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THE ROLE OF INFORMATION QUALITY AND CREDIBILITY ON SOCIAL MEDIA IN CRISIS INTERVENTION COMMUNICATION: A CASE STUDY OF UNIVERSITY STUDENTS IN YUNNAN PROVINCE, CHINA

O PAPEL DA QUALIDADE E DA CREDIBILIDADE DA INFORMAÇÃO NAS REDES SOCIAIS NA COMUNICAÇÃO DE INTERVENÇÃO EM SITUAÇÕES DE CRISE: UM ESTUDO DE CASO COM ESTUDANTES UNIVERSITÁRIOS NA PROVÍNCIA DE YUNNAN, CHINA

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Abstract
This study investigates how social media information quality, credibility, user engagement, digital literacy, and psychological resilience influence crisis intervention communication among university students in Yunnan, China. The objective was to understand how content attributes and individual capacities shape students' ability to access, evaluate, and act on crisis-related information on platforms such as WeChat, Douyin, and Weibo. Using structural equation modeling, results indicate that digital literacy strongly predicts crisis communication ($\beta = 0.870$, $p < 0.001$) and moderates the effects of social media credibility ($\beta = 0.543$, $p < 0.001$) and quality ($\beta = 0.442$, $p < 0.001$), while psychological resilience enhances communication ($\beta = 0.372$, $p < 0.001$) and strengthens the influence of credibility ($\beta = 0.329$, $p < 0.001$) and quality ($\beta = 0.382$, $p < 0.001$). Credibility affects both engagement ($\beta = 0.240$, $p < 0.05$) and communication ($\beta = 0.588$, $p < 0.001$), whereas quality influences communication ($\beta = 0.215$, $p = 0.003$) but not engagement. User engagement mediates the effects of content features on communication. The study's novelty lies in integrating content characteristics with user-level moderators and validating engagement as a mediator in a non-Western academic context. Findings suggest that effective crisis communication requires credible, high-quality content supported by digital literacy and resilience. Practically, universities and crisis managers should emphasize interactive content,

Resumo
Este estudo investiga como a qualidade da informação nas redes sociais, a credibilidade, o envolvimento dos usuários, a literacia digital e a resiliência psicológica influenciam a comunicação de intervenção em situações de crise entre estudantes universitários em Yunnan, China. O objetivo era compreender como os atributos do conteúdo e as capacidades individuais moldam a capacidade dos estudantes de aceder, avaliar e agir com base em informações relacionadas com situações de crise em plataformas como WeChat, Douyin e Weibo. Usando modelagem de equações estruturais, os resultados indicam que a alfabetização digital é um forte indicador da comunicação em situações de crise ($\beta = 0{,}870$, $p < 0{,}001$) e modera os efeitos da credibilidade ($\beta = 0{,}543$, $p < 0{,}001$) e da qualidade ($\beta = 0{,}442$, $p < 0{,}001$), enquanto a resiliência psicológica melhora a comunicação ($\beta = 0{,}372$, $p < 0{,}001$) e fortalece a influência da credibilidade ($\beta = 0{,}329$, $p < 0{,}001$) e da qualidade ($\beta = 0{,}382$, $p < 0{,}001$). A credibilidade afeta tanto o engajamento ($\beta = 0{,}240$, $p < 0{,}05$) quanto a comunicação ($\beta = 0{,}588$, $p < 0{,}001$), enquanto a qualidade influencia a comunicação ($\beta = 0{,}215$, $p = 0{,}003$), mas não o engajamento. O engajamento do usuário medeia os efeitos das características do conteúdo na comunicação. A novidade do estudo reside na integração das características do conteúdo com moderadores no nível do usuário e na validação do engajamento como mediador em um contexto acadêmico não ocidental. Os resultados

digital skills, and resilience-building to optimize student preparedness and coordinated responses.

Keywords: Crisis Communication. Social Media Credibility. Information Quality. User Engagement. Digital Literacy. Psychological Resilience. Yunnan University Students.

sugerem que uma comunicação de crise eficaz requer conteúdo credível e de alta qualidade, apoiado por alfabetização digital e resiliência. Na prática, as universidades e os gestores de crise devem enfatizar o conteúdo interativo, as habilidades digitais e o desenvolvimento da resiliência para otimizar a preparação dos alunos e as respostas coordenadas.

Palavras-chave: *Comunicação de crise. Credibilidade das mídias sociais. Qualidade da informação. Engajamento do usuário. Alfabetização digital. Resiliência psicológica. Estudantes da Universidade de Yunnan.*

1 INTRODUCTION

Social media has become an integral part of daily life, profoundly shaping how information is produced, disseminated, and consumed. Platforms such as Facebook, Twitter, Instagram, Snapchat, WeChat, Weibo, and TikTok have evolved from basic networking sites into critical tools for communication, news sharing, and crisis management (Abbas *et al*., 2021; Boediman *et al*., 2021). Their ability to disseminate information rapidly makes them indispensable for routine communication and emergency alerts. Over the past decade, the role of social media in crisis intervention has transformed significantly, with far-reaching implications for public communication and disaster response (Malecki *et al*., 2021).

During emergencies, social media serves as a critical channel for the rapid dissemination of accurate information to the public, enabling authorities, non-profit organizations, and individuals to provide timely updates, share safety instructions, and counter misinformation (Saroj & Pal, 2020; Neely *et al*., 2021). This continuous flow of information helps stabilize public perception, enhances situational awareness, and improves the coordination of response activities. Unlike traditional mass media, which delivers one-way communication, social media supports interactive, two-way engagement, allowing authorities to directly respond to public queries, clarify uncertainties, and adapt messaging to the evolving situation. Through this interactivity, social media facilitates collective participation, promotes public trust, and enhances the overall effectiveness of crisis management by providing a flexible platform for real-time communication and feedback (Neely *et al*., 2021).

In China, where internet penetration exceeds one billion users, social media has become central to emergency communication (Piller, Zhang, & Li, 2020). However, the quality and credibility of content shared on these platforms can significantly influence crisis outcomes. This study therefore investigates how information quality and source credibility on social media affect university students' mobilization, preparedness, and behaviors during crises in Yunnan Province—a region characterized by ethnic diversity and frequent natural disasters (Cavus *et al*., 2021). As active social media users, university students play a dual role as both consumers and disseminators of information, making their perceptions and responses particularly important.

Information quality and credibility on social media are critical for effective crisis communication, with quality assessed by accuracy, relevance, and timeliness, and credibility determined by the reliability and trustworthiness of sources (Abbas, 2021). High-quality, credible information guides appropriate public behavior, mitigates panic, and enhances crisis response, whereas misinformation and unreliable content can generate confusion, anxiety, and inappropriate actions. Social media platforms, including Weibo, WeChat, and Douyin (TikTok), enable rapid dissemination and interactive engagement, but they also present significant challenges, such as the rapid flow of unverified content, ethical concerns regarding privacy, and the potential misuse of information to manipulate or harm (Li & Liu, 2020; Eghtesadi & Florea, 2020). Ensuring reliability is complicated by continuously updated content and limited formal oversight, requiring authorities to implement strong monitoring, verification, and responsible dissemination practices. These issues are particularly relevant for university students, who serve as both major consumers and active producers of social media content, highlighting the importance of evaluating information quality and credibility to guide effective individual and collective responses during crises.

