



Comparative Study of Determinants of Subjective Perception of Safety in Higher Education



Matej Húževka¹, Kristína Kozová¹, Simona Kosáková¹, Valentinas Navickas^{2*}

¹ Faculty of Social and Economic Relations, Alexander Dubček University of Trenčín, 91150 Trenčín, Slovakia

² Department of Economics, Lithuania Business College, LT-91249 Klaipeda, Lithuania

* Correspondence: Valentinas Navickas (valentinas.navickas@ltvk.lt)

Received: 02-12-2026

Revised: 05-05-2026

Accepted: 05-12-2026

Citation: Húževka, M., Kozová, K., Kosáková, S., & Navickas, V. (2026). Comparative study of determinants of subjective perception of safety in higher education. *Chall. Sustain.*, 14(3), 471–482. <https://doi.org/10.56578/cis140303>.



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Abstract: The aim of the submitted scientific article is to identify significant predictors of the sense of safety at the university and to compare their differences between the male and female populations of respondents. The empirical research was conducted in 2024 at Alexander Dubček University of Trenčín, with the participation of 358 respondents. Data were collected through an online questionnaire containing statements rated on a 5-point Likert scale, examining factors associated with informational influences, subjective concerns, and reflection on the Prague incident of December 2023. Descriptive statistics, correlation analysis, and multiple linear regression methods were used for analytical processing at a significance level of $\alpha = 0.05$. The results showed that among women in this sample, the sense of safety was significantly associated with concerns about potential threats (X3) and the role of the incident at the Faculty of Arts of Charles University in Prague (X5). Among men in this sample, only factor X5 was confirmed as a key determinant, with its association being stronger than in women. Correlation analysis also indicated different patterns of perception—female respondents in this sample showed a higher sensitivity to subjective concerns, whereas male respondents in this sample appeared to respond more strongly to external security events. These findings confirm the importance of gender differences in shaping the sense of safety in the academic environment and highlight the need for targeted communication and security measures on the part of universities.

Keywords: Crisis management; Gender differences; Higher education institutions; Safety perception

1. Introduction

Safety at universities is considered a fundamental prerequisite for a functional and stable academic environment. Not only universities themselves, but entire university campuses represent for their students, besides a place of study, often also a space for living, dining, social interactions, or leisure activities—therefore, the issue of their perceived safety becomes exceptionally important. The subjective sense of safety is not merely a reflection of objective security conditions, but rather the result of an interaction of individual characteristics, social experiences, informational influences, and the broader societal context.

Current research, discussed in more detail in the following Literature review section, indicates that the perception of safety in the academic environment is significantly differentiated and associated with several factors, among which gender plays an important role. Particular attention in the context of the examined issue should be paid to sudden and violent incidents, which represent an extreme form of threat to university safety. Although these are relatively rare events, their media coverage and nature considerably contribute to an increased perception of risk. The European academic environment was strongly affected in this regard by the shooting at the Faculty of Arts of Charles University in Prague in December 2023, which once again opened discussion about universities' preparedness, the effectiveness of security measures, and the psychological consequences of such events on students and staff.

Despite the growing number of studies focusing on the safety of university campuses, the issue of gender differences in the subjective perception of safety in the context of extraordinary security incidents remains

relatively underexplored, especially in Central Europe. The present article responds to this research gap and aims to identify significant determinants of the subjective sense of safety at university and to compare their associations between male and female student populations, with regard to informational influences, subjective concerns, and reflection on the Prague incident of December 2023. The obtained findings may contribute to a better understanding of the mechanisms shaping the sense of safety in the academic environment and provide a basis for developing more effective security strategies by universities.

From a broader perspective, the issue of safety in higher education institutions can be understood as an integral component of social sustainability and governance sustainability. A safe and secure academic environment is a fundamental prerequisite for ensuring inclusive and equitable quality education, as emphasized in Sustainable Development Goal 4 (Quality Education). At the same time, effective crisis preparedness, institutional trust, and the ability to respond to security threats are closely linked to Sustainable Development Goal 16 (Peace, Justice and Strong Institutions). In this context, the perception of safety among students and employees reflects not only individual experiences but also the level of institutional resilience and the effectiveness of university governance mechanisms. Therefore, examining the determinants of safety perception contributes to a deeper understanding of how universities can strengthen their long-term sustainability and capacity to respond to emerging threats.

