

Socio-ethical Aspects in Ensuring State Security

Oleksandr Kolomiiets¹, Iryna Toropchyna^{2*}, Volodymyr Artemov³,
Alexander Rusnak³, Viktor Trepak³

¹Department of Social and Humanitarian Disciplines, Faculty of State Security, Kyiv Institute of the National Guard of Ukraine, Kyiv, Ukraine, ²Interregional Academy of Personnel Management, Kyiv, Ukraine, ³Special Department, National Academy of the Security Service of Ukraine, Kyiv, Ukraine. *Corresponding Author's Email: borysiukira@gmail.com

Abstract

Ensuring state security is a priority for many countries amid growing geopolitical tensions worldwide. The aim of this study is to empirically determine the relationship between socio-ethical and political-value indicators and the level of state security. The study employs correlation, regression and cluster analysis to identify relationships among the selected indicators and classify countries into homogeneous clusters. The study sample comprised 61 countries and five indicators: the Security Threats Index, Corruption Perceptions Index, Civil Liberties Index, Political and Social Integration and interpersonal trust measured by the indicator "Most People Can Be Trusted." The strongest statistically significant effect on the Security Threats Index was observed for the Corruption Perceptions Index, with a standardized coefficient of -0.511 . The Civil Liberties Index (-0.2727) and Political and Social Integration (-0.1477) showed marginal statistical significance. Cluster analysis classified countries according to security threats and institutional development, highlighting differences in institutional quality. The results confirm the key role of socio-ethical and political-value factors in strengthening state security. Greater transparency, democratic governance and social cohesion strengthen national security and institutional resilience. These findings provide an empirical basis for improving public governance and security policy. Future research should examine factors influencing state security under conditions of armed conflict, regional instability, institutional transformation and hybrid threats.

Keywords: Civil Liberties Index, Corruption Perceptions Index, Political and Social Integration, Security Threats Index, Socio-ethical Aspects, State Security.

Introduction

Modern states face increasingly complex security challenges that threaten institutional stability, public safety and territorial integrity (1). Among the most significant threats are interstate armed conflicts, terrorism, organized crime, corruption, cyber threats and social fragmentation (2, 3). According to the Global Risks Report 2025, interstate armed conflict has become the most probable global risk, rising from eighth to first place within two years (4). These developments indicate that state security should be assessed beyond traditional military, political and economic perspectives by incorporating socio-ethical and political-value dimensions that influence national resilience. State security has traditionally been evaluated using indicators reflecting institutional performance, legal effectiveness, crisis management capacity, cybersecurity preparedness and civil protection mechanisms (5, 6). These measures effectively assess

governmental preparedness for internal and external threats (7, 8), yet they pay limited attention to socio-ethical and political-value characteristics such as public trust, social cohesion, institutional legitimacy and civic participation. These factors influence citizens' willingness to cooperate with public authorities, comply with legal norms and contribute to collective responses during crises, thereby broadening the understanding of national security. Previous studies have examined individual socio-ethical determinants of state security, although the available evidence remains fragmented (9, 10). Corruption has consistently been recognized as a major threat because it weakens public administration, reduces institutional effectiveness, undermines defence capacity and constrains economic development (11–14). It has also been described as a systemic phenomenon affecting multiple spheres of public life while generating financial

This is an Open Access article distributed under the terms of the Creative Commons Attribution CC BY license (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted reuse, distribution and reproduction in any medium, provided the original work is properly cited.

(Received 19th March 2026; Accepted 25th August 2026; Published 19th October 2026)

losses and reducing the effectiveness of national security systems (15, 16). Despite extensive research on corruption, relatively few studies have examined its combined influence with other socio-ethical determinants within a unified analytical framework.

The relationship between human rights and national security has likewise attracted considerable scholarly attention (17, 18). Effective protection of civil liberties has been associated with sustainable security, although governments frequently impose restrictions during periods of crisis to protect the state (17, 18). Ethical concerns surrounding artificial intelligence, digital surveillance and the balance between security and civil liberties further illustrate the complexity of this relationship. Nevertheless, empirical evidence explaining how human rights contribute to overall state security remains limited.

Institutional trust has been widely recognized as a key component of social resilience because it strengthens cooperation between citizens and public authorities through transparent governance, accountability, effective communication and public awareness of security policies (19–21). Conversely, expanding governmental powers without appropriate ethical safeguards reduces institutional legitimacy and public confidence (20). Similarly, social cohesion and political integration have been identified as important determinants of national resilience. Social fragmentation weakens the ability of societies to withstand internal and external challenges, whereas stronger solidarity contributes to institutional stability and improved security (22–24). However, most previous evidence has been derived from individual national or regional case studies, limiting broader international comparisons.

The reviewed literature demonstrates that corruption, protection of civil liberties, institutional trust and social cohesion are important socio-ethical determinants of state security. Nevertheless, three important research gaps remain. First, previous studies have generally examined these determinants separately rather than as interconnected dimensions of a common analytical framework. Second, empirical investigations have focused mainly on individual countries or regions, limiting the

external validity of their findings. Third, relatively few studies have employed comprehensive quantitative approaches capable of simultaneously analysing multiple socio-ethical and political-value indicators across a broad international sample.

The present study conceptualizes socio-ethical and political-value factors as an integrated multidimensional construct reflecting relationships between citizens, public institutions and the political system. This construct consists of four interrelated dimensions: integrity of public governance measured by the Corruption Perceptions Index, protection of civil liberties measured by the Civil Liberties Index, institutional and political cohesion measured by the Political and Social Integration Index and interpersonal social capital measured by the "Most People Can Be Trusted" indicator. Together, these dimensions represent the normative and institutional environment influencing state resilience and security.

