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Research article

Coping with Cyberbullying Questionnaire: Structure and primary psychometric characteristics

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Abstract

Introduction. The article presents an adaptation of The Coping with Cyberbullying Questionnaire (CWCBQ) (Sticca et al. 2015) for identifying cyber-victimization in Russian- and Kazakh-speaking groups. The development of the original questionnaire involved qualitative pilot studies and an assessment of its validity and reliability based on the data collected in Switzerland, Italy and Ireland. The questionnaire aimed to 'explore how adolescents cope with experiences of cybervictimization and which coping strategies are linked to well-being or adverse outcomes' (Sticca et al. 2015).

Materials and Methods. The study used a Russian translation of the CWCBQ. The adaptation of the questionnaire was conducted in 2022 and 2023 on a sample of 1450 adolescents (41.3 % male, 58.6 % female). The participants were aged 12–17 years (the mean age was 14.3 years).

Results. The study tested the structure of the questionnaire using exploratory and confirmatory factor analysis. Exploratory analysis revealed 7 subscales related to different strategies, but some scores were unsatisfactory, which required adjustment of the model. The study identified a four-factor structure with 19 statements. The results demonstrated significant influence of certain items on the factors and identified the best indicators to assess the model fit. The study program included configural, metric and scalar invariance analyses of the data from two language groups. The factors of "close support", "retaliation", "active ignoring" and "distal advice" were validated. The questionnaire exhibited high discriminability and reliability, making it suitable for use in psychological research.

Conclusions. Future research will contribute to a better understanding of cyberbullying coping strategies. Our research offers valuable insights into the potential impact of coping mechanisms on the association between cyber-victimization and overall well-being, and into strategies to mitigate the adverse consequences of cyber-victimization.

Keywords: cyber-victimization, cyberbullying, coping strategies, Coping with Cyberbullying Questionnaire, adolescents

Научная статья

«Опросник стратегий преодоления ситуаций кибербуллинга»: структура и первичные психометрические характеристики

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Аннотация

Введение. В статье представлены результаты адаптации «Опросника стратегий преодоления ситуаций кибербуллинга» (CWCBQ) Ф. Стикка (Sticca et al. 2015) для выявления кибервиктимизации в русско- и казахскоязычных группах. Актуальность исследования обусловлена необходимостью разработки диагностического инструментария, определяющего эффективные стратегии преодоления «кибервиктимизации». Разработка оригинального опросника включала качественные пилотные исследования и оценку его валидности и надежности на основе данных, собранных в Швейцарии, Италии и Ирландии. Цель опросника — «изучить, как подростки справляются с опытом кибервиктимизации и какие стратегии преодоления связаны с благополучием или неблагоприятными исходами» (Sticca et al. 2015).

Материалы и методы. В исследовании использовался русский перевод опросника CWCBQ. Адаптация методики проводилась в период с 2022 по 2023 год на выборке 1450 подростков (600 мальчиков, 850 девочек) в возрасте 12–17 лет, средний возраст 14,3.

Результаты исследования. В рамках исследования была проверена структура опросника с помощью эксплораторного и конфирматорного факторного анализа. Эксплораторный анализ выявил 7 подшкал, связанных с различными стратегиями, однако некоторые показатели были неудовлетворительными, что требовало корректировки модели. В ходе исследования была выявлена четырехфакторная структура, включающая 19 утверждений. Результаты продемонстрировали значимое влияние отдельных пунктов на факторы и определили наилучшие показатели для оценки соответствия модели. Программа исследования включала конфигурационный, метрический и скалярный анализ инвариантности данных двух языковых групп.

Были валидизированы факторы «близкая поддержка», «возмездие», «активное игнорирование» и «дистальный совет». Опросник продемонстрировал высокую дискриминативность и надежность, что делает его пригодным для использования в психологических исследованиях.

Заключение. Дальнейшие исследования будут способствовать лучшему пониманию стратегий преодоления кибербуллинга. Наше исследование предлагает ценные сведения о потенциальном влиянии механизмов совладания на связь между кибервиктимизацией и общим благополучием, а также о стратегиях преодоления негативных последствий кибервиктимизации.

Ключевые слова: кибервиктимизация, кибербуллинг, стратегии преодоления кибербуллинга, опросник стратегий преодоления кибербуллинга, подростки

Introduction

Cyberbullying is a growing societal concern exacerbated by the advancement of digital technologies and the increasing integration of the Internet into daily life. Online aggression, harassment, and the dissemination of offensive content negatively impact mental health, social adaptation, and personal development, particularly in adolescents. Cyberbullying has become increasingly widespread, affecting millions worldwide, with severe consequences for victims — including heightened risks of depression, anxiety, social isolation, and, in extreme cases, suicide. Distinguishing cyberbullying from trash-talking, a common element of online gaming culture, is not always straightforward. Research by (Kaye et al. 2022) emphasizes the need for in-depth analysis of online gaming contexts and norms to better delineate the boundaries between 'acceptable and unacceptable behavior'. Synthesizing contemporary research on cyberbullying will help assess the scope of the problem, identify its causes, examine its consequences, and develop effective coping strategies.

Understanding cyberbullying requires a comprehensive approach that considers both psychological and social factors. Of particular interest are studies employing diverse methodologies across different populations, providing deeper insights into the issue in Russia and Kazakhstan. Research by R. I. Zekeriaev (Zekeriaev 2023) highlights the role of emotional disposition in susceptibility to cyberbullying, demonstrating that effective prevention must account for psychological factors influencing online aggression.

The work of V. S. Sobkin and A. V. Fedotova (Sobkin, Fedotova 2021) presents findings from a large-scale survey of 40,575 Russian students in grades 7–11 across 17 regions. The study examines the relationship between adolescent aggression on social media, peer status, and real-life bullying experiences. Meanwhile, (Enikolopov, Nazarov, Zinovieva 2022) focused on cyberbullying in Sverdlovsk Oblast, surveying 1,762 school and college students to analyze its prevalence, perpetrator motivations, and coping strategies among victims and bystanders.

Cyberbullying and the growing problem of Internet Addiction Disorder (IAD) exacerbate one another, creating significant risks to mental and social well-being. Research on cyberbullying and emerging IAD requires a comprehensive approach that accounts for psychological and social factors, as well as diverse research methodologies. Cyberbullying and Internet addiction are closely intertwined, forming a vicious cycle that is difficult to break. Victims of cyberbullying may seek solace in the online world, avoiding reality and painful emotions. They may use social media to craft an idealized self-image, compensating for feelings of inadequacy, which can lead to excessive Internet immersion. International and national studies, along with various IAD diagnostic tools, contribute to a deeper understanding of these issues.

The research by A. V. Miklyaeva and S. A. Bezgodova (Miklyaeva, Bezgodova 2022) provides valuable insights into factors influencing adolescent Internet addiction. Their findings underscore the need for a holistic approach to preventing problematic Internet use — one that considers individual adolescent characteristics and developmental motivations. This research paves the way for developing effective preventive measures aimed at fostering healthy online habits, particularly in adolescents with 'postmodernist' and 'infantilizing' developmental trajectories.