2. Literature Review

Creating and developing a safe environment and zones within the academic setting is a fundamental prerequisite for establishing a positive and inclusive university climate (Witherup & Verrecchia, 2020). One of the frequently examined topics is fear of crime and its impact on the perception of safety at universities. For example, a research study from Portugal shows that perceptions of crime and feelings of safety among university students are associated with by subjective concerns and risk perception (Azevedo et al., 2022). One factor associated with this is gender, with women exhibiting significantly higher fear of crime than men (Köseoglu, 2021). Similar findings were reached by another study, which confirmed gender as a strong predictor of safety perception, also including satisfaction with security measures (Braaten et al., 2022), which is further supported by the findings of another study (Encabo & Villaruz, 2025). In the case of women, strategies of avoidance and preventive caution when moving within the university environment were even identified, in contrast to the more relaxed spatial behavior of men (Prada-Trigo et al., 2025). It is reported that overall, 5.2% of American university students have at some point become victims of sexual assault at college (Coulter & Rankin, 2020), and for instance, sexual victimization is considered by several authors to be a common part of the university environment (Prior & De Heer, 2021). A substantial body of research on safety in academic settings confirms that women experience more violence and frightening incidents than male students (Calogero et al., 2021; da Silva & da Silva, 2020; Lee & Wong, 2019; Linder & Lacy, 2020; Orchard, 2023).

Across studies, there is a growing emphasis on the importance of the environment and urban layout of universities, or university campuses. Specific physical and spatial characteristics of campuses have been identified that are significantly associated with students' perceived sense of safety—such as lighting, the presence of other people, maintenance, and urban design—demonstrating that in addition to subjective factors, objective environmental factors also are related to safety perception (Huang et al., 2022). Consistent with these findings is other research claiming that university students' fear of crime and their perception of campus safety are most strongly associated with perceptions of lighting, security measures, and avoidance of risky places (Maier & DePrince, 2020), which is partially supported by several other studies linking lighting conditions with safety perception (e.g., Froughisaeid, 2018; Huang et al., 2022; Roberts, 2022). In connection with spatial characteristics of campuses, other factors influencing safety perception are also mentioned – for example, the presence of places suitable for hiding (Huang et al., 2022), distance from central areas, dense vegetation, or difficulties with navigation—often despite the fact that official reports indicate very few security problems in these areas (Froughisaeid, 2018). Conversely, the proper and effective implementation of security measures in academic settings correlates with the perception of the university as a safe environment (Braaten et al., 2022; Encabo & Villaruz, 2025; Sas et al., 2022).

In addition to factors shaping safety perception in the everyday functioning of the university environment, sudden and extraordinary security incidents are also coming into focus. Violent attacks, shootings, or terrorist threats are almost always unexpected crises and have the potential to immediately and fundamentally destabilize the perception of safety within the entire academic community. Such incidents are strongly associated with risk perception even among individuals who were not directly affected, with media coverage and the rapid spread of information playing a key role (Fox & Savage, 2009; Schildkraut & Nickerson, 2022). Subjective safety perception in these cases shifts from the level of personal experience to the level of anticipating extreme threats and evaluating the university's preparedness to respond to the crisis. The existence of clear crisis plans, communication of security measures, and trainings focused on handling violent incidents are significantly associated with students' sense of safety (Jonson et al., 2020; Scott et al., 2021); on the other hand, these initiatives may cause increased student fear or exaggerated perceptions of risk (Huskey & Connell, 2021; Moore-Petinak et al., 2020). Moreover, differences

in attitudes toward these issues also exist between students and staff (Kyle et al., 2017). A general problem may also be the fact that organizations simply lack experience with real crises—they adopt various measures aimed at increasing the level of security and protection culture, but often do not know how to evaluate the success of these measures (Velfas et al., 2022). University leadership, however, is required to be properly prepared for any eventuality, regardless of what dangerous incident may occur or how likely it is to happen (Skoulidas et al., 2024). Despite this pressure, university commitments do not always translate into practice (Colpitts, 2022). A study by Liu et al. (2025b) summarizes these findings and identifies five factors influencing individual behavior—factors related to the individual, the building, the situation, security, and the shooter—while also concluding that effective training and knowledge of buildings are key to improving decisive actions and reducing passive behavior of potential victims. This is supported by another study, which considers knowledge of buildings as the space in which an active shooter moves (for example through the addition of security cameras) to be a demonstrable security advantage for evacuees (Lavalle-Rivera et al., 2023).