This research addresses the identified gaps by integrating socio-ethical and political-value variables into a comprehensive empirical framework for assessing state security. Correlation analysis, multiple regression modelling, outlier identification and cluster analysis are employed to determine the principal drivers of state security and classify countries according to similarities in security conditions and social development. Unlike previous studies that focused on isolated determinants, this research simultaneously evaluates corruption, civil liberties, political integration and interpersonal trust within a single empirical model. This integrated approach expands the understanding of multidimensional state security and provides a broader basis for comparative international analysis.

The study is based on the hypothesis that socio-ethical and political-value characteristics of societal development demonstrate a statistically significant relationship with the level of state security. Its scientific contribution lies in integrating several socio-ethical indicators into a single analytical model and evaluating their combined influence using complementary statistical techniques. Accordingly, the purpose of this research is to determine the relationship

between socio-ethical and political-value indicators and the level of state security across the selected countries.

To achieve this objective, four research tasks were formulated. First, the relationships between socio-ethical and political-value indicators and state security were evaluated using correlation analysis. Second, a multiple regression model was estimated to identify the influence of these indicators on security outcomes. Third, countries with statistically significant deviations from the general regression pattern were identified through outlier analysis. Fourth, cluster analysis was applied to classify countries according to security risks and socio-ethical characteristics, providing a comparative perspective on different models of societal development and national security.

Methodology

Research Design

The research design consists of the following stages:

- a) collection of data from open sources and sampling covering five indicators for 61 countries.
- b) correlation analysis to assess the relationship between the level of state security and socio-ethical and political-value indicators;
- c) regression analysis to build a model of the influence of socio-ethical and political-value factors on the level of state security;
- d) analysis of exceptional values, which involved identifying the characteristics of countries that differ significantly from the general trend;
- e) cluster analysis to divide countries into clusters by the level of state security and socio-ethical and political-value characteristics;
- f) drawing conclusions, in particular, integration of the results of the analysis to assess the role of socio-ethical and political-value factors in ensuring state security.

Sample

The sample of countries for the study included 61 countries selected according to the criteria of data availability and completeness, as well as the criterion of geographical diversity to avoid regional bias. The work includes the values of indicators for 2023-2024 in order to show current trends in the socio-political development of states, which makes the conclusions of the study relevant to current conditions. The indicators for the study were determined in accordance with the aim of the study and the ability to reflect key security and socio-ethical and political-value aspects of the society development as shown in Table 1. A purposive sampling strategy was adopted because the study required internationally comparable observations based on identical methodological standards. The sample was designed to maximize geographical diversity while ensuring complete indicator coverage rather than statistical representativeness.

Inclusion criteria comprised countries for which complete and comparable values of all five indicators were available for the reference period (2023–2024). Countries with missing values, inconsistent reporting methodologies, or unavailable data for one or more indicators were excluded from the analysis. After data collection, all indicators were standardized and integrated into a unified analytical dataset prior to statistical analysis.

The selected indicators form a single analytical system that comprehensively reflects the socio-ethical dimension of national security. Socio-ethical factors are closely intertwined with political-value factors, as ethical norms and social attitudes of society are reflected in the political culture, value system and level of trust in government institutions. Therefore, it would be more correct to define the studied indicators as socio-ethical and political-value indicators, as together they reflect a common value foundation that forms the level of state security.

Table 1: Selection of Indicators and Countries for the Study (25–29)

Countries	Index Name	Indicator Content	Measurement Scale
Azerbaijan, Ukraine, Bangladesh, Belarus, Bolivia, Libya, China, Colombia, Philippines, Elbow Ecuador, Egypt, Nigeria, Ethiopia, Russia, Guatemala, Zimbabwe, Mexico, India, Iran, Iraq, Pakistan, Thailand, Kenya, Lebanon, Tunisia, Peru, Venezuela, Turkey, Kyrgyzstan, Nicaragua, Uzbekistan, Jordan, Kazakhstan, Tajikistan, Morocco, Vietnam, Albania, Argentina, Armenia, Brazil, Bulgaria, Chile, Croatia, Czechia, Estonia, Georgia, Hungary, Indonesia, Latvia, Lithuania, Malaysia, Serbia, Mongolia, North Macedonia, Poland, Uruguay, Romania, Singapore, Slovakia, Slovenia, South Korea.	Security Threats Index	Reflects the level of state security, taking into account threats such as bombings, attacks, deaths from combat, insurgency, terrorism, crime, etc.	0–10 (where 10 is the highest level of threat)
	Corruption Perceptions Index	Ranks countries by the level of perceived corruption in the public sector; reflects the ethical aspect of governance.	0–100 (0 is very corrupt; 100 is very clean)
	Civil Liberties Index	Determines the degree of implementation of civil liberties; assesses the ethics of relations between the state and the citizen.	0–10 (10 is more freedom)
	Political and Social Integration Index	Shows the stability of the party system, the presence and diversity of interest groups, the level of public trust and democratic norms.	1–10 (10 is the highest level of integration)
	“Most People Can Be Trusted” Indicator	Indicator of social capital and culture of trust; the share of respondents who believe that most people can be trusted.	% of respondents who said “most people can be trusted”

Methods

Correlation analysis was used in the research to identify linear relationships between the studied indicators. Equation [1] was used for this purpose:

$$r_{XY} = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - \bar{Y})^2}} \quad [1]$$

Where, X_i , Y_i – observed values of variables X and Y;

$\bar{X}$, $\bar{Y}$ – mean values of variables;

N – number of observations.