High-quality, credible information is essential for effective crisis intervention, as it shapes public behavior, supports decision-making, and guides coordinated responses (Ali Taha *et al*., 2021). In disaster-prone regions such as Yunnan Province, accurate information can significantly influence students' safety and preparedness. Understanding how students perceive crisis information on social media, and how these perceptions influence their actions, is vital for developing strategies that reduce risks and enhance communication outcomes.

Despite increasing global research on social media and crisis communication, substantial knowledge gaps remain. Most existing studies focus on Western contexts, offering limited insight into regions with distinct cultural and environmental conditions (Croucher *et al*., 2020). Consequently, little is known about how university students in Yunnan use social media during emergencies or how they evaluate the quality and credibility of the information they receive. The psychological and behavioral implications of such information in this population also remain underexplored.

Improving the reliability and quality of crisis information on social media is essential for several reasons: it enhances emergency responses through accurate public guidance, strengthens trust between authorities and citizens, and reduces the spread of misinformation and associated panic. Focusing on university students in Yunnan provides context-specific insights that may also support broader crisis-communication strategies in similar settings.

This study is guided by the following research objectives:

1. To examine how the quality of social media information influences university students' engagement with social media during crisis communication in Yunnan Province, China.
2. To analyze the impact of social media information credibility on university students' engagement with social media during crisis communication in Yunnan Province, China.
3. To investigate the mediating role of user engagement in the relationship between social media information quality and credibility and the effectiveness of crisis communication among university students in Yunnan Province, China.
4. To assess the moderating effects of psychological resilience and digital literacy on the relationship between user engagement and the effectiveness of crisis communication during emergencies.
5. To evaluate the influence of psychological resilience and digital literacy on university students' engagement with social media in crisis situations.

This study addresses these gaps by examining students' perceptions of information quality and credibility on social media during crises. The findings aim to clarify how students interpret crisis-related content, identify key factors influencing perceived reliability, and propose strategies for improving communication practices among universities, government agencies, and social media platforms. Ultimately, this

research enhances crisis communication in Yunnan Province and contributes to the broader theoretical and empirical understanding of social media's role in crisis management.

2 LITERATURE REVIEW

2.1 Crisis

Crises are significant events impacting individuals, organizations, or society, arising from natural disasters, system failures, human error, or social unrest, and affecting physical, psychological, social, and economic domains (Coombs, 2020). Effective management requires contingency planning, participatory approaches, and clear communication to deliver credible, timely, and actionable information, fostering trust and enhancing response efficiency (Mazzei & Butera, 2021). Technological tools including GIS, drones, AI, machine learning, and social media, enable real-time monitoring, assessment, prediction, and interactive communication, while individual, organizational, and community resilience, along with post-crisis evaluations, strengthen recovery and preparedness (Gaspar *et al*., 2021).

Effective crisis communication relies on transparency, timeliness, accuracy, and consistency to protect public safety, reduce harm, and restore stability (Jiang *et al*., 2020). Strategies include interpreting crises, showing compassion, providing clear instructions, frequent updates, addressing uncertainties, and countering misinformation. Social media platforms such as Twitter, Facebook and YouTube facilitate real-time updates, citizen feedback, collective mobilization, and broad participation (Kalogiannidis *et al*., 2023). Authorities use these platforms to monitor sentiment, debunk misinformation, crowdsource information, and enhance targeted communication, while frameworks like SMCC optimize information flow, engagement, and government–citizen interaction, highlighting the importance of information quality, credibility, and user participation (Hyland-Wood *et al*., 2021; Fang & Zhang, 2021).

2.2 Effects of social media on crisis communication

Social media plays a pivotal role in crisis communication by facilitating rapid information sharing, public engagement, and interactive participation, though it simultaneously heightens the risk of misinformation (Malecki *et al*., 2021). In situations where knowledge is incomplete, distinguishing accurate content from fake news is challenging for both authorities and citizens, complicating effective response efforts, thus for maintaining public trust, organizations must provide coherent, consistent, and cross-organizational information while actively debunking false claims (Abbas *et al*., 2021). Selecting the appropriate platform is equally crucial, as effectiveness depends on audience characteristics such as age and digital literacy (Chen *et al*., 2022). Lessons from disasters demonstrated the need for diverse platform usage to ensure critical updates reach all segments of the population (Mirbabaie *et al*., 2020).

Beyond information delivery, social media shapes public perception and organizational reputation. Strategic communication during crises directly affects psychological outcomes, trust, and adherence to guidance, while social media can counter rumours by enabling direct engagement; its speed and interactivity also accelerate misinformation (Haupt, 2021). Denial or diminishment strategies may backfire, causing reputational harm, whereas restoration strategies, such as demonstrating care, providing support, or issuing apologies, can improve public perception (Mazzei & Butera, 2021). Inconsistent cross-platform messaging can generate ambiguity, while platforms like Twitter support rapid updates and reinforcement strategies, though outcomes are context-dependent (Hagen *et al*., 2020). Overall, when applied strategically and sequentially, social media complements traditional channels, enhancing engagement, message reach, and crisis response effectiveness; however, misuse or poor coordination risks misinformation, reputational damage, and diminished trust, emphasizing the need for deliberate platform selection, clear strategy alignment, and attention to public risk perception and emotional response (Han & Baird, 2024).

2.3 Social media information in crisis intervention

Social media has reshaped crisis communication by enabling rapid information dissemination, interactive engagement, and situational awareness. Platforms such as

Twitter, Facebook, and Instagram support immediate updates, storytelling, and user reporting, which aid search, rescue, and resource allocation during emergencies (Lee & Jahng, 2020; Marsen, 2020). Credible information from influencers, official accounts, and multimedia sources enhances public trust and decision-making, while misinformation spreads rapidly, complicating responses and threatening public safety (Naeem *et al*., 2021; Gao *et al*., 2020). Beyond dissemination, social media fosters community support, emotional engagement, and public trust, as seen during COVID-19, while also posing challenges like psychological strain, data overload, and privacy concerns

Emerging technologies, including AI, machine learning, social media analytics, and GIS integration, strengthen misinformation detection, real-time filtering, and crisis management capabilities (Fuentes Lara*et al*., 2020).

2.4 Social media information Quality in crisis intervention

The quality of information on social media is crucial for effective crisis management, shaping public decision-making, emergency coordination, and clear directives (Abbas *et al*., 2021). Accurate, timely, and relevant content supports targeted response efforts, while poor-quality information fosters misinformation, panic, and resource misallocation (Malecki *et al*., 2021; Mackay *et al*., 2022). Rapid misinformation spread, the decentralized nature of platforms, and high content volume complicate verification, emphasizing the need for systems that filter, validate, and correct information promptly (Mansoor, 2021).

