

Multidimensional Safety Practices and School Safety Governance in Ajman: An Integrated Analysis of Physical, Psychological, Digital, And Environmental Domains

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ABSTRACT

School safety in rapidly developing education systems requires coordinated governance of physical, psychological, digital, and environmental risks; however, evidence from Ajman remains limited. This mixed-methods study examined the associations between four safety-practice domains and school safety governance in public and private schools. Quantitative data were obtained from 110 teachers, administrators, counsellors, safety officers, and information-technology staff; qualitative evidence came from 15 semi-structured interviews and policy-document analysis. Survey data were analysed using descriptive statistics, reliability analysis, Pearson correlations, and simultaneous multiple regression. Mean scores for all domains were high ($M = 3.582\text{--}3.870$). The four-predictor model was significant and explained 86.4% of the variance in school safety governance. Environmental safety management showed the largest positive unique coefficient ($B = .781, p < .001$), followed by digital safety governance ($B = .275, p = .025$). Physical and psychological safety were positively correlated with governance but did not retain significant unique coefficients when the highly intercorrelated domains were entered simultaneously. Interview and policy evidence indicated shared responsibility, policy alignment, and continuing needs in monitoring, staff capability, infrastructure, and digital awareness. The findings are consistent with an integrated systems interpretation while identifying environmental and digital practices as priorities for distinctive capability development. Because the design was cross-sectional and multicollinearity was substantial, the results should be interpreted as associative and exploratory rather than causal.

Keywords: School safety governance; Physical safety; Psychological safety; Digital safety; Environmental safety; Ajman

INTRODUCTION

Safe schooling is no longer defined solely by secure buildings and emergency procedures. Contemporary frameworks treat educational safety as an all-hazard governance responsibility that links facilities, child protection, psychosocial well-being, digital environments, environmental health, continuity planning, and institutional accountability (Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector [GADRRRES], 2022). This broader orientation is particularly relevant in the United Arab Emirates (UAE), where national child-protection policy applies to public and private educational institutions and assigns shared responsibilities for prevention, reporting, staff development, and coordinated response (Ministry of Education, 2020). In Ajman, schools operate within the same national policy environment but differ in resources, facility conditions, professional capacity, and student populations. School-level governance is therefore central to translating formal requirements into consistent daily practices that protect students and staff across interconnected risk domains.

Evidence on how multidimensional safety practices function together in Ajman schools remains scarce. Existing research often examines bullying, cybersecurity, emergency readiness, or environmental quality separately,

although these risks can interact. A physical disruption may affect emotional security and continuity; weak digital controls may expose students to psychological harm; and environmental deficiencies may undermine health, attendance, and emergency operations. Research on school climate and wellness suggests that governance structures, relationships, and environmental conditions are mutually reinforcing (Hoke et al., 2024; Khanal & Guha, 2023). Without integrated evidence, decision-makers cannot determine whether the four domains make distinct contributions to governance or largely operate through shared institutional processes.

This study addresses that gap through Systems Theory and Risk Society Theory. Systems Theory conceptualises a school as an open organisational system in which infrastructure, people, technology, policies, and external authorities influence one another (von Bertalanffy, 1968). Risk Society Theory explains why modern institutions must govern emerging, diffuse, and sometimes invisible hazards including cyber threats, psychosocial distress, and environmental exposure rather than relying only on conventional incident response (Beck, 1992). Together, the theories suggest that school safety governance reflects coordinated performance across physical, psychological, digital, and environmental practices. They also indicate that strongly connected domains may share substantial variance, meaning that positive bivariate relationships may not translate into equal unique effects in a simultaneous model.

Accordingly, this paper examines the levels, interrelationships, and unique associations of four safety-practice domains with school safety governance in Ajman. Interview and policy evidence are used to contextualise the quantitative pattern. The study contributes an integrated assessment of public and private schools in one UAE emirate and distinguishes shared importance from unique statistical contribution. This distinction permits practical prioritisation without treating nonsignificant regression paths as unimportant safety functions.

LITERATURE REVIEW

Theoretical Foundation: Systems Theory and Risk Society Theory

Systems Theory explains the proposed model because school safety emerges from interactions among people, structures, technologies, routines, and external authorities rather than from isolated controls (von Bertalanffy, 1968). Weakness in one component can propagate through others, whereas feedback, coordination, and organisational learning can improve resilience. Risk Society Theory adds that contemporary schools face manufactured and difficult-to-observe risks, including cyber exposure, psychosocial harm, and environmental degradation, whose consequences cross administrative boundaries (Beck, 1992). The combined perspective treats physical, psychological, digital, and environmental practices as interdependent inputs to school safety governance. It anticipates positive relationships for all four domains while allowing their unique regression contributions to differ because leadership, policy, training, reporting, and monitoring are shared mechanisms. This interpretation is consistent with the all-hazard logic of the Comprehensive School Safety Framework (GADRRRES, 2022).

