggression. The body of empirical data supports the full confirmation of hypothesis H1: the more time adolescents spend online, the higher the likelihood of encountering bullying and the broader the forms it takes.

Regarding hypothesis H2 which posited that lower self-esteem in adolescents is associated with more intense negative emotional reactions to cyberbullying and a greater tendency toward passive coping strategies, statistical analysis provided partial support for this relationship. Specifically, it was found that lower self-esteem is significantly associated with more pronounced negative emotions in response to instances of online aggression. Correlation analysis revealed a moderate yet statistically significant negative relationship between self-esteem and the intensity of the emotional reaction ($r = -0,267$, $p < 0,001$); this indicates that the lower an adolescent's self-worth, the more intensely they experience negative affect during cyberbullying incidents. Regression analysis confirmed that self-esteem is a significant predictor of emotional reactivity ($\beta = -0,267$, $p < 0,001$), accounting for 7,1% of the variance a notable figure for psychological data.

At the same time, the influence of self-esteem on behavioral reactions, specifically passive ones proved to be significantly weaker. Although the correlation between self-esteem and passivity is statistically significant ($r = 0,048$, $p = 0,002$), its strength is virtually negligible. Regression model results confirm the minimal contribution of self-esteem to the variation in passive strategies ($\beta = 0,046$, $p = 0,003$), with an explanatory power of only 0,2% of the variance. This implies that while self-esteem plays a role, it has almost no bearing on adolescents' behavioral responses to cyberbullying.

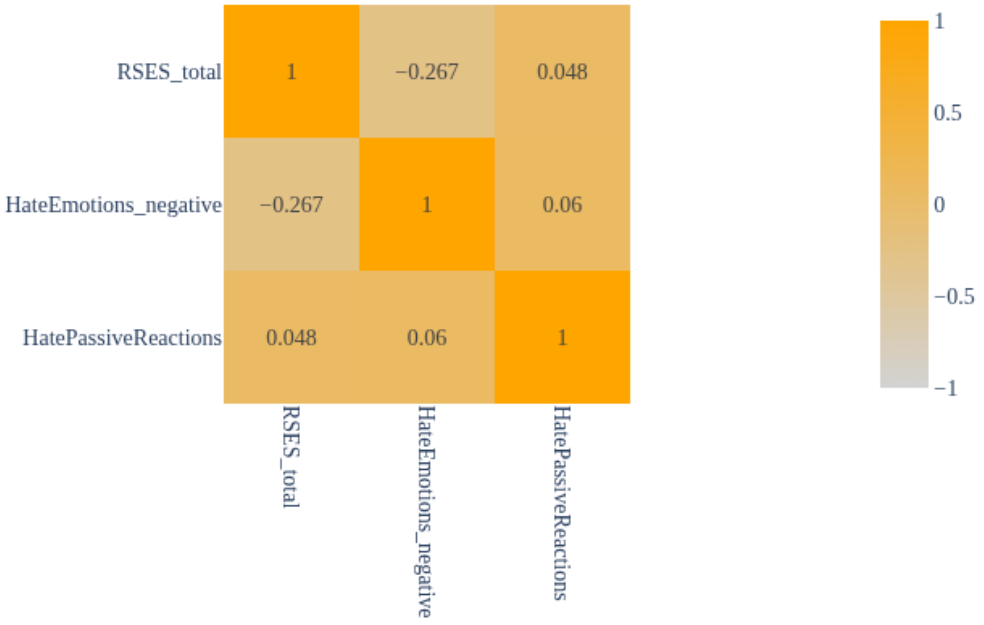


Fig. 5. Heatmap of the correlation between self-esteem, negative emotions, and passive reactions
Source: Authors' own contribution

As shown in Figure 5, negative emotions exhibit a moderate and statistically significant inverse relationship with self-esteem ($r = – 0,267$), indicating that lower self-esteem is associated with more intense negative experiences. At the same time, the relationship between self-esteem and passive reactions is very weak ($r = 0,048$), albeit statistically significant. Negative emotions also show a weak yet statistically significant correlation with passive strategies ($r = 0,060$), suggesting a tendency toward greater passivity under conditions of heightened emotional distress.