Enhancing information quality relies on technological, institutional, and behavioral strategies. Automated tools, machine learning, and algorithmic detection suppress false content, while collaborations with verified institutions and fact-checkers strengthen credibility (Imran *et al*., 2020). User responsibility, digital literacy, and critical sharing practices further improve reliability (Rashid Al Musheifri *et al*., 2025). Maintaining high-quality social media information during crises requires a coordinated approach integrating technology, partnerships, user accountability, and global norms. While Accuracy-nudges, advanced analytics, interdisciplinary collaboration, and international standards enhance oversight and crisis communication effectiveness (Al-Rahmi *et al*., 2021).

2.5 Social Media Information Creditability in Crisis Intervention

The credibility of social media information is a critical determinant of effective crisis management, shaping public behaviour, supporting decision-making, and facilitating emergency response. As social media becomes a primary source of real-time updates during crises, the authenticity and reliability of online content are essential, and the information credibility is influenced by multiple factors, including source trustworthiness, message accuracy, timeliness, substance, and the use of multimedia elements such as images, videos, and hyperlinks (Jahng, 2021; Kington *et al*., 2021). Consistent and timely updates further enhance public trust, while engagement signals, such as likes, shares, and comments, shape perceived reliability and amplify credible content (Mirbabaie *et al*., 2020). High credibility reduces public fear, improves resource distribution, and strengthens overall crisis response (Saroj & Pal, 2020).

Maintaining credibility, however, remains a significant challenge due to the rapid spread of misinformation, decentralized content creation, and information overload during emergencies (MacKay *et al*., 2021; Babatunde, 2022). These factors complicate the public's ability to distinguish accurate content from falsehoods, underscoring the need for real-time mechanisms to track, verify, and correct information. Strategies to enhance credibility include algorithmic filtering to suppress fake news, collaboration between platforms and fact-checking agencies, user-side interventions such as digital literacy, verification practices, and promoting critical thinking and accountability (Malecki *et al*., 2021; Lu & Jin, 2020). Future improvements require advanced AI and machine learning tools for misinformation detection, cross-platform alert systems to manage information overload, and standardized social media protocols alongside international cooperation to optimize crisis communication effectiveness while Sustained adaptation and proactive measures are therefore essential to maximize the reliability and impact of social media in emergency interventions (Kaufhold *et al*., 2020; Lovari & Bowen, 2020).

2.6 Relationship development

Social media is a crucial platform for information sharing and interaction during crises, where content quality and credibility directly influence public engagement and response effectiveness. High-quality, accurate, relevant, timely, and complete

information guides behaviour, builds trust, and supports informed decisions, adherence to safety measures, and coordinated resource allocation (Neely*et al*., 2021). Low-quality or misleading content, particularly from influencers, spreads misinformation, heightens anxiety, and undermines crisis management (Gierth & Bromme, 2020). Credibility also includes perceived accuracy, trustworthiness, and believability that depend on verified sources, multimedia evidence, and consistent updates, enhancing interaction, social mobilization, and message diffusion. User factors such as age, education, and digital literacy affect engagement, as digitally competent individuals better evaluate content and participate effectively. Effective crisis communication thus requires both high-quality content and informed, accountable users (Lee & Jahng, 2020; Metzger & Flanagin, 2013).

User engagement acts as a pivotal mediator, amplifying the effects of information quality and credibility on crisis communication outcomes. High-quality, credible content encourages active sharing, commenting, and discussion, particularly in high-risk scenarios, while visual and multimedia elements reinforce attention and dissemination. Psychological resilience and digital literacy interact to moderate these effects by equipping users to regulate emotions, cope with stress, and critically assess content, thereby countering misinformation and improving information processing and sharing behaviors. Together, these factors enable individuals to filter credible content, guide online community interactions responsibly, and reinforce the reliability of crisis communication. Consequently, the interplay between information quality, credibility, user engagement, psychological resilience, and digital literacy determines the effectiveness of social media as a crisis intervention tool, supporting better-informed public responses and more coordinated management of emergencies (Shah & Wei, 2022; Dominic *et al*., 2023).

2.7 Theoretical application

Crisis communication is grounded in established theoretical frameworks that explain how organizations and the public respond during emergencies. Situational Crisis Communication Theory (SCCT) offers guidance for selecting response strategies based on crisis type, perceived responsibility, and prior organizational reputation (Coombs, 2020; Ng *et al*., 2023). The Social-Mediated Crisis Communication (SMCC) model further elucidates how stakeholders interact with information on social media and how

organizations can manage these information flows effectively (Saroj & Pal, 2020). A central tenet of these frameworks is the delivery of timely, accurate, and credible information to reduce uncertainty and limit misinformation. Kington *et al*. (2021) demonstrate that reliable updates enhance public trust and improve adherence to safety guidelines. Consistent and accurate communication also strengthens stakeholders' perceptions of organizational credibility, as individuals tend to rely on sources that provide frequent and trustworthy crisis-related guidance (Mirbabaie *et al*., 2020).

Simultaneously, social media has transformed crisis communication by enabling rapid message dissemination and fostering interactive engagement. These platforms increase situational awareness and allow organizations to address public concerns in real time. However, they also introduce risks, such as the accelerated spread of misinformation and the difficulty of monitoring large volumes of user-generated content. Effective crisis communication therefore, requires strategic planning, including pre-crisis preparation, clear role allocation, and the development of consistent, empathetic, and responsive messaging (Kaufhold *et al*., 2020). Post-crisis evaluations support organizational learning and resilience. Emerging evidence highlights the growing importance of digital technologies, such as AI-driven analytics and real-time sentiment monitoring, in enhancing crisis communication systems (Mansoor, 2021; Lovari & Bowen, 2020). Additionally, greater emphasis should be placed on psychological and cultural factors influencing audience responses, and on fostering cross-disciplinary collaboration to address misinformation and strengthen crisis management in a rapidly evolving digital environment (Balaji *et al*., 2021).