These findings are highly relevant also in the context of the European academic environment, where media-known incidents, such as the shooting at the Faculty of Arts of Charles University in Prague in December 2023, reminded the university community that critical events can significantly alter safety perception independently of direct personal experience. The presence of an active shooter is a frequently discussed example of a dangerous incident in the university environment and is addressed by several research studies (e.g., Bidwell et al., 2025; Carter et al., 2023; Liu et al., 2025a; Padot, 2024; Scott et al., 2021). In addition to safety perception, these studies also address other aspects of active shooter situations—crisis management, preparedness, civilian behavior, and prevention. Consistent with these findings are the ideas of another study, which generalizes the management of active shooter events (as well as other dangerous incidents) into four principles, representing stages of a crisis situation: mitigation (requiring effective threat assessment), preparedness (requiring emergency management plans and practice), crisis response (requiring effective measures taken during the crisis), and recovery (restoring order after the incident) (Kerr, 2024). Padot's study provides a comprehensive overview of the adaptation of security strategies and policies across 40 American universities responding to the rising occurrence of active shooters—noting that in the USA alone, 15 such incidents occurred between 2000 and 2017, resulting in 70 deaths and 73 injuries (Padot, 2024). Compared to the years 2018 and 2022, the number of active shooter incidents increased by more than 66% (Bidwell et al., 2025). Another study identifies several urgent areas requiring immediate crisis management attention, including identifying the root causes of increasing violence, reassessing crowd behavior in active violence situations, as well as various specific situational factors—such as predicting the attacker's location (Kerlin et al., 2021). Universities face the challenge of securing their campuses against many threats of violence using strategies that are both effective and acceptable to local communities (Carter et al., 2023). The tools derived from these strategies may vary, but they share the intention of achieving the best possible preparedness among potential victims during an active shooter attack. These include, for example, training methods, the use of previous experience, or proper orientation skills (Liu et al., 2025a), as well as the use of optimized evacuation algorithms (Lavalle-Rivera et al., 2025) or various protocols involving intensive drills (Worthington et al., 2021)—although the latter study also suggests a growing level of anxiety as an unintended side effect. A positive effect, however, is increased emergency preparedness, as students involved in such activities demonstrated greater awareness of vulnerability and safety (Scott et al., 2021). Another study even proposes incorporating a workplace crisis management course into curricula, which would help strengthen university preparedness for managing extraordinary events and health risks (Skoulidas et al., 2024). Up to 83% of students in the study by Xin et al. (2020) emphasized the importance of regular emergency preparedness training. Situational crime prevention techniques used in academic settings are positively associated with students' perception of safety (Roberts et al., 2025). These findings are supported by further research claiming that inclusive emergency preparedness protocols integrating clear communication and relational trust along with physical security measures are important for ensuring school safety (Dailey et al., 2025).

For completeness, it should be added that the issue of concealed carrying of firearms may be considered a specific strategy during an active shooter attack and an area that is currently only very limitedly researched. Especially in some American research studies, debates arise about the possibilities of such active resistance by potential victims (Buker et al., 2024; Dum et al., 2024; Stoddart & Britto, 2024). However, this topic appears in scholarly literature mainly in normative or attitudinal terms and is closely linked to national legislative frameworks, cultural traditions, and societal perceptions of safety. Moreover, results show that both supporters and opponents of such a solution ultimately prefer escape over seeking confrontation (Dum et al., 2024). Confrontation with an active shooter is also mentioned by another study, which under the label “fight” lists it as one of six potential civilian responses (the others being running with the crowd, hiding in place, running followed by hiding, independent running, and “freezing”) (Liu et al., 2025b). However, there is no research demonstrating less violence committed at universities with concealed carry rights compared to universities without this right (Price & Khubchandani, 2022).

Based on the reviewed literature, safety perception in the university environment can be conceptualized as a dynamic process linking external events, individual concerns, and institutional responses. External crisis events

and information exposure shape risk perception and subjective concerns, which subsequently influence the overall sense of safety. This perception is further moderated by institutional governance mechanisms, such as communication strategies, crisis preparedness, and security measures, which contribute to the long-term resilience and sustainability of the university environment.

3. Methodology

The aim of the article is to identify significant predictors of the sense of safety at the university and to compare their differences between the male and female populations of respondents. The research focuses on identifying the factors that shape safety perception among university students and employees, with particular attention paid to gender differences. The purpose is to reveal which aspects of subjective concerns, informational influences, and external events have a decisive relationship with the sense of safety, and to compare how these determinants differ between men and women. Based on this objective, two research questions were formulated:

Research question 1: How does the relationship between selected factors (X1–X5) on the perception of the sense of safety at the university differ between women and men?

Research question 2: What is the relationship between concerns about potential threats and the perception of social networks as a tool in combating threats, and the sense of safety at the university?

These research questions were operationalized through two hypotheses:

H1: There are differences between women and men in which factors are significantly associated with the perception of the sense of safety at the university.

H2: Concerns about potential threats and the perception of social networks have a statistically significant relationship with the sense of safety at the university.

The empirical part of the research was aimed at examining the perception of potential threats and their connections with the sense of safety in the university environment among students and employees. The questionnaire survey was conducted in 2024 in the Slovak Republic, specifically at Alexander Dubček University of Trenčín in Trenčín. Participation of respondents was voluntary and anonymous, and all participants were informed about the research purpose of data processing.

The target group consisted of university students and employees. The total number of respondents reached 358 individuals. Data collection was carried out through an online questionnaire, which enabled effective distribution and accessibility for all members of the academic community.

