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Rapid diagnosis of stress-related states to guide health-enhancing physical activity for university students

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Abstract

Purpose. The purpose of the study was to build a theoretical model of rapid diagnosis of stress-related states in college students and to develop a digital tool to guide health-enhancing physical activity for university students.

Material & Methods. The study involved the use of questionnaires designed to assess psychophysiological indicators (activity, mood, sleep, appetite, performance, and well-being) with the 5-point Likert scale; stress level with V. Y. Shcherbatykh method; anxiety using the Spielberg-Hanin Inventory; and the risk of PTSD using the Mississippi Scale. The data obtained were subjected to statistical analysis, namely GLZ models.

Results. The theoretical model of rapid diagnosis of stress-associated states in higher education students during the educational process was developed, which provides a reliable foundation for monitoring stress-related states and management of appropriate measures to prevent them using physical activity. The proposed model includes interconnected stages of data mining, construction of mathematical models that link the indicators of stress, anxiety, and risk of PTSD in students and other relevant variables, analysis of their parameters and quality assessment, as well as the development of a digital solution for personalized recommendations on physical activity interventions, implementation in the educational process, and feedback. Statistically significant ($p<0.05$) generalized regression models were constructed that establish relationships between students' stress-related states and multidirectional stress-related factors (gender, psychophysiological indicators, physical condition, mental state, etc.). Using these models reduces the time needed to complete questionnaires by more than 8-fold. The developed models are the basis of the interactive analytical program StressCheck Pro, which is designed to obtain up-to-date information on the stress-related states in students, to collect and analyze data necessary to assess the current state of students, to monitor the effectiveness of implemented measures, and to develop individual recommendations. When used, the obtained scores of stress, anxiety, and PTSD risk do not require additional interpretation. This assesses of stress-related states more accessible and scalable in the educational process.

Conclusions. An approach to assessing students' stress, anxiety and risk of PTSD in the educational process was developed and its practical implementation was proposed using the interactive analytical program StressCheck Pro, which automates the processes of collecting, analyzing,

and interpreting data necessary for monitoring stress-related states among students as well as providing guidelines for health-enhancing physical activity.

Keywords: health-enhancing physical activity, intervention, university students, program, stress-related states.

Introduction

Students are considered a vulnerable population category to stress-related disorders (Byshevets et al., 2023; 2024; Orikhovska, et al., 2021; Petrachkov et al., 2023). According to the latest data, 48.8% of the surveyed people demonstrate medium and high levels of stress (Reddy et al, 2018). Moreover, increased stress levels exacerbate symptoms of depression, anxiety, and sleep disorders (Li et al., 2024). The authors emphasize that stress has a negative effect on the health of students and reduces their quality of life and academic success (Hakman et al., 2020; Ribeiro et al., 2018). Among the factors that cause mental health disorders of the studied population, scientists name educational workload, difficulties in mastering educational material, sessions, exams, work on projects, and unfavorable demographic indicators (Heissel et al., 2021; Högberg et al., 2022; Nyagwencha-Nyamweya, 2022; Wang et al., 2023). At the same time, the COVID-19 outbreak and subsequent quarantine restrictions have caused an increase in cases of stress-related conditions among college students (Andrieieva et al., 2023). The authors point to the negative impact of stressful events, such as natural disasters and anthropogenic trauma, on mental health and emphasize that such events can lead to PTSD and depression (Hu et al., 2025). In particular, the prevalence of post-traumatic stress disorder (PTSD) among students during COVID-19 ranged from 20.0% (North America) to 48.95% (Africa) depending on the continent and reached an average of 25% (Hu et al., 2025).

For Ukrainian students, the situation is even more threatening. Due to the military operations in the country, they are subjected to significant psychological pressure, feeling constant anxiety for the future and fear for the life and health of themselves and their relatives. As a result, according to our previous research, 53.7% of male students and 64.0% of female students are characterized by a medium or high risk of developing PTSD (Byshevets et al., 2023; 2024).