Regression analysis assessed the simultaneous impact of independent variables (socio-ethical and political value indicators) on the dependent variable (level of state security). Equation [2] was used for this purpose:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \dots + \beta_k X_{kt} + \varepsilon_t \quad [2]$$

Where, Y_t – the dependent variable;

X_{1t} , X_{2t} , ... X_{kt} – the independent variables;

β_0 – a constant;

β_k – the regression coefficients;

ε_t – the random error.

The assumptions of normality and homoscedasticity of the residuals in the model were checked by performing the Shapiro–Wilk, Shapiro–Francis, Anderson–Darling, etc. tests. The Durbin–Watson test was used to check the

autocorrelation of the residuals. The assessment of the overall significance of the obtained regression model involved the ANOVA test. Fisher’s exact test was calculated using Equation [3]:

$$F = \frac{MSR}{MSE} = \frac{SSR/k}{SSE/(n-k-1)} \quad [3]$$

Where, SSR – regression sum of squares;

SSE – sum of squares of residuals;

k – number of independent variables;

n – sample size.

Cluster analysis was performed using Equation [4]:

$$WCSS = \sum_{i=1}^k \sum_{x_j \in C_i} \|x_j - \mu_i\|^2 \quad [4]$$

Where, *WCSS* (Within-Cluster Sum of Squares) – intraclass sum of squares of distances;

J – the loss function (sum of squares of distances of points to centroids) minimized by the algorithm;

k – number of clusters;

C_i – the set of points belonging to the *i*th cluster;

x_j – the feature vector of the *j*th observation;

μ_i – the centroid (mean value of vectors) of the *i*th cluster;

$\|x_j - \mu_i\|^2$ – the square of the Euclidean distance between the point and the centroid.

The Elbow method used to determine the optimal number of clusters is also based on Equation [4]. The Silhouette method, which evaluates the quality of clustering, used the Equation [5] to determine the “silhouette coefficient” for object *i*:

$$s(i) = \frac{b(i) - a(i)}{\max[a(i), b(i)]} \quad [5]$$

where, *a(i)* – the average distance from point *i* to all other points in the same cluster,

b(i) – the minimum average distance from point *i* to the points of another (nearest) cluster.

The average value of *s(i)* for all objects shows the overall quality of clustering:

s ≈ 1 – clearly defined clusters,

s ≈ 0 – cluster boundaries intersect,

s < 0 – incorrect assignment of the object to the cluster.

All statistical analyses were performed using Microsoft Excel 365 and Python 3.12. Correlation, regression diagnostics, ANOVA, normality, heteroscedasticity and cluster analyses were implemented using Python statistical libraries, whereas Microsoft Excel was used for preliminary data verification and visualization.

Results

According to the main hypothesis of the study, the socio-ethical and political-value aspects of the development of society are closely related to the level of state security. Empirical confirmation of this hypothesis can be obtained by conducting a correlation analysis between the relevant indicators. In this context, the Security Threats Index characterizes the level of state security in relation to military, terrorist and other internal

and external threats to public order. The corruption perception index, civil liberties, the level of political and social integration and the degree of trust in society convey the key socio-ethical and political-value aspects of the development of society. Table 2 shows the results of the correlation analysis between the studied indicators. For a correct interpretation of the results, it is worth clarifying that:

low values of the Security Threats Index indicate a high level of state security;

high values of the Corruption Perception Index correspond to the least corrupt countries;

high values of the Civil Liberties Index, Political and Social Integration and the Trust Index indicate an increase in the relevant socio-ethical and political-value aspects.

Table 2: Results of the Correlation Analysis Between the Level of State Security and Socio-ethical and Political-value Aspects (25–29)

R	Security threats index, 2024	Corruption Perceptions Index	Civil liberties index	Political and social integration	Agree "Most people can be trusted"
Security threats index, 2024	1.0000				
p-value (2-tailed)					
Corruption Perceptions Index	-0.7353	1.0000			
p-value (2-tailed)	1.4910E-11				
Civil liberties index	-0.5900	0.6598	1.0000		
p-value (2-tailed)	5.6204E-7	7.3267E-9			

Political and social integration	-0.5520	0.6768	0.8573	1.0000	
p-value (2-tailed)	3.9967E-6	2.1318E-9	0.0000		
Agree "Most people can be trusted"	-0.3785	0.3680	-0.1008	-0.0035	1.0000
p-value (2-tailed)	0.0026	0.0035	0.4395	0.9789	

Correlations in bold are significant at the 5% level (2-tailed).

N of valid cases = 61.

Note: p-value (2-tailed) = two-tailed significance level for testing the null hypothesis of zero correlation.

The strongest relationship was observed for corruption, indicating that institutional integrity constitutes the principal socio-ethical determinant of state security. Civil liberties and political integration also demonstrated substantial associations, whereas interpersonal trust exhibited a comparatively weaker relationship.

The results of the correlation analysis showed a statistically significant inverse correlation between the level of state security, expressed through the Security Threats Index and all socio-ethical and political-value indicators. The strongest correlation was observed with the Corruption Perceptions Index (-0.74), a noticeable correlation - with the Civil Liberties Index (-0.59) and Political and Social Integration (-0.55). A moderate correlation was recorded with the Most People Can Be Trusted indicator (-0.38). Accordingly, reducing corruption, expanding civil liberties, strengthening political and social

integration and trust in society can be factors in increasing state security. The Corruption Perceptions Index directly correlates with the growth of civil liberties, political and social integration and trust indicators. The level of political and social integration is closely and directly correlated with the expansion of civil liberties. However, correlation does not yet mean causality, so the obtained results should be verified using additional methods. Regression analysis can show the simultaneous influence of the studied variables on the level of state security and also enables making forecasts of this indicator. The result of regression analysis is a constructed model of the influence of socio-ethical and political-value aspects of the development of society on the level of state security. Table 3 contains regression statistics, which confirm the quality of the model and characterize its predictive ability.