The following methods are widely used in research: (1) Chen Internet Addiction Scale (CIAS, CIAS-R) (*Chinese Internet Addiction Scale — Revised*) (Malygin et al. 2011; Chen et al. 2003) evaluates the frequency, intensity and consequences of Internet use; in Russia the adaptation of CIAS was carried out by (Malygin, Feklisov 2011), includes 26 questions; (2) K. Young's test, adapted by V. A. Loskutova (Loskutova 2004), used for diagnosing various addictions (Soldatkin 2022), including IAD. However, IAD diagnosis still lacks a unified standard. Existing methods rely on criteria from pathological gambling, which, while having similar symptoms, do not account for the specifics of IAD.

In Kazakhstan, as part of the national HBSC study (Health Behaviour in School-aged Children, 2018) (Abdrakhmanova et al. 2019), regular cross-sectional research is conducted in secondary schools with a nationally representative sample of adolescents aged 11, 13, and 15. A two-stage cluster sampling is applied. This study, launched in 1982, collects data on adolescents' health and well-being, including information on cyberbullying, and covers 49 countries and regions, providing a platform for comparative analysis. In the study by K. D. Khlomov, D. G. Davydov and A. A. Bochaver — Cyberbullying in the Experience of Russian Adolescents (Khlomov, Davydov, Bocharev 2019) — a modified questionnaire Cyberbullying and Online Aggression Survey Instrument (Hinduja, Patchin 2014) was used. No less popular is the Typology of Cyberaggression Questionnaire, adapted by S. S. Antipina (Antipina 2021) based on the English-language CATQ (Cyber Aggression Trait Questionnaire)

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by (Runions et al. 2017). The questionnaire represents a diagnostic tool for analyzing forms of cyberaggression, taking into account motives and manifestations. The questionnaire identifies four main types of cyberaggression: impulsive-reactive, voluntary-reactive, voluntary-proactive, and impulsive-proactive. The first type is characterized by reactive aggression triggered by provocation, the second — aggression in response to provocation but with more conscious decision-making, the third — aggressive behavior initiated without external stimuli, and the fourth —aggressive actions performed under impulse influence without conscious decision. The questionnaire has multifactorial nature, revealing different types of cyberaggression, and demonstrates high scale reliability. It provides valuable insights into cyberaggression specifics and facilitates the development of effective countermeasures. For early detection of cyberbullying risk in order to develop preventive measures, V. P. Sheinov (Sheinov 2020) developed the Individual Vulnerability to Cyberbullying Questionnaire. The questionnaire is based on a model of manipulative influence and includes factors that may contribute to cyberbullying, such as anonymity, impunity and victim's vulnerability. For studying various strategies of coping with stress and difficulties, the following questionnaires were proposed and/or adapted by V. Janke and G. Erdmann, L. Aspinwall, R. Schwarzer, E. Greenglass, S. Taubert, V. I. Morosanova, S. Hobfoll, N. E. Vodopyanova, E. S. Starchenkova: (1) Coping with Difficult Life Situations Test (PTZhS), developed by V. Janke and G. Erdmann (adapted by N. E. Vodopyanova) (Vodopyanova 2009), consists of 20 scales allowing to evaluate various coping strategies, including 'positive', 'negative', 'aggression', 'need for support', 'avoidance', 'medication use'; (2) Proactive Coping Inventory (PCI) (developed by L. Aspinwall, R. Schwarzer, E. Greenglass, S. Taubert, adapted by E. S. Starchenkova (Vodopyanova 2009), has two versions: considers proactive coping as lifestyle where person takes responsibility for their actions and events, and includes 55 statements divided into six scales: 'proactive overcoming', 'reflective overcoming', 'strategic planning', 'preventive overcoming', 'search for instrumental support', 'search for emotional support'; (3) V. I. Morosanova's Behavioral Self-Regulation Style Questionnaire (SRSQ) has two versions — classical (Morosanova, Bondarenko 2015) and SRSQ-2020 (Morosanova, Kondratyuk 2020), aimed at diagnosing the level of conscious self-regulation development and studying individual profiles of regulatory processes: goal planning, modeling significant conditions, action programming, result evaluation; (4) S. Hobfoll's Questionnaire (Hobfoll, Lilly 1993) — Strategic Approach to Coping Scale (SACS) — assesses individual stress coping methods, includes 9 behavior models such as assertive behavior, social support seeking, cautious actions, aggression, manipulation, antisocial behavior, avoidance, social contact, and impulsive actions. The Russian version of SACS, developed by N. Vodopyanova and E. Starchenkova, is applicable for Russian samples (Vodopyanova 2009).

The aim of our study was to adapt the Coping with Cyberbullying Questionnaire (Sticca et al. 2015). The need to develop new tools is confirmed by the study of J. Brailovskaia et al. (Brailovskaia et al. 2023), which examined the impact of cyberbullying on teachers' mental health. The researchers found that 69.9% of teachers want additional training to combat this phenomenon, highlighting the need to develop new tools that would help effectively cope with cyberbullying situations. Research on the psychology of coping behavior shows that the choice of strategies for coping with life difficulties may depend on an individual's age, gender, and cultural background. Moreover, the stress coping process is analyzed from the perspective of systemic-activity and transactional approaches (Kryukova 2005). A study by (Kyrrestad et al. 2023) explored the relationship between feelings of insecurity at school, mental health problems, and being a victim of traditional bullying and cyberbullying among 2,028 Norwegian adolescents. The researchers used the Strengths and Difficulties Questionnaire (SDQ) (Goodman et al. 1998), which measures behavioral problems, hyperactivity, emotional problems, peer problems, and symptoms of depression. The study results demonstrate how feelings of insecurity can be one of the factors influencing the choice of coping strategies for life difficulties. The influence of a cultural factor was also identified — specifically, not having Norwegian as a native language — on feelings of insecurity. This supports the idea that cultural characteristics play an important role in the choice of coping strategies, as individuals from other cultures may experience difficulties adapting to a new environment and suffer stress due to language barriers. The results of the study by (Kyrrestad, Kaiser, Fossum 2023) expand the understanding of the relationship between feelings of insecurity, mental health problems, and the choice of coping strategies, emphasizing the influence of cultural factors. Personal resources are considered a key element in stress coping (Bodrov 2006). The lack of effective coping strategies and social support can lead to maladaptive addictive behavior (Sirota

1994). Risk factors include the use of avoidance strategies, low effectiveness in seeking social support, lack of problem-solving skills, and distorted self-perception and worldview.

The term 'coping' was introduced by R. Lazarus in his work *Psychological Stress and the Coping Process* in 1966 (Lazarus 1966). In the foreign study by (Sticca et al. 2013), coping behavior is understood as purposeful behavior that helps a person deal with stress in ways that align with their personal characteristics and current situation. This important observation is supported by a study on longitudinal associations between the development of bullying and the development of moral disengagement in adolescents, conducted by F. Sticca and S. Perren (Sticca et al. 2015). The study showed that initial levels of moral disengagement predict the development of bullying, but not vice versa (Sticca et al. 2015). It is likely that adolescents experiencing difficulties with emotional regulation and social adaptation may use moral disengagement as a 'coping mechanism,' leading to avoidance coping styles and, subsequently, to aggressive behavior in the form of bullying. Another study by (Park, Folkman 1997) analyzes the significance of meaning in the context of stress and coping. It offers two levels of meaning — global meaning and situational meaning — examining the functions of meaning in the coping process and emphasizing the role of reappraising stressful situations. Coping strategies in the context of cyberbullying have also been studied. Research by (Costa, McCrae 1992) highlights the importance of personality traits in determining adaptive behavioral strategies in difficult situations. Understanding defense and coping mechanisms is also linked to the study of individual behavior under stress, as noted in the works of H. Selye (Selye 1991). The effectiveness of coping strategies depends on the perceived controllability of an event, as shown by V. Conway and D. Terry. They state that emotion-focused coping strategies are used in situations that are difficult to control, while problem-focused coping strategies are applied in situations that are easy to control (Conway, Terry 1992, 2).