Studies have provided convincing evidence of the effectiveness of preventing stress-related conditions in students using physical activity (PA) (Andrieieva & Hakman, 2018). However, for their effective use and continuous monitoring of stress-related conditions in higher education students, there is a need to develop a tool that will allow for a quick and accurate assessment of individual levels of stress, anxiety, and the risk of PTSD in the educational process. Analysis of scientific information indicates a growing interest among scientists in issues related to the spread of stress-related conditions in higher education students (Guerriero et al., 2025). As a diagnostic method, scientists choose such psychological stress scales as PSM25 (LemurTesierFillion), the questionnaire "Typical behavior in stressful situations" (CBS), the technique "Comprehensive assessment of stress manifestations" (Serikova & Mynbayeva, 2019) they propose to calculate stress using heart rate, EMG, GSR data of the hands and feet, breathing, using ECG signals (electrocardiogram) (Ahuja & Banga, 2015).

Digital tools have been developed to automate the diagnosis. J. Yin reported on the development and implementation of a virtual platform to detect signs of depression, anxiety, stress, and mood in college students living on campus (Yin et al., 2019). A. Lin proposed a digital platform, the VR Group Counseling (VRGC) system, through which students can receive psychological help and stress management counseling through interaction with a chatbot or during communication with a real counselor (Lin et al., 2021). E. Silva proposed the EUSTRESS information system aimed at systematic monitoring of stress-related states of medical students in real time (Silva et al., 2019). The calculations are based on a neural model developed by machine learning. Despite the existing developments, a tool that will provide reliable data collection for rapid diagnosis of stress-related states among university students and the development of personalized health and recreation programs requires scientific substantiation and development (Drozdovska et al., 2020; Steinacker et al., 2023; Yarmak et al., 2019). Integrating the tool into a digital educational platform will ensure convenient access and prompt processing of results.

The purpose of the study was to build a theoretical model for rapid diagnosis of stress-related states in students and to develop a digital tool for its implementation in the educational process.

Material and methods

Participants

The study surveyed students from different regions of Ukraine studying in higher education institutions (n=1328). The inclusion criteria for

participants included: higher education status; age – 17-25 years; geographical coverage – students from different regions of Ukraine; consent to participate – voluntary consent of the respondent to participate in the study after familiarization with its purpose, methods, possible risks and benefits; form of study – both face-to-face and distance learning; physical activity – willingness to assess one's own level of physical activity; psycho-emotional state – absence of diagnosed mental illnesses that could significantly affect stress-related states. The exclusion criteria for study participants were: lack of student status; age outside the established limits (younger than 17 or older than 25 years); incomplete or incorrectly completed questionnaire (questionnaires with missing answers or unreliable data); medical contraindications (presence of chronic or acute diseases that can significantly affect the level of physical activity or stress-related states); refusal to participate (respondents who did not consent to participate in the study or refused to continue participation at any stage.

Research organization

A study was conducted to assess stress (Shcherbatykh method), reactive anxiety (Spielberger-Hanin anxiety test), and risk of post-traumatic stress disorder (Mississippi PTSD Scale, civilian version) in higher education students; determine psychophysiological indicators (activity, sleep, appetite, mood, working capacity, well-being); calculate the number of complaints about stress-related states (mood swings, anxiety, depression, aggressiveness); establish current assessments of psycho-emotional and physical states; identify a tendency to engage in physical activity, an active lifestyle, and bad habits. The selected scales are widely used standardized tools for assessing the relevant stress-related states. The study was conducted by international ethical standards as defined by the World Medical Association Declaration of Helsinki. These included: voluntary participation (each participant received comprehensive information about the purpose, methods and potential risks of the study and signed an informed consent); confidentiality (personal data of respondents were encrypted, depersonalized and used exclusively for scientific purposes); the principle of safety (the study was organized in such a way as to minimize possible physical and psychological risks for participants); the right to refuse (each participant had the opportunity to withdraw from the study at any stage without negative consequences); objectivity (the results obtained are based solely on the data collected and do not contain biased interpretations).