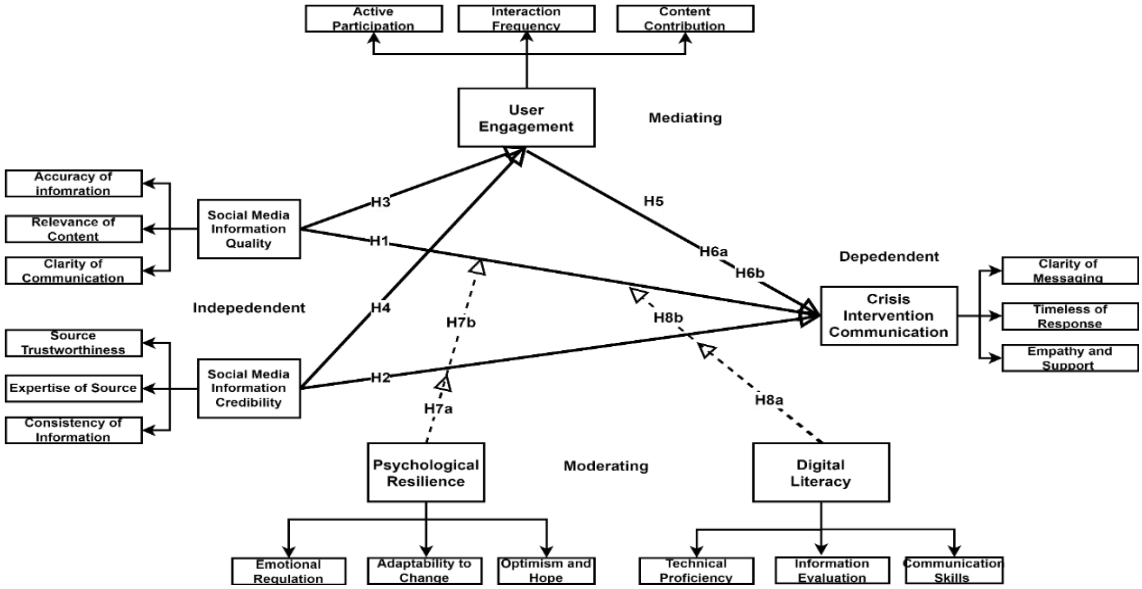
2.8 Conceptual framework

This study uses Coombs' (2020) Situational Crisis Communication Theory (SCCT), which focuses on source credibility, how stakeholders perceive messages, and the suitability of messages during crises. The model in Figure 1 examines how the quality and credibility of social media information affect how university students engage with crisis content and the effectiveness of crisis communication. When credible sources provide accurate, relevant, and clear information, it builds trust and encourages students to share, comment, and interact. This active engagement helps spread accurate information and limits misinformation. Psychological resilience helps students stay calm

and adapt during crises, while digital literacy helps them judge content and respond well. Together, these factors show how social media serves as both a tool and a platform for effective crisis communication among students in Yunnan Province, China.

Figure 1

Conceptual Framework



3 RESEARCH METHODOLOGY

3.1 Population and sampling

The study includes full-time undergraduate and postgraduate students from both public and private universities in Yunnan Province, China. To ensure all groups are represented, stratified random sampling is used across university types, faculties, and academic years. Students are randomly selected from official enrollment lists within each group, and 400 respondents are selected proportionally to the overall student population. This approach helps include key demographic groups, reduces sampling error, and improves the study's external validity. The sample size also meets the recommended minimums for multivariate analysis and structural equation modeling (SEM), which typically require at least 10 respondents per indicator.

3.2 Research design

A quantitative research design is employed to investigate the influence of social media information quality and credibility on crisis communication among university students in Yunnan Province. A structured questionnaire utilizing Likert-scale items is distributed to a stratified random sample of 400 undergraduate and postgraduate students from various faculties and academic years. This approach facilitates the identification of statistical relationships among key variables and offers empirical evidence regarding students' crisis communication behaviors.

3.3 Instrument development

The survey measures six constructs, such as Social Media Information Quality (SMQ), Credibility (SMC), Digital Literacy (DL), Psychological Resilience (PR), User Engagement (UE), and Crisis Intervention Communication (CIC), using validated items adapted from prior studies for theoretical and contextual relevance. SMQ include 5 items that assess accuracy, clarity, relevance, comprehensiveness, and timeliness. SMC includes 5 items which evaluate trustworthiness, objectivity, consistency, and source expertise. PR contain 5 items which capture emotional regulation, optimism, adaptive behavior, and online-derived confidence. DL with 5 items measures technical competence, critical evaluation, misinformation detection, and effective online communication. UE having 6 items which assesses active participation, sharing, discussion, and supportive interactions and CIC with 5 items that evaluate timeliness, responsiveness, coordination, and feedback. All items use a five-point Likert scale, with content validity ensured through expert review and pre-testing.

3.4 Reliability and validity

The measurement model was evaluated using established reliability and validity procedures. Internal consistency was demonstrated by Cronbach's alpha and Composite Reliability (CR), both of which exceeded the minimum threshold of 0.70. Exploratory Factor Analysis (EFA) was employed to identify the factor structure, and Confirmatory Factor Analysis (CFA) in SmartPLS 4.0 was used to validate the model. Convergent

validity was established by Average Variance Extracted (AVE) values above 0.50, while discriminant validity was confirmed using the Fornell–Larcker criterion, which requires that the square root of each construct's AVE exceeds its inter-construct correlations. Collectively, these procedures indicate that the scale demonstrates strong psychometric properties suitable for multivariate analysis.

3.5 Data analysis

Survey data were analyzed using statistical software. Descriptive statistics were used to summarize demographic characteristics and key variables, such as information quality, credibility, digital literacy, psychological resilience, user engagement, and crisis communication. Pearson correlations were calculated to assess relationships among these variables. Multiple regression was conducted to examine the predictive effects of the independent variables on crisis communication. Structural Equation Modeling (SEM) was performed using SmartPLS 4.0 to analyze latent constructs, test direct and indirect effects, and evaluate the overall model. Model assessment included SRMR, Average Variance Extracted (AVE), Composite Reliability (CR), and R^2 values. This analytical approach provided a comprehensive and rigorous evaluation of the research model and hypotheses.

4 RESULTS AND ANALYSIS

Table 1 shows that 64.9% of respondents were male and 35.1% were female, indicating a gender imbalance that could affect interpretations of social media use, trust, and engagement during crises. Previous research indicates that men and women frequently differ in information-seeking and emotional support behaviors.

The age distribution was relatively balanced, with 24.2% of respondents aged 20–21, 22.7% aged 22–23, and 26.5% aged 24–25 or older. This age diversity is likely to yield a range of perspectives, as older students are generally associated with higher levels of critical thinking and media literacy, which can influence the evaluation of crisis-related content. Educational backgrounds included undergraduates (44.3%), master's students (41.5%), and PhD students (14.2%), enabling analysis of how academic level may affect media literacy, critical assessment, and trust in information.

Respondents came from diverse disciplines, including Business Administration, Sociology, Mechanical Engineering, Computer Science, Fine Arts, Education, Medicine, Chemistry, and Law. Disciplinary training can influence attention to accuracy, credibility, and social media behavior during crises. Social media use was frequent, with 77.8% of respondents accessing platforms at least weekly, indicating high exposure and the likelihood that digital literacy affects engagement and credibility judgments.

Platform preferences were distributed among Weibo (26.8%), Douyin (24%), WeChat (22.9%), and other platforms (26.3%). These preferences reflect distinct communication styles: Weibo facilitates real-time news, Douyin enables viral visual content, and WeChat provides a slower but more trusted information flow. These results highlight the significance of platform dynamics in crisis communication and user response.