The need to develop new tools for diagnosing cyberbullying coping strategies among Russian-speaking and Kazakh-speaking adolescents lies in the fact that existing models and tools do not always provide a complete understanding and assessment of coping strategies for various stressful life events. The new tools must be adapted to modern challenges and account for the specific form of online bullying (cyberbullying), marked by power imbalance and repetition.

Materials and methods

Methodology

The CWCBQ questionnaire was developed within the framework of a Swiss longitudinal study on cyberbullying in adolescence. The development process of CWCBQ included qualitative pilot studies, as well as an assessment of its validity and reliability using data collected in Switzerland, Italy, and Ireland (Sticca et al. 2015, 516). The questionnaire's purpose is to study how adolescents cope with experiences of cybervictimization and which coping strategies are associated with well-being or adverse outcomes.

Questionnaire adaptation. For the questionnaire adaptation, permission was obtained from the author Fabio Sticca (Professor for Diagnostics and Support for Social-Emotional and Psychomotor Development, University of Teacher Education in Special Needs (HfH)).

The questionnaire was translated from English to Russian for use in Russian-speaking groups, and then from Russian to Kazakh for use in Kazakh-speaking groups. The translations were performed by a translation agency and checked for content validity of the Russian and Kazakh versions through expert evaluation by professional researchers holding academic degrees (four Candidates of Sciences, three specialists, one Doctor of Sciences) with research experience in this field.

Data collection procedures. Respondents were sent links to the questionnaire in Google Forms. After completing the questionnaire, the data were imported into IBM SPSS (version 23.0). At the first stage of data analysis, exploratory factor analysis was conducted using principal component analysis with oblique rotation and Kaiser normalization. To confirm the results, confirmatory factor analysis and multi-group confirmatory factor analysis (MGCFA) were performed using the JASP statistical software tool (version 0.10.0).

Questionnaire content. The Coping with Cyberbullying Questionnaire (CWCBQ) by (Sticca et al. 2015) contains 36 statements covering seven strategies:

1) distal advice (DA) — items 2, 7, 17, 23, 32;
2) close support (CS) — items 8, 11, 14, 27, 35;
3) retaliation (R) — items 5, 18, 26, 29, 33;
4) assertiveness (AS) — items 9, 16, 22, 25, 34;
5) active ignoring (AI) — items 6, 10, 13, 19, 30;
6) helplessness/self-blame (H) — items 4, 12, 15, 20, 21;
7) technical coping (TC) — items 1, 3, 24, 28, 31, 36.

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These strategies represent different ways of responding to cyberbullying and may be more or less adaptive depending on the situation and resources available to cope with the problem.

Instructions. Respondents were asked to rate how likely or definitely they would use certain cyberbullying coping strategies when receiving threats or unpleasant messages online. Responses were recorded on a 5-point Likert scale where: 1 — definitely no, 2 — no, 3 — probably no, 4 — probably yes, 5 — definitely yes.

Main characteristics of study participants (age, gender). Total sample aged 12–17 years; mean age of participating adolescents — 14.3; boys — 41.3%, girls — 58.6% (600 and 850 respectively), Kazakh-speaking (N = 286) and Russian-speaking (N = 1,164) students.

Research ethics. Adolescent participation in the study was organized in compliance with ethical standards. The first step was providing clear instructions to participants to encourage unbiased responses. Tasks were presented as electronic questions, and scoring was performed using a raw score conversion table. Parents and guardians were included in the process, receiving information about the study's goals and methods, as well as potential risks and benefits of their child's participation. They provided consent for their children's participation, confirming their understanding of all aspects and ensuring voluntary and confidential participation. Data for children under 15 were processed anonymously and used solely for research purposes in accordance with confidentiality and data protection principles. Thus, the organization of adolescent participation complied with all ethical standards for working with children under 15, ensuring safety, confidentiality and voluntary participation.

The total sample size of 1,450 people is suitable for achieving the study goals and is recommended by EFPA (European Federation of Psychologists' Associations).

Results

Examination of psychometric properties

Stage 1. Questionnaire structure analysis. The first stage of the study involved examining the questionnaire's structure using multiple methods. Exploratory factor analysis (EFA) was conducted using IBM SPSS (Version 23.0), followed by confirmatory factor analysis (CFA) performed with the JASP statistical software tool (Version 0.10.0), which included various structural equation modeling techniques. The EFA revealed a seven-factor solution (Fig. 1), supported by significant Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test results: KMO measure of sampling adequacy = 0.850, Bartlett's sphericity test: $\chi^2 = 13691.213$, df = 630, $p < 0.001$. These results confirm that the selected factors effectively explain the observed data variance and demonstrate statistically significant relationships between them.

