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Diagnosics of Subjective and Objective Uncertainty Stress: Development and Validation of a Questionnaire

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Abstract

Introduction. Researching stress becomes more and more relevant due to a sharp increase in the stress level among population. There is enough evidence that this phenomenon is caused by the increasing uncertainty of existence in the 21st century, due to the rapid and non-predictable changes in various spheres of human and social life. Yet, in domestic psychology one can observe a lack of works focusing on the stress of uncertainty, as well as the absence of valid and reliable methods for its measurement. The presented study had its purpose to create a new questionnaire for assessing the degree of perceived uncertainty stress, to provide its validation and psychometric evaluation. The total study sample consisted of 1411 people including 1130 college students (mean age 17.64; 43.5% - girls) and 281 university students (mean age 19.14; 76.3% - girls). **Methods.** Validation methods: V. Morosanova's "Self-Regulation Profile Questionnaire - SRPQM" (Morosanova, Kondratyuk, 2020); "Scale of Perceived Stress (SPS-10)" (Zolotareva, 2023). **Results.** The authors presented results of testing and validation of the questionnaire "Subjective and Objective Uncertainty Stress - SOUS" on the Russian sample. The technique is proved to be a reliable and valid tool for measuring the uncertainty stress in adolescents. The questionnaire includes two scales to assess the stress severity in situations of subjective and objective uncertainty as well as the integral scale indicating the general level of uncertainty stress. **Discussion.** The indicators of stress severity obtained on the scales of subjective and objective uncertainty are predictably positively associated with perceived distress and moderately negatively - with general level of conscious

self-regulation, which shows the construct and convergent validity of the developed questionnaire. **Conclusion.** The proposed questionnaire can be used in psychological and pedagogical practice in order to assess the level of perceived uncertainty stress in adolescent students, as well as the degree of its severity in subjectively uncertain life situations and in relation to objective global stressors (situations) of uncertainty.

Keywords

stress of uncertainty, perceived stress, stressful situations, subjective and objective uncertainty

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Introduction

The problem of studying perceived stress, its manifestations and impact on the human behavior gains far more importance in modern conditions of a sharp increase in the objective uncertainty of existence (Zinchenko, 2021; Massazza et al., 2023). During the COVID-19 pandemic, humanity for the first time faced an unprecedented increase in the level of uncertainty in all areas of life, work, leisure, nutrition, sports (Stankovska et al., 2020). The situation was aggravated by fears for life and health, the inconsistency of huge flows of information about the disease, methods of its treatment and prevention, the possibilities of medicine and the victims of the pandemic.

It is no coincidence that during this peril it is no coincidence that during this period the experts stated that, as a result of the coronavirus pandemic, we can talk about a pandemic of psychological uncertainty stress (Sweeny et al., 2020). This was confirmed by the data on the rising level and prevalence of stress somatic symptoms during the COVID-19 pandemic. Thus, the worldwide increase in anxiety disorders by 76.2 million cases, compared to previous years, was recorded already in the first year of the pandemic (Santomauro et al., 2021; Zolotareva et al., 2022). Every second person during this period

complained of at least one manifestation of negative stressful psychophysiological states (muscle tension, insomnia, changes in eating habits, etc.) (Zolotareva et al., 2022).

The situation of objectively high uncertainty during the pandemic and the data on its impact on the people actualized the interest of psychologists in researching not only stressful somatic symptoms, but also the characteristics of perceived stress, which gave rise to the problem of assessing the degree of stressfulness of situations that stimulate it (McCarty et al., 2023; Zolotareva, 2023). In modern studies of uncertainty situations, they are considered in objective and subjective aspects (Chernousova, 2022). Most researchers agree on the need to distinguish between subjective and objective uncertainty (Diev, 2010; Solntseva & Smolyan, 2009).