Table 1

Demographic Information

Variable		Frequency	Percentage
Gender	Male	252	64.9
	Female	136	35.1
Age	20-21 years old	94	24.2
	22-23 years old	88	22.7
	24-25 years old	103	26.5
	Above 25years old	103	26.5
Educational Level	Undergraduate	172	44.3
	Master's student	161	41.5
	PhD Student	55	14.2
	Undergraduate	172	44.3
Academic Discipline	Computer Science	38	9.8
	Environmental Science	35	9.0
	Business Administration	41	10.6
	Sociology	40	10.3
	Mechanical Engineering	39	10.1
	Medicine	27	7.0
	Education	36	9.3
	Law	33	8.5
	Chemistry	30	7.7
	Fine Arts	37	9.5
	Other	32	8.2
Frequency of Social Media Use	Daily	97	25.0
	Several times per week	112	28.9
	Weekly	93	24.0
	Rarely	86	22.2
Most Frequently Used Social Media Platform	WeChat	89	22.9
	Weibo	104	26.8
	Douyin (TikTok)	93	24.0
	Other	102	26.3

4.1 Socioeconomic features

Table 2 summarizes the respondents' socioeconomic characteristics. Gender shows low variability (variance = 0.228, SD = 0.478, SE = 0.024), reflecting the binary coding. Age exhibits moderate dispersion (variance = 1.266, SD = 1.125, SE = 0.057), indicating balanced representation across age groups. Education level shows limited variation (variance = 0.495, SD = 0.704, SE = 0.036), allowing analysis of differences in information processing. Academic discipline demonstrates substantial diversity (variance = 10.064, SD = 3.172, SE = 0.161), capturing varied approaches to digital literacy and perception of social media information. Frequency of social media use (variance = 1.192, SD = 1.092, SE = 0.055) and preferred platforms (variance = 1.236, SD = 1.112, SE = 0.056) highlight differences in engagement and platform choice, emphasizing the heterogeneous exposure to crisis-related content. Overall, the data provide a robust basis for examining social media's role in crisis communication, information quality, and credibility.

Table 2

Socioeconomic Details

Variable	Range	Variance	Std. Dev	Std. Error of Mean
	1			.024
Gender		.228	.478	
Age	3	1.266	1.125	.057
Education Level	2	.495	.704	.036
Academic Discipline	10	10.064	3.172	.161
Frquency of Social media use	3	1.192	1.092	.055
Most Frequent used Social Media Platform	3	1.236	1.112	.056

4.2 Validities

The measurement model demonstrated strong construct validity and reliability, as shown in Table 3 that Crisis Intervention Communication (CIC) showed high loadings (0.842–0.880), excellent internal consistency (α = 0.913), composite reliability (rho_A = 0.919, rho_C = 0.935), and AVE = 0.741, indicating students recognize social media as effective for crisis communication. Digital Literacy (DL) exhibited high loadings (0.876–0.905), reliability (α = 0.938), composite reliability (rho_A = 0.940, rho_C = 0.953), and AVE = 0.801, reflecting students' ability to critically engage with digital content.

Psychological Resilience (PR) maintained acceptable reliability (α = 0.766, rho_A = 0.873, rho_C = 0.845, AVE = 0.581), while Social Media Credibility (SMC) and Quality (SMQ) had strong loadings (0.811–0.913; 0.783–0.892), adequate reliability (α = 0.669–0.774, rho_A = 0.728–0.828, rho_C = 0.854–0.867), and AVE > 0.68.

User Engagement (UE) showed very high loadings (0.865–0.929), excellent reliability (α = 0.952, rho_A = 0.954, rho_C = 0.962), and AVE = 0.808. All constructs exceeded recommended thresholds (α > 0.7, rho > 0.7, AVE > 0.5), confirming that the measures are valid, reliable, and suitable for testing the structural model linking digital literacy, psychological resilience, social media credibility and quality, and user engagement to effective crisis intervention communication among university students in Yunnan Province.

Table 3

Reliability and Convergent Validity of Constructs

Variables	Items	Item Loading	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Crisis Intervention Communication	CIC1	0.863				
	CIC2	0.871				
	CIC3	0.880				
	CIC4	0.842				
	CIC5	0.847	0.913	0.919	0.935	0.741
Digital Literacy	DL1	0.876				
	DL2	0.886				
	DL3	0.904				
	DL4	0.903				
	DL5	0.905	0.938	0.940	0.953	0.801
Psychological Resilience	PR2	0.664				
	PR3	0.840				
	PR4	0.881				
	PR5	0.634	0.766	0.873	0.845	0.581
Social Media Information Credibility	SMC2	0.913				
	SMC3	0.811	0.669	0.728	0.854	0.746
Social Media Information Quality	SMQ1	0.804				
	SMQ2	0.892				
	SMQ5	0.783	0.774	0.828	0.867	0.685
User Engagement	UE1	0.913				
	UE2	0.929				
	UE3	0.891				
	UE4	0.886				
	UE5	0.908				
	UE6	0.865	0.952	0.954	0.962	0.808

4.3 Discriminant validity

Discriminant validity ensures that constructs in the model are conceptually and statistically distinct. It was assessed using the Fornell-Larcker criterion, cross-loadings, and the Heterotrait-Monotrait (HTMT) ratio. Results indicate that each construct shares more variance with its own indicators than with others, and all HTMT values are below the 0.90 threshold, confirming the distinctiveness of the constructs and supporting the reliability of the measurement model.

4.3.1 Heterotrait-monotrait ratio (HTMT) – Matrix

The HTMT ratio matrix confirmed discriminant validity, with all values below the 0.90 threshold indicating that each construct measures a distinct domain. In Table 4, CIC ranged from 0.036 to 0.599, DL showed a maximum of 0.851 with UE, and PR correlated moderately with SMC (0.864) and SMQ (0.803), consistent with theoretical expectations. SMC and SMQ were highly related (0.831) but remained distinct, and all interaction terms (PR×SMQ, PR×SMC, DL×SMQ, DL×SMC) were well below 0.90. These results confirm that digital literacy, psychological resilience, social media credibility and quality, user engagement, and crisis intervention communication are conceptually distinct, supporting reliable interpretation of their individual and interactive effects on students' social media behavior and crisis communication perceptions.

Table 4

Heterotrait-Monotrait (HTMT) Ratio Matrix for Discriminant Validity

	Crisis Intervention Communication	**Digital Literacy**	**Psychological Resilience**	**SMC**	**SMQ**	**User Engagement**	**Psychological Resilience x SMQ**	**Psychological Resilience x SMC**	**Digital Literacy x SMQ**
Crisis Intervention Communication									
Digital Literacy	0.555								
Psychological Resilience	0.073	0.065							
SMC	0.082	0.054	0.864						
SMQ	0.060	0.051	0.803	0.831					
User Engagement	0.599	0.851	0.056	0.084	0.05				
Psychological Resilience x SMQ	0.044	0.022	0.588	0.489	0.70	0.025			
Psychological Resilience x SMC	0.036	0.016	0.526	0.692	0.44	0.031	0.560		

Digital SMQ	Literacy	x	0.047	0.067	0.044	0.051	0.02	0.058	0.073	0.042	
Digital SMC	Literacy	x	0.062	0.057	0.028	0.115	0.08	0.023	0.090	0.027	0.589

4.3.2 Fornell-Larcker criterion

The Fornell-Larcker criterion was applied to assess discriminant validity by comparing each construct's square root of AVE with its correlations with other constructs. A construct meets discriminant validity if its AVE square root exceeds all its inter-construct correlations. In Table 5, CIC (0.861), DL (0.895), PR (0.762), SMC (0.864), SMQ (0.828), and UE (0.899) all exceed their respective correlations with other constructs, confirming that each construct measures a distinct concept. While DL and UE show high correlation (0.902) and PR and SMQ moderate correlation (0.704), their AVE square roots remain higher, validating their conceptual independence. These results confirm that cognitive skills, psychological resilience, content quality and credibility, and user engagement are distinct but interrelated constructs, ensuring the model can accurately assess the individual and combined influence of these factors on crisis communication effectiveness among university students in Yunnan Province.