Thus, hypothesis H2 is only partially supported: while self-esteem is a key factor in emotional responding, its influence on passive coping strategies is minimal. These results indicate that behavioral responses to online aggression are determined to a greater extent by factors such as prior experience, coping skills, the level of available

social support, or specific situational contexts. Consequently, the findings partially support hypothesis H2, clarifying that its behavioral component requires further explanation through other variables

As part of the analysis, a mediation model was constructed to test whether emotional reactions mediate the relationship between adolescents' self-esteem and their behavioral strategies for responding to cyberbullying. The model comprised three main pathways, each allowing for the assessment of a specific element of the potential mechanism of influence (see Figure 6).

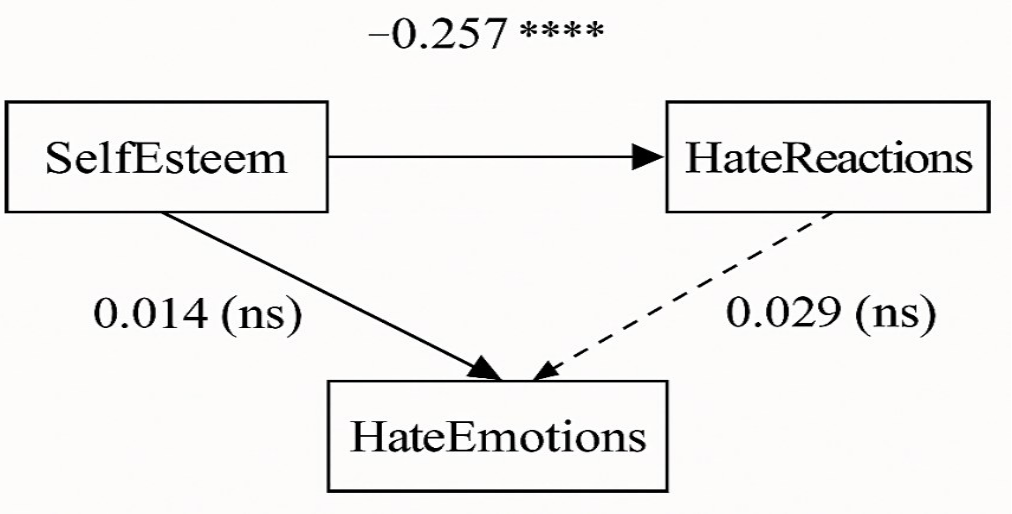


Fig. 6. Mediation model: self-esteem → emotions → behavioral reactions to cyberbullying
Source: Authors' own contribution

The first path describing the influence of self-esteem on the intensity of negative emotions following cyberbullying (Self-Esteem → HateEmotions) proved to be statistically significant. The obtained value of $\beta = –0,257$ ($p < 0,001$) indicates a clear trend: adolescents with lower self-esteem exhibit significantly stronger negative emotional reactions to online aggression. This result aligns with theoretical models of emotional vulnerability that emphasize the role of self-esteem as a regulator of emotional response.

The second path (HateEmotions → HateReactions) – representing the influence of experienced emotions on behavioral choices did not show a statistically significant effect ($\beta = 0,014$, $p = 0,378$). This implies that even a strong emotional reaction is not a decisive factor in how an adolescent responds to cyberbullying whether passively (ignoring, blocking, avoiding) or more actively (reporting to adults, taking counter-action). Thus, the emotional component does not serve as an explanatory link between self-esteem and behavioral strategies.

The third path (Self-Esteem → HateReactions, controlling for negative emotions) also proved non-significant ($\beta = 0,029$, $p = 0,078$). This indicates that there is no or at most a very weak - direct influence of self-esteem on the choice of response strategy, even when the respondent's emotional state is taken into account.