Statistical analysis

The obtained data were subjected to statistical analysis, namely statistical modeling. We built mathematical models to describe the relationships between variables in the obtained data. In order to establish indicators related to quantitative assessments of stress, anxiety, and PTSD risk, and to determine analytical expressions of such a relationship, generalized regression models (GRM) were developed, which provide the ability to work with both continuous and categorical variables. The stepwise inclusion method was used when building the models. The use of the STATISTICA 10 tool made it possible to build a significant number of models and stop the modeling process only after models of acceptable quality were obtained. The adequacy of the models was assessed using criteria such as the coefficient of determination (R^2), which characterizes the proportion of the variance of the dependent variable explained by the model, and the Fisher criterion (F), which allows you to check the statistical significance of the model as a whole. Models with the maximum R^2 value (indicating the best explanatory power of the model) and a statistically significant F value at a significance level of 0.05 (indicating the statistical significance of the model as a whole) were selected. The models were built using 13 variables. The dependent variables were quantitative indicators of stress, anxiety, and PTSD risk, measured in points. Independent predictors were represented by two types of data: categorical and ordinal. In the dataset, categorical variables appeared as binary data, coded as 1 and 0: gender (male – 1, female – 0); active lifestyle (1 – Yes; 0 – No); ORPA classes (1 – systematic classes; 0 – No); bad habits – life (1 – Yes; 0 – No). The following ordinal variables were included in the model: the number of complaints about stress-related states (the sum of complaints about mood swings, depression, anxiety, aggressiveness - the variable can take values from 0 to 4); psychophysiological indicators (activity, sleep, mood, appetite, working capacity, well-being), measured in the range from 1 to 5 points; mental and physical state - indicators that can also take values from 1 to 5. In addition, the quality of the models was checked by the results of residual analysis with the calculation of: mean absolute deviation (MAE), which shows the average absolute error of the model; root mean square deviation (RMSE), which shows the average value of the model error in the same units of measurement as the dependent variable; standardized residuals (Z-residuals), which allow us to assess how much each observation deviates from the mean value; standardized Cook residuals (Z Diffits) – a standardized measure of the influence of each observation on the estimates of the regression coefficients. The level of statistical significance was taken as 0.05 ($p<0.05$). Calculations were performed using the STATISTICA pro-

gram (StatSoft, USA).

Results

Based on the results of theoretical analysis and on the basis of structural-logical modeling, during the study we developed a theoretical model of rapid diagnosis, which includes not only the principles and approaches to data collection, but also the construction of statistical models and their implementation in the educational process. The purpose of rapid diagnosis is to obtain operational information about the stress-related states of students in the educational process (Fig. 1).

Previous studies of psychodiagnostic tools have shown certain shortcomings: their use requires a long time to fill out the questionnaires and the corresponding efforts for processing and interpretation, which does not contribute to the effective use of educational resources. Therefore, one of the requirements that we set for ourselves was to reduce the list of questions in the questionnaires. To do this, it is necessary to establish markers that allow predicting quantitative assessments of stress, anxiety and the risk of PTSD. To solve the problem, based on a set of data on students' indicators related to stress-related states and assessments of their stress, anxiety and the risk of PTSD, obtained using standard psychodiagnostic scales, it is necessary to develop generalized regression models and assess their quality.

The study reduced the list of questions required for diagnosis by developing mathematical models and providing the opportunity for participants in the educational process to apply these models. The study constructed statistically significant ($p<0.05$) generalized regression models that establish relationships between stress-related states of students and multidirectional factors related to stress (gender, psychophysiological indicators, physical and mental state, etc.) (Table 1).

Therefore, at the next stage, it is advisable to proceed to solving the issue related to the automation of the diagnostic process. Integration of the theoretical model of rapid diagnosis into the general contour of the management system for the prevention of stress-related states of higher education applicants using the ORPA tools allows for timely and informed decisions.

Models of this type were used because they allow taking into account both quantitative and qualitative indicators. The parameters of these models are given in the table. The stress assessment is most influenced by the number of students' complaints about stress-related conditions.