Table 5

Fornell-Larcker Criterion – Discriminant Validity of Constructs

	Crisis Intervention Communication	**Digital Literacy**	**Psychological Resilience**	**SMC**	**SMQ**	**User Engagement**
Crisis Intervention Communication	0.861					
Digital Literacy	0.519	0.895				
Psychological Resilience	0.052	0.036	0.762			
SMC	-0.065	-0.037	0.620	0.864		
SMQ	0.012	0.039	0.704	0.602	0.828	
User Engagement	0.566	0.902	0.034	-0.068	0.036	0.899

4.3.3 Cross Loadings

The cross-loadings shown in Table 6 confirmed discriminant validity, showing that all indicators load highest on their intended constructs, exceeding 0.70, while remaining lower on others. CIC indicators (0.842–0.880) uniquely capture students' perceptions of social media effectiveness, DL (0.876–0.905) shows moderate overlap

with UE and CIC but retains distinctiveness, and PR (0.634–0.881) remains independent while moderately linked to SMC and SMQ. SMC (0.811–0.913) and SMQ (0.783–0.892) confirm separate dimensions of credibility and quality, and all interaction terms load exclusively on their constructs (VIF = 1.000). These results demonstrate stable measurement properties, validating the constructs for analyzing social media information, user traits, and engagement in crisis intervention communication among Yunnan university students.

Table 6

Cross-Loadings of Measurement Items for Construct Discriminant Validity

	Crisis Intervention Communication	Digital Literacy	Psychological Resilience	SMC	SMQ	User Engagement	Psychological Resilience x SMQ	Psychological Resilience x SMC	Digital Literacy x SMQ	Digital Literacy x SMC
CIC1	0.863	0.423	0.052	-0.056	-0.004	0.454	-0.015	0.032	0.009	0.017
CIC2	0.871	0.405	-0.027	-0.145	-0.067	0.455	0.024	0.069	0.034	0.020
CIC3	0.880	0.505	0.066	-0.026	0.047	0.548	-0.054	-0.023	-0.035	-0.078
CIC4	0.842	0.394	0.055	-0.029	0.014	0.418	-0.052	0.013	-0.079	-0.075
CIC5	0.847	0.487	0.070	-0.030	0.049	0.535	-0.037	-0.010	0.036	-0.067
DL1	0.460	0.876	0.021	-0.029	0.018	0.795	-0.015	0.000	-0.081	-0.086
DL2	0.434	0.886	0.075	-0.005	0.075	0.756	-0.037	-0.018	-0.086	-0.086
DL3	0.454	0.904	0.027	-0.048	0.013	0.774	-0.011	0.028	-0.055	-0.024
DL4	0.465	0.903	0.026	-0.032	0.034	0.826	-0.027	0.003	-0.024	-0.010
DL5	0.505	0.905	0.015	-0.051	0.039	0.875	-0.007	0.019	-0.046	-0.043
PR2	0.021	-0.009	0.664	0.441	0.486	0.002	-0.343	-0.341	-0.043	0.035
PR3	0.043	0.028	0.840	0.568	0.614	0.018	-0.457	-0.408	0.010	0.022
PR4	0.055	0.017	0.881	0.522	0.606	0.023	-0.492	-0.406	-0.049	-0.006
PR5	0.024	0.089	0.634	0.342	0.423	0.074	-0.284	-0.256	0.016	-0.011
SMC2	-0.072	-0.014	0.527	0.913	0.528	-0.060	-0.343	-0.516	0.026	0.090
SMC3	-0.034	-0.060	0.560	0.811	0.519	-0.057	-0.350	-0.465	-0.045	0.073
SMQ1	-0.008	0.009	0.573	0.434	0.804	0.029	-0.488	-0.322	-0.006	0.032
SMQ2	0.002	0.040	0.616	0.546	0.892	0.041	-0.562	-0.378	0.033	0.040
SMQ5	0.039	0.044	0.561	0.502	0.783	0.016	-0.491	-0.294	-0.074	-0.098
UE1	0.530	0.857	0.006	-0.089	0.013	0.913	-0.007	0.045	-0.047	-0.010
UE2	0.554	0.831	0.029	-0.062	0.022	0.929	-0.005	0.028	-0.022	0.014
UE3	0.486	0.786	0.043	-0.072	0.036	0.891	-0.015	0.057	-0.046	0.023

UE4	0.477	0.746	0.042	-0.035	0.061	0.886	-0.040	-0.005	-0.062	0.004
UE5	0.509	0.823	0.002	-0.086	0.007	0.908	0.005	0.013	-0.045	-0.018
UE6	0.487	0.816	0.065	-0.017	0.062	0.865	-0.059	-0.013	-0.083	-0.052
Digital Literacy x SMC	-0.045	-0.055	0.009	0.095	-0.004	-0.007	0.090	-0.027	0.589	1.000
Digital Literacy x SMQ	-0.007	-0.065	-0.024	-0.004	-0.012	-0.056	0.073	0.042	1.000	0.589
Psychological Resilience x SMC	0.016	0.007	-0.467	-0.568	-0.404	0.024	0.560	1.000	0.042	-0.027
Psychological Resilience x SMQ	-0.032	-0.021	-0.534	-0.397	-0.623	-0.021	1.000	0.560	0.073	0.090

4.4 Collinearity statistics (VIF)

4.4.1 Outer model – VIF

The outer model VIF values, as shown in Table 7, confirm no multicollinearity, all below the 5.0 threshold. CIC indicators (2.319–3.192) and DL items (2.892–3.857) contribute unique information, while PR (1.304–1.759), SMC (1.337), and SMQ (1.463–1.727) confirm distinctiveness and validity. UE shows slightly higher VIFs (up to 4.379) due to correlated engagement behaviors but remains acceptable. All interaction terms (DL×SMC, DL×SMQ, PR×SMC, PR×SMQ) have VIF = 1.000, indicating orthogonality. Overall, the model demonstrates indicator independence, stability, and robustness, validating the framework linking digital literacy, psychological resilience, social media credibility and quality, and user engagement to crisis communication among students.