Summarizing the results, it can be stated that the hypothesized mediating effect of emotional reactions was not confirmed. While self-esteem plays a significant role in shaping the emotional response to cyberbullying, these emotions do not influence adolescents' behavior in situations of online aggression. Behavioral strategies proved to be largely independent of both self-esteem levels and emotional states; this points to the decisive role of external moderators – such as social support, online and offline environment rules, digital safety skills, and prior social media interaction experiences.

In other words, adolescents' behavioral reactions showed only a weak link to both self-esteem and emotions, likely depending instead on external factors (such as social environment, school rules, or digital literacy). Analysis of the data led to the conclusion that the mediating effect of emotions was not supported; emotions do not explain the mechanism by which self-esteem might influence adolescents' behavioral responses to cyberbullying. Overall, adolescents' behavioral response strategies showed little association with either self-esteem or the intensity of negative emotions experienced, suggesting the likely importance of other factors not included in the model (such as social environment, school regulations, safety skills, or digital literacy levels).

An analysis of cyberbullying motives, based on Howard’s four-part typology, revealed that these motives do not form the distinct, separate categories predicted by the original theory. Factor analysis demonstrated an almost complete lack of structural differentiation: instead of the four expected factors, a single, exceptionally strong general component emerged, accounting for virtually all the variance in the indicators. All motives showed very high loadings on each factor, indicating that they are inseparable and function not as autonomous motives, but as a unified "motivational complex" (see Figure 7).

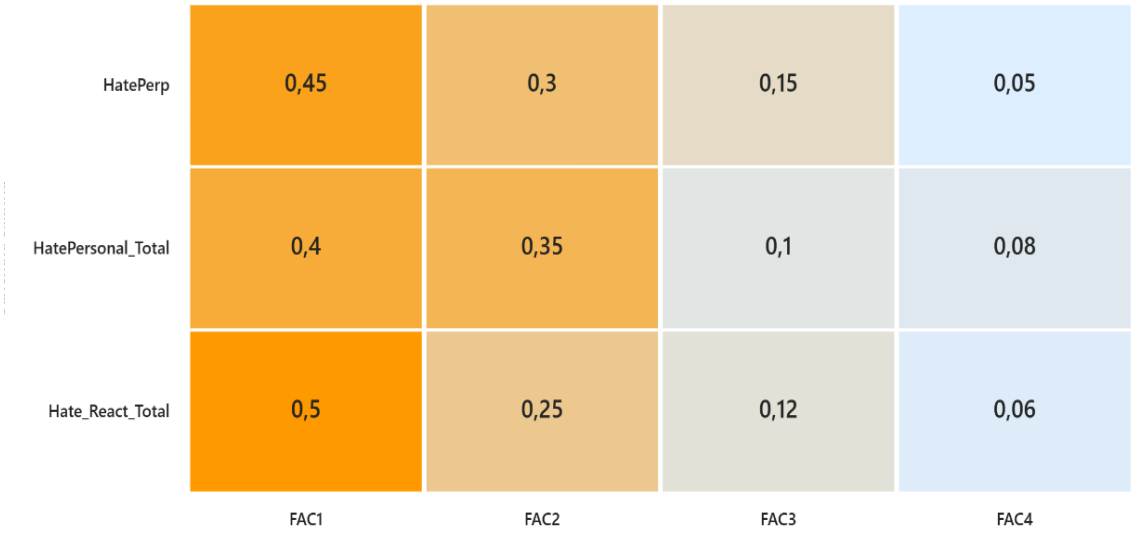


Fig. 7. Heatmap – influence of factors on dependent variables

Source: Authors' own contribution

Further regression analysis confirmed that this complex is a strong predictor of engagement in online aggression: various component indicators of motives consistently and significantly predict aggressive behavior (β ≈ 0,48–0,55), and the model explains 77,2% of the variance in bullying participation an exceptionally high level of explanatory power. Thus, the broader the spectrum of motives a teenager exhibits, the higher the likelihood that they will engage in aggressive actions online.