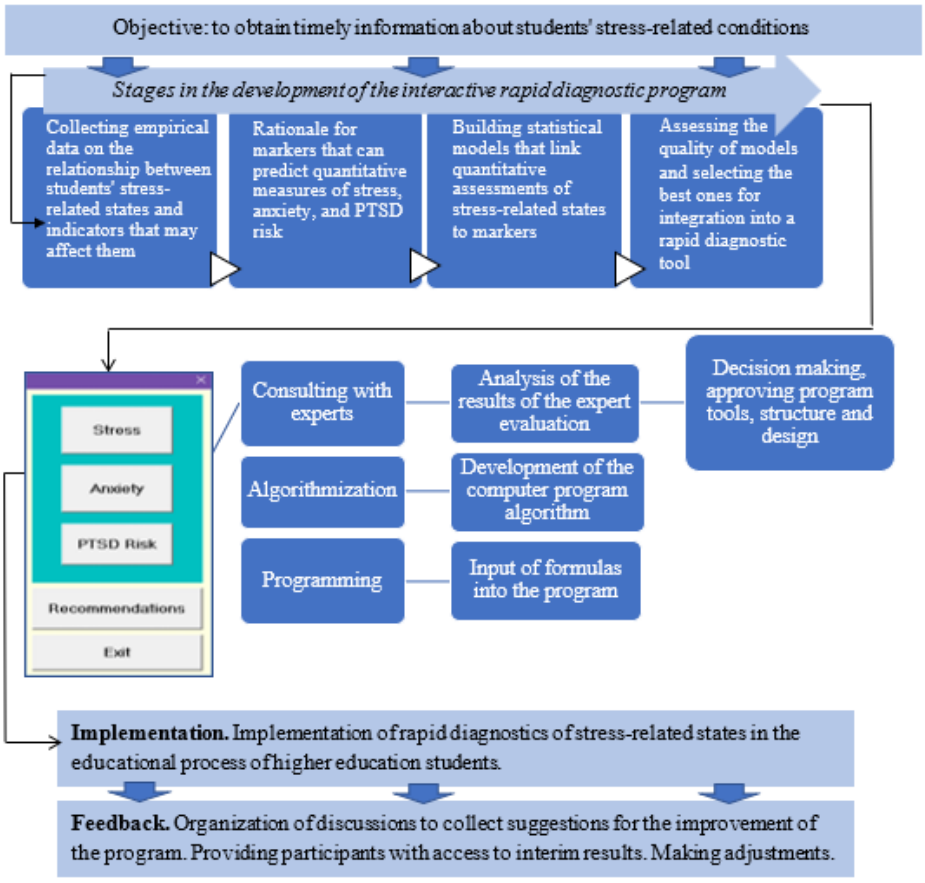

Figure 1. Model of rapid diagnosis of stress-related states among students and interface of the interactive analytical program StressCheck Pro

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Table 1. Parameters of generalized regression models for predicting stress-related states (n=1328)

Predictors and their interactions	Regression coefficients and their estimates						Standardized coefficients			
	a	S(a)	t	p	CI −95%	CI +95%	β	S(β)	CI −95%	CI +95%
stress (R^2=0.293; F=91.301; p<0.05)										
Intercept	25.23	1.47	17.134	0.0000	22.35	28.12				
Sleep	−0.61	0.28	−2.206	0.0276	−1.15	−0.07	−0.06	0.03	−0.11	−0.01
Well–being	−1.97	0.34	−5.800	0.0000	−2.64	−1.31	−0.17	0.03	−0.23	−0.11
Number of complaints	3.22	0.25	12.772	0.0000	2.73	3.72	0.34	0.03	0.29	0.40
Physical condition	−0.76	0.28	−2.696	0.0071	−1.31	−0.21	−0.07	0.03	−0.12	−0.02
Bad habits	−1.03	0.34	−3.014	0.0026	−1.70	−0.36	−0.07	0.02	−0.12	−0.03
Gender*ALS	0.63	0.28	2.202	0.0278	0.07	1.19	0.05	0.02	0.01	0.10
anxiety (R^2=0.075; F=26.696; p<0.05)										
Intercept	42.76	0.66	64.40	0.0000	41.46	44.06				
Well–being	−0.58	0.15	−3.96	0.0001	−0.86	−0.29	−0.12	0.03	−0.18	−0.58
Number of complaints	0.67	0.12	5.78	0.0000	0.44	0.90	0.17	0.03	0.11	0.67
MS	0.33	0.13	2.51	0.0123	0.07	0.59	0.07	0.03	0.01	0.33
ALS	0.32	0.14	2.317	0.0207	0.05	0.59	0.06	0.03	0.01	0.32
risk of post–traumatic stress disorder (R^2=0.306; F=97.094; p<0.05)										
Intercept	104.36	2.34	44.58	0.00	99.77	108.95				
Mood	−1.97	0.64	−3.11	0.00	−3.22	−0.73	−0.09	0.03	−0.15	−0.04
Well–being	−4.98	0.60	−8.29	0.00	−6.16	−3.80	−0.26	0.03	−0.32	−0.20
Number of complaints	3.72	0.43	8.69	0.00	2.88	4.56	0.23	0.03	0.18	0.29
Bad habits (BH)	−3.40	0.58	−5.90	0.00	−4.53	−2.27	−0.14	0.02	−0.19	−0.10
Gender*ALS*PA	−1.04	0.48	−2.17	0.03	−1.99	−0.10	−0.05	0.02	−0.10	−0.00
Gender*BH*PA	1.84	0.48	3.85	0.00	0.90	2.78	0.09	0.02	0.04	0.13

Notes: MS – mental state; PC – physical condition; ALS – active lifestyle; BH – bad habits; only statistically significant coefficients at the p-level of 0.05 are shown.