The sample was obtained using a non-probability convenience sampling approach, based on voluntary participation of respondents from the academic community. While this method enabled efficient data collection, it may also introduce sampling bias, particularly in terms of gender representation, as the sample included a higher proportion of female respondents.

The questionnaire consisted of two parts. The first part included basic demographic questions (age, gender, position at the university), which served to better characterize the sample. The second part contained statements focused on the perception of potential threats and the safety of the university environment.

The questionnaire was developed based on a comprehensive review of relevant scientific literature focusing on safety perception, crisis management, and risk communication in higher education environments. This approach ensured that the individual items reflected established theoretical constructs and previously examined factors. To enhance the content validity of the instrument, the questionnaire was consulted with experts in the field of crisis management and higher education. Based on their feedback, minor modifications were made to improve the clarity, wording, and relevance of selected items. In addition, prior to the main data collection, the questionnaire was pilot-tested on a small sample of respondents to verify its comprehensibility and functionality. The pilot testing did not reveal any significant issues, and the instrument was subsequently used in its final form for the main survey.

Based on the above-mentioned research questions and hypotheses, two analytical models were created, with each model corresponding to one gender (women and men).

The dependent variable in both models was:

- Y = Perceived relationship between potential threats and the sense of safety at the university (“Do potential threats affect your sense of safety at the university?”)

The independent variables represented five dimensions of the perception of potential threats and safety in the university environment:

- X1 = Exposure to disinformation and panic on social networks during a crisis (“Have you ever witnessed the spread of disinformation, panic, or a false alarm message on social networks during any crisis event?”)
- X2 = Perception of preparedness to respond to crisis events in the context of the university environment (“Express your opinion on the following statement: ‘I am sufficiently informed about how to respond in crisis situations that may occur at the university.’”)
- X3 = Concerns associated with potential threats and crisis events at the university (“What are your greatest concerns regarding potential threats and crisis events at the university? You may select multiple answers.”)
- X4 = Concerns about the lack of information and instructions during crises at the university (“What are your

greatest concerns regarding potential threats and crisis events at the university?")

- X5 = Impact of the incident at the Faculty of Arts, Charles University in Prague 2023 on the perception of university safety in the Slovak Republic ("Did the incident that occurred at the Faculty of Arts of Charles University in Prague in December 2023, resulting in 14 victims, affect your view of the safety of universities in the Slovak Republic?")

For the purpose of statistical analysis, all variables were appropriately coded to allow their inclusion in correlation and regression models.

Variables X1, X2, and X5 were measured using a 5-point Likert scale, where higher values indicated a higher level of agreement or perceived relevance/association. These variables were treated as continuous, which is a common approach in social science research.

Variables X3 and X4 were derived from multiple-choice questions concerning respondents' concerns about potential threats and crisis situations at the university. For the purpose of statistical analysis, selected response options from these multiple-choice questions were recoded into separate numerical indicator variables.

Variable X3 represents the respondent's indication of concern for life and health, while variable X4 represents the respondent's indication of concern about the lack of information and instructions during crisis situations. In both cases, the analytical coding distinguished two categories: absence of the respective concern and presence of the respective concern. The lower coded value represented the absence of the concern, while the higher coded value represented its presence.

These variables were not constructed as composite indices and did not represent multi-item continuous scales. Rather, they were treated in the regression analysis as numerically coded indicator variables reflecting the presence or absence of specific concerns. No reverse coding was applied.

All variables were coded in a consistent direction, where higher values represented a stronger presence of the examined construct. No reverse coding was required.

This approach enabled the inclusion of all variables in the regression analysis while maintaining interpretability and consistency of the results.

Two main analytical methods were used for the analysis of the collected data:

- Correlation analysis was used to determine the direction and strength of relationships between variables.
- Multiple linear regression analysis was applied separately for each gender in order to identify predictors of the sense of safety at the university. Statistical testing was conducted at a significance level of $\alpha = 0.05$.

The modeling was based on the assumptions for applying multiple linear regression. The normality of data distribution was verified through skewness and kurtosis values, which were within the acceptable range (± 2). Linearity of relationships was ensured by constructing statements on a Likert scale, while the one-time data collection eliminated the risk of autocorrelation. The analysis also did not confirm the presence of significant multicollinearity among independent variables, which supports the stability and reliability of the constructed models.

In addition to the basic assumptions of multiple linear regression, additional diagnostic checks were performed to verify the robustness of the models. Multicollinearity among independent variables was assessed using the Variance Inflation Factor (VIF), with the obtained values reported in the Results section.

Furthermore, residual diagnostics were examined through standardized residuals and residual plots in order to assess the assumptions of homoscedasticity and residual normality. Since no substantial violations were identified, robust standard errors were not applied and the models were interpreted using conventional standard errors.