Table 3: Regression Statistics for the Obtained Model of the Influence of Socio-ethical and Political-value Aspects of the Development of Society on the Level of State Security (25–29)

R	0.8329	R-Squared	0.6938	Adjusted R-Squared	0.6719
MSE	1.9115	S	1.3826	MAPE	32.0987
Durbin-Watson (DW)	2.0849	Log likelihood	-103.7078		
Akaike inf. criterion (AIC)	3.5642	AICc	3.5759		
Schwarz criterion (BIC)	3.7372	Hannan-Quinn criterion (HQC)	3.6320		
PRESS	125.4435	PRESS RMSE	1.4340	Predicted R-Squared	0.6411

Note: R = Multiple Correlation Coefficient, R² = Coefficient of Determination, S = Standard Error of the Regression, MAPE = Mean Absolute Percentage Error, PRESS = Predicted Residual Error Sum of Squares, PRESS RMSE = Root Mean Squared Prediction Error based on PRESS.

The correlation coefficient R = 0.8329 indicates a strong relationship between the independent variables and the level of state security. The coefficient of determination (R² = 0.6938) means that about 69% of the variation in the level of state security is explained by the factors included in the model. The adjusted R² = 0.6719 confirms the stability of the model even taking into account the number of predictors. The Durbin-Watson indicator DW = 2.08 indicates the absence of autocorrelation of the residuals, which indicates the reliability of the model. MAPE = 32.1% and

PRESS RMSE = 1.43 indicate moderate forecast accuracy, i.e., the model has acceptable predictive power. So, the obtained regression model is statistically qualitative and explains a significant proportion of the variation in the level of state security. The general equation of the model has the following form: Security Threats Index, = 10.8718 - 0.0634 * Corruption Perceptions Index - 2.5821 * Civil Liberties Index - 0.1932 * Political and Social Integration - 0.0232 * Agree Most People Can Be Trusted. Table 4 shows the results of the ANOVA test for the resulting model.

Table 4: Results of the ANOVA Test for the Resulting Model of the Influence of Socio-ethical and Political-value Aspects of Social Development on the Level of State Security (25–29)

Source of Variation	d.f.	SS	MS	F	p-value
Regression	4.0	242.5170	60.6293	31.7178	0.0000
Residual	56.0	107.0453	1.9115		
Total	60.0	349.5623			

Note: d.f. = Degrees of Freedom, SS = Sum of Squares, MS = Mean Square, F = Fisher's F-statistic, p-value = Statistical Significance of the Overall Regression Model.

Fisher's exact statistic ($F = 31.72$) and the level of statistical significance ($p < 0.001$) of the model confirm the statistical significance of the influence of independent variables in explaining the

variation of the state security indicator. Accordingly, the model adequately reproduces the empirical data. Table 5 shows the main results of the regression analysis.

Table 5: Results Of the Regression Analysis for the Obtained Model of the Influence of Socio-ethical and Political-value Aspects of Society Development on the Level of State Security (25–29)

Independent Variable	Coeff.	Std Err	LCL	UCL	t Stat	p-value	H0 (5%)	VIF	TOL	Beta
Intercept	10.8718	0.7694	9.3306	12.4131	14.1307	0.0000	Rejected			
Corruption	-0.0634	0.0225	-0.1085	-0.0183	-2.8142	0.0067	Rejected	6.0306	0.1658	-0.5110
Perceptions Index										
Civil liberties index	-2.5821	1.2979	-5.1821	0.0179	-1.9894	0.0515	Accepted	3.4353	0.2911	-0.2727
Political and social integration	-0.1932	0.0976	-0.3887	0.0024	-1.9786	0.0528	Accepted	1.0194	0.9810	-0.1477
Agree "Most people can be trusted"	-0.0232	0.0177	-0.0586	0.0123	-1.3098	0.1956	Accepted	2.7905	0.3584	-0.1618

T (5%) 2.0032

LCL – Lower limit of the 95% confidence interval

UCL – Upper limit of the 95% confidence interval

Note: Coeff. = Unstandardized Regression Coefficient, Std Err = Standard Error of the Regression Coefficient, LCL = Lower Limit of the 95% Confidence Interval, UCL = Upper Limit of the 95% Confidence Interval, t Stat = Student's t-statistic for Testing Individual Regression Coefficients, p-value = Statistical Significance of the Coefficient, VIF = Variance Inflation Factor, TOL = Tolerance Statistic, Beta = Standardized Regression Coefficient.

The standardized coefficients indicate that corruption exerts approximately twice the influence of civil liberties and considerably exceeds the contribution of political integration. This finding highlights the dominant role of governance quality among the analysed predictors. The results of the regression analysis show that the Corruption Perceptions Index has a statistically significant ($p < 0.0067$) impact on the level of state security. Along with this, the Civil Liberties Index and Political and Social Integration are on the verge of significance ($p < 0.0515$ and $p < 0.0528$, respectively). This indicates that these indices can also potentially affect the level of state security. At the same time, the impact of all indicators is

inverse, which confirms that strengthening the socio-ethical and political-value aspects of the development of society contributes to increasing state security. The standardized regression coefficients are -0.5110 for the Corruption Perceptions Index, -0.2727 for the level of Civil Liberties, -0.1477 — for Political and Social Integration. This indicates that the level of corruption perception is the factor that most strongly affects state security according to the results of the obtained model. Below are the results of additional tests confirming the quality and reliability of the regression results as shown in Tables 6 and 7.