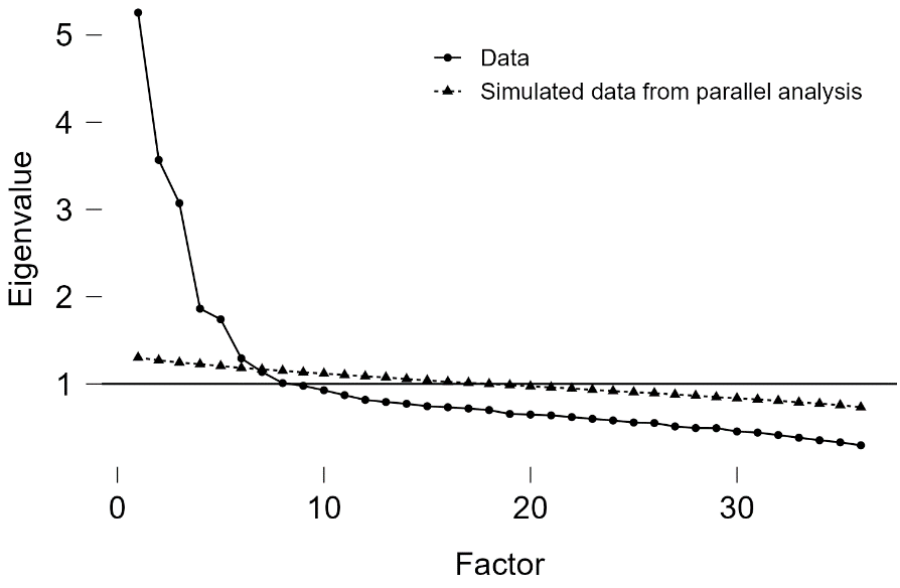

Fig. 1. Scree plot

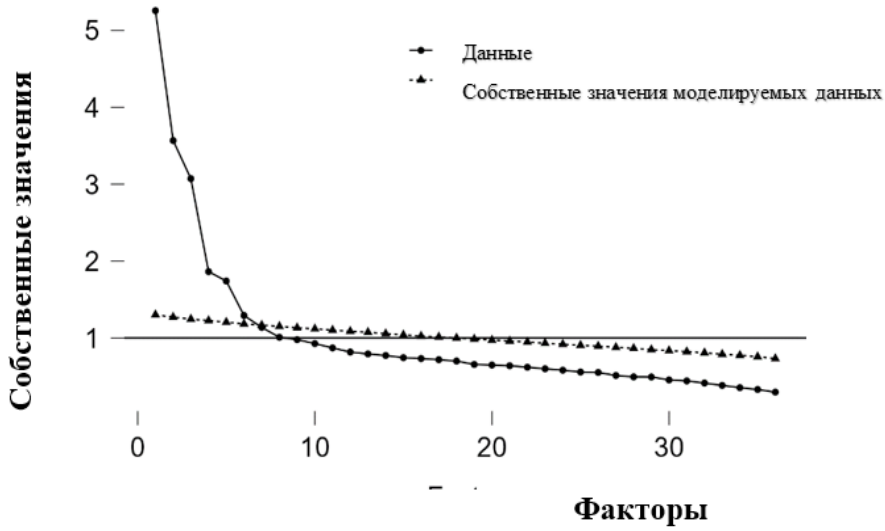

Рис. 1. График каменистой осыпи

The EFA identified seven distinct subscales, each with specific characteristics (Table 1). **Factor 1**: Associated with active ignoring and technical coping strategies (items: TC20, AI22, AI 14, AI 7, TC 26, AI 5, TC 23, TC 17; 8 items). **Factor 2**: Explained by variables linked to retaliation (items: R18, R13, R21, R24, R4; 5 items). **Factor 3**: Related to assertiveness (items: AS16, AS34, AS22, AS9, AS25; 5 items). **Factor 4**: Captured close support strategies (items: CS6, CS25, CS19, CS11; 4 items). **Factor 5**: Represented distal advice (items: DA23, DA32, DA2, DA17; 4 items). **Factor 6**: Associated with helplessness/self-blame (items: H16, H12, H3, H9; 4 items). **Factor 7**: Comprised two technical coping variables (items: TC1, TC2; 2 items).

Abbreviations in Table 1:
TC — technical coping
AI — active ignoring
R — retaliation
AS — assertiveness
CS — close support
H — helplessness
DA — distal advice

Table 1. Factor loadings

Variables	F 1	F 2	F 3	F 4	F 5	F 6	F 7	Uniqueness
TS20	0.663							0.539
AS22	0.626							0.634
AI14	0.622							0.664
AI7	0.448							0.609
AI10		0.825						0.788
TS23		0.812						0.700
R18		0.675						0.389
R13		0.617						0.391
R21		0.448						0.511
R24			0.769					0.597
R4			0.707					0.785
AS16			0.696					0.400
AS34			0.656					0.501
AS9			0.491					0.578
AS22				0.699				0.407

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Table 1. Completion

Variables	F 1	F 2	F 3	F 4	F 5	F 6	F 7	Uniqueness
AS25				0.680				0.657
H6				0.650				0.488
CS25				0.503				0.481
CS19					0.712			0.567
CS1					0.697			0.721
DA23					0.629			0.475
DA32					0.528			0.454
DA2						0.584		0.659
DA17						0.481		0.733
H16						0.473		0.670
H12						0.466		0.770
H3							0.590	0.750
H9							0.575	0.784
TS1								0.646
TS2								0.646
AI5								0.654
CS8								0.867

Note: The rotation method is varimax.

Табл. 1. Факторные нагрузки

Переменные	Ф 1	Ф 2	Ф 3	Ф 4	Ф 5	Ф 6	Ф 7	Уникальность
ТП20	0,663							0,539
АС22	0,626							0,634
АИ14	0,622							0,664
АИ7	0,448							0,609
АИ10		0,825						0,788
ТП23		0,812						0,700
В18		0,675						0,389
В13		0,617						0,391
В21		0,448						0,511
В24			0,769					0,597
В4			0,707					0,785
АС16			0,696					0,400
АС34			0,656					0,501
АС9			0,491					0,578
АС22				0,699				0,407
АС25				0,680				0,657
Б6				0,650				0,488

Табл. 1. Продолжение

Переменные	Ф 1	Ф 2	Ф 3	Ф 4	Ф 5	Ф 6	Ф 7	Уникальность
БП25				0,503				0,481
БП19					0,712			0,567
БП1					0,697			0,721
ДС23					0,629			0,475
ДС32					0,528			0,454
ДС2						0,584		0,659
ДС17						0,481		0,733
Б16						0,473		0,670
Б12						0,466		0,770
Б3							0,590	0,750
Б9							0,575	0,784
ТП1								0,646
ТП2								0,646
АИ5								0,654
БП8								0,867

Примечание: Применяемый метод вращения — варимакс.

As evident, the number of variables for each of the seven subscales was uneven. Out of 36 items in the original questionnaire version, only 32 items loaded into the factors, which differs from the author's initial version. The reliability of all seven measurements in our sample proved unsatisfactory. The seventh factor contained too few items (only two), prompting further refinement of the questionnaire.

This led to the next development stage.

Stage 2. Questionnaire structure validation. To verify the test structure, we conducted confirmatory factor analysis (CFA). Following exploratory analysis, we modified the initial Model 1, which originally contained six factors and 30 statements. Certain parameters were fixed for each factor's latent variables. However, the first model demonstrated unsatisfactory fit indices (χ^2 = 1757.45, df = 419, $p < 0.001$, CFI = 0.888, RMSEA = 0.047), indicating the need for further model adjustment.

Stage 3. Testing the adapted questionnaire structure. Conducting comparisons between different language groups requires testing measurement invariance. Only if this invariance is preserved can we be confident that measurements will produce identical results for the same characteristic under different conditions (Horn and McArdle 1992). The multi-group confirmatory factor analysis (MGCFA) described by (Jöreskog 1971) is a method that allows simultaneous factor analysis across multiple samples. In turn, J.-B. Steenkamp and H. Baumgartner proposed a unified and consistent approach for testing this invariance (Steenkamp and Baumgartner 1998).

Configural invariance is achieved when factor loadings and configurations are identical, metric invariance is ensured by constant factor loadings between indicators and latent constructs, and scalar invariance is achieved through differences in mean values between groups.

At the third stage, we tested the two groups for configural invariance. Upon completing the second stage, we used modification indices to determine which item intercepts needed adjustment to achieve more satisfactory model fit. The results showed that the most significant influence was attributed to:

- Item 10 (I would act unfazed by the bully's actions)
- Item 14 (I would ignore all messages and pictures to disinterest the bully) from the active ignoring scale
- Item 25 (I would confide in the person I trust the most) from the close support scale.

These were added to Factor 2 (boundary setting). Ultimately, Factor 3 (active ignoring), also comprised:

- Item 6 (I would seek out someone who will listen and offer me comfort) and

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- Item 19 (I would turn to someone who accepts me for who I am) from the close support scale.

Following our theoretical model, for each group (Kazakh-language instruction group and Russian-language instruction group), we modeled an *a priori* MGCFA with four latent factors (i. e., close support, retaliation, active ignoring, and distal advice) represented by 5, 8, 7, and 5 indicators in each group, respectively. The analysis results showed that the adapted model (Fig. 1) fits the data well (χ^2 = 5848.758; df = 171; CFI = 0.955; RMSEA = 0.036; SRMR = 0.031), confirming the importance of considering these factors when studying psychological processes of coping with cyberbullying (Table 2).