Objective uncertainty takes place in objectively difficult life situations, when a person does not have enough information to decide how to act in order to use individual resources or overcome their limitations. It should be noted that in the modern world the situations of objective uncertainty are associated with the global challenges characterized not only by limitations, but often by a complete lack of information about their nature, dynamics, and consequences (Bityutskaya, 2011; Butenko, 2008; Diev, 2010; Solntseva and Smolyan, 2009; and others).

Subjective uncertainty stress arises when everyday situations become stressors, provoking varying degrees of psychological tension and negative experiences, and at the same time individual resources for overcoming it (life experience and obtained cognitive, personal and regulatory competencies) are not entirely sufficient to achieve current goals. Among the sources of the life stress are health problems, dissatisfaction with interpersonal relationships, difficulties in learning and work, financial troubles, etc. (e.g., Tarabrina et al., 2018).

Thus, subjective uncertainty stress can be overcome if a person can actualize psychological and other resources to solve a problematic life situation. In contrast, objective uncertainty stress arises in response to a subject's encounter with an objectively unpredictable situation which is not provided with sufficient and relevant information and which cannot be coped with by means of resources available to the subject (Diev, 2010; Krieger, 2014). In essence, we are talking about the fact that situations of global uncertainty, unlike everyday life situations, are objectively not provided with information resources to overcome them not only at the individual, but also at the civilizational level, due to their unpredictable nature, objectively insufficient structuring, vagueness, instability of situational conditions.

The routine stressful situations can cause psychological tension and, as a result, a decrease in a person's psychological well-being, whereas situations of objective global uncertainty can be perceived as a threat to the human existence. That is why the stressogenicity of this type of uncertainty is extremely high, which can cause the whole spectrum of somatic stress symptoms in the population. The objective uncertainty of global challenges is aggravated by modern mass media, instantly distributing a stream

of, first of all, emotionally charged news, causing the actualization of negative attitudes, up to catastrophic ones, the influence of which is difficult to resist for all strata of the population.

Empirical research has linked the perception of uncertainty to decreased mental health (Phillimore & Cheung, 2021) and increased distress (Massazza et al., 2023). Uncertainty stress has been shown to reduce the ability to effectively cope with various life tasks, negatively affect self-esteem (Peng et al., 2021), and contribute to the development of negative emotional states (Wise et al., 2023). This problem is especially acute in late adolescence and young adulthood, since young people need not only to successfully respond to modern life and global challenges, but also to solve all-important task of professional self-determination in conditions of a high degree uncertainty, closely associated with the experience of stress (Morosanova et al., 2024).

It is no coincidence that a large number of recent studies fix an increase in the level of anxiety and distress in the college and university students (Saleh et al., 2017; Yusufov et al., 2019). Researchers attribute this increase to individual characteristics of students' perception of uncertainty, to demographic and socio-economic aspects of their lives (Wuthrich et al., 2020), as well as to global external factors, such as, for example, climate change (Clayton, 2020), the COVID-19 pandemic (Wang et al., 2021; Zinchenko, 2021; Hamaideh et al., 2022) and, in general, increasing uncertainty of the future (Zinchenko, 2021).

To study the simultaneous and combined influence of everyday (subjective) situations of uncertainty and global (objective) stressors, it is necessary to develop specific tools for evaluating these aspects of stress. An analysis of recent publications shows that in foreign psychology, the researchers in this area have developed and actively use the survey methods (questionnaires) to assess life stress in everyday situations and uncertainty stress in the situations of global challenges (Yang et al., 2017; Wu et al., 2020; Freeston et al., 2020). Popular tools include T. Yang's questionnaire "The Student Daily Stress Questionnaire" (SDSQ) and its various modifications, which allow measuring the severity of life stress and uncertainty stress in students (Yang et al., 2019; Wu et al., 2020). It should be noted that they are mostly aimed to measure academic and everyday stress (Wu et al., 2020).