School Safety Governance

School safety governance refers to the arrangements through which a school identifies risks, assigns responsibilities, implements policy, monitors performance, responds to incidents, and improves protective practices. It extends beyond compliance by linking leadership commitment, staff participation, reporting channels, evidence use, stakeholder coordination, and review. The UAE child-protection policy illustrates this orientation by requiring prevention, designated responsibilities, confidential reporting, capacity-building, interagency coordination, monitoring, and periodic evaluation (Ministry of Education, 2020). Internationally, comprehensive school safety combines enabling systems and policies with safer facilities, continuity management, and risk education (GADRRRES, 2022). Empirical work also associates stronger school management and wellness infrastructure with more supportive climates and organisational capacity (Hoke et al., 2024; Khanal & Guha, 2023). In this study, school safety governance is the outcome through which the four operational domains are integrated, supervised, and sustained.

Physical Safety Risk Management

Physical safety risk management refers to coordinated preventive and responsive measures that protect school occupants from hazards involving buildings, equipment, access, movement, fire, and emergencies (GADRRRES, 2022). It includes structural maintenance, safe evacuation routes, functional alarms and extinguishers, controlled entrances, playground and traffic safety, drills, and assigned emergency responsibilities (Widowati et al., 2023). School safety governance concerns the leadership, policies, accountability, coordination, monitoring, and resource allocation through which these measures are implemented consistently (Masekela et al., 2024). Systems Theory views schools as interconnected systems; consequently, weaknesses in facilities or procedures can disrupt communication, evacuation, continuity, and other protective functions (von Bertalanffy, 1968). Savolainen (2023) found that physical learning environments and preventive risk-management practices are integral to an institution's overall safety-management system. Widowati et al. (2023) also identified infrastructure, risk assessment, procedures, coordination, trained personnel, simulations, and monitoring as core indicators of comprehensive school safety. Safari et al. (2025) demonstrated that classroom size, door dimensions, exit capacity, and evacuation arrangements materially affected emergency evacuation efficiency. Accordingly, effective physical safeguards should strengthen school safety governance by improving preparedness, coordination, accountability, and response reliability (Masekela et al., 2024).

H1: Physical safety risk management has a significant positive effect on school safety governance in Ajman.

Psychological Safety and Student Well-being

Psychological safety and student well-being refer to conditions that protect students from bullying, exclusion, untreated distress, and fear of seeking help (Mattebo et al., 2022). Core practices include counselling, early identification, confidential reporting, anti-bullying procedures, supportive relationships, inclusive discipline, and family collaboration (Ministry of Education, 2020). School safety governance coordinates these practices through leadership, clear responsibilities, staff capability, monitoring, and policy implementation (GADRRRES, 2022). Systems Theory proposes that psychological conditions are shaped by interactions among relationships, procedures, physical settings, and digital environments (von Bertalanffy, 1968). Mattebo et al. (2022) found that secure relationships and a safe school environment were associated with stronger adolescent well-being. Waasdorp et al. (2022) reported that better engagement and safety increased constructive bullying-defender behaviour. Goldberg Zacharia and Yablon (2022) found that a positive school climate reduced the adverse relationship between bullying and students' sense of safety. Pearce et al. (2024) identified committed leadership, organisational structures, staff competence, and evidence-informed policy as drivers of sustainable whole-school bullying prevention. Therefore, stronger psychological safety practices should improve school safety governance through trusted reporting, coordinated intervention, and review.

H2: Psychological safety and student well-being have a significant positive effect on school safety governance in Ajman.

Digital Safety Governance

Digital safety governance refers to coordinated policies, competencies, technical safeguards, and response mechanisms that protect students, staff, networks, devices, and educational data (Walsh et al., 2022). Its practices include access control, secure connectivity, privacy protection, incident reporting, cyberbullying prevention, acceptable-use rules, digital citizenship education, staff awareness, parent engagement, and periodic threat review (Ministry of Education, 2020). School safety governance provides the leadership, accountability, coordination, and monitoring needed to embed these practices across school operations (GADRRRES, 2022). Risk Society Theory explains this relationship because cyber risks evolve rapidly, remain partly invisible, cross organisational boundaries, and can transform technical vulnerabilities into safeguarding and well-being harms (Beck, 1992). Moyo et al. (2022) found that students faced inappropriate content, contact with strangers, cyberbullying, cyber-harassment, and technology-related addiction, while many teachers and parents lacked the

expertise needed to mitigate these risks. Bacak et al. (2022) similarly reported that elementary educators observed cyberbullying and access to inappropriate online content, highlighting responsibilities shared by teachers, parents, administrators, and students. Jones et al. (2024) found through a cluster-randomised trial that digital citizenship education improved students' knowledge of online-safety concepts and self-efficacy for handling online problems. Therefore, stronger digital safety governance should enhance school safety governance through clearer accountability, coordinated prevention, informed intervention, and institutional learning.

H3: Digital safety governance has a significant positive effect on school safety governance in Ajman.