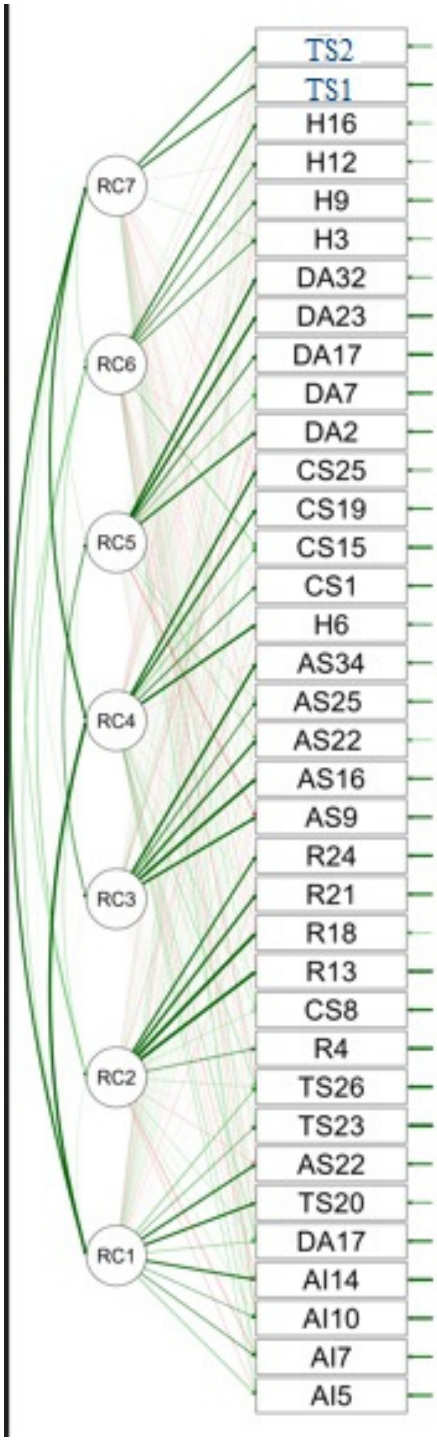

Fig. 2. Path Diagram

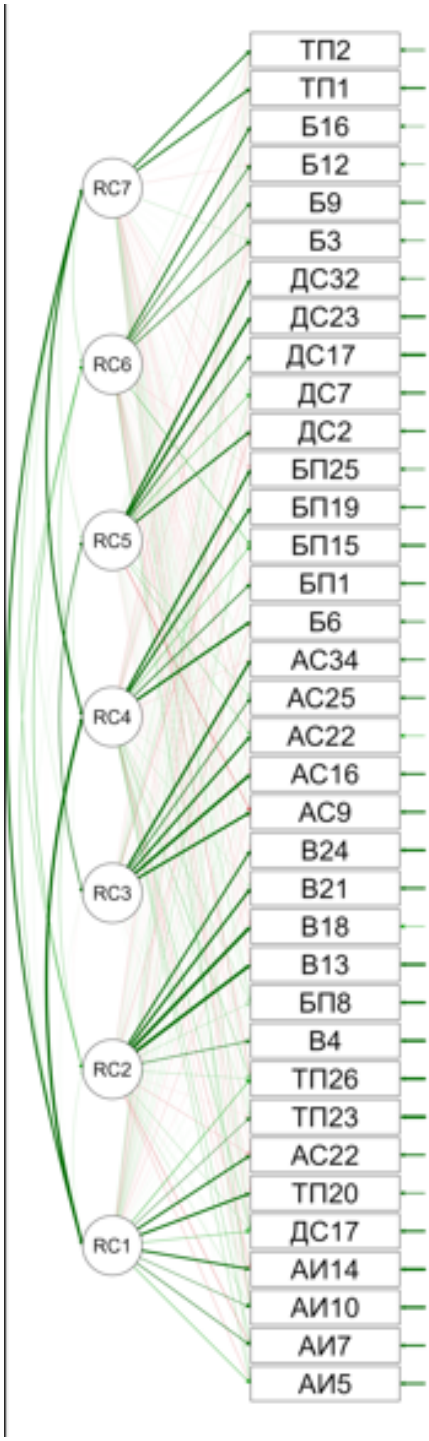

Рис. 2. Диаграмма пути

Table 2. Model fit indices for three levels of measurement invariance (N = 1450)

Model	X^2	df	(CFI)	RMSEA	The difference in CFI
Configural	5848.758	171	0.955	0.036	
Metric	6246.601	342	0.945	0.040	0.01
Scalar	6246.601	342	0.936	0.042	0.009

Табл. 2. Показатели пригодности модели для трех уровней инвариантности измерений (N = 1450)

Модель	X^2	df	(CFI)	RMSEA	Разница в CFI
Конфигурационная	5848,758	171	0,955	0,036	
Метрическая	6246,601	342	0,945	0,040	0,01
Скалярная	6246,601	342	0,936	0,042	0,009

Stage 4. At the fourth stage, the data from both groups were tested for *metric invariance*. Importantly, the factor loadings remained unchanged. The resulting model demonstrated good fit to the data. Although it was anticipated that the chi-square difference test would show significant deterioration in model fit due to the constraints imposed for metric invariance, simulation studies have indicated that changes in CFI may serve as a more reliable indicator of model deterioration in such cases. This analytical approach confirms the validity of metric invariance based on the recommended threshold for accepting the null hypothesis (Cheung and Rensvold 2002), which substantiates this finding in the current study.

Stage 5. Scalar invariance. At the fifth and final stage, the data from both groups were tested for scalar invariance. The resulting model showed satisfactory fit to the data (χ^2 = 6246.601; df = 342; CFI = 0.936; RMSEA = 0.042; SRMR = 0.043), with only a minimal CFI decrease of -0.009 (see Table 2).

Table 3 presents the standardized factor loadings and unstandardized intercepts for each item.

Table 3. Standardized factor loadings and unstandardized item intercepts (based on Step 4 data; N = 1450)

Factor	Indicator	Estimate	Intercepts
Factor 1	Question 6 — I would seek out someone who will listen and offer me comfort	1.04	3.649
	Question 8 — I would spend time with friends to distract myself from the situation	0.454	2.749
	Question 11 — I would confide in my friends about what's been happening	0.738	3.419
	Question 19 — I would turn to someone who accepts me for who I am	1.012	3.288
	Question 25 — I would confide in the person I trust the most	1.016	3.754
Factor 2	Question 4 — I would send threatening messages to the bully to defend myself, and I would seek out someone who can provide comfort and listen to me because I need support in this situation	0.643	2.134
	Question 13 — I would disregard all messages and pictures from the bully to show disinterest and address the situation offline, such as reporting it to school authorities, to demonstrate the consequences of their behavior	1.04	2.168
	Question 21 — I would turn to the person I trust the most to confront the bully with my friends	0.939	2.344
	Question 24 — I would act like it didn't affect me and retaliate against the bully online, such as sending anonymous messages	0.586	1.727
	Question 5 — I would try to avoid any further contact with the bully and confide in someone who would provide comfort and support	0.953	3.905