In the domestic literature, the concept of "uncertainty stress" is practically not used. Some authors attempt to conceptualize this phenomenon as "uncertainty in the context of stress" (Mospan, 2023). As for empirical studies, the researchers examine either aspects of attitudes towards uncertainty (e.g. Sachkova and Semenova, 2024; Dolgova et al., 2022) using, for example, the well-known questionnaire "Scales of Tolerance and Intolerance for Uncertainty" (Kornilova and Chumakova, 2014), or various aspects of subjective life stress (Sultanova et al., 2021; Zolotareva, 2023). T. Yang's questionnaire was translated and tested in a study of the ethnic and regional specifics of the resource role of students' conscious self-regulation in overcoming stress (Banshchikova et al., 2023). It should be

noted, however, that psychometric evaluation of this questionnaire and its structure verification has not yet been conducted on a Russian sample.

Thus to study the simultaneous and cumulative influence of uncertainty stress, it is not enough to distinguish between ordinary uncertain life situations and more global stressors. Therefore, there is a need for specific tools that allow assessing uncertainty stress in a set of grades distinguishing severity of perceived stress in subjective and objective situations of uncertainty.

The purpose of this study was to create a questionnaire "Subjective and Objective Uncertainty Stress - SOUS", as well as its validation and psychometric evaluation.

The sample of the study consisted of 1411 people including 1130 college students (mean age 17.64; 43.5% - girls) and 281 university students (mean age 19.14; 76.3% - girls). Data collection was carried out using the "Testograf" platform (<https://www.testograf.ru/>).

Methods

The new author's questionnaire "Subjective and Objective Uncertainty Stress - SOUS" is developed for measuring the perceived stress of uncertainty and includes 14 statements related to situations that can cause stress reactions (7 of them form the "Subjective Uncertainty Scale" and 7 - the "Objective Uncertainty Stress"). In contrast to the T. Yang questionnaire, the SOUS scales are equal in the number of points, which makes it possible to compare the severity of subjective and objective uncertainty stress without standardization. The respondents are asked to rate the degree of perceived stress in these situations on a 4-point scale, where 1 is "no stress" and 4 is "excessive" stress. The integral scale assesses the general level of uncertainty stress by summing up the scores obtained on the two scales. The statements were created being based on the clarification of theoretical concepts about the subjective and objective aspects of uncertainty stress, as well as the analysis of existing scales of perceived stress (Mitchell et al., 2008; Yang et al., 2017; 2019; Zolotareva, 2023, etc.). The instructions, list of statements, and the questionnaire keys are provided in the Appendix.

The following methods were used to validate the developed questionnaire:

1. V.I. Morosanova's questionnaire "Self-Regulation Profile Questionnaire - SRPQM" (Morosanova and Kondratyuk, 2020) including 7 scales: "Planning" (PL), "Modeling" (M), "Programming" (PR), "Evaluation of results" (OR), "Flexibility" (F), "Independence" (I), "Reliability" (R), as well as the integrative scale "General level of self-regulation" (SRGL), calculated as the sum of scores on all scales. This technique was used to test the validity of the new questionnaire based on our previously obtained data on the resource role of conscious self-regulation in coping with uncertainty and stress (Kondratyuk and Morosanova, 2021), as well as the data indicating that conscious self-regulation can serve as a resource for overcoming uncertainty stress (Banshchikova et al., 2023).

2. The questionnaire "Scale of Perceived Stress SPS-10" (Zolotareva, 2023) including the subscales "Distress" and "Coping", as well as an integrative scale of the general level of perceived stress (sum of points). In this study we considered the correlations between the scales "Distress" and "General Level of Perceived Stress" and the scales of the questionnaire "Subjective and Objective Uncertainty Stress".

Results

Before proceeding directly to the analysis of the questionnaire structure and its validity evaluation, we have checked the possibility of combining the samples of college and university students. For this purpose, 294 people were randomly selected from 1130 college students for comparison with university students (N=281). The comparison was carried out by the indicators of subjective and objective uncertainty stress, as well as the general level of conscious self-regulation using the Mann-Whitney criterion. Table 1 presents the descriptive statistics and criterion values for each of the above indicators.