4. Results

In this section, the results of the empirical analysis based on data from the questionnaire survey are presented. Attention is devoted to the descriptive indicators of the examined variables, the analysis of their mutual relationships through correlation coefficients, and the testing of the association between independent variables on the dependent variable using multiple linear regression. The analysis was conducted separately for men and women, which made it possible to identify gender-specific patterns in the perception of potential threats and their relationship with the sense of safety at the university.

Table 1 summarizes the basic data from the perspective of both genders. In the sample of women (model 1, $n = 274$), it was shown that the highest score was achieved by variable X1 ($M = 4.05$), meaning that female respondents largely declared experience with the spread of disinformation and panic on social networks during crisis events. This fact points to a strong presence of the informational aspect of crises in their everyday reality. The second highest value was recorded for variable X5 ($M = 3.76$), reflecting that the incident at the Faculty of Arts of Charles University in Prague significantly shaped women's perception of safety in the university environment. On the contrary, the lowest values were associated with variables X3 ($M = 1.44$) and X4 ($M = 1.47$). This means that although women largely declared experience with informational influences and significantly reflected on the Prague incident, direct concerns about life, health, or the lack of guidance during crisis events appeared only rarely in their responses, suggesting that these factors had a limited association with their sense of safety in the university

environment.

Table 1. Descriptive statistics

Model 1	X1	X2	X3	X4	X5	Y
Mean	4.051	2.467	1.442	1.474	3.759	2.292
Standard error (SE)	0.098	0.107	0.030	0.030	0.109	0.105
Median	5	1	1	1	5	1
Mode	5	1	1	1	5	1
Standard deviation (SD)	1.616	1.769	0.497	0.500	1.798	1.732
Kurtosis	-0.317	-1.502	-1.958	-2.004	-1.256	-1.245
Skewness	-1.237	0.549	0.236	0.103	-0.824	0.753
Model 2	X1	X2	X3	X4	X5	Y
Mean	4.286	3.738	1.536	1.750	2.595	1.881
Standard error (SE)	0.165	0.191	0.055	0.048	0.205	0.177
Median	5	5	2	2	1	1
Mode	5	5	2	2	1	1
Standard deviation (SD)	1.510	1.750	0.502	0.436	1.883	1.624
Kurtosis	1.016	-1.215	-2.028	-0.633	-1.764	-0.033
Skewness	-1.708	-0.803	-0.146	-1.176	0.419	1.373

Among men in this sample (model 2, $n = 84$), a similar trend was confirmed for variable X1 ($M = 4.29$); however, the second highest score was obtained by variable X2 ($M = 3.74$). This indicates that men perceived themselves as more informed and prepared to respond to crisis situations in the university environment than women. Variable X5 had a lower score among men in this sample ($M = 2.60$) than among women in this sample, showing that the Prague incident played a less prominent role in their evaluations. The lowest values were again recorded for variables X3 ($M = 1.54$) and X4 ($M = 1.75$), signaling that even among men in this sample, direct concerns related to life, health, or lack of information appeared only marginally.

The dispersion of responses indicated differences in the variability of evaluations. For both genders, the highest variability was recorded for variable X5 ($SD = 1.80$ for women; $SD = 1.88$ for men), suggesting inconsistency in the extent to which the Prague incident was related to their perception of university safety. Among women in this sample, the lowest dispersion values were found for variables X3 and X4 ($SD \approx 0.50$), indicating a relatively consistent response pattern regarding the presence or absence of concern for life and health and concern about the lack of information. Among men in this sample, the lowest dispersion appeared for variable X4 ($SD = 0.44$), reflecting that they adopted a fairly consistent stance regarding the lack of information during crisis situations.

Skewness and kurtosis values confirmed that the data distribution generally falls within the acceptable range (± 2), supporting their usability for further analyses.

Table 2. Correlation analysis

Model 1	X1	X2	X3	X4	X5	Y
X1	1					
X2	-0.060	1				
X3	0.049	0.052	1			
X4	0.006	0.154	0.053	1		
X5	0.047	-0.130	-0.270	-0.133	1	
Y	0.016	-0.133	-0.282	-0.076	0.305	1
Model 2	X1	X2	X3	X4	X5	Y
X1	1					
X2	-0.163	1				
X3	-0.030	0.066	1			
X4	-0.165	0.119	0.069	1		
X5	0.033	-0.084	-0.380	-0.154	1	
Y	0.024	0.023	-0.172	-0.162	0.481	1

Based on the correlation analysis (Table 2), it can be stated that several statistically significant relationships appeared among the examined variables, with their intensity and direction differing between women (model 1) and men (model 2).

Among women in this sample, the highest positive relationship was recorded between variable X5 and Y ($r = 0.305$), representing a moderate positive correlation. This result indicates that female respondents who attributed greater importance to the Prague incident also reported a stronger association between threats and their sense of safety. Conversely, the strongest negative relationship appeared between variables X3 and Y ($r = -0.282$), confirming that a higher level of concerns related to potential threats was associated with a lower sense of safety. Other relationships in the female sample proved to be very weak or negligible.