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Table 3. Completion

Factor	Indicator	Estimate	Intercepts
Factor 3	Question 7 — I would make a conscious effort to stay away from the bully	0,966	4.136
	Question 10 — I would act unfazed by the bully's actions and seek out someone who accepts me for who I am	0.499	2.808
	Question 14 — I would ignore all messages and pictures to disinterest the bully	0.708	3.285
	Question 22 — I would try not to dwell on it	0.712	3.506
Factor 4	Question 2 — I would go to the police	0.724	3.684
	Question 7 — I would consider seeking counseling through an online platform	0.618	3.023
	Question 17 — I would report the issue to a teacher or principal	0.819	2.699
	Question 23 — I would seek professional counseling	1.055	3.219
	Question 32 — I would contact a helpline (e.g., child helpline, cybersecurity hotline)	1.228	2.918

Табл. 3. Стандартизированные факторные нагрузки и нестандартизированные интерцепты элементов (на основе данных этапа 4; N = 1450)

Фактор	Показатель	Оценка	Перехваты
Фактор 1	Вопрос 6: Я бы подошел(а) к человеку, который утешит и выслушает меня	1,04	3,649
	Вопрос 8: Я бы провел(а) время с друзьями, чтобы отвлечься от этого	0,454	2,749
	Вопрос 11: Я бы поговорил(а) об этом с друзьями	0,738	3,419
	Вопрос 19: Я бы подошел(а) к человеку, который принимает меня таким, какой(ая) я есть	1,012	3,288
	Вопрос 25: Я бы подошел(а) к человеку, которому доверяю больше всего	1,016	3,754
Фактор 2	Вопрос 4: Я бы написал(а) хулигану угрожающие вещи, чтобы защитить себя, и подошел(а) к человеку, который выслушает и утешит меня, потому что мне нужна поддержка в этой ситуации.	0,643	2,134
	Вопрос 13: Я бы игнорировал(а) все сообщения/фотографии от хулигана, чтобы показать свою незаинтересованность, и разрешил ситуацию вне школы, например, сообщу о ней руководству школы, чтобы продемонстрировать последствия его поведения	1,04	2,168
	Вопрос 21: Я бы подошел(а) к человеку, которому доверяю больше всего, чтобы вместе с друзьями отомстить хулигану.	0,939	2,344
	Вопрос 24: Я бы притворился(ась), что это меня совсем не беспокоит, и отомстил(а) бы хулигану в киберпространстве, например, отправив текстовые сообщения анонимно.	0,586	1,727
	Вопрос 5: Я бы постарался(ась) избежать любых дальнейших контактов с хулиганом и общался(ась) с человеком, который выслушает и утешит меня.	0,953	3,905
Фактор 3	Вопрос 7: Я бы держался(ась) подальше от хулигана	0,966	4,136
	Вопрос 10: Я бы притворился(ась), что это меня совсем не беспокоит, и подошел(ла) бы к человеку, который принимает меня таким(ой), какой(ая) я есть.	0,499	2,808
	Вопрос 14: Я бы игнорировал(а) все сообщения/картинки, чтобы хулиган потерял интерес	0,708	3,285
	Вопрос 22: Я бы постарался(ась) не думать об этом	0,712	3,506

Табл. 3. Продолжение

Фактор	Показатель	Оценка	Перехваты
Фактор 4	Вопрос 2: Я бы обратился (ась) в полицию	0,724	3,684
	Вопрос 7: Я бы обратился(ась) за консультацией на онлайн-платформе	0,618	3,023
	Вопрос 17: Я бы сообщил(а) учителю или директору	0,819	2,699
	Вопрос 23: Я бы обратился(ась) за профессиональной консультацией	1,055	3,219
	Вопрос 32: Я бы позвонил(а) на горячую линию (например, телефон доверия для детей, горячая линия по кибербезопасности)	1,228	2,918

Data processing. For each study participant, a total score was calculated for each factor as the sum of its component items. Table 4 presents the main statistical indicators of factor values across different groups. The skewness and kurtosis statistics do not exceed absolute value of 1, allowing us to consider the distribution of values for each factor as approximately normal. The obtained results for both groups confirm the questionnaire structure and indicate certain differences in the ranking and distribution of factor scores compared to the original foreign version (Fig. 3). The presented questionnaire helps better understand the diversity of cyberbullying coping strategies and their effectiveness. Its advantage lies in the ability to measure the degree of problem-focused coping strategies, emotion-focused coping strategies, and their complementarity in situations of cyberbullying, as exemplified by Factors 2 and 3.

Table 4. Descriptive statistics (M, SD, Coefficient α) for each factor for the two groups

Subscales	Kazakh-speaking group			Russian-speaking group		
	M	SD	Coefficient α	M	SD	Coefficient α
Close support (1)	16.0	7.5	0.695	17.5	6.8	0.806
Setting boundaries (2)	9.3	5.7	0.636	8.6	6.6	0.555
Active ignoring (3)	16.5	7.6	0.720	18.4	6.7	0.773
Distal advice (4)	15.5	7.5	0.720	15.6	7.5	0.737

Табл. 4. Описательные статистики (среднее, стандартное отклонение, коэффициент вариации α) по каждому фактору для двух групп

Шкалы	Казахоговорящая группа			Русскоговорящая группа		
	среднее	станд. откл.	коэффициент вариации α	среднее	станд. откл.	коэффициент вариации α
Близкая поддержка (1)	16,0	7,5	0,695	17,5	6,8	0,806
Выстраивание границ (2)	9,3	5,7	0,636	8,6	6,6	0,555
Активное игнорирование (3)	16,5	7,6	0,720	18,4	6,7	0,773
Дистальный ответ (4)	15,5	7,5	0,720	15,6	7,5	0,737

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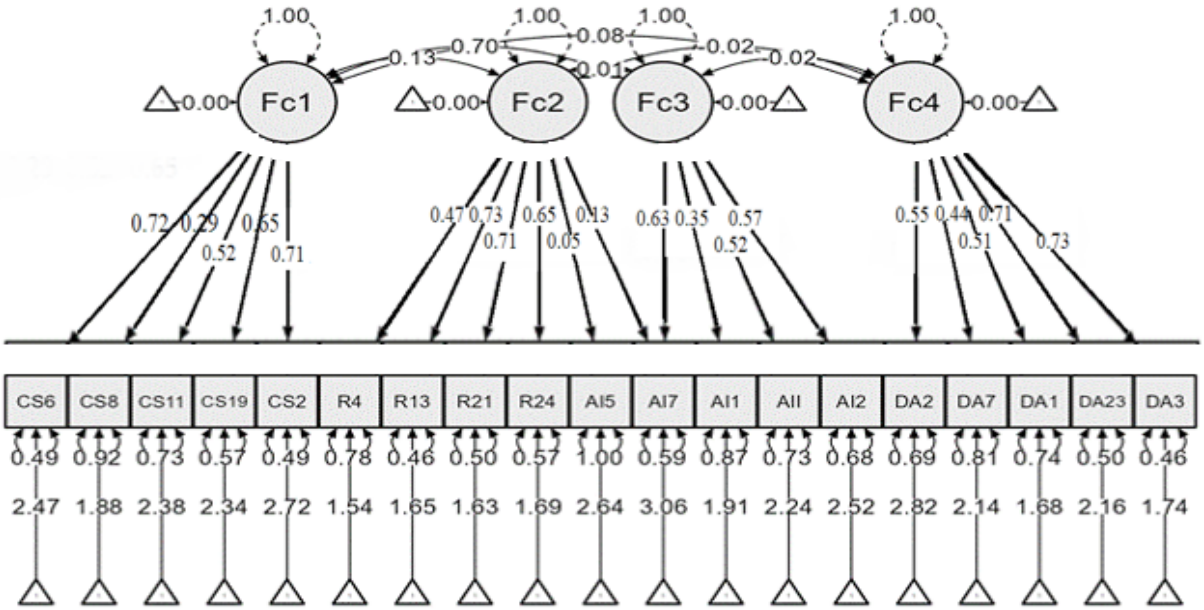