Table 1

Comparison of mean values of uncertainty stress and general level of self-regulation (SR) among college and university students

| | Group | N | Mean | St. dev. | W |
|-------------------------------|-------|-----|-------|----------|------------|
| Subjective uncertainty stress | 0 | 294 | 12.44 | 4.348 | 28382.5*** |
| | 1 | 281 | 15.08 | 4.901 | |
| Objective uncertainty stress | 0 | 294 | 11.58 | 3.769 | 27853.5*** |
| | 1 | 281 | 13.82 | 3.996 | |

GENERAL PSYCHOLOGY, PERSONALITY PSYCHOLOGY, PHILOSOPHY AND PSYCHOLOGY

| | Group | N | Mean | St. dev. | W |
|------------------|-------|-----|-------|----------|-----------|
| | 0 | 294 | 88.91 | 14.096 | |
| General SR level | | | | | 35925.0** |
| | 1 | 281 | 92.27 | 14.557 | |

Note: 0 – college students, 1 – university students, ***- $p < 0.001$, **- $p < 0.01$

According to the obtained results, there are significant differences between the two compared groups. In particular, the university students have significantly higher levels of both uncertainty stress and general SR level compared to the college students. Due to the discovered differences, we used the college students' data for considering the questionnaire structure and verifying its validity. Table 2 presents descriptive statistics as well as the results of testing the distribution of uncertainty stress indicators for normality using the Shapiro-Wilk criterion.

Table 2

Descriptive statistics and Shapiro-Wilk test for subjective and objective uncertainty stress indicators

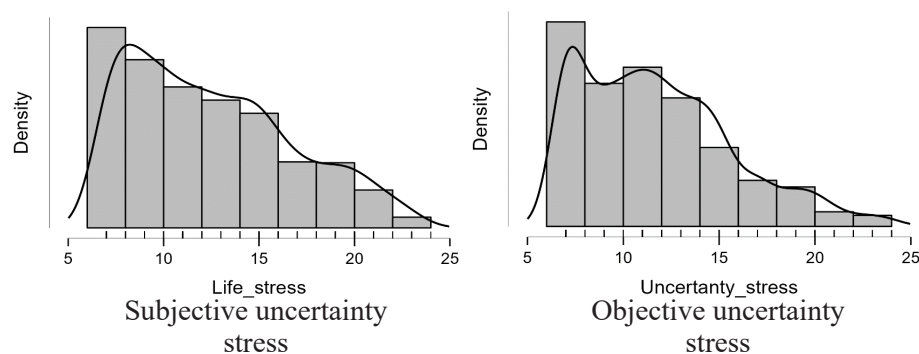
| | Subjective uncertainty stress | Objective uncertainty stress |
|--------------------|-------------------------------------|------------------------------------|
| Mean | 12.555 | 11.825 |
| Standard deviation | 4.271 | 3.964 |
| Min. | 7.000 | 7.000 |

| | Subjective stress | Objective stress |
|------------------------|----------------------|---------------------|
| Max. | 24.000 | 24.000 |
| Shapiro-Wilk criterion | 0.937*** | 0.929*** |

Note: *** - $p < 0.001$

Figure 1

Distribution of indicators of subjective and objective uncertainty stress



According to Table 2, the distribution differs significantly from the normal (the significance of the Shapiro-Wilk criterion < 0.05), and for this reason the nonparametric methods of analysis were further applied. It should also be noted that distribution is shifted towards low values (Fig. 1), which is generally characteristic of stress and negative emotional states.

Reliability of the questionnaire "Subjective and Objective Uncertainty Stress". The α -Cronbach and ω -McDonald coefficients were calculated on the sample of college students in order to analyze the degree of internal consistency of the questionnaire scales. The results of the analysis are presented in Table 3.

