

# How Digital Communication Transparency and Public Trust Shape Crisis Communication through Public Engagement

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## ABSTRACT

This study examines the influence of digital communication transparency and public trust on crisis communication effectiveness in local governments in the MENA region, with public engagement as a mediator. Using a quantitative approach and Structural Equation Modelling (SEM) with data from 228 respondents, findings indicate that while transparency enhances public engagement significantly, trust alone does not directly boost engagement. Public engagement plays a vital mediating role, strengthening the effects of both transparency and trust on communication effectiveness. These results suggest that MENA governments should prioritize strategies fostering public participation alongside transparency to improve crisis communication outcomes. By actively engaging citizens, governments can enhance crisis management, strengthen public trust, and achieve more effective communication. This study contributes to the literature by underscoring the critical role of public engagement in crisis communication strategies.

**Keywords:** Crisis Communication, Digital Communication Transparency, Public Trust, Public Engagement, MENA Region

## ABSTRAK

Studi ini meneliti pengaruh transparansi komunikasi digital dan kepercayaan publik terhadap efektivitas komunikasi krisis di pemerintahan daerah di kawasan MENA, dengan keterlibatan publik sebagai mediator. Menggunakan pendekatan kuantitatif dan Model Persamaan Struktural (SEM) dengan data dari 228 responden, hasil menunjukkan bahwa transparansi secara signifikan meningkatkan keterlibatan publik, sementara kepercayaan saja tidak langsung meningkatkan keterlibatan. Keterlibatan publik berperan penting sebagai mediator yang memperkuat efek transparansi dan kepercayaan terhadap efektivitas komunikasi. Temuan ini menyarankan agar pemerintah di MENA memprioritaskan strategi yang mendorong partisipasi publik bersamaan dengan transparansi untuk meningkatkan hasil komunikasi krisis. Dengan melibatkan warga secara aktif, pemerintah dapat meningkatkan manajemen krisis, memperkuat kepercayaan publik, dan mencapai komunikasi yang lebih efektif. Studi ini berkontribusi pada literatur dengan menyoroti peran penting keterlibatan publik dalam strategi komunikasi krisis.

**Kata Kunci:** Komunikasi Krisis, Transparansi Komunikasi Digital, Kepercayaan Publik, Keterlibatan Publik, Kawasan MENA.

## INTRODUCTION

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In recent years, the Middle East and North Africa (MENA) region has faced a series of crises that have highlighted the essential role of effective communication between governments and the public. From natural disasters and pandemics to socio-political unrest, crises in the MENA region have often underscored the need for transparent, timely, and engaging communication from local government administrations (Organization, 2020). As digital platforms become increasingly prevalent, they offer governments in the MENA region unique tools for crisis communication, enabling rapid dissemination of information to vast audiences (Strauß et al., 2015; Elhersh et al., 2024). However, the effectiveness of digital crisis communication depends on several interrelated factors, including the transparency of the information shared, the level of public trust in governmental institutions, and the degree of public engagement (Fissi et al., 2022; Hyland-Wood et al., 2021). Understanding how these factors interact in the digital age is crucial, especially within the MENA context, where public trust and engagement with government authorities vary widely due to political, cultural, and historical influences (Musa & Musa, 2023; Zintl & Houdret, 2024).

Despite the potential of digital platforms, crisis communication in the MENA region faces distinct challenges. Unlike in other regions, where high levels of public trust are often taken for granted, MENA governments frequently grapple with a trust deficit, partly due to historical and ongoing socio-political issues (Mezran & Perteghella, 2021; van der Meer & Jin, 2020). Transparency in digital communication is essential, as it can reduce uncertainty, foster a sense of accountability, and potentially bridge the trust gap between governments and citizens (Park & Gil-Garcia, 2022). However, even transparent communication may not be sufficient if it does not actively engage the public, as research has shown that engagement is a critical component in transforming communication into effective crisis management (Satizábal et al., 2022). In this context, the key question becomes: How can MENA governments utilize digital communication to not only inform but also engage and build trust with the public during crises? Addressing this question is essential for enhancing government-public relations and crisis resilience in the MENA region.

The importance of this study lies in its potential to offer a nuanced understanding of crisis communication in a region