Fig. 3. Structure diagram of the four-factor model

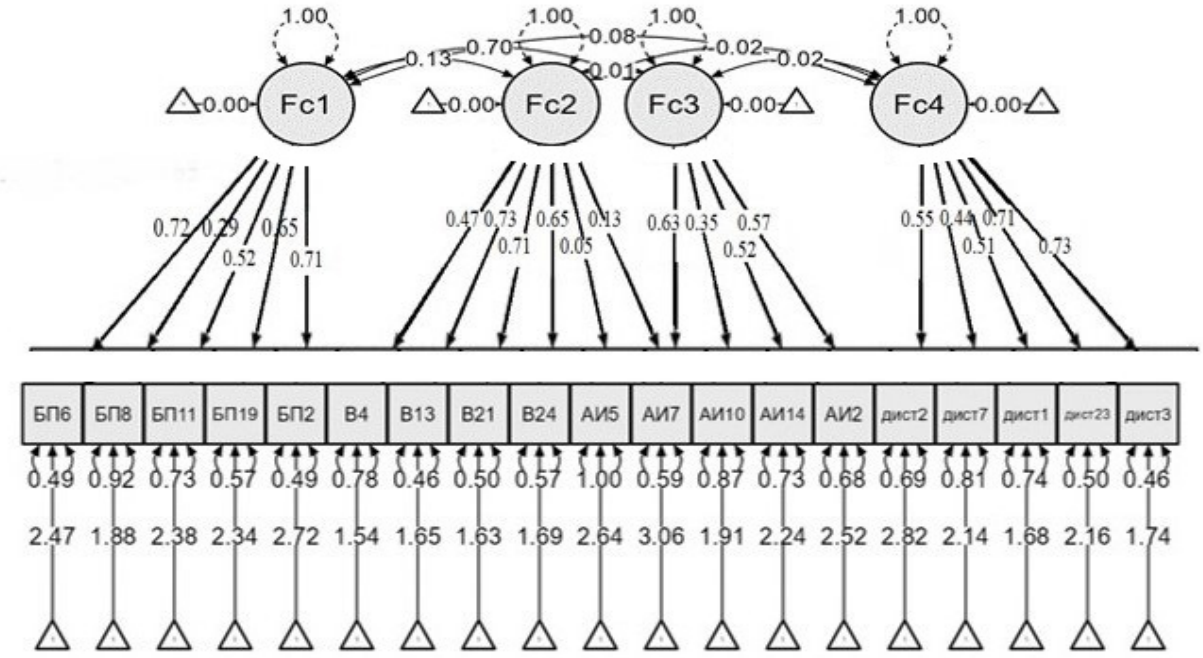

Рис. 3. Структурная диаграмма четырехфакторной модели

Assessment of discriminative power and reliability. Several measurements were conducted to evaluate discriminative validity and reliability. First, Wilks' lambda values were calculated for the four factors (0.824, 0.982, 0.992, 0.977) with $p < 0.001$, indicating that the performed discriminant analysis effectively differentiates between data groups and shows statistical significance.

The Cronbach's alpha coefficient was used to assess internal consistency reliability, yielding values ranging from 0.685 to 0.733 across different factors. These values fall within the generally accepted reliability range (0.6–0.8), demonstrating satisfactory scale consistency. Therefore, the analysis confirms that the questionnaire exhibits good discriminative power and reliability, making it appropriate for use in psychological research.

Results and discussion

The Coping with Cyberbullying Strategies Questionnaire underwent a total of five development stages, was revised and reduced to 4 subscales and 19 items. It was established that a significant portion of the items possess good psychometric properties, not inferior to the original CWCBQ questionnaire by Fabio Sticca and his colleagues.

Previous longitudinal research (Sticca, Perren 2013) was conducted in both German-speaking and Italian-speaking parts of Switzerland. According to descriptions, the Italian version of CWCBQ was used in research conducted in Italy (Palladino et al. 2016), while the English version was used in research conducted in Ireland (Corcoran et al. 2015). Thus, the CWCBQ questionnaire was used in Switzerland (N = 803), Italy (N = 755), and Ireland (N = 2,412) (Sticca et al. 2015), whereas in our study at Stage 1 the questionnaire was distributed among two groups of adolescents: Kazakh-speaking (N = 286) and Russian-speaking (N = 1,164). Given the opportunity provided by the rich database, we calculated key statistical indicators of factor values for each respondent and each group (see Table 4). Unlike the foreign original, the current version of CWCBQ was tested for discriminant validity and reliability.

Our model has $\chi^2 = 5848.758$ with 171 degrees of freedom, CFI = 0.955, RMSEA = 0.036, SRMR = 0.031, while Sticca's model has $\chi^2 = 2488.675$ with 360 degrees of freedom, CFI = 0.867, RMSEA = 0.067, SRMR = 0.072. Comparing these figures, we can conclude that our model more accurately reflects the data and has good fit, as evidenced by the lower χ^2 value, CFI closer to 1, and lower RMSEA and SRMR values.

The key distinctions between Sticca's model and our current model reveal important psychometric differences. In Sticca's original formulation, the retaliation scale demonstrated substantial cross-loadings with other latent constructs, showing particularly strong associations with both assertiveness and close support dimensions. This pattern aligns with findings from (Wright 2016), which documented the co-occurrence of adaptive coping mechanisms like social support seeking alongside maladaptive approaches including revenge motivations, with cyberbullying victims frequently reporting subsequent feelings of insecurity and paranoid ideation that they attributed to interpersonal conflicts or retaliatory behaviors from former partners or acquaintances. Our refined model incorporates a distinct structural configuration where the active ignoring and close support subscales exhibit meaningful cross-loadings that contribute to a newly identified boundary setting factor. This configuration suggests more nuanced interconnections between coping strategies than previously recognized. Comparative model testing yielded particularly noteworthy results regarding measurement invariance. Our adapted version demonstrated superior metric invariance properties with a CFI difference of just 0.01 and stronger scalar invariance with a CFI difference of merely 0.009 (see Table 2 for complete details). These values compare favorably to Sticca's original model, which showed a more substantial CFI difference of 0.042 and an overall CFI of 0.869, collectively indicating that our revised formulation produces more psychometrically stable and consistent measurement outcomes.