Table 3
Internal consistency of the scales of "Subjective and Objective Uncertainty Stress- SOUS"

| Scales | McDonald's ω | Cronbach's α |
|-------------------------------------|----------------------|----------------------|
| Subjective Uncertainty Stress | 0.823 [0.807; 0.839] | 0.819 [0.803; 0.834] |
| Objective Uncertainty Stress | 0.833 [0.818; 0.848] | 0.829 [0.813; 0.843] |
| General Level of Uncertainty Stress | 0.887 [0.877; 0.897] | 0.885 [0.875; 0.895] |

Note: *the boundaries of the 95% confidence interval are given in square brackets.*

According to the obtained results, all three scales demonstrate a fairly high internal consistency: both Cronbach's alpha and McDonald's omega exceed 0.8.

Next, the structure of the questionnaire was analyzed by means of exploratory (EFA) and confirmatory (CFA) factor analysis. To this end, the total sample of college students was randomly divided into 2 equal subsamples (N = 565 for EFA and N = 565 for CFA).

Exploratory factor analysis

Since the data are not normally distributed, the principal component analysis was used for factor analysis as it is more preferable in case of distribution normality violation (Fabrigar et al., 1999) and more powerful for studying a relatively simple factor structure (DeWinter & Dodou, 2012). Direct oblimin was used as a method of component rotation, since there was a possibility of correlation between the factors. Checking compliance of the correlation matrix for factor analysis by means of the Bartlett test and Kaiser-Meyer-Olkin test showed the applicability of the factor analysis procedure ($X^2 = 2884.512$, $df=91$, $p<0.001$). The results of the exploratory factor analysis are presented below, in Table 4.

Table 4

Factor loadings and cumulative percentage of explained variance for the identified factors

| Model: $X^2 = 431.349$, $df=64$, $p<0.001$ | | | |
|--|----------|----------|---------------------|
| | Factor 1 | Factor 2 | Cumulative variance |
| Point_6 | 0.852 | | |
| Point _7 | 0.737 | | |
| Point _3 | 0.682 | | |
| Point _5 | 0.658 | | 0.270 |
| Point _4 | 0.622 | | |
| Point _2 | 0.592 | | |
| Point _1 | 0.493 | | |
| Point _10 | | 0.885 | |
| Point _11 | | 0.656 | |
| Point _12 | | 0.599 | |
| Point _13 | | 0.592 | 0.500 |
| Point _14 | | 0.583 | |
| Point _8 | | 0.550 | |
| Point _9 | | 0.483 | |

As a result of exploratory factor analysis, 2 factors are distinguished, which meaningfully correspond to the scales of the questionnaire and jointly explain 50% of the variance. Questionnaire items 1–7 demonstrate high loadings on the first factor (“Subjective uncertainty stress”), while items 8–14 – on the second factor (“Objective uncertainty stress”). The obtained result is consistent with the assumption about the questionnaire structure. Note that, according to the obtained results, reducing all the questionnaire items to one factor was not informative, as well as increasing the number of factors. Besides, the explained percentage of variance was quite low. In this regard, it seems appropriate to test a more complex model, with the presence of a common second-order factor, by means of the confirmatory factor analysis.

Confirmatory factor analysis.

According to the EFA results presented above, three models were tested: model 1 with two latent variables (subjective and objective uncertainty stress scales), model 2 with one latent variable (integrative scale of general uncertainty stress level), model 3 with two first-order factors and one second-order factor (subjective and objective uncertainty stress scales and general uncertainty stress scale). Since the data are measured on an ordinal scale, but at the same time demonstrate a low deviation from normality (asymmetry and kurtosis did not exceed 1 in absolute value), and there was a fairly large sample, the unweighted least squares method was used as a method for assessing the fit of the model. Table 5 below presents the fit indices of all three models. CFI> 0.95, TLI> 0.95, RMSEA <0.06, SRMR <0.06 were accepted as acceptable values.