Environmental Safety Management

Environmental safety management refers to practices that control environmental conditions affecting health, continuity, and safe school operations, including ventilation, indoor air quality, sanitation, water safety, waste management, heat, dust, severe weather, overcrowding, and preventive maintenance (Shree et al., 2024). School safety governance provides the leadership, responsibilities, monitoring, resource allocation, and corrective procedures needed to sustain these controls (GADRRRES, 2022). Systems Theory supports this relationship because environmental conditions interact with physical infrastructure, student well-being, emergency readiness, and operational continuity (von Bertalanffy, 1968). Buonanno et al. (2022) found that mechanical ventilation reduced students' risk of airborne infection compared with natural ventilation alone. Ferrari et al. (2023) similarly showed that classroom ventilation rates were strongly related to window-opening configurations and could be used to manage infection risk. Botana Martinez et al. (2025) identified substantial heat variation across more than 3,600 classrooms and demonstrated that continuous monitoring can identify buildings requiring cooling investment. These findings indicate that environmental safeguards depend on systematic inspection, measurement, maintenance, escalation, and evidence-based decisions. Therefore, stronger environmental safety management should enhance school safety governance by improving accountability, preparedness, health protection, and institutional resilience.

H4: Environmental safety management has a significant positive effect on school safety governance in Ajman.

The Conceptual Framework

The conceptual framework illustrates the proposed relationships between the independent variables and the dependent variable. It proposes that Physical Safety Risk Management (H1), Psychological Safety and Student Well-being (H2), Digital Safety Governance (H3), and Environmental Safety Management (H4) each have a direct positive influence on School Safety Governance. The framework assumes that strengthening these four dimensions contributes to improving overall school safety governance. These relationships are empirically tested through four hypotheses (H1–H4) to determine the significance of each factor on school safety governance.

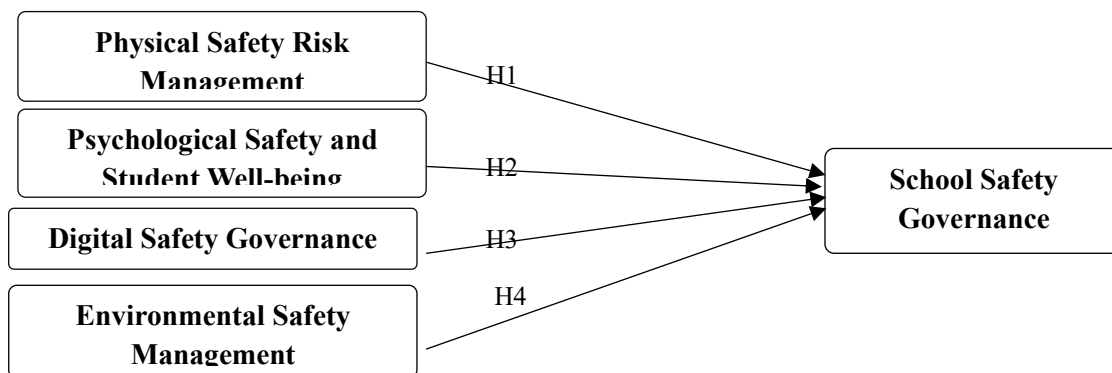


Figure 1. Conceptual framework

METHODOLOGY

Research Design

The study used a cross-sectional mixed-methods design to examine multidimensional school safety governance in Ajman. The quantitative component comprised a survey of physical, psychological, digital, environmental, and governance practices. The qualitative component comprised semi-structured interviews with school personnel, and document analysis examined policy and institutional safety materials. Quantitative and qualitative evidence were interpreted together to identify convergence, complementarity, and implementation explanations. This approach was appropriate because school safety involves measurable organisational patterns and context-dependent processes that cannot be represented adequately by one method alone (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018). The unit of analysis was the staff member with direct knowledge of safety operations in participating public and private schools.

Measurement and Instrument Development

Data were collected through a structured 28-item questionnaire, a semi-structured interview guide, and a document-review protocol. Survey items represented physical safety risk management, psychological safety and student well-being, digital safety governance, environmental safety management, and school safety governance. **The complete list of the 28 questionnaire items, together with their construct allocation and measurement sources, is provided in Appendix A to enhance transparency and replicability.** Responses used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). **The questionnaire items were adapted from the source study and relevant literature on school safety governance and were reviewed by subject-matter experts to assess content relevance, clarity, and contextual appropriateness before data collection.** The source study reported expert review for content relevance and statistical assessment of reliability and factorability. Interviews addressed safety culture, policy, emergency preparedness, physical and environmental conditions, psychological and digital protection, leadership, and continuous improvement. The document review covered national child-protection and school-safety guidance and related institutional materials. Triangulating these sources enabled comparison among reported practices, professional experience, and formal governance expectations (Bowen, 2009).