Table 5. Cronbach's coefficient value for identified factors

No.	Factor	Cronbach's coefficient
1	Factor 1	0.708
2	Factor 2	0.733
3	Factor 3	0.703
4	Factor 4	0.685

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Табл. 5. Значение коэффициента Кронбаха для выделенных факторов

№ п/п	Фактор	Коэффициент Кронбаха
1	Фактор 1	0,708
2	Фактор 2	0,733
3	Фактор 3	0,703
4	Фактор 4	0,685

Conclusions

Coping with cyberbullying may represent behavior that reduces the likelihood of experiencing cybervictimization among adolescents who have encountered cybervictimization scenarios similar to those described in the questionnaire, as well as among those without such experiences. The version of the questionnaire we have proposed is practical, easy to administer and analyze, allows for time efficiency, and can be used for student screening. Further research in this area will enable better understanding of the mechanisms of coping with cybervictimization and the development of effective support strategies for those facing this form of aggression in online environments.

Appendix

Coping Strategies in Cyberbullying Situations questionnaire (Russian-language version)

The Questionnaire includes a total of 19 questions reflecting four coping strategies from those listed above (some strategies are represented by multiple questions, with results for each strategy calculated from multiple responses). The selected questions correspond to specific strategies characterizing: (1) distal advice — items 1, 6, 12, 16, 19; (2) close support — items 2, 4, 7, 9, 13, 18; (3) active ignoring — items 5, 8, 11, 15; (4) boundary setting — items 3, 10, 14, 17.

DA = distal advice;
CS = close support;
AI = active ignoring;
BS = boundary setting.

Cyberbullying is a form of online harassment where a group of people provokes another Internet user for various reasons such as age, nationality, race, religious affiliation, etc.

Instructions

Dear survey participant! Imagine that over several weeks, directly or indirectly, you receive either unpleasant and threatening text messages (via email or social media pages, messengers, etc.) or your personal photos, symbols or other information are shared online with the purpose of threats, intimidation, bullying, or harassment using the Internet or other technologies like mobile phones. What would you do in this situation? Please rate on a five-point scale which hypothetical cyberbullying coping strategies you would use ('I would...').

To do this, please mark the corresponding score from 1 to 5 opposite each statement, where:
1— definitely no;
2 — no;
3 — probably no;
4 — probably yes;
5 — definitely yes.

Abbreviations in Table 6:
DA — distal advice;
CS — close support;
AI — active ignoring;
BS — boundary setting.

Table 6. The current version of the Coping with Cyberbullying Questionnaire

No.	Strategy	Questions
1	DA	I would go to the police
2	CS	I would send threatening messages to the bully to defend myself, and I would seek out someone who can provide comfort and listen to me because I need support in this situation
3	SB	I would try to avoid any further contact with the bully and confide in someone who would provide comfort and support
4	CS	I would seek out someone who will listen and offer me comfort
5	AI	I would make a conscious effort to stay away from the bully
6	DA	I would consider seeking counseling through an online platform
7	CS	I would spend time with friends to distract myself from the situation
8	AI	I would act unfazed by the bully's actions and seek out someone who accepts me for who I am
9	CS	I would confide in my friends about what's been happening
10	SB	I would disregard all messages and pictures from the bully to show disinterest and address the situation offline, such as reporting it to school authorities, to demonstrate the consequences of their behavior
11	AI	I would ignore all messages and pictures to disinterest the bully
12	DA	I would report the issue to a teacher or principal
13	CS	I would turn to someone who accepts me for who I am
14	SB	I would turn to the person I trust the most to confront the bully with my friends
15	АИ	I would try not to dwell on it
16	DA	I would seek professional counseling
17	SB	I would act like it didn't affect me and retaliate against the bully online, such as sending anonymous messages
18	CS	I would confide in the person I trust the most
19	DA	I would contact a helpline (e. g., child helpline, cybersecurity hotline)

Табл. 6. Текущая версия опросника «Опросник стратегий преодоления ситуаций кибербуллинга»

№ п/п	Стратегия	Вопросы
1	ДС	Я бы обратился(ась) в полицию.
2	БП	Я бы написал(а) хулигану угрожающие вещи, чтобы защитить себя, и подошел(а) к человеку, который выслушает и утешит меня, потому что мне нужна поддержка в этой ситуации.
3	ВГ	Я бы постарался(ась) избежать любых дальнейших контактов с хулиганом и общался(ась) с человеком, который выслушает и утешит меня.
4	БП	Я бы подошел(а) к человеку, который выслушает и утешит меня.
5	АИ	Я бы держался(ась) подальше от хулигана.
6	ДС	Я бы обратился(ась) за консультацией на онлайн-платформе.
7	БП	Я бы провел(а) время с друзьями, чтобы отвлечься от этого.
8	АИ	Я бы притворился(ась), что это меня совсем не беспокоит, и подошел(а) бы к человеку, который принимает меня таким(ой), какой(ая) я есть.
9	БП	Я бы поговорил (а) об этом с друзьями.
10	ВГ	Я бы игнорировал(а) все сообщения/фотографии от хулигана, чтобы показать свою незаинтересованность, и разрешил ситуацию вне школы, например, сообщу о ней руководству школы, чтобы продемонстрировать последствия его поведения.
11	АИ	Я бы игнорировал(а) все сообщения/картинки, чтобы хулиган потерял интерес.
12	ДС	Я бы сообщил(а) учителю или директору.
13	БП	Я бы подошел(а) к человеку, который принимает меня таким, какой(ая) я есть.
14	ВГ	Я бы подошел(а) к человеку, которому доверяю больше всего, чтобы вместе с друзьями отомстить хулигану.

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Табл. 6. Продолжение

№ п/п	Стратегия	Вопросы
15	АИ	Я бы постарался(ась) не думать об этом.
16	ДС	Я бы обратился(ась) за профессиональной консультацией.
17	ВГ	Я бы притворился (ась), что это меня совсем не беспокоит, и отомстил(а) бы хулигану в киберпространстве, например, отправив текстовые сообщения анонимно.
18	БП	Я бы подошел(а) к человеку, которому доверяю больше всего.
19	ДС	Я бы позвонил(а) на горячую линию (например, телефон доверия для детей, горячая линия по кибербезопасности).

Conflict of interest

The author declares that there is no conflict of interest, either existing or potential.

Конфликт интересов

Автор заявляет об отсутствии потенциального или явного конфликта интересов.

Ethics Approval

The author declares that the study complies with all ethical principles applicable to human and animal research, including research-involving children under 15 years old. Parents and guardians were informed about the objectives and methods of the study, and of the potential risks and benefits of their child's participation. They confirmed their understanding of all aspects of the study and provided consent for their child to participate, which ensured that participation was voluntary and confidential.

Соответствие принципам этики

Автор заявляет, что данное исследование соответствует всем этическим принципам, применимым к исследованиям на людях и животных, включая исследования с участием детей младше 15 лет. Родители и опекуны были проинформированы о целях и методах исследования, а также о потенциальных рисках и преимуществах участия их ребенка. Они подтвердили свое понимание всех аспектов исследования и дали согласие на участие своего ребенка, что обеспечило добровольность и конфиденциальность участия.

Data Availability Statement

The data are open-access and available at https://www.zora.uzh.ch/id/eprint/115427/1/societies-05-00515.pdf

Заявление о доступности данных

Данные находятся в открытом доступе. https://www.zora.uzh.ch/id/eprint/115427/1/societies-05-00515.pdf

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