Table 6: Results of Tests for Heteroscedasticity (25–29)

Breusch-Pagan-Godfrey (BPG) test					
Test Statistic	5.1543	p-value	0.2718	H0 (5%)	Cannot reject
F	1.2921	p-value	0.2842		
White test (All cross-terms)					
Test Statistic	16.9662	p-value	0.2580	H0 (5%)	Cannot reject
F	1.2660	p-value	0.2646		

Note: F = F-statistic, p-value = Statistical Significance.

The test results shown in Tables 6-7 confirm the statistical correctness of the model. According to the tests for heteroscedasticity (Breusch-Pagan-Godfrey and White) p -value > 0.05 , so there is no

reason to reject the null hypothesis of homoscedasticity. Accordingly, the variance of the residuals is constant, so the model does not show signs of heteroscedasticity.

Table 7: Results of Tests for Normality of the Residuals (25–29)

Test	Normality Tests		
	Test Statistic	p-value	H0 (5%)
Shapiro-Wilk W	0.9882	0.8216	Cannot Reject
Shapiro-Francia	0.9861	0.6223	Cannot Reject
Anderson-Darling	0.2200	0.8276	Cannot Reject
Cramer-von Mises	0.0269	0.8830	Cannot Reject
Kolmogorov-Smirnov (Lilliefors)	0.0587	0.8668	Cannot Reject
D'Agostino Skewness	0.0712	0.9433	Cannot Reject
D'Agostino Kurtosis	0.8526	0.3939	Cannot Reject
D'Agostino Omnibus	0.7321	0.6935	Cannot Reject
Jarque-Bera	0.2120	0.8994	Cannot Reject

Note: p-value = Statistical Significance, H0 (5%) indicates the decision regarding the null hypothesis at the 5% significance level.

Normality of residuals tests (Shapiro–Wilk, Jarque–Bera, Kolmogorov–Smirnov, etc.) showed that the distribution of residuals does not differ from normal, as all p -values are > 0.05 . So, the model meets the basic statistical assumptions, which confirms the reliability and correctness of the regression results.

The last stage of the work was a cluster analysis of the studied countries in order to divide the states into

clusters according to the level of state security and socio-ethical and political-value aspects of the society development. This enables a more clear assessment of the similarities and differences between countries and identification of characteristic models of their development. The optimal number of clusters was determined by using the Elbow method. Four clusters were obtained using this method as shown in Figure 1.

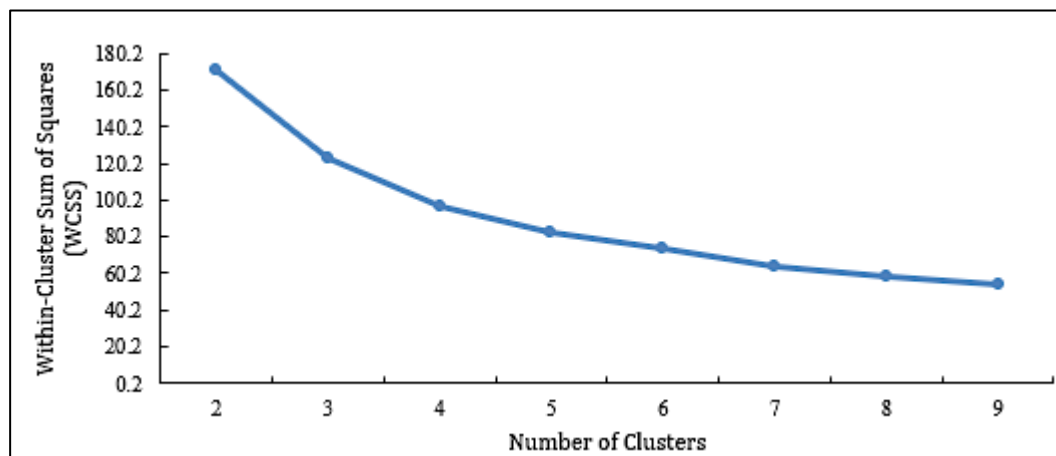


Figure 1: Determining the Optimal Number of Clusters Using the Elbow Method (25–29)

The elbow criterion demonstrates that four clusters provide the optimal balance between explanatory capacity and model complexity. Increasing the number of clusters beyond four yields only marginal reductions in within-cluster variance. The Elbow method determines the optimal number of clusters based on the WSS (Within-Cluster Sum of Squares) graph – the sum of the squares of the distances of objects from the

centre of their cluster. The inflection point (“elbow”) is the number of clusters after which additional clusters almost do not reduce the WSS. This number of clusters is considered optimal – in Figure 1 this corresponds to four clusters. The results of the analysis (number of clusters and members of each of them) are presented in Table 8.

Table 8: Distribution of the Studied Countries into Clusters by the Level of State Security and Socio-ethical and Political-value Aspects of the Society Development (25–29)

Name	Characteristics (description)	Countries
Countries with moderate risks and medium institutional development	Moderate level of security threats, medium corruption, civil liberties are mostly respected, political integration is stable, trust between people is low or moderate.	Albania, Argentina, Armenia, Bolivia, Bulgaria, Colombia, Brazil, Ecuador, Guatemala, India, Georgia, Jordan, Peru, Indonesia, Tunisia, Kenya, Malaysia, Serbia, Mongolia, Morocco, North Macedonia, Romania
Institutionally stable democracies with low threats	Low level of security threats, high political integration, high level of trust, high anti-corruption and civil liberties indices.	Poland, Uruguay, Singapore, Latvia, Lithuania, Estonia, Croatia, Czechia, Hungary, Chile, Slovenia, Slovakia, South Korea
Vulnerable societies with high threats and low trust	High security threat indices, weak political integration, low trust, high level of corruption, limited civil liberties.	Ukraine, Pakistan, Zimbabwe, Iraq, Iran, Mexico, Nigeria, Libya, Bangladesh, Philippines, Egypt, Ethiopia, Russia, Kyrgyzstan, Lebanon, Turkey, Venezuela, Nicaragua
Authoritarian stabilized systems with low freedoms	Moderate or low security threats because of centralized control, but very low civil liberties, high distrust, low political integration and corruption.	Belarus, China, Azerbaijan, Kazakhstan, Tajikistan, Uzbekistan, Thailand, Vietnam