Sampling and Data Collection

Participants were selected through stratified purposive sampling from public and private schools in Ajman because the study required respondents with direct safety responsibilities or informed operational experience. Of 130 distributed questionnaires, 114 were returned (87.7%); four incomplete responses were excluded, yielding 110 valid cases (84.6% of questionnaires distributed). Respondents included teachers, safety officers, administrators, counsellors, and information-technology staff. The qualitative sample comprised 15 principals, safety coordinators, counsellors, teachers, and one information-technology officer. **Participants were recruited from both public and private schools to ensure representation of the two educational sectors and to capture diverse perspectives on school safety governance.** Participation was voluntary, confidentiality was protected, and institutional permission and informed consent were obtained before data collection. **Because the unit of analysis was the individual staff member rather than the school, the statistical analyses were conducted at the respondent level. Accordingly, the findings should be interpreted as reflecting participants' perceptions and experiences rather than school-level effects.**

Measurement Scales

The five constructs were measured using a common five-point response scale. Internal consistency was evaluated with Cronbach's alpha, and factorability was examined using the Kaiser–Meyer–Olkin statistic, Bartlett's test of sphericity, and exploratory factor analysis. The source thesis reported a verified total of 28 items but contained inconsistent item allocations across its methodology, reliability, and appendix sections. **Accordingly, this study reports the available scale-level reliability and factorability statistics while avoiding reconstruction of an**

unverified item allocation. The exploratory factor analysis yielded a two-factor solution rather than the theoretically proposed five-factor structure, indicating substantial overlap among the measured domains and limited discriminant validity. This manuscript therefore reports the available scale-level statistics without reconstructing an unverified item map and interprets the measurement model as exploratory rather than confirmatory. Consequently, the five domains are retained as theory-informed analytical constructs, whereas conclusions regarding their empirical distinctiveness are drawn with appropriate caution. Future research should validate the proposed measurement structure using confirmatory factor analysis (CFA) or structural equation modelling (SEM).

Data Analysis Procedures

Survey data were screened and analysed in IBM SPSS. Descriptive statistics summarised respondent characteristics and construct levels. Cronbach's alpha assessed internal consistency, while the Kaiser–Meyer–Olkin measure, Bartlett's test of sphericity, and exploratory factor analysis evaluated factorability and empirical structure. Pearson correlations assessed bivariate relationships. Simultaneous multiple regression estimated the unique association of the four safety domains with school safety governance. Model interpretation considered R , R^2 , adjusted R^2 , the F test, unstandardised coefficients, standard errors, t values, p values, variance inflation factors (VIFs), Durbin–Watson, Shapiro–Wilk, and Cook's distance. Given the substantial intercorrelations among several predictors, particular attention was paid to multicollinearity diagnostics (VIFs) when interpreting the regression coefficients. Consequently, statistically significant coefficients were interpreted as unique associations after accounting for the shared variance among the predictors rather than as indicators of the overall importance of each safety domain. Because several predictors were highly correlated, coefficients were interpreted as unique associations within the reported model rather than as causal effects. Interview transcripts were coded thematically (Braun & Clarke, 2006), and document evidence was compared with the quantitative and qualitative findings during integration. Hypothesis decisions used simultaneous regression coefficients at $\alpha = .05$; correlations were treated as complementary evidence. Because this study adopted an exploratory analytical approach, advanced variance-partitioning techniques (e.g., Relative Weight Analysis or Dominance Analysis) were not undertaken; therefore, the regression findings should be interpreted in conjunction with the correlation analysis and qualitative evidence.

RESULTS

Preliminary Measurement and Diagnostic Assessment

The final quantitative dataset contained 110 valid cases. The reported Shapiro–Wilk test did not indicate a statistically significant departure from normality, $W = .978$, $p = .068$. Internal consistency was high for all five scales. Overall factorability was also strong, with a Kaiser–Meyer–Olkin value of .952 and a significant Bartlett's test, $\chi^2(378) = 3379.779$, $p < .001$. However, only two components had eigenvalues greater than 1, together explaining 73.017% of the variance. Although these findings confirmed that the data were suitable for factor analysis, the extracted two-factor solution did not reproduce the theoretically specified five-domain structure. This result suggests substantial conceptual overlap among the measured constructs and indicates limited empirical discriminant validity within the present dataset. Accordingly, the measurement results are interpreted as exploratory rather than confirmatory. Regression diagnostics were acceptable for residual independence and influential cases (Durbin–Watson = 1.829; maximum Cook's distance = .148), but elevated VIFs for psychological, digital, and environmental safety indicated substantial shared variance. These multicollinearity diagnostics are consistent with the strong intercorrelations observed among the safety domains and support interpreting the regression coefficients as estimates of unique statistical contributions after controlling for overlapping variance. The unique coefficients should consequently be interpreted cautiously.