Among men in this sample, the strongest relationship was also identified between variable X5 and Y ($r = 0.481$), representing a moderately strong positive correlation. This means that men in this sample who considered the Prague incident as key more often declared that potential threats significantly are related to their sense of safety. In addition, a specific negative relationship emerged in the male sample between variables X3 and X5 ($r = -0.380$). This result shows that men who declared a higher level of concerns about potential threats and crisis events associated the Prague incident to a lesser extent with their evaluation of university safety. Other correlations remained weak to negligible.

A comparison of both models shows that for both women and men, variable X5 holds an important position in relation to the dependent variable Y, with this relationship being stronger among men in this sample ($r = 0.481$ compared to $r = 0.305$ among women in this sample). At the same time, however, among women in this sample a specific negative relationship between X3 and Y emerged that was not statistically significant among men in this sample. This suggests that among women in this sample, subjective concerns about potential threats were a significant factor reducing their sense of safety, whereas among men in this sample, the sense of safety was primarily linked to a response to a specific external stimulus—the Prague incident.

Table 3. Regression analysis

Regression Statistics (Model 1)					
Multiple R	0.381				
R^2	0.145				
Adjusted R^2	0.129				
Standard Error	1.616				
Observations	274				
	df	SS	MS	F	Significance F
Regression	5	118.535	23.707	9.075	0.000
Residual	268	700.107	2.612		
Total	273	818.642			
	Coefficients	Standard Error	t-Statistic	p-Value	
Intercept	2.795	0.577	4.843	0.000	
X1	0.011	0.061	0.177	0.860	
X2	-0.086	0.056	-1.527	0.128	
X3	-0.745	0.205	-3.641	0.000	
X4	-0.070	0.199	-0.349	0.727	
X5	0.224	0.057	3.909	0.000	
Regression Statistics (Model 2)					
Multiple R	0.494				
R^2	0.244				
Adjusted R^2	0.196				
Standard Error	1.456				
Observations	84				
	df	SS	MS	F	Significance F
Regression	5	53.467	10.693	5.045	0.000
Residual	78	165.342	2.120		
Total	83	218.810			
	Coefficients	Standard Error	t-Statistic	p-Value	
Intercept	1.119	1.172	0.955	0.342	
X1	0.005	0.109	0.047	0.963	
X2	0.069	0.093	0.739	0.462	
X3	0.034	0.345	0.098	0.922	
X4	-0.362	0.378	-0.960	0.340	
X5	0.410	0.093	4.422	0.000	

The results of the multiple linear regression showed that both models—for women (model 1) and men (model 2)—were statistically significant (Table 3). This means that the selected independent variables jointly explained part of the variability in the dependent variable Y.

Among women in this sample, the coefficient of determination reached a value of $R^2 = 0.145$, representing approximately 14.5% of explained variability. In the female sample, two independent variables proved to be statistically significant. Variable X3 ($\beta = -0.745$; $p < 0.001$) had a negative coefficient, indicating that the presence of concern for life and health was associated with a lower evaluation of the sense of safety among female respondents in this sample. Conversely, variable X5 ($\beta = 0.224$; $p < 0.001$) had a positive effect, indicating that female respondents in this sample who considered the Prague incident significant reported that potential threats had a stronger association with their sense of safety. The remaining variables (X1, X2, X4) did not reach statistical significance.

Among men in this sample, the explained variability was higher— $R^2 = 0.244$, i.e., approximately 24.4% of the variability in the sense of safety. However, in the male sample, only variable X5 ($\beta = 0.410$; $p < 0.001$) proved to be statistically significant, with its association being stronger than among women in this sample. This means that the association related to the Prague incident was the decisive predictor of the sense of safety among men in this sample. The other variables (X1–X4) did not reach significance.

A comparison of both models shows that among women in this sample, the sense of safety was related to two factors—it was associated with a higher level of concerns (X3), which reduced their comfort regarding safety, while the Prague incident (X5) increased the perceived impact of threats on their safety. Among men in this sample, the decisive factor was mainly the Prague incident, which had an even stronger impact on their perception of safety.

In practical terms, the coefficient of variable X5 indicates that for each one-unit increase in the perceived impact of the Prague incident, the impact of potential threats on the sense of safety increases by approximately 0.224 units among women in this sample and 0.410 units among men in this sample, holding other variables constant.

Table 4. Variance Inflation Factor (VIF) values for regression models

Variable	VIF—Women	VIF—Men
X1	1.010	1.051
X2	1.041	1.042
X3	1.084	1.170
X4	1.039	1.059
X5	1.111	1.194

To further assess the assumption of no multicollinearity, the VIF was calculated for all independent variables in both regression models (Table 4). In the female model, VIF values ranged from 1.010 to 1.111, while in the male model they ranged from 1.042 to 1.194. Since all values were substantially below the commonly accepted threshold of 5, the results indicate that multicollinearity did not represent a relevant issue in either model.