Table 7

Outer Model VIF Values

Construct / Indicator	VIF
CIC1	3.070
CIC2	3.192
CIC3	2.825
CIC4	2.458
CIC5	2.319
DL1	2.892
DL2	3.434
DL3	3.857
DL4	3.729

DL5	3.592
PR2	1.443
PR3	1.759
PR4	1.709
PR5	1.304
SMC2	1.337
SMC3	1.337
SMQ1	1.661
SMQ2	1.727
SMQ5	1.463
UE1	2.497
UE2	2.555
UE3	3.813
UE4	3.591
UE5	4.379
UE6	3.242
Digital Literacy x SMC	1.000
Digital Literacy x SMQ	1.000
Psychological Resilience x SMC	1.000
Psychological Resilience x SMQ	1.000

4.4.2 Inner model – Multicollinearity Assessment

The inner model VIF values as shown in Table 8, indicate minimal multicollinearity, all well below the 5.0 threshold. Digital Literacy shows a VIF of 2.470 for its direct effect on Crisis Intervention Communication, with low VIFs for its interactions with Social Media Credibility (1.611) and Social Media Quality (1.558), confirming its independent and moderating role in students' use of social media during crises. Psychological Resilience exhibits acceptable VIFs for both direct (2.345) and interaction effects with credibility (1.916) and quality (2.143), indicating its distinct influence on processing crisis information. Social Media Credibility (2.264 for communication; 1.568 for engagement) and Social Media Quality (2.712 for communication; 1.568 for engagement) maintain low collinearity, supporting their unique contributions. User Engagement (2.520) also reflects an independent pathway as a mediating mechanism. Overall, all predictors, including main effects, interactions, and engagement, are statistically independent, ensuring reliable estimation of direct, moderating, and mediated effects and validating the robustness of the framework for assessing social media's role in crisis intervention among Yunnan university students.

Table 8

Variance Inflation Factor (VIF) Values for Inner Model Paths

Paths	VIF
Digital Literacy -> Crisis Intervention Communication	2.470
Digital Literacy x SMC -> Crisis Intervention Communication	1.611
Digital Literacy x SMQ -> Crisis Intervention Communication	1.558
Psychological Resilience -> Crisis Intervention Communication	2.345
Psychological Resilience x SMC -> Crisis Intervention Communication	1.916
Psychological Resilience x SMQ -> Crisis Intervention Communication	2.143
SMC -> Crisis Intervention Communication	2.264
SMC -> User Engagement	1.568
SMQ -> Crisis Intervention Communication	2.712
SMQ -> User Engagement	1.568
User Engagement -> Crisis Intervention Communication	2.520

4.5 Path coefficients

The path coefficient analysis, as shown in Table 9 and Figure 2, highlights the combined influence of social media content, user engagement, and individual capacities on crisis intervention communication among Yunnan university students. Digital literacy strongly predicts crisis communication ($\beta = 0.870$, $p < 0.001$) and moderates the effects of social media credibility ($\beta = 0.543$, $p < 0.001$) and quality ($\beta = 0.442$, $p < 0.001$), showing that digitally proficient students leverage trustworthy and well-structured content effectively. Psychological resilience also directly enhances communication ($\beta = 0.372$, $p < 0.001$) and strengthens the impact of credibility ($\beta = 0.329$, $p < 0.001$) and quality ($\beta = 0.382$, $p < 0.001$), reflecting the ability of resilient students to translate reliable information into actionable responses. Social media credibility influences both communication ($\beta = 0.588$, $p < 0.001$) and engagement ($\beta = 0.240$, $p < 0.05$), while quality affects communication ($\beta = 0.215$, $p = 0.003$) but not engagement. User engagement significantly enhances communication ($\beta = 0.526$, $p < 0.001$) and mediates the effects of credibility and quality, highlighting the interdependence of message features and user behavior. Overall, effective crisis communication arises from the synergy of credible content, user engagement, and individual capacities, emphasizing integrated digital crisis management strategies.