The regression coefficient characterizing the influence of the number of complaints on the stress assessment is 3.22. This means that on average, each additional complaint report leads to an increase in the stress assessment by 3.22 points, or 0.34 standard deviations. The same applies to anxiety: the maximum impact on its prediction is also exerted by the number of complaints: each additional complaint report leads to an increase in the anxiety assessment by 0.67 points, or 0.17 standard deviations. In contrast, the assessment of the risk of PTSD is most influenced by well-being, an increase in the assessment of which by 1 point contributes to a decrease in the assessment of the indicator by 4.97 points, or 0.26 standard deviations. In the analytical representation, the models have the following form:

Stress = 25.23-0.61×Sleep-1.97×W+3.22×number of complaints-0.76×PC-1.03×HH+0.63×Sex×AL

Anxiety=42.76-0.58×W+0.67×number of complaints+0.33×PC+0.32×AL

PTSD=104.36-1.97×M-4.98×W+3.72×number of complaints-3.40×HH-1.04×Sex×AL×HRMA+1.84×Sex×BH×PA

where PTSD – risk of PTSD; W – well-being; M – mood; BH – bad habits; AL – active lifestyle; PA – physical activity; MS – mental state; PC – physical condition.

Next, we analyzed statistically significant (p<0.05) relationships that were included in the models. It turned out that stress is associated with gender and active life of higher education applicants. The comparison of average weighted stress scores among male and female students shows that both groups demonstrate an increased level of stress when leading a passive lifestyle. The minimum stress scores are demonstrated by students who indicated that they lead an active lifestyle, and the maximum – by inactive female students. An active lifestyle significantly reduces the level of stress regardless of gender, but this effect was more pronounced in female students (Fig. 2).

Analysis of the results of the PTSD risk modeling showed a statistically significant (p=0.0304) relationship between gender, lifestyle, and PA activities. It was found that female students who lead a sedentary lifestyle and do not regularly engage in PA have the highest risk of developing PTSD. This risk is significantly reduced when an active lifestyle is combined with regular PA activities, regardless of gender. Unlike female students,

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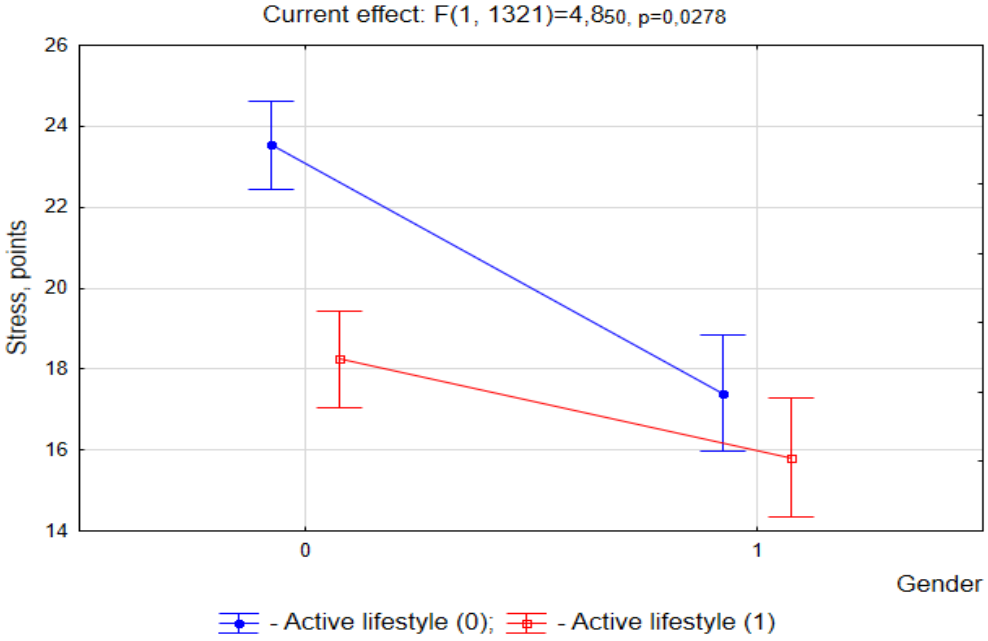

Figure 2. **The effect of an active lifestyle on stress scores, where vertical bars equal 0.95 confidence intervals.**