Table 1 summarises respondents whose roles positioned them to evaluate school-safety operations. Men represented 51.8% and women 48.2% of the sample. Teachers formed the largest group (56.4%), followed by safety officers (15.5%), administrators (10.0%), counsellors (9.1%), and information-technology staff (9.1%). Regarding experience, 32.7% had worked for 11–15 years and 28.2% for more than 15 years; 26.4% reported

5–10 years and 12.7% fewer than 5 years. Public-school personnel comprised 61.8% of respondents and private-school personnel 38.2%. The 15 interview participants broadened role coverage across leadership, safety coordination, counselling, teaching, and information technology. **This distribution provided perspectives from multiple professional roles and both educational sectors, thereby supporting a comprehensive assessment of school safety governance practices.**

Table 1. Respondent profile

Characteristic	Category	n (%)	Characteristic	Category	n (%)
Gender	Male	57 (51.8)	Position	Teacher	62 (56.4)
	Female	53 (48.2)		Safety officer	17 (15.5)
	Total	110 (100.0)		Administrator	11 (10.0)
Experience	<5 years	14 (12.7)		Counsellor	10 (9.1)
	5–10 years	29 (26.4)		IT staff	10 (9.1)
	11–15 years	36 (32.7)	School type	Public	68 (61.8)
	>15 years	31 (28.2)		Private	42 (38.2)
				Total	110 (100.0)

N = 110. Percentages may not total 100 because of rounding.

As shown in Table 2, all five means fell within the study’s “high” interpretation category. School safety governance recorded the highest mean ($M = 3.870$, $SD = .781$), followed by digital safety governance ($M = 3.821$, $SD = .730$), environmental safety management ($M = 3.809$, $SD = .734$), psychological safety and student well-being ($M = 3.800$, $SD = .721$), and physical safety risk management ($M = 3.582$, $SD = .632$). The comparatively lower physical-safety mean identifies the domain with the greatest relative room for strengthening but does not indicate poor performance. Cronbach’s alpha values ranged from .884 to .951, indicating high internal consistency. **These reliability estimates indicate strong internal consistency; however, they should be interpreted together with the exploratory factor-analysis findings, which revealed limited empirical separation among several constructs. Accordingly, high reliability should not be interpreted as evidence of satisfactory discriminant validity.**

Table 2. Construct descriptive statistics and reliability

Construct	Mean	SD	Cronbach’s alpha	Interpretation
Physical Safety Risk Management	3.582	.632	.884	High
Psychological Safety and Student Well-being	3.800	.721	.947	High
Digital Safety Governance	3.821	.730	.951	High
Environmental Safety Management	3.809	.734	.945	High
School Safety Governance	3.870	.781	.938	High

Higher scores indicate stronger perceived implementation; all means were classified as high in the source study.

Table 3 shows that every safety domain was positively and significantly correlated with school safety governance. The environmental association was strongest ($r = .924$), followed by digital safety ($r = .873$), psychological safety and student well-being ($r = .859$), and physical safety ($r = .611$), all $p < .01$. Correlations among predictors were also substantial: psychological safety correlated .941 with digital safety and .900 with environmental safety, while digital and environmental safety correlated .895. These values are consistent with an interconnected safety system, **supporting the theoretical proposition that the four safety domains operate as mutually reinforcing components of school safety governance. At the same time, the very high correlations among several predictors indicate considerable shared variance and limited empirical separation between some constructs, consistent with the exploratory factor-analysis findings. Accordingly, the correlation matrix suggests that the four domains are conceptually related but not fully independent within the present dataset. This pattern**

also explains why the subsequent regression analysis should be interpreted with caution, as multicollinearity may reduce the stability of individual regression coefficients despite strong positive bivariate relationships.

Table 3. Pearson correlations among study constructs

Construct	PS	PY	DS	ES	SG
PS	1.000				
PY	.700**	1.000			
DS	.664**	.941**	1.000		
ES	.661**	.900**	.895**	1.000	
SG	.611**	.859**	.873**	.924**	1.000

PS = physical safety; PY = psychological safety; DS = digital safety; ES = environmental safety; SG = school safety governance. ** $p < .01$.