Table 5
Indicators of compliance of the models under study

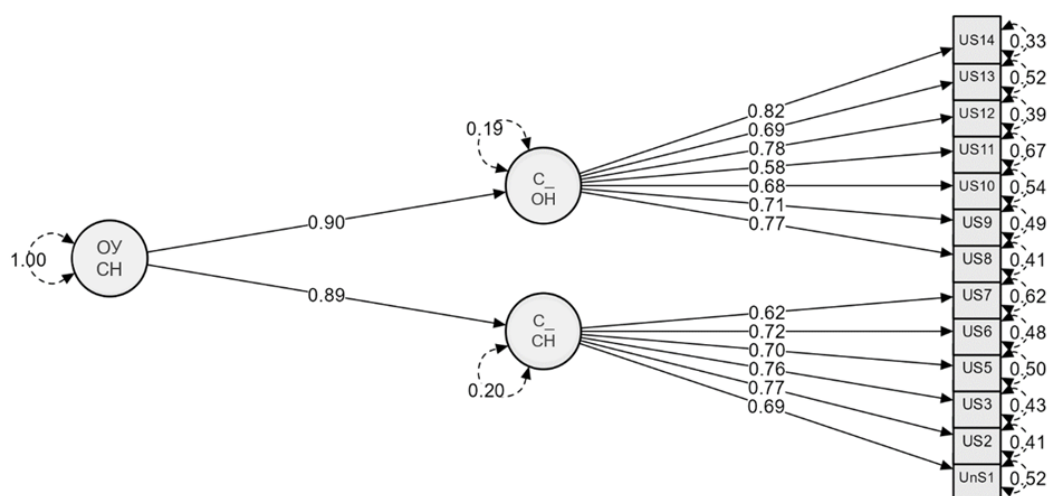
| Model Number | χ^2 | Df | CFI | TLI | RMSEA | RMSEA _p | SRMR |
|--------------|----------|----|-------|-------|-------|--------------------|-------|
| Model 1 | 201.501 | 76 | 0.988 | 0.985 | 0.056 | 0.130 | 0.060 |
| Model 2 | 339.151 | 77 | 0.976 | 0.971 | 0.078 | <0.001 | 0.076 |
| Model 3 | 172.990 | 63 | 0.988 | 0.986 | 0.056 | 0.166 | 0.058 |

According to the obtained data, the best fit indices are observed in models 1 (two latent factors) and 3 (two latent factors and one second-order factor), and their values are almost identical. Nevertheless, since model 3 best fits our theoretical concepts, it was accepted as the final one. Figure 2 shows model 3 indicating the factor loadings of the

items on the scales, as well as the contribution of the common factor to explaining the covariance between the first-order latent factors.

Figure 2

Final model based on the results of confirmatory factor analysis



Note: *C_CH* – stress of subjective uncertainty, *C_OH* – stress of objective uncertainty, *OYCH* – general level of uncertainty stress.

Thus, the results of the exploratory and confirmatory factor analysis have acknowledged the assumed structure of the questionnaire, namely, its two scales: "Subjective uncertainty stress" and "Objective uncertainty stress" and an integrative scale reflecting the general level of uncertainty stress.

Validity of the questionnaire "Subjective and Objective Uncertainty Stress - SOUS"

Further, on the sample of college students (N=1130), the validity of the questionnaire was checked by conducting a correlation analysis of its indicators with indicators on the "Distress" scale, the general level of perceived stress ("Scale of Perceived Stress"), as well as the general level of conscious self-regulation ("Self-Regulation Profile Questionnaire"). Since it was previously found that distribution differs from normal,

the correlations were calculated using the Spearman ρ coefficient. The results of the analysis are presented in Table 6.