According to the results of the analysis, Ukraine belongs to the second cluster, as it has indicators of threats and the level of corruption that are close to this cluster. At the same time, the country differs significantly from other members of the cluster in terms of the level of trust, civil liberties, social and political integration. Therefore, the attribution of Ukraine to this cluster is conditional and it is more expedient to consider this country separately.

Cluster analysis clearly distinguished countries by risks and the nature of social development. However, the example of Ukraine demonstrates that despite the high level of security threats, the country maintains a high level of democracy and social consolidation. This emphasizes the exceptional importance of socio-ethical and political-value factors in ensuring the stability of the state even in wartime.

Discussion

The findings obtained in this study confirm that strengthening socio-ethical and political-value dimensions of societal development is associated with higher levels of state security. These results are consistent with established theoretical approaches, according to which social factors constitute an essential foundation for resilient and effective national security systems (9, 10, 30). The empirical analysis also confirms that corruption represents one of the most influential threats to

national security, supporting conclusions reported in previous studies (11–16, 31). Corruption has been identified as a factor that weakens public institutions, reduces governmental effectiveness, undermines defence capacity, constrains economic development and poses risks extending beyond national borders to the international security environment (11–16, 31).

The relationship identified between socio-ethical factors and state security is also consistent with previous research examining the interaction between human rights and national security (17, 18). The present findings further indicate that social integration represents an important determinant of national resilience, particularly during periods of armed conflict and large-scale crises. Similar conclusions have been reported, demonstrating that social fragmentation weakens state capacity, whereas stronger societal cohesion enhances institutional resilience and contributes to national security (22–24).

The empirical analysis indicates that interpersonal trust was not identified as a statistically significant predictor of state security within the examined sample. This result differs from studies in which positive relationships between trust and security were reported (19, 21), while remaining consistent with evidence suggesting that the relationship between ethical governance, public trust and national security is substantially more complex

than direct linear dependence (20). These differences are likely to reflect the contextual nature of trust, whose influence varies according to political regime, institutional quality, social capital and the extent to which citizens associate effective governance with state institutions. When countries with diverse institutional and socio-political characteristics are analysed simultaneously, these contextual mechanisms may offset one another, reducing the statistical significance of trust as an independent explanatory variable.

Comparable conclusions have also been reported in previous research demonstrating that different forms of trust, particularly institutional and interpersonal trust, influence security through distinct mechanisms rather than through a single causal pathway (32). It has likewise been emphasized that citizens' confidence in government is determined not only by perceived security but also by their attribution of effective governance to public institutions (33). Evidence obtained in authoritarian settings further indicates that relatively high levels of trust in government do not necessarily correspond to stronger long-term national security (34). Collectively, these findings suggest that the relationship between trust and state security is indirect and mediated by institutional performance, governance quality and citizens' perceptions of governmental effectiveness.

Overall, the empirical results support the proposed hypothesis that socio-ethical and political-value characteristics of societal development are significantly associated with the level of state security. The practical contribution of the study lies in identifying the socio-ethical determinants demonstrating the strongest influence on national security outcomes. The developed regression models provide an empirical basis for improving state security strategies through the incorporation of socio-ethical indicators into policy planning and security assessment. Their application would strengthen evidence-based forecasting of state security by accounting for changes in social cohesion, ethical governance and public trust.

From a policy perspective, the findings support integrating socio-ethical indicators into national security monitoring systems. Public authorities may employ the proposed analytical framework for early identification of institutional vulnerabilities, prioritization of anti-corruption reforms,

evaluation of democratic resilience and assessment of social cohesion during crisis management. International organizations may also apply these indicators in comparative security assessments and governance monitoring.

Limitations

Key limitations of the study include the failure to take into account local contexts and the limitation of the resulting sample of countries to 61. Methodological limitations of the study relate to the use of standardized indicators and indices, which may somewhat simplify complex social processes.

Conclusion

The findings support the central research hypothesis that the socio-ethical and political-value dimensions of societal development constitute important determinants of state security. Statistical verification of this assumption was achieved through correlation and regression analyses, which identified significant relationships between the Security Threats Index and a set of institutional and social indicators. A statistically significant negative association was established between security threats and corruption perception, civil liberties, political integration, social integration and public trust. Among these variables, corruption perception demonstrated the highest explanatory capacity, whereas civil liberties and political integration exhibited marginal statistical significance. These findings indicate that improvements in socio-ethical standards and political-value characteristics are associated with a lower level of security threats.

The cluster analysis complemented the regression results by classifying countries into homogeneous groups according to the intensity of security threats and the quality of institutional development. This approach provided an opportunity to identify common patterns and distinguish differences in national development trajectories. The case of Ukraine illustrates that, despite the existence of substantial security challenges, relatively high levels of social integration and public trust contribute to strengthening institutional resilience and preserving state stability.