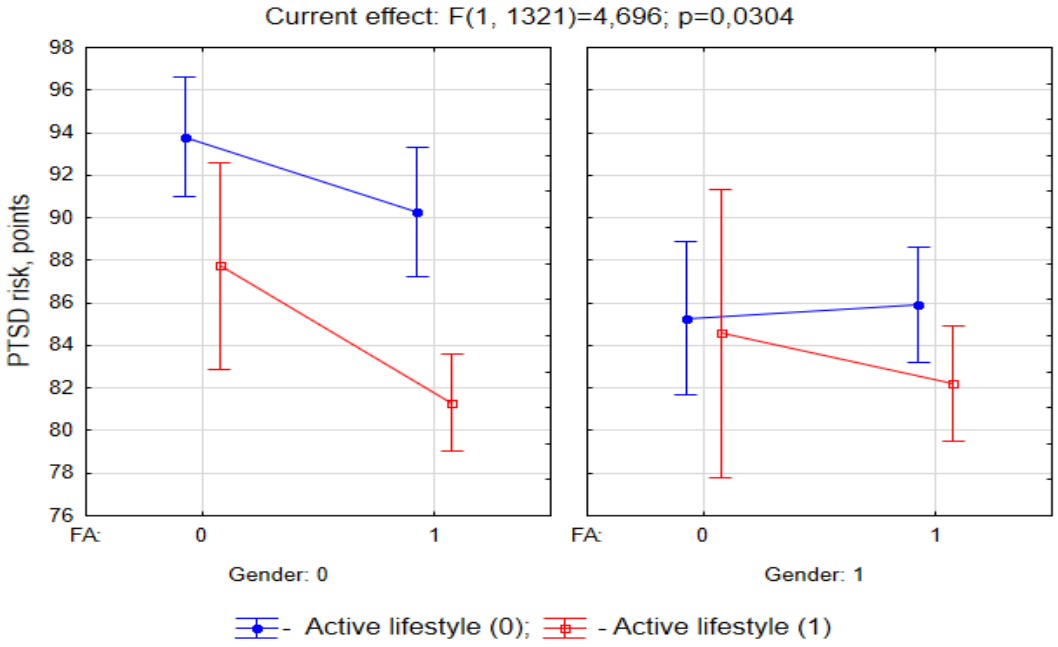

Figure 3. **The effect of PA classes and an active lifestyle on the risk of developing PTSD, where vertical bars equal 0.95 confidence intervals.**

the opposite trend is observed among inactive students: those who regularly engage in PA have a slightly higher average risk of PTSD. This result is associated with a selective effect: students who already experience high levels of stress or PTSD may be more likely to engage in PA as a way to cope with their condition. On the other hand, it is possible that they engage in PA with low intensity, which may not yield the expected positive results (Fig. 3).

The study showed that bad habits are a factor that increases the risk of PTSD for both genders. The highest risk was demonstrated by students who have bad habits and do not engage in PA. At the same time, systematic PA classes have the best effect on female students without bad habits (Fig. 4).

The study used residual analysis, which allowed us to create a holistic view of the quality of the proposed models and their ability to reflect the real picture. In particular, MAE and RMSE give an idea of the accuracy of the models and show how much the predictions deviate from the actual values. It should be noted that the obtained MAE

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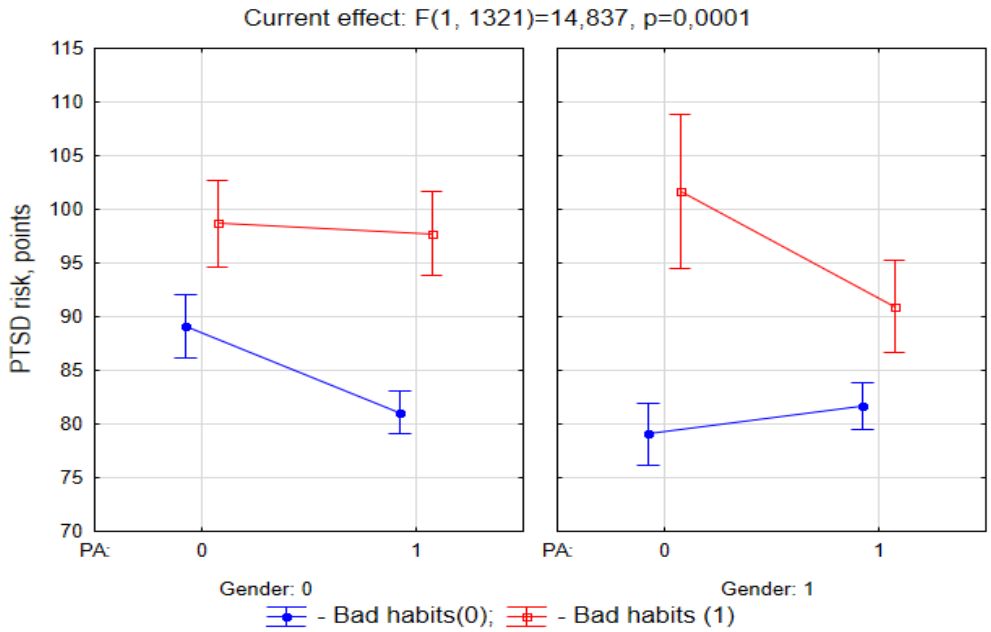