Table 6
Correlations of "Subjective and Objective Uncertainty Stress - SOUS" indicators with general level of conscious self-regulation (SRPQM) and general level of perceived stress (SPS-10)

| Variables | 1 | 2 | 3 | 4 | 5 | 6 |
|---|-----------|-----------|-----------|-----------|-----------|---|
| 1. Subjective uncertainty stress | — | | | | | |
| 2. Objective uncertainty stress | 0.675*** | — | | | | |
| 3. General level of uncertainty stress | 0.923*** | 0.902*** | — | | | |
| 4. Distress | 0.531*** | 0.569*** | 0.602*** | — | | |
| 5. General level of perceived stress | 0.362*** | 0.339*** | 0.388*** | 0.612*** | — | |
| 6. General level of conscious self-regulation | -0.243*** | -0.260*** | -0.279*** | -0.415*** | -0.151*** | — |

Note: *** - $p < 0.001$

The analysis revealed moderate significant correlations of the indicators of "Subjective and Objective Uncertainty Stress - SOUS" questionnaire with those of conscious self-regulation and perceived stress. In particular, the general level of uncertainty stress positively and moderately correlates with general level of perceived stress, which may be due to the fact that in the "Scale of Perceived Stress" its general level reflects both the severity of distress and the perceived ability to cope with it. This assumption is confirmed by the high and positive correlation of "Distress" values with all indicators of "Subjective and Objective Uncertainty Stress - SOUS" questionnaire. Thus, we can say that presented

questionnaire demonstrates good indicators of construct validity. It should also be noted that the questionnaire indicators correlate poorly and negatively with general level of conscious self-regulation.

Discussion

The presented study had its purpose to validate and psychometrically evaluate the developed survey method "Subjective and Objective Uncertainty Stress - SOUS" on a sample of young people. The psychometric evaluation of the questionnaire was carried out on a sample of college students, since, according to the data obtained, university students who took part in the survey differed significantly from the college students both in terms of uncertainty stress and in the level of conscious self-regulation. This result may be associated with age characteristics: the sample of university students is, on average, older than the sample of college students, although it includes the same age group (16-25 years). In addition, this difference may be due to the specifics of educational systems and strategies of students choosing these diverse educational trajectories. Thus, the choice of studying in a college is often part of the educational strategy "to get to university through college", which is associated with less risk, since it allows to avoid the Unified State Exam (Aleksandrov et al., 2015; Cherednichenko, 2017). This fact may explain the lower stress levels and lower levels of conscious self-regulation in the college students. However, the revealed differences and their causes require further empirical research.

The reliability analysis of the method demonstrated its high internal consistency - Cronbach's α and McDonald's ω were above 0.8 for all questionnaire indicators. The obtained result is consistent with both the reliability data of original Yang's method (Yang et al., 2019) and the internal consistency data of this questionnaire translated into Russian (Banshchikova et al., 2023). The analysis of our questionnaire structure by means of exploratory and confirmatory factor analysis, on the one hand, confirmed the existence of two latent stress factors (Yang et al., 2019), and on the other hand, supported the assumption about the presence of a higher-order factor - an integrative indicator of uncertainty stress. Thus, according to the results obtained in this work, the studied construct has a more complex structure, and our modified version of the Yang's questionnaire allows for measuring uncertainty stress with a high degree of reliability.

The validity of the proposed modification of the Yang's questionnaire was checked using a correlation analysis of its indicators with those of the "Scale of Perceived Stress" and "Self-Regulation Profile Questionnaire". As a result of the analysis, it was revealed that the indicators of our version of the questionnaire positively and moderately correlate with general level of perceived stress, positively and highly - with distress level, which is consistent with the results of studies on the relationship between uncertainty and perceived stress (Wu et al., 2021; Reizer et al., 2021). Low negative correlations were found between the questionnaire indicators and the general level of conscious self-regulation,

which is consistent with the concept of conscious self-regulation as a resource for coping with stress (Morosanova, 2021; 2022; Kondratyuk and Morosanova, 2021). Thus, we can talk about sufficient construct validity of the questionnaire "Subjective and Objective Uncertainty Stress - SOUS".