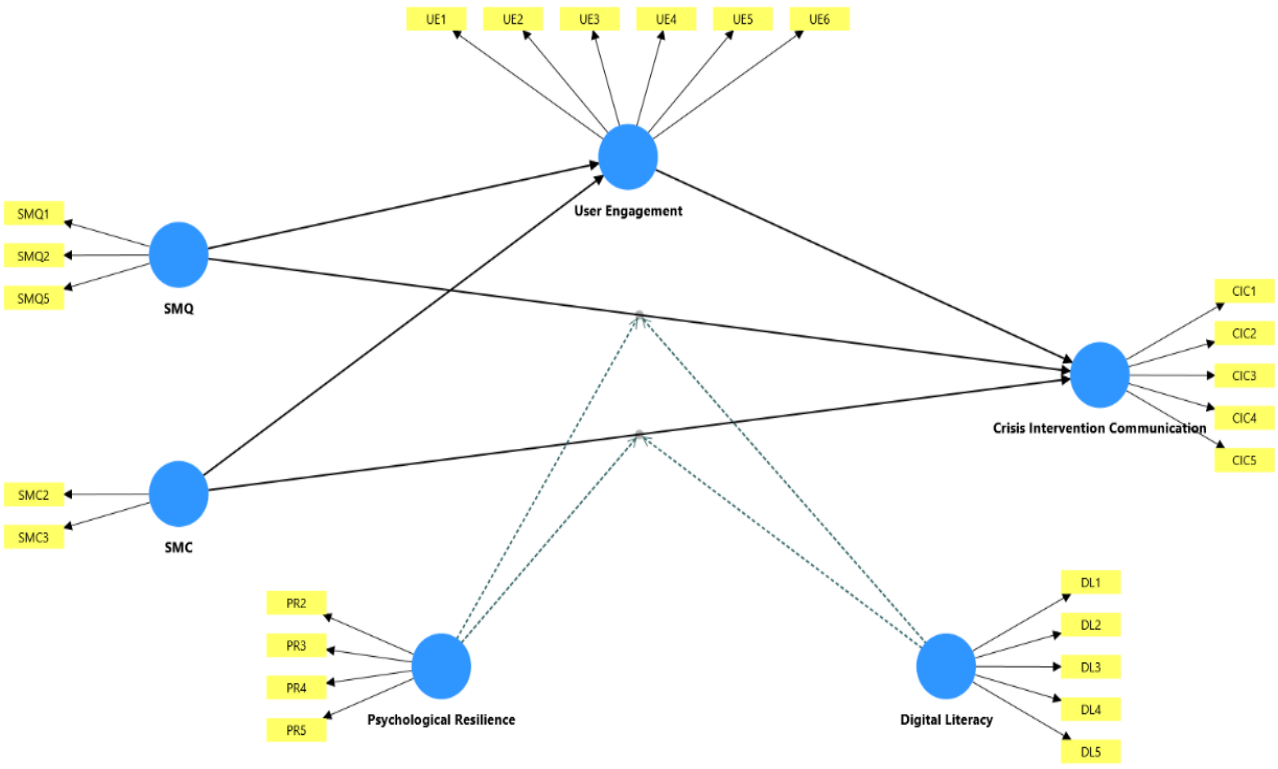
Table 9

Pathway coefficient

	Original sample (O)	Sample mean (M)	Std. deviation	T statistics (|O/Std.|)	P values	Significance
Digital Literacy -> Crisis Intervention Communication	0.870	0.090	0.061	10.421	0.000	Sig
Digital Literacy x SMC -> Crisis Intervention Communication	0.543	0.542	0.055	9.864	0.000	Sig
Digital Literacy x SMQ -> Crisis Intervention Communication	0.442	0.046	0.051	4.962	0.000	Sig
Psychological Resilience -> Crisis Intervention Communication	0.372	0.373	0.094	3.955	0.000	Sig
Psychological Resilience x SMC -> Crisis Intervention Communication	0.329	0.332	0.094	3.520	0.000	Sig
Psychological Resilience x SMQ -> Crisis Intervention Communication	0.382	0.378	0.065	5.895	0.000	Sig
SMC -> Crisis Intervention Communication	0.588	0.590	0.064	9.118	0.000	Sig
SMC -> User Engagement	0.240	0.129	0.065	2.152	0.031	Sig
SMQ -> Crisis Intervention Communication	0.215	0.218	0.071	3.020	0.003	Sig
SMQ -> User Engagement	0.121	0.105	0.091	1.334	0.182	Not-Sig
User Engagement -> Crisis Intervention Communication	0.526	0.526	0.112	4.706	0.000	Sig
SMC -> User Engagement -> Crisis Intervention Communication	0.202	0.203	0.057	3.570	0.000	Sig
SMQ -> User Engagement -> Crisis Intervention Communication	0.142	0.140	0.038	3.737	0.000	Sig

Figure 2

Pathway Coefficient



4.5 Discussion

This study investigated the collective influence of information quality, information credibility, user engagement, digital literacy, and psychological resilience on crisis intervention communication among university students in Yunnan, China. The results indicate that **information quality, encompass**ing clarity, coherence, relevance, timeliness, and organization, serves as a foundational factor in shaping students' cognitive processing and decision-making during emergencies.

Previous research demonstrates that high-quality content enhances message comprehension, reduces ambiguity, and guides constructive behaviors in digital environments (Shah & Wei, 2022; Mansoor, 2021). Consistent with this evidence, students in the present study perceived high-quality crisis information as useful and supportive for navigating uncertain situations. However, information quality alone did not significantly predict engagement, aligning with studies that report some users adopt passive observational behaviors even when they value the information presented (MacKay *et al*., 2021). Therefore, high-quality content should be complemented by strategies that encourage active participation.

The results further identify **information credibility** as a primary driver of engagement and crisis communication outcomes. Credibility, defined as perceived accuracy, trustworthiness, and reliability, has been shown to enhance message acceptance and reduce anxiety caused by misinformation during crises (Metzger & Flanagin, 2013; Abbas *et al*., 2021). This study similarly found that students exposed to credible crisis information on platforms such as WeChat, Douyin, and Weibo were more likely to respond, share, and participate. Institutional transparency and verification further increased credibility, supporting findings that official and authoritative sources strengthen public compliance and trust (Hyland-Wood *et al*., 2021; Kington *et al*., 2021).

The results confirm that **user engagement mediates** the effects of both information quality and credibility on crisis communication. Engagement, expressed through sharing, commenting, and interacting, functions as a mechanism that translates message attributes into behavioral responses. This finding supports previous studies indicating that engagement amplifies message reach, reduces information overload, and enhances collective awareness (Kaufhold *et al*., 2020; Lovari & Bowen, 2020).

Engagement should thus be regarded not only as an outcome but also as a critical process variable in crisis communication dynamics.

The study also demonstrates the moderating influence of **digital literacy** and **psychological resilience**. Higher digital literacy enabled students to critically evaluate information sources, verify accuracy, and apply guidance appropriately, supporting previous research indicating that digitally competent users are better equipped to navigate crises (Li & Liu, 2020; Al-Rahmi *et al*., 2021). Psychological resilience strengthened the relationship between credible information and engagement by enabling students to manage stress and respond constructively, consistent with findings that resilience facilitates adaptive behaviors in crisis contexts (Jiang *et al*., 2020; Gaspar *et al*., 2021).

The novelty of this study lies in its integration of message characteristics, user capacities, and behavioral processes within a single framework applied to a non-Western academic context. While existing literature frequently focuses on governmental or organizational responses (Coombs, 2020; Jin, 2022), this research emphasizes crisis communication within higher education, thereby addressing a significant gap. Methodologically, the use of partial least squares structural equation modeling (PLS-SEM) enabled examination of direct, mediating, and moderating effects, providing a comprehensive understanding of crisis communication behaviors.

In summary, the findings indicate that effective crisis communication depends on high-quality and credible information, active engagement, and adequate digital and psychological capacities. These insights contribute to crisis communication scholarship and provide practical guidance for universities and public agencies aiming to enhance emergency preparedness and digital communication strategies

5 CONCLUSION AND RECOMMENDATION

This study examined the impact of social media information quality and credibility on crisis intervention communication, highlighting the mediating role of user engagement and the moderating effects of digital literacy and psychological resilience. The findings indicate that high-quality, credible information strongly enhances the effectiveness of crisis communication and that user engagement amplifies this effect. Digital literacy and psychological resilience further strengthen the effectiveness of social media communication, emphasizing that outcomes depend not only on message content

but also on users' cognitive and emotional capacities. The study contributes to crisis communication theory by integrating user-centered attributes into the traditional sender-message-channel framework, offering a multifactorial model that links internal psychological factors with external message characteristics. Practically, the findings suggest that communication managers, educational institutions, and government agencies should design credible, participatory digital strategies, invest in digital literacy programs, and implement psychological resilience support to maximize the impact of crisis messaging. Limitations include restricted generalizability to students in Yunnan Province and the exclusive use of quantitative methods. Future research should consider cross-cultural comparisons, broader populations, and qualitative approaches to explore users' motivations and emotional responses in crisis contexts.

The study recommends that governments and universities establish verified social media channels with standards for information quality, source verification, and the control of misinformation. Universities should create trained teams for real-time monitoring, integrate digital literacy and crisis communication into curricula, and conduct simulation exercises. Crisis messages should be interactive, visually engaging, and emotionally resonant, with local influencers leveraged to enhance credibility. Platforms should encourage user participation through quizzes, peer-sharing, and rewards, while psychological resilience strategies, such as stress management and coping tools, should be embedded in communication. Finally, digital literacy should be strengthened through interactive workshops and campaigns, with certifications or course credits to promote critical evaluation of crisis-related content.

6 LIMITATION AND FUTURE STUDIES

The study has several limitations and suggests directions for future research. Its findings are limited in generalizability, as the sample consisted of only university students from Yunnan Province, China, and may not reflect broader populations with diverse demographics, cultures, or geographies. The cross-sectional design prevents causal inference, and self-reported data may be affected by social desirability bias and inaccuracies. Social media platforms were treated collectively, overlooking platform-specific differences, and psychological factors beyond resilience, such as fear, anxiety, and institutional trust, were not examined. Language constraints, a single geographic

focus, and reliance on a single instrument for all variables may also limit validity, while the purely quantitative approach may limit insight into participants' experiences. Future research should broaden the sample to include diverse populations, use longitudinal designs to capture changes over time, and conduct cross-cultural and platform-specific analyses. Incorporating additional psychological and emotional variables, evaluating the role of influencers and AI-based content, employing experimental designs, comparing different crisis types, and assessing crisis communication education programs can further enhance understanding of social media's role in effective crisis communication.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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