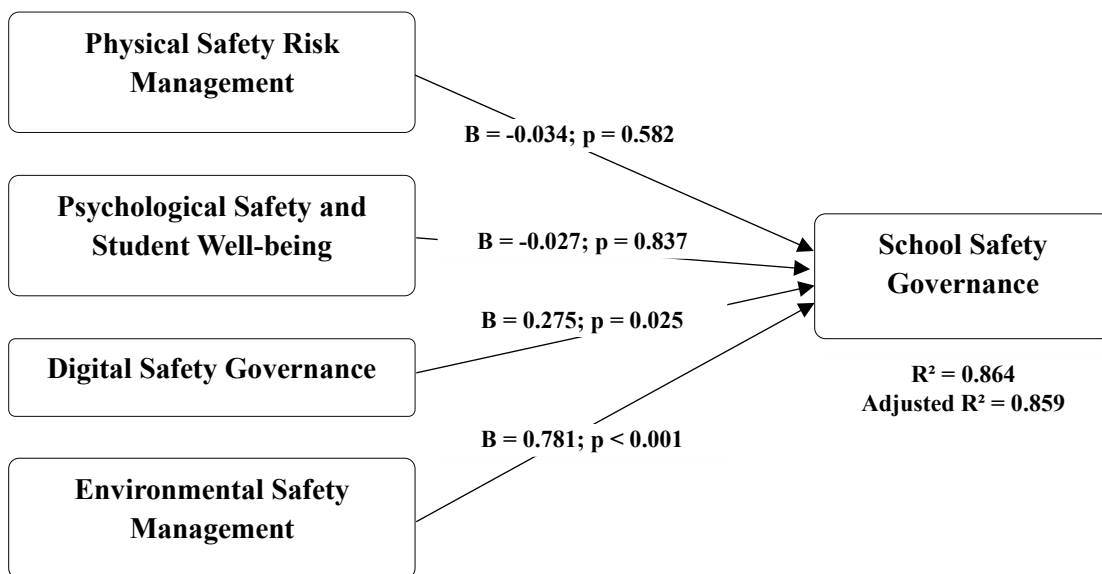


Figure 2. Simultaneous regression results

The simultaneous regression model was significant, $F(4, 105) = 166.949$, $p < .001$, and explained 86.4% of the variance in school safety governance (adjusted $R^2 = .859$). Environmental safety management had the largest positive unique coefficient ($B = .781$, $p < .001$), and digital safety governance also retained a positive unique association ($B = .275$, $p = .025$). Physical safety risk management ($B = -.034$, $p = .582$) and psychological safety and student well-being ($B = -.027$, $p = .837$) were nonsignificant after the overlapping domains were controlled. These small negative partial coefficients should not be interpreted as harmful effects because both constructs were positively correlated with governance at the bivariate level. **Instead, the regression results indicate that much of their explanatory variance was shared with the other safety domains, leaving limited unique variance after statistical adjustment. Accordingly, the regression model distinguishes between overall association and unique statistical contribution rather than between important and unimportant safety practices.**

Table 4 reports the coefficient evidence used to evaluate the four regression-aligned hypotheses. H3 and H4 were supported within the simultaneous model because digital safety governance and environmental safety management retained statistically significant positive coefficients. H1 and H2 were not supported in that model because the physical and psychological coefficients were nonsignificant. The VIFs help explain the discrepancy between strong positive correlations and nonsignificant partial coefficients: physical safety had a VIF of 1.979, whereas psychological safety (10.949), digital safety (9.840), and environmental safety (5.945) showed substantial overlap. **These findings suggest that the regression coefficients for the highly correlated predictors**

should be interpreted with caution because multicollinearity inflates standard errors and reduces coefficient stability. The supported paths therefore identify distinctive statistical contributions, not the only substantively important domains. Consequently, the hypothesis decisions reflect the unique effects estimated by the simultaneous regression model and should not be interpreted as evidence that physical or psychological safety are unimportant for effective school safety governance. Because multicollinearity can destabilise coefficients and standard errors, the hypothesis decisions should be treated as exploratory.

Table 4. Simultaneous regression coefficients and hypothesis decisions

Hypothesis	Predictor	B	SE	t	p	VIF	Decision
	Constant	.070	.171	.407	.685		
H1	Physical Safety Risk Management	-.034	.062	-.552	.582	1.979	Not supported
H2	Psychological Safety and Well-being	-.027	.129	-.207	.837	10.949	Not supported
H3	Digital Safety Governance	.275	.121	2.281	.025	9.840	Supported
H4	Environmental Safety Management	.781	.093	8.366	< .001	5.945	Supported

Unstandardised coefficients. $R^2 = .864$; adjusted $R^2 = .859$; $F(4, 105) = 166.949$, $p < .001$.

Integrated Qualitative and Documentary Findings

The interview and documentary evidence converged around three overarching themes that provided contextual explanations for the quantitative findings. Theme 1, Shared Safety Governance, reflected participants' understanding that effective school safety depends on coordinated responsibilities among school leaders, safety personnel, teachers, counsellors, information-technology staff, families, and external authorities. This theme emphasised collaborative governance rather than isolated safety initiatives.

Theme 2, Policy Implementation and Operational Capacity, highlighted broad alignment with national school safety and child-protection policies while identifying variation in implementation across infrastructure, environmental management, staff capability, digital awareness, coordination mechanisms, and periodic review. Participants consistently described implementation capacity, rather than policy availability, as the principal challenge.

Theme 3, Continuous Monitoring and Organisational Improvement, emphasised the importance of ongoing monitoring, evidence-based decision-making, regular evaluation, and follow-up activities to ensure that formal safety policies were translated into routine organisational practice.

These qualitative themes complement the quantitative findings by illustrating why the four safety domains operate as an interconnected governance system. Specifically, the emphasis on integrated leadership, coordinated implementation, and continuous monitoring helps explain both the strong positive correlations among the safety domains and the distinctive regression contributions of environmental and digital safety governance. Because the manuscript does not report coded frequencies or verbatim interview excerpts, the qualitative findings should be interpreted as contextual evidence supporting the quantitative results rather than as independently weighted qualitative conclusions.