Conclusion

1. As a result of testing on a Russian youth sample, a new Russian-language version of T. Yang's survey method was created, called "Subjective and Objective Uncertainty Stress - SOUS". The new version not only allows for measuring the stress indicators of subjective and objective uncertainty, but also has an integral scale reflecting the general level of uncertainty stress.
2. The new adapted version of the method demonstrates high rates of internal consistency and is a sufficiently reliable and valid tool for measuring the uncertainty stress in adolescent samples.
3. The results of the validity check demonstrated that indicators of subjective and objective uncertainty stress are significantly positively associated with perceived distress and moderately negatively associated with general level of conscious self-regulation. The data obtained are consistent with theoretical concepts of uncertainty stress, as well as with the results of studies demonstrating the resource role of conscious self-regulation in coping with uncertainty and stress.
4. The proposed questionnaire can be used in psychological and pedagogical practice to diagnose the level of uncertainty stress in adolescent students, as well as the severity of stress concerning life and global stressors.
5. It seems promising to use the developed questionnaire for comparing the severity of objective and subjective uncertainty stress in students depending on their age, gender, region of residence, as well as the level of development of their personal, cognitive, and regulatory resources and reserves. A pressing issue awaiting study is the impact of various aspects of uncertainty stress on academic success, subjective well-being, personal and professional development in adolescence.

Limitations

At present, the developed questionnaire is applicable to studies on the samples of adolescents (16-25 years old). Future studies can be aimed at validating the questionnaire on the samples of other ages, as well as developing normative indicators depending on gender and age.

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Conflict of Interest Information

The authors have no conflict of interests to declare.

Appendix

Instructions, statements, and key to the questionnaire "Subjective and Objective Uncertainty Stress"

Instructions

You will be given some statements related to situations that can cause negative stress reactions. Please, evaluate the extent of possible stress in each of these situations on a scale: 1 - no stress, 2 - slight stress, 3 - significant stress, 4 - excessive stress.

| Statements | No stress | Slight stress | Significant stress | Excessive stress |
|---|-----------|---------------|--------------------|------------------|
| Difficulties in studies | 1 | 2 | 3 | 4 |
| Unsatisfying relationships with peers | 1 | 2 | 3 | 4 |
| Conflicting relationships with teachers | 1 | 2 | 3 | 4 |
| Dissatisfaction with romantic relationships | 1 | 2 | 3 | 4 |

GENERAL PSYCHOLOGY, PERSONALITY PSYCHOLOGY, PHILOSOPHY AND PSYCHOLOGY

| Statements | No stress | Slight stress | Significant stress | Excessive stress |
|--|-----------|---------------|--------------------|------------------|
| Regular financial difficulties | 1 | 2 | 3 | 4 |
| Lack of support from family members | 1 | 2 | 3 | 4 |
| Threats to life and health | 1 | 2 | 3 | 4 |
| A rapidly changing world | 1 | 2 | 3 | 4 |
| Flow of negative news | 1 | 2 | 3 | 4 |
| In today's world it is difficult to identify what is the truth and what is the lie | 1 | 2 | 3 | 4 |
| Climate change and natural disasters | 1 | 2 | 3 | 4 |
| Difficulties in projecting professional plans under conditions of uncertainty | 1 | 2 | 3 | 4 |
| It is difficult to understand who are the enemies and who are the friends | 1 | 2 | 3 | 4 |
| Growing uncertainty about the future | 1 | 2 | 3 | 4 |

Key

The scales indicators are calculated by summing up the scores on the following items: subjective uncertainty stress - items 1-7; objective uncertainty stress - items 8-14. The indicator of the integral scale of the general level of uncertainty stress is calculated as the sum of the values on both scales of the questionnaire.