Residual diagnostics were assessed through the inspection of standardized residuals and residual plots. The residuals did not show clear systematic patterns that would indicate substantial heteroscedasticity, and no major deviations from the expected residual distribution were identified. Therefore, robust standard errors were not applied, and the regression results were interpreted using conventional standard errors.

Table 5. Summary of regression analyses for Y

Gender	Regression Models for Y
Women	$Y = 2.7952 + 0.0108 X1 - 0.0861 X2 - 0.7453 X3 - 0.0696 X4 + 0.2242 X5$
Men	$Y = 1.1193 + 0.0050 X1 + 0.0689 X2 + 0.0339 X3 - 0.3623 X4 + 0.4102 X5$

Based on the calculated regression function for women (Table 5), it can be stated that the strongest negative impact on Y is exerted by variable X3, while the strongest positive effect is exerted by variable X5. This means that, among women in this sample, the presence of concern for life and health (X3) was associated with a lower sense of safety. On the other hand, variable X5 showed that women who considered the extraordinary Prague incident significant reported a stronger influence of this factor on their sense of safety, thereby highlighting their sensitivity to the security context of the university environment.

In the case of men (Table 5), it was shown that the statistically significant and at the same time strongest effect on Y was exerted by variable X5, with its coefficient being higher than in the female sample. This means that among men in this sample, the Prague incident was the key factor shaping their perception of the sense of safety at the university.

A comparison of both models indicates that while the significance of two independent variables (X3 and X5) was confirmed among women in this sample, only one decisive factor emerged among men in this sample—X5. This result suggests that women are more sensitive in their perception of safety to subjective concerns, whereas men primarily perceive specific external stimuli.

Table 6. Evaluation of hypotheses

Hypothesis	Hypothesis Formulation	Result
H1	There are differences between women and men in which factors significantly are associated with the perception of the sense of safety at the university.	Confirmed
H2	Concerns about potential threats and the perception of social networks have a statistically significant relationship with the sense of safety at the university.	Rejected

In the case of the first hypothesis (H1), it was found that there are indeed differences between women and men

in which factors are associated with their sense of safety. Among women in this sample, the statistical significance of variables X3 (negative association) and X5 (positive association) was confirmed, whereas among men in this sample only variable X5 was statistically significant, with a stronger coefficient than among women in this sample. This means that the female sample reacted more sensitively to subjective concerns, while among men in this sample the decisive factor was a specific external stimulus—the extraordinary incident in Prague. Hypothesis H1 was therefore confirmed (Table 6).

In the case of the second hypothesis (H2), it was shown that although X3 (concerns about potential threats) had a statistically significant negative association among women in this sample, the variable related to the perception of social networks (X1) was not significant either among women or men in this sample. At the same time, it was found that among men in this sample, concerns (X3) did not play a significant role. This means that the combined assumption about the influence of both factors was not confirmed—hypothesis H2 was therefore rejected (Table 6).

5. Discussion

The present study was focused on identifying determinants of subjective safety perception in the university environment and on comparing their associations between men and women. The results confirm that students' sense of safety is shaped by several factors, while their significance and mutual relationships differ depending on the gender of the respondents.

Hypothesis H1, assuming the existence of differences in the determinants of subjective safety perception between men and women, was confirmed. Regression analysis showed that among women in this sample, the sense of safety was significantly associated with subjective concerns about potential threats (X3) and reflection on the Prague incident (X5), whereas among men in this sample only factor X5 was confirmed as a statistically significant determinant. These findings are consistent with previous research indicating a higher level of fear of crime and greater sensitivity to perceived risks among women (Köseoglu, 2021; Prada-Trigo et al., 2025). At the same time, they support claims that men respond more selectively to security threats and that their safety perception is more strongly linked to specific events (Braaten et al., 2022).

Hypothesis H2, which assumed a significant relationship between potential threats and social networks on students' subjective safety perception, was not confirmed. This result suggests that the mere occurrence of security information, media reports, or official university communication does not automatically lead to a change in the subjective sense of safety. Safety perception thus appears to be more anchored in personal concerns and individual experiences than in passive information reception. This outcome is partly inconsistent with some studies emphasizing the role of awareness (Fox & Savage, 2009; Schildkraut & Nickerson, 2022), but at the same time corresponds with other research pointing out that the availability of information alone may not increase the sense of safety unless accompanied by trust in institutions and a subjective feeling of preparedness (Jonson et al., 2020; Scott et al., 2021).