Overall, the empirical evidence confirms the substantial contribution of socio-ethical and political-value factors to the formation of a secure

state environment. Greater transparency, democratic governance, institutional integrity and social cohesion emerge as important components of national security policy. These findings provide an analytical basis for incorporating social and institutional indicators into the design of state security strategies and public governance mechanisms.

Future studies should extend this analytical framework by examining the influence of socio-ethical and political-value factors under conditions of armed conflict, prolonged geopolitical instability and hybrid threats. Building upon the obtained results, several practical directions for public policy are proposed:

- a) incorporate socio-ethical and political-value indicators into national security planning, since their influence on institutional resilience and state stability has been empirically confirmed;
- b) integrate the developed regression models into public security management systems to improve forecasting of security risks based on indicators of public trust, political participation and social integration;
- c) strengthen ethical governance standards and integrity mechanisms within public administration and law enforcement institutions to reinforce public confidence and improve the effectiveness of security policy implementation;
- d) prioritize policies aimed at enhancing social trust, civic cohesion and political integration as preventive instruments for increasing societal resilience during crises, including periods of armed conflict and regional instability.

Future research should extend the proposed analytical framework by incorporating longitudinal panel datasets, additional governance indicators and dynamic modelling techniques capable of evaluating causal relationships over time. Comparative regional analyses and machine-learning approaches may further improve the predictive accuracy of socio-ethical determinants of state security.

Abbreviations

BPG test: Breusch-Pagan-Godfrey test, WCSS: Within-Cluster Sum of Squares.

Acknowledgement

Not applicable.

Author Contributions

Oleksandr Kolomiets: Conceptualization, Methodology, Writing – Original Draft, Writing – Reviewing and Editing, Iryna Toropchyna: Methodology, Writing – Original Draft, Writing – Reviewing and Editing, Volodymyr Artemov: Preparation, Formal Analysis, Data Curation, Alexander Rusnak: Resources, Project Administration, Formal Analysis, Viktor Trepak: Supervision, Preparation, Resources, Visualization.

Conflict of Interest

The authors declared that there are no conflicts of interest regarding the publication of this manuscript.

Data availability

Data are available from the author upon request.

Declaration of Artificial Intelligence (AI) Assistance

The authors confirm that they did not use artificial intelligence technologies when creating the current work. The authors take full responsibility for the content's originality, interpretation and accuracy.

Ethics Approval

Not applicable.

Funding

No funding received for the research.

References

1. Bondarenko S, Bratko A, Antonov V, Kolisnichenko R, Hubanov O, Mysyk A. Improving the state system of strategic planning of national security in the context of informatization of society. *J Inf Technol Manag.* 2022;14:1–24. <https://doi.org/10.22059/jitm.2022.88861>
2. Kryshchanovych M, Akimova L, Shamrayeva V, Karpa M, Akimov O. Problems of European integration in the construction of EU security policy in the context of counter-terrorism. *Int J Saf Secur Eng.* 2022;12(4):501-506. <https://doi.org/10.18280/ijss.120411>
3. Kussainov K, Goncharuk N, Prokopenko L, Pershko L, Vyshnivska B, Akimov O. Anti-corruption management mechanisms and the construction of a security landscape in the financial sector of the EU