At the same time, Howard's motives show almost no link to whether a teenager has been a victim of bullying: the relevant correlations are extremely weak, and the regression model explains only 0,7% of the variance in personal experiences of online abuse. While the motives show a very strong association with response style (passive vs. active), this result stems from the technical characteristics of the scale and should therefore be interpreted with caution. Overall, the findings indicate that Howard's motives do not form distinct types but rather function as a unified "risk cluster": teenagers driven by even a single motive typically possess a wide range of reasons for aggressive behavior, and these motives mutually reinforce the risk of engaging in cyberbullying.

The results obtained do not support hypothesis H5, which posited that higher institutional trust increases the likelihood of seeking help. The correlation between TrustIndex and HelpContactIndex was virtually zero ($r = –0,014$, $p = 0,322$), indicating the absence of a statistically significant relationship between the level of trust and help-seeking behavior. Additional linear regression analysis confirms this finding: the coefficient $\beta = –0,014$ ($p = 0,322$) indicates that institutional trust is not a predictor of help-seeking among adolescents. Thus, the results clearly demonstrate that adolescents' support-seeking behavior is independent of their level of institutional trust. In other words, even a high level of trust in state or social institutions does not increase the likelihood that an adolescent will seek help in a difficult situation. Consequently, hypothesis 5 was not empirically supported and can be rejected.

he results of the MANOVA and subsequent analyses provide partial support for hypothesis H6. The multivariate effect of HateContact was statistically significant (Pillai's Trace = 0,00549; $p = 0,000$), indicating a systematic impact of the frequency of online hate exposure on psychological outcomes. Univariate tests demonstrate that emotional consequences ($F = 4,18$; $p = 0,041$) and the need for support ($F = 15,95$; $p < 0,001$) increase significantly among adolescents who encounter cyberbullying more frequently. In contrast, behavioral reactions do not differ across groups ($p = 0,975$), implying the absence of qualitatively distinct behavioral patterns based on the frequency of exposure to aggression. Regression models confirm a very strong association between HateContact and emotional manifestations ($\beta = 0,935$; $R^2 = 0,875$), a moderate association between HateContact and the need for support ($\beta = 0,553$; $R^2 = 0,306$), and a proportional scaling of behavioral reactions ($\beta = 0,977$), despite the lack of observed group differences. Figure 8 clearly illustrates that the frequency of exposure to hate content significantly intensifies emotional reactions and the need for support, whereas behavioral reactions increase proportionally without forming distinct group patterns.