Figure 4. The effect of PA and unhealthy habits on the risk of developing PTSD, where vertical bars are 0.95 confidence intervals. The graphs are based on weighted averages of the indicators.

Table 2. Assessment of model quality based on residual analysis results

Model	Residuals			
	MAE	RMSE	z-residuals	z Diffits
Stress	7.38	10.28	0.716	0.051
Anxiety	3.66	4.87	0.750	0.046
Risk of PTSD	13.34	17.27	0.771	0.056

Table 3. Comparative analysis of traditional and innovative methods of assessing of stress, anxiety and risk of PTSD

Methods		Common psychodiagnostic techniques	Assessment by means of developed models
Procedure		collecting answers, applying keys, interpreting scores derived from the scales	collecting answers in the StressCheck Pro program
		Number of items	
Assessed parameter	Test on stress by Shcherbatykh	48	10
	Spielberger-Hanin anxiety test	20	7
	Mississippi PTSD Scale, civilian version	39	10
	Tital items результатів	107	13*

*Note: * – due to the overlap of some items in the used scoring scales, the final number of items is less than their arithmetic sum.*

and RMSE values are within the acceptable limits for sociological and pedagogical models. The average valusexes of the z-residuals for the models indicate similar levels of their accuracy and deviations, which indicates the stability and reliability of the predictions. At the same time, the z Diffits values show that, on average, observations have a small effect on the model parameters, confirming their stability and immunity to outliers and anomalies (Table 2).

Thus, despite some loss of information, the models demonstrate an acceptable level of accuracy and stability, which allows them to be used for monitoring students' state and taking measures to support them. In the course of the study, an interactive analytical program StressCheck Pro was created based on the constructed mathematical models. The StressCheck Pro program is an

integration tool in which the analytical and recommendation blocks implement all stages of diagnosis provided by the model. Its functionality allows not only to process data in real time, but also to form personalized recommendations for preventive measures. Thus, the interactive program provides a practical implementation of the theoretical model and is an effective tool for managing the prevention of stress-related states of students by means of PA in the educational process. The table (Table 3) shows a comparative analysis of the procedure and number of questions in the questionnaire for diagnosing stress, anxiety and the risk of PTSD.

Unlike traditional psychodiagnostic methods, which are often lengthy and require special training, our proposed approach allows us to significantly reduce the time required to obtain results. In particular, when using the constructed models, the number of questions for diagnosing stress-related states that a student must answer is reduced by more than 8 times, and the result obtained does not require additional ік nterpretation. This makes the assessment of stress-related states more accessible and scalable, which is especially important in the context of the educational process.

Discussion

The importance of integrating health-enhancing physical activity interventions in the educational process cannot be overstated, particularly in addressing stress-related states among college students (Byshevets et al., 2023, 2024a; Nyagwencha-Nyamweya, 2022; Ribeiro et al., 2018). Research indicates that regular physical activity has a significant impact on reducing stress, anxiety, and symptoms of post-traumatic stress disorder (Guerriero et al., 2025; Orikhovska et al., 2020; Yarmak et al., 2019). Given the efficiency of the developed rapid diagnostic models, their implementation enables timely identification of students at risk and the prescription of targeted health-enhancing physical activity interventions.