DISCUSSION

The findings demonstrate that multidimensional safety practices play a significant role in strengthening school safety governance in Ajman. The correlation analysis showed that all four safety domains were positively associated with school safety governance, supporting the theoretical expectation that school safety operates as an integrated organisational system. However, the simultaneous regression analysis distinguished between overall associations and unique statistical contributions. Environmental safety management emerged as the strongest unique predictor of school safety governance, while digital safety governance also retained a significant

positive association after controlling for the overlap among the predictors. These findings suggest that environmental and digital safety practices contribute distinctive governance capabilities beyond those shared across the broader safety system.

In contrast, physical safety risk management and psychological safety and student well-being did not retain statistically significant unique regression coefficients. This result should not be interpreted as evidence that these domains are unimportant. Rather, their strong positive bivariate correlations with school safety governance indicate that much of their explanatory contribution overlaps with other safety domains, particularly digital and environmental safety. The elevated multicollinearity observed among the predictors provides a plausible explanation for this pattern and supports interpreting the regression findings as exploratory estimates of unique variance rather than definitive measures of practical importance.

The study also highlights the growing importance of digital safety governance, as schools increasingly rely on digital technologies. Effective cybersecurity measures, digital awareness, and responsible technology use support a safer educational environment. Furthermore, environmental safety management improves school safety through safe facilities, environmental health practices, and effective emergency response planning. These findings are consistent with Risk Society Theory, which emphasises that contemporary educational institutions must anticipate and govern emerging technological and environmental risks through proactive monitoring, specialised capabilities, and coordinated institutional responses.

Overall, the findings suggest that school safety governance is most effective when physical, psychological, digital, and environmental safety practices are implemented in an integrated manner. This interpretation is also consistent with Systems Theory, which conceptualises school safety as the product of interacting organisational subsystems rather than isolated operational functions. This supports previous research emphasizing that a comprehensive safety approach improves school resilience, student well-being, and institutional performance. Accordingly, the present findings suggest that strengthening environmental and digital safety capabilities should complement, rather than replace, continued investment in physical and psychological safety practices as part of a comprehensive governance framework. The study therefore provides practical guidance for school leaders and policymakers in Ajman to strengthen safety governance through coordinated safety management across all four domains.

Implications of the Research

This study provides important theoretical, Managerial, and policy implications for improving school safety governance in Ajman.

Theoretical Implications

The findings refine the theoretical argument in two ways. First, the strong correlations and high model R^2 are consistent with Systems Theory because the four safety practices moved together as components of a wider governance system rather than as isolated programmes (von Bertalanffy, 1968). Second, the unequal unique coefficients show that interdependence does not imply statistical equivalence. Environmental and digital practices retained distinctive associations, whereas physical and psychological practices contributed primarily through variance shared with the wider system. This pattern is compatible with Risk Society Theory because environmental and cyber risks require specialised monitoring, technical capacity, and anticipatory governance (Beck, 1992). However, the two-component exploratory result and high VIFs limit claims that the five constructs are empirically distinct. The theoretical model should therefore be regarded as provisionally supported and in need of stronger measurement validation.

These findings also highlight the importance of distinguishing theoretical integration from empirical distinctiveness. While the proposed framework remains conceptually coherent, future studies should employ confirmatory measurement approaches to establish construct validity before testing structural relationships.

Managerial Implications

For school leaders, the findings favour a portfolio approach rather than competing single-domain initiatives. Environmental safety warrants operational attention through preventive maintenance, ventilation and air-quality review, sanitation controls, heat and dust procedures, inspection records, and escalation arrangements with relevant authorities. Digital safety requires clear ownership of access controls, privacy, incident reporting, cyberbullying response, staff competence, student education, and parent communication. These priorities align with evidence that school environmental quality and whole-school online-safety education depend on sustained systems rather than isolated actions (Shree et al., 2024; Walsh et al., 2022). Physical and psychological safeguards should remain embedded in the same governance cycle because their positive correlations indicate substantive connection to overall performance. Leaders should use an integrated risk register, assigned accountabilities, cross-domain indicators, regular drills and reviews, confidential reporting, and multidisciplinary improvement meetings. The UAE child-protection policy provides a national governance baseline for these practices (Ministry of Education, 2020).

For schools in Ajman, these findings suggest prioritising integrated safety governance by establishing multidisciplinary school safety committees, conducting periodic environmental and digital safety audits, strengthening staff professional development in cyber safety and emergency preparedness, and using evidence-based monitoring to support continuous improvement. Such measures would enable school leaders to translate national policy requirements into consistent operational practice across both public and private schools.

Policy Implications

From a policy perspective, the findings support education authorities and policymakers in developing comprehensive school safety policies, strengthening safety regulations, and allocating resources to all four safety domains. The study also supports continuous staff training, risk management, and digital safety initiatives to enhance the quality and sustainability of school safety governance in Ajman.

Given the stronger unique associations observed for environmental and digital safety governance, policymakers may consider prioritising investment in environmental monitoring systems, digital safety infrastructure, and specialised professional development while maintaining balanced support for physical and psychological safety programmes. The findings also support periodic evaluation of school safety governance using integrated performance indicators that reflect the interconnected nature of school safety systems.