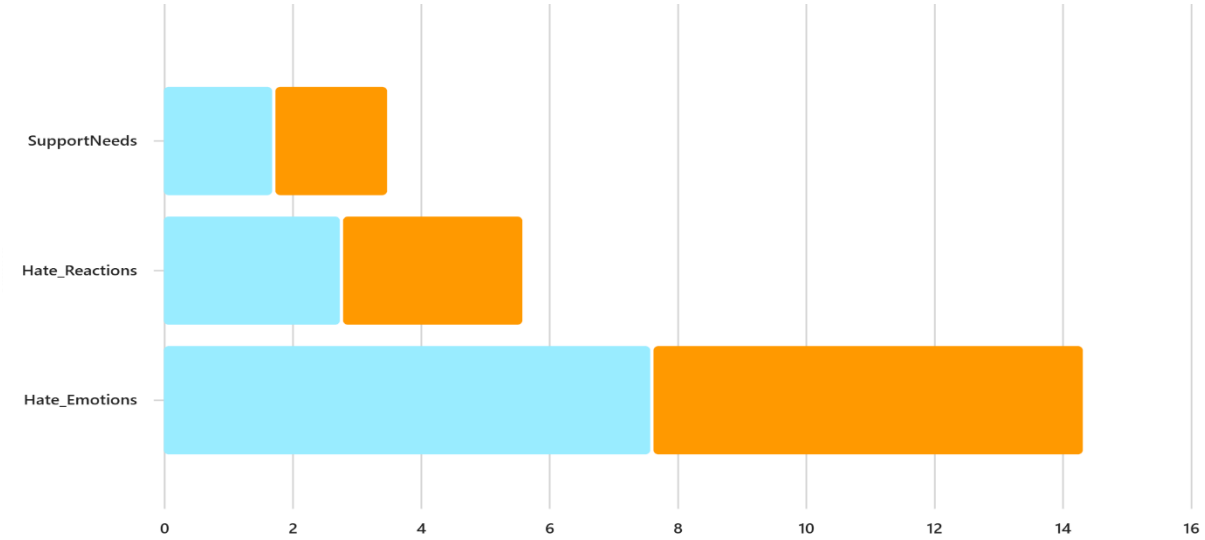


Fig. 8. Comparison of Hate_Emotions, Hate_Reactions, and SupportNeeds scores across HateContact groups
Source: Authors' own contribution

Cluster analysis refines the sample structure by identifying three typical groups of adolescents: a highly vulnerable cluster (20%) characterized by significant emotional impact, intense behavioral reactions, and a substantial need for support; an intermediate cluster (5%) with moderate levels of emotional and behavioral reactions but a very low need for external assistance; and the largest cluster (75%), where indicators regarding emotions, behavior, and support needs remain low. Collectively, these results demonstrate that the more frequently an adolescent encounters acts of hate online, the more pronounced their emotional reactions and need for support become. Although behavioral reactions do not form distinct group patterns, their intensity increases in proportion to the level of exposure. A small but consistently high-risk group of adolescents warrants particular attention, as they require targeted and systemic support.

The study's findings provide a basis for shifting from general recommendations regarding safe behavior in the digital environment to a differentiated system of strategic digital safety imperatives; this system accounts for the frequency of exposure to cyber-hate, emotional consequences, the need for social support, and the nature of the victims' behavioral responses.

Empirical analysis established a statistically significant link between the frequency of exposure to hate in the digital environment and both emotional consequences and the need for support. Specifically, the effect of exposure to hate on emotional manifestations is statistically significant ($F = 4{,}18$; $p = 0{,}041$), while its effect on the need for support is even more pronounced ($F = 15{,}95$; $p < 0{,}001$). However, no statistically significant differences in behavioral responses were observed between the groups ($p = 0{,}975$).

This means that a digital safety strategy must focus not merely on changing user behavior but, above all, on the early detection of digital vulnerability, the timely provision of support, and the establishment of accessible protection mechanisms.

The proactive detection of heightened digital vulnerability should be identified as *the primary strategic imperative*. Given that the emotional impact and the need for support intensify with the frequency of exposure to cyber-hate, a digital safety system must provide for the early identification of individuals who systematically encounter online aggression.

It is advisable to regularly monitor the following indicators:

– frequency of exposure to hate content;
– recurrence of negative online incidents;
– intensity of negative emotional reactions;
– need for external support;
– ability to independently stop unwanted communication;
– use of available digital protection tools.

Thus, the approach to digital safety must shift from reacting to an established problem to the early detection of risk.

A second strategic imperative is ensuring the accessibility and multi-level nature of support. The significance of this area is underscored by the fact that the frequency of exposure to cyber-hate statistically significantly increases adolescents' need for support; indeed, this indicator shows a strong association with HateContact ($\beta = 0{,}553$; $R^2 = 0{,}306$).

Therefore, the digital safety system should entail the following sequence: «affected individual → immediate social circle → educational environment → psychological support → digital platform → specialized institutions».

At the same time, study results demonstrated that a high level of institutional trust does not, in itself, increase the likelihood of seeking help: the correlation between TrustIndex and HelpContactIndex was r = –0,014 (p = 0,322). Thus, trust in institutions alone is insufficient; it is also necessary to lower the behavioral and communication barriers to seeking help.