Correlation analysis further confirmed different patterns of safety perception between genders. Among women, stronger relationships emerged between subjective concerns and the sense of safety, supporting conclusions about the cumulative association of psychological factors and preventive behavioral strategies (Prada-Trigo et al., 2025). Among men in this sample, these relationships were weaker and less branched, suggesting that their evaluation of safety is less associated with long-term concerns and more linked to specific external impulses.

From a practical perspective, the results of the study point to the need for a differentiated approach to university security policies. The confirmation of H1 suggests that uniform security measures may not be equally effective for all student groups. While among women in this sample it is important to focus on reducing subjective concerns and strengthening the psychological sense of safety, among men in this sample greater importance may lie in communication and the visibility of university responses to specific security events. These findings support the need for targeted, gender-sensitive communication and preventive strategies in the academic environment (Carter et al., 2023).

Although the regression models were statistically significant, the proportion of explained variance (R^2) can be considered moderate. This indicates that, while the selected variables capture important aspects of safety perception, they do not fully explain the complexity of this phenomenon. The perception of safety in the university environment is associated with a wide range of additional factors that were not included in the present model. These may include, for example, personal experiences with crime or crisis situations, individual psychological traits (such as anxiety or risk perception), trust in institutions, previous exposure to safety training, or environmental characteristics of the campus. Therefore, the results should be interpreted as a partial explanation of safety perception, and future research should aim to incorporate a broader set of variables in order to achieve a more comprehensive understanding of this multidimensional construct.

Although the regression models were tested using standard assumptions and diagnostic procedures, future research could further strengthen the robustness of the findings by applying alternative model specifications or robust estimation techniques.

Despite the valuable findings, several limitations should be acknowledged. The study is based on data from a single university in the Slovak Republic, which limits the generalizability of the results to other institutional and national contexts. In addition, the unequal gender distribution in the sample, with a predominance of female respondents, may have affected the stability of the model estimated for men and the comparability between groups. The cross-sectional and exclusively quantitative design further restricts the interpretation of the findings, as it captures associations at a single point in time and does not provide deeper insight into underlying motivations or causal mechanisms. Therefore, the results should be interpreted with caution, and future research should aim to include more diverse samples, balanced group structures, and complementary qualitative approaches to provide a more comprehensive understanding of safety perception.

From the perspective of sustainable university governance, the findings highlight the importance of systematic and long-term approaches to strengthening safety perception. Rather than focusing solely on reactive measures, universities should develop transparent communication strategies, support crisis preparedness, and build trust within the academic community. The identified gender differences further suggest that communication and preventive measures should be adapted to reflect different patterns of safety perception among student groups.

The results suggest that universities should move beyond reactive approaches to security and instead develop systematic and institutionalized mechanisms that strengthen safety perception over time. These include the implementation of regular crisis preparedness training, the establishment of transparent and credible communication strategies during crisis situations, and the development of trust-based relationships between university management and the academic community.

6. Conclusions

The presented research focused on identifying and comparing gender-specific determinants of subjective safety perception in the university environment. The results showed that there are significant differences between men and women in which factors are associated with their sense of safety. Among women in this sample, subjective concerns related to potential threats (X3) proved significant, reducing the sense of safety, as well as reflection on the tragic incident at the Faculty of Arts of Charles University in Prague (X5), which, on the contrary, was associated with a higher level of this sense. Among men in this sample, the only statistically significant predictor was the Prague incident, with its association being more pronounced than among women in this sample. These findings indicate different patterns of safety perception between genders, particularly in relation to subjective concerns and responses to external events.

From a practical perspective, the results suggest the need for targeted communication and appropriately designed security measures that reflect differences in safety perception across student groups. The findings also support the importance of integrating safety and crisis preparedness into university practices. Overall, safety perception in the academic environment reflects a combination of subjective and contextual factors, with implications for the design of more responsive and sustainable university policies.

Author Contributions

Conceptualization, M.H., K.K., and V.N.; methodology, K.K.; software, K.K. and S.K.; validation, K.K. and V.N.; formal analysis, M.H.; investigation, K.K. and M.H.; resources, M.H. and S.K.; data curation, M.H. and S.K.; writing—original draft preparation, M.H. and K.K.; writing—review and editing, M.H., S.K., and V.N.; visualization, K.K. and S.K.; supervision, V.N.; project administration, M.H. and K.K.; funding acquisition, M.H. All authors have read and agreed to the published version of the manuscript.

Funding

This research work was created within the project “TRANSFORMATION OF CRISIS MANAGEMENT OF HIGHER EDUCATION INSTITUTIONS IN THE SLOVAK REPUBLIC IN THE CONTEXT OF NEW THREATS”, code of the project MVP03_2024, based on the financial support from the Internal Grant Scheme of the Alexander Dubček University of Trenčín (Call for proposals: Early Stage Grants).

Data Availability

The data used to support the research findings are available from the corresponding author upon request.

Conflicts of Interest

The authors declare no conflict of interest.

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