- economic system against the background of challenges to European integration: Implications for artificial intelligence technologies. *Econ. Aff. (New Delhi)*. 2023;68(1):509-521.
<https://doi.org/10.46852/0424-2513.1.2023.20>
4. World Economic Forum. Global Risks Report 2025. 2025.
 ISBN:978-2-940631-30-8
https://reports.weforum.org/docs/WEF_Global_Risks_Report_2025.pdf
 5. Fiță ND, Radu SM, Păsculescu D. The resilience of critical infrastructures within the national energy system in order to ensure energy and national security. *Bull Carol I Natl Def Univ*. 2022;11(2):57-67.
<https://doi.org/10.53477/2284-9378-22-75>
 6. Mara D, Nate S, Stavitsky A, Kharlamova G. The place of energy security in the national security framework: an assessment approach. *Energies*. 2022;15(2):658.
<https://doi.org/10.3390/en15020658>
 7. Paleri P. Rule of law and role of government: law making, enforcing and national security. In *Revisiting National Security: Prospecting Governance for Human Well-Being*. Singapore: Springer Nature Singapore. 2022;303-340.
https://doi.org/10.1007/978-981-16-8293-3_8
 8. Voronenko I, Nehrey M, Laptieva A, Babenko V, Rohoza K. National cybersecurity: assessment, risks and trends. *Int J Embed Syst*. 2022;15(3):226-238.
<https://doi.org/10.1504/IJES.2022.124854>
 9. Buzan B. People, states and fear: An agenda for international security studies in the post-Cold War era (2nd ed.). Harvester Wheatsheaf, 1991. ISBN:0-7108-0101-7
https://www.academia.edu/4780500/People_State_s_and_Fear_An_Agenda_For_International_Security_Studies_in_the_Post_Cold_War_Era_Barry_Buzan
 10. Lidén K. A better foundation for national security? The ethics of national risk assessments in the Nordic region. *Cooperation and Conflict*. 2023;58(1):3-22.
<https://doi.org/10.1177/00108367211068877>
 11. Khrystynchenko N, Tataryn N, Hrokholskyi V, Tomliak T, Starostin O. Corruption in the civil service as a threat to national security. *Lex Humana* (ISSN 2175-0947). 2023;15(4):414-426.
<https://seer.ucp.br/seer/index.php/LexHumana/article/view/2808/3664>
 12. Tymoshenko V, Bondar S, Ivanchuk N. Corruption as a threat to human rights and freedoms. *Sci. J Natl Acad Intern Aff*. 2022;4(27):31-39.
<https://doi.org/10.56215/0122274.31>
 13. Odnolko I, Hladii O, Bondarchuk O, Zhadan Y, Leonidova O. Anti-corruption reform as a component of the sustainable development strategy and its impact on a safe environment. *Cuest Polit*. 2022;40(75).
<https://doi.org/10.46398/cuestpol.4075.15>
 14. Antonova L, Abdullayev V. Corruption as a threat to national security. *Public Adm Reg Dev*. 2021;12:336-355.
<https://doi.org/10.34132/pard2021.12.02>
 15. Donaldson N, Leuprecht C. Geopolitics of State Capture: Systemic Corruption as a Professional Service. In: Goldbarsht, D., de Koker, L., Ferrill, J. (eds) *The Financial War on Crime and Terrorism*. European Yearbook of International Economic Law. Springer. Cham. 2025.
https://doi.org/10.1007/978-3-032-06360-1_8
 16. Pohlmann M. Systemic Corruption – How to Analyze and Measure It. In: Trombini, M.E., Valarini, E., Elias de Oliveira, V., Pohlmann, M. (eds). *The Fight against Systemic Corruption*. Organization, Management and Crime – Organisation, Management und Kriminalität. Springer VS, Wiesbaden. 2024.
https://doi.org/10.1007/978-3-658-43579-0_2
 17. Taddeo M, Ziosi M, Tsamados A, Gilli L, Kurapati S. Artificial intelligence for national security: The predictability problem (CETaS Research Report). The Alan Turing Institute. 2022.
<https://cetas.turing.ac.uk/publications/artificial-intelligence-national-security-predictability-problem>
 18. Christakis T, Bouslimani K. National security, surveillance and human rights. In R. Geiß N. Melzer (Eds.), *The Oxford handbook of the international law of global security*. Oxford University Press. 2021;699-717.
<https://doi.org/10.1093/law/9780198827276.003.0039>
 19. Jamal J, Yusof N, Muda S, AlSharairi A. Malaysian youth perception on the influence of social media characteristics and trust on national security. *Asian J Appl Commun*. 2025;14(1):83-95.
<https://doi.org/10.47836/ajac.14.01.06>
 20. Whitford T, Prunckun HW. Public Trust in Australia's Law Enforcement Agencies and Collecting National Security Intelligence Data. *Int J Intell CounterIntell*. 2025;38(4):1249-1261.
<https://doi.org/10.1080/08850607.2024.2431524>
 21. Bakar DM, Adriyanto A. Mediating effect of Indonesia's public trust on national security from the sense of safety, knowledge and willingness to participate in state defence efforts. *Secur Def Quart*. 2021;36(4).
<https://doi.org/10.35467/sdq/142656>
 22. Ishaque W, Mukhtar M, Tanvir R. Political polarization and challenges of national integration in Pakistan. *Ann Soc Sci Perspect*. 2022;3(1):153-166.
<https://doi.org/10.52700/assap.v3i1.185>
 23. Hultman L, Mousa S. From ceasefire to cohesion: An integrated review of peacemaking and peacebuilding. *Economic Policy*. 2025;40(124):931-967.
<https://doi.org/10.1093/epolic/eiaf011>
 24. Shen J. State Capacity, Social Fragmentation and Public Goods Provision: A Cross-National Comparative Analysis. *Governance*. 2026;39(1):e70088.
<https://doi.org/10.1111/gove.70088>
 25. TheGlobalEconomy.com. Security threats index by country. 2024.
https://www.theglobaleconomy.com/rankings/security_threats_index/
 26. Herre B, Samborska V, Ortiz-Ospina E. Corruption Perceptions Index (CPI). *Our World in Data*. 2024.
<https://ourworldindata.org/grapher/ti-corruption-perception-index?overlay=download-data>
 27. Economist Intelligence Unit. Civil liberties index, 2024 [Dataset]. *Our World in Data*, 2024.
<https://ourworldindata.org/grapher/civil-liberties-index-eiu>

28. Our World in Data. Political social integration index –BTI. 2023.
<https://ourworldindata.org/grapher/political-social-integration-index-bti>
29. Ortiz-Ospina E, Roser M. Trust. Our World in Data, 2024.
<https://ourworldindata.org/trust>
30. Paris R. At war's end: Building peace after civil conflict. Cambridge University Press. 2004.
<https://doi.org/10.1017/CBO9780511790836>
31. Hogg N. Judicial Anti-Corruption Campaigns: Direct Approaches to Fighting Corruption. In The Routledge Handbook of Anti-Corruption Research and Practice. Routledge. 2025;337-349.
<https://doi.org/10.4324/9781003303275>
32. Bilgic A, Hoogensen Gjörv G, Wilcock C. Trust, distrust and security: An untrustworthy immigrant in a trusting community. *Polit Psychol.* 2019;40(6):1283-1296.
<https://doi.org/10.1111/pops.12613>
33. Nomikos WG, Stollenwerk E. More Security, More Trust? Security Perceptions as a Source of Government Trust in Post-Conflict Settings. *J Interv Statebuild.* 2025;19(3):329-350.
<https://doi.org/10.1080/17502977.2024.2367862>
34. Zhou YJ. Do people in authoritarian countries have lower standards when evaluating their governments? An anchoring vignettes approach. *Politics.* 2024;44(1):78-101.
<https://doi.org/10.1177/02633957221144010>

How to Cite: Kolomiets O, Toropchyna I, Artemov V, Rusnak A, Trepak V. Socio-ethical Aspects in Ensuring State Security. *Int Res J Multidiscip Scope.* 2026;7(4):1281-1293.
DOI: 10.47857/irjms.2026.v07i04.011277