The third strategic imperative is grounded in the communication process, which entails simplifying the mechanisms for seeking help. The finding that there is no statistically significant link between institutional trust and help-seeking behavior holds direct practical significance. A digital safety strategy must ensure not only the availability of support services but also the utmost ease of access to them. It is advisable to:

- establish unified digital channels for reporting cyberbullying;
- minimize the number of steps involved in filing a complaint;
- enable anonymous or confidential reporting where appropriate;
- use language that is easily understood by adolescents;
- ensure prompt feedback;
- keep the user informed about the subsequent stages of the report's review;
- combine digital reporting channels with access to human support.

Thus, the model wherein "the user must find help on their own" needs to be transformed into a model where «the digital safety system makes help accessible and understandable».

The fourth strategic imperative relates to the psychological dimension, specifically identifying ways to strengthen personal resources. Research findings demonstrated a statistically significant link between self-esteem and the intensity of negative emotions. The correlation was r = –0,267 (p < 0,001), and regression analysis showed that self-esteem accounts for 7,1% of the variation in emotional reactivity. Mediation analysis also confirmed a significant pathway: Self-Esteem → Hate Emotions (β = –0,257; p < 0,001). At the same time, emotional reactions did not have a statistically significant impact on the choice of behavioral strategy (β = 0,014; p = 0,378).

Therefore, recommendations should not be based on the assumption that strong emotions automatically dictate specific behaviors, but rather on strengthening individual resources for coping with digital threats. In this context, it is advisable to develop:

- emotional self-regulation;
- digital resilience;
- constructive response skills;
- the ability to recognize manipulative and aggressive content;
- skills for seeking help;
- the ability to use blocking and reporting tools.

The fifth strategic imperative is the technological factor, manifested through the strengthening of self-protection tools.

The technological component of digital safety must enable users to quickly halt dangerous interactions.

The basic toolkit should include: detection → blocking → reporting → documentation → access restriction → regaining control over the digital space.

It is particularly important to train users in the practical application of: blocking; reporting content; privacy settings; restricting comments; message filtering; controlling access to personal information; and preserving evidence of digital aggression.

At the same time, these technological tools must be as simple as possible for adolescents to use.

The sixth strategic imperative - the behavioral one is implemented by fostering constructive response patterns. Research findings reveal a significant insight: while the frequency of exposure to cyber-hate substantially affects emotional outcomes and the need for support, it does not result in statistically distinct qualitative categories of behavioral responses (p = 0,975). Therefore, one cannot assume that an increase in the frequency of cyber-hate automatically triggers a specific type of behavior.

Consequently, rather than imposing a single, universal response model, it is advisable to develop a set of safe behavioral strategies, specifically: refraining from retaliatory aggression; terminating unsafe communication; blocking the aggressor; documenting the incident; reporting it to the platform; consulting a trusted person; and, if necessary, referring the matter to the appropriate authorities.

The seventh strategic imperative – digital resilience – aims to support the high-risk group. Cluster analysis identified three groups of adolescents:

- 20% - a highly vulnerable cluster characterized by significant emotional impact, intense behavioral reactions, and a substantial need for support;
- 5% - an intermediate cluster characterized by moderate levels of emotional and behavioral reactions and a very low need for external assistance;
- 75% - a group showing low levels of emotional and behavioral reactions and a minimal need for support.

For the digital safety system, this implies a need to differentiate preventive measures. For the highly vulnerable group, the following must be provided: systematic monitoring; personalized psychological support;

involvement of parents or guardians; engagement with the educational environment; enhanced use of technological protection mechanisms; and monitoring of incident recurrence.

The eighth strategic imperative is institutional, entailing a shift from formal to functional support. Since the level of institutional trust has not shown a statistically significant link to help-seeking behavior, a digital safety strategy must assess not only trust but also the actual accessibility and effectiveness of the assistance provided.

In other words, it is necessary to evaluate: "does the adolescent know where to turn → is it easy to make contact → do they receive a response → does the contact lead to a concrete protective measure?"

This enables a transition from the mere formal existence of institutions to an assessment of their actual function within the digital safety system.

The ninth strategic imperative concerns risk-level indicators based on monitoring the frequency of exposure to cyber-hate. The strong correlation identified between HateContact and emotional manifestations ($\beta = 0{,}935$; $R^2 = 0{,}875$) demonstrates the validity of using the frequency of exposure to hate content as an indicator of digital risk.