The role of physical activity in stress management is well-documented (Guerriero et al., 2025; Petrachkov et al., 2023; Steinacker et al., 2023). Aerobic exercises contribute to the release of endorphins and other neurochemicals that mitigate stress responses. Additionally, structured recreational activities, including yoga, Pilates, adventure tourism and mindfulness-based movement exercises, have demonstrated effectiveness in enhancing emotional resilience and cognitive function (Allan & McKenna, 2018; Andrabi et al., 2023; Byshevets et al., 2024b). These approaches complement the rapid diagnostic system by offering evidence-based interventions that are adaptable to students' individual needs.

Incorporating health-enhancing physical activity recommendations into the educational system through digital tools like StressCheck Pro facilitates a seamless connection between diagnosis and intervention. Personalized exercise regimens generated based on stress assessment results ensure that students receive customized recommendations aimed at improving their well-being (Andrieieva et al., 2022; Drozdovska et al., 2020). Furthermore, by integrating health-enhancing physical activity strategies into university curriculums, institutions can promote a culture of active stress management, leading to overall improved academic performance and quality of life (Guerriero et al., 2025).

Overall, the rapid diagnosis of stress-related states, combined with targeted HEPA interventions, creates a comprehensive framework for student well-being (Byshevets et al., 2023; Silva et al., 2019). Future research should focus on optimizing the integration of these models into diverse educational settings, assessing long-term outcomes, and exploring additional digital innovations to enhance engagement and effectiveness.

The evaluation of predictive models for stress-related states (Ahuja & Banga, 2023; Heissel et al., 2021; Högberg & Horn, 2022; Lin et al., 2021) has demonstrated that the developed model significantly simplifies the diagnostic process. The models achieve this by reducing the number of required questions. For instance, in stress assessment, the number of questions is reduced nearly fivefold: while traditional psychodiagnostic methods require a student to answer 48 questions, the proposed "Stress" model requires only 10. Similarly, for assessing anxiety and PTSD risk, the number of diagnostic questions is reduced approximately three- and fourfold, respectively. Given that individual indicators in the models overlap, the total number of questions required for assessing stress, anxiety, and PTSD risk decreases from 107 to just 13. This reduction significantly minimizes both the time and psychological burden associated with completing the questionnaires. As a result, response time is reduced by 87.9%, excluding the additional time required for manual calculations using conventional psychodiagnostic methods.

Regarding potential information loss, it is important to note that the constructed models for assessing stress, anxiety, and PTSD risk are statistically significant, as confirmed by the Fisher test at a significance level of 0.05, thereby validating their reliability. The R-squared values for the models are 0.293, 0.075, and 0.306, respectively, reflecting the expected proportion of explained variability in models that rely on subjective self-assessment predictors. Additionally, the MAE and RMSE values remain within the typical

range for self-reported data. Despite minor information loss, the average z-Diffits values of 0.051, 0.046, and 0.056 indicate that individual observations have only a minimal impact on model parameters. This suggests that the developed models are relatively stable and not overly influenced by outliers. Consequently, the proposed approach maintains an acceptable level of information retention, enabling the rapid identification of students' susceptibility to stress-related states and facilitating timely interventions to support their well-being.

Conclusions

Timely diagnosis of stress-related states is a key element of their prevention by means of PA in the educational process. The implementation of rapid diagnostic tools for stress-related states among students provides a reliable foundation for monitoring stress-related states and management of appropriate measures to prevent them by means of physical activity. A theoretical model of rapid diagnosis of stress-related states in higher education students in the educational process was developed. The development includes interrelated stages of data collection, construction of mathematical models that describe the dependencies between indicators of stress-related states of students and other relevant variables, analysis of their parameters and quality assessment, as well as the development of a digital solution for the formation of personalized recommendations, integration into the educational process and obtaining feedback on the effectiveness of implementation. For the practical implementation of the model, a digital tool was developed, such as the interactive analytical program StressCheck Pro. The program provides up-to-date information about stress-related states of students. Its analytical part includes generalized regression models, simulated based on the collected data. Based on the results obtained, the program quickly determines and interprets quantitative assessments of stress, anxiety and the risk of PTSD and generates individualized recommendations for the prevention of stress-related states, which include guidelines for health-enhancing physical activity.

The program integrates with the university's e-learning system, which allows for continuous monitoring of the psychological state of students and timely response to changes.

Prospects for further research. In further research, we plan to improve the interactive analytical program StressCheck Pro by expanding the block of recommendations and adding an information block, which will increase the knowledge of students about modern means of prevention of stress-related disorders based on PA interventions and will help to increase their motivation for PA.

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