Limitations and Future Research Directions

Several limitations constrain interpretation. The cross-sectional design identifies associations at one point in time and cannot establish causal direction. Survey responses reflect staff perceptions and may be affected by social desirability, common-method variance, or uneven familiarity with all safety domains. Stratified purposive sampling improved access to knowledgeable personnel but limits generalisation beyond the participating schools. The number of participating schools and the clustering structure were not reported, so school-level dependence could not be assessed. Public and private respondents were combined without inferential sector comparisons; the results therefore cannot support claims that one sector performs better. Most importantly, the two-component exploratory result did not confirm the five-domain measurement structure, and very high correlations and VIFs reduced the stability and separability of several coefficients. **These measurement and multicollinearity limitations reduce confidence in the empirical distinctiveness of the proposed constructs and reinforce the exploratory interpretation of the regression findings.** The strong model R^2 represents the complete four-predictor equation and should not be attributed solely to the significant environmental and digital paths. Finally, the qualitative summary did not include coded frequencies or verbatim excerpts, limiting independent appraisal of thematic depth.

Future research should use larger probability-based or stratified samples across emirates, report the number of schools and school-level clustering, and compare public and private institutions with appropriate inferential tests.

Longitudinal designs could test whether governance improvements precede changes in incidents, well-being, continuity, or perceived safety. **Measurement development should provide a complete item map and employ confirmatory factor analysis (CFA) or structural equation modelling (SEM) to evaluate factor loadings, composite reliability, convergent validity, discriminant validity, and the overall fit of the proposed measurement model.** Researchers could also test a higher-order integrated safety construct or a theory-specified mediation model rather than relying on highly collinear parallel predictors. **Where substantial multicollinearity persists, future studies may additionally consider complementary analytical techniques such as Relative Weight Analysis or Dominance Analysis to distinguish more clearly the relative contribution of highly correlated predictors.** Objective indicators including audit records, maintenance completion, response times, environmental readings, cybersecurity events, attendance, and verified incident data would complement staff reports. Student, parent, emergency-service, and regulator perspectives should also be incorporated. Future mixed-methods reporting should include a clear integration procedure, theme definitions, representative quotations, and evidence of qualitative trustworthiness.

CONCLUSION

This study examined how physical safety risk management, psychological safety and student well-being, digital safety governance, and environmental safety management relate to school safety governance in public and private schools in Ajman. Respondents rated all domains highly, all scales showed high internal consistency, and each safety practice was positively correlated with governance. The simultaneous model explained 86.4% of governance variance, but the unique paths were unequal: environmental safety management showed the largest positive unique coefficient, and digital safety governance also remained significant. Physical and psychological safety did not retain significant unique coefficients after the correlated domains were controlled. This statistical overlap does not make facility protection, emergency readiness, counselling, inclusion, or anti-bullying work dispensable; rather, it suggests that many benefits operate through shared leadership, policy, reporting, training, and monitoring processes. Ajman schools should preserve a comprehensive four-domain architecture while strengthening environmental and digital capabilities. An integrated risk register, clear ownership, multidisciplinary review, evidence-based monitoring, and continuous improvement can connect national requirements with daily practice. The findings provide an exploratory empirical basis for school leaders and policymakers, but causal conclusions, sector comparisons, and definitive construct claims require stronger longitudinal, comparative, and measurement designs.

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Appendix A: Questionnaire: School Safety Risk Governance in Ajman Schools

You are invited to participate in this research study that aims to examine school safety practices and risk governance in schools in Ajman. Your responses will help identify strengths and challenges in current safety management practices and contribute to the development of improved safety frameworks for schools. Your participation is voluntary, and all responses will remain confidential and anonymous. The information collected will be used only for academic research purposes. Please indicate the extent to which you agree with each statement using the following scale: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Variable	Survey Item
Physical Safety	Our school buildings and facilities are regularly inspected for safety
	Fire safety equipment is available and maintained
	Emergency exits are clearly marked and easily accessible.
	Safety drills are conducted regularly
	School infrastructure provides a safe learning environment
	School management promptly addresses physical safety hazards
Psychological Safety	Students feel emotionally safe at school
	Teachers provide emotional support to students
	Counseling services are available for students when needed.
	Mental health support services are available when needed
	Students can report psychological concerns without fear
Digital Safety	The school has clear digital safety policies
	Students receive guidance on safe internet use
	Teachers promote responsible use of digital technology
	Student information is securely protected
	Cyberbullying incidents are effectively managed
Environmental Safety	The school maintains clean and healthy facilities
	The school is prepared for environmental emergencies
	Classrooms have adequate ventilation and lighting
	Emergency communication systems function effectively
	Environmental hazards are regularly monitored
	Environmental safety policies are effectively implemented.
Governance and Safety Practices	School leadership is committed to safety management
	Safety policies are consistently implemented.
	Safety risks are regularly monitored and reviewed
	Staff receive adequate safety training

	Safety decisions are based on risk assessment
	Overall, school safety governance is effective