However, this metric should not be used as a standalone diagnostic criterion. It is best combined with the following elements: emotional reactivity, the need for support, the recurrence of incidents, the nature of the behavioral response, and the availability of social resources. By utilizing these characteristics, an integrated profile of digital vulnerability can be constructed.

The tenth strategic imperative relates to a high degree of strategic flexibility and adaptability. Research findings indicate that digital risks vary in intensity and that user reactions do not conform to a single, universal model.

Therefore, a digital safety strategy must operate as an adaptive cycle: «monitoring → risk assessment → measure selection → intervention → outcome evaluation → measure adjustment».

This approach makes it possible to account for changes in the frequency of cyber-hate, emotional state, need for support, and the behavioral response of a specific individual. Based on the findings, the system presented in Table 1 is proposed.

Table 1

Generalized system of strategic imperatives

Strategic imperative	Empirical basis	Main mechanism
Preventive	escalation of emotional consequences from more frequent exposure to hate speech	early risk detection
Supportive	growing need for support involving more frequent contact	multi-level assistance
Communicative	lack of connection between trust and seeking help	simplifying access to assistance
Psychological	the relationship between self-esteem and negative emotional reactivity	development of emotional resilience
Behavioral	absence of qualitatively different behavioral patterns between groups	formation of a safe repertoire of reactions
Technological	the need for practical self-defense mechanisms	blocking, notifications, privacy
Institutional	the limited role of institutional trust as a predictor of seeking help	functional response system
Differentiated	presence of a highly vulnerable 20% cluster	targeted support
Monitoring	strong relationship between frequency of contact and emotional consequences	digital vulnerability profile
Adaptive	heterogeneity of responses and risk levels	continuous adjustment of measures

Source: Authors' own contribution

CONCLUSIONS

The results of the study demonstrate the complex nature of young people's interactions with cyberspace and confirm that the frequency of social media use, the intensity of digital activity, and specific psychological characteristics of adolescents shape different dimensions of their vulnerability to online aggression. The sample, which was representative of Ukrainian youth, made it possible to identify the primary platforms and online environments in which cyberbullying occurs, determine the topics most frequently targeted by hate speech, and identify substantial differences in respondents' perceptions, emotional reactions, and behavioral responses. The findings indicate that TikTok and online messaging applications are the primary environments in which cyberbullying occurs, while the thematic focus of hate speech is largely associated with political views, physical appearance, and ethnic, gender, and social characteristics.

Higher levels of social media activity were directly associated with a broader range of exposure to hate-related content, although the explanatory power of this relationship was moderate. Adolescents' self-esteem emerged as a key factor associated with the intensity of their emotional responses, whereas its relationship with the choice of behavioral strategies was negligible. Emotional reactions did not mediate the relationship between self-esteem and responses to cyberbullying, suggesting the involvement of other determining factors, primarily external ones. An analysis of the motives underlying participation in cyberbullying indicated that these motives did not form clearly differentiated types but rather constituted a single, intensified motivational complex that significantly increased the likelihood of aggressive behavior while providing limited explanatory power for experiences of victimization.

The hypothesis that institutional trust influences adolescents' willingness to seek help was not supported, suggesting that formal support mechanisms play a relatively limited role in adolescents' behavioral responses. At the

same time, MANOVA and related statistical models demonstrated that greater exposure to hate speech was associated with stronger emotional consequences and an increased need for support, while behavioral responses remained relatively stable. Cluster analysis identified three distinct groups of adolescents, including a highly vulnerable group that warrants particular attention and targeted intervention.

In summary, cyberbullying among young people is not merely a widespread phenomenon but also a structurally complex process shaped by digital behavior, psychological vulnerability, motives for aggression, and social context. The findings reveal gaps in existing prevention and response mechanisms and underscore the need for further research and the development of targeted support programs for adolescents who are particularly vulnerable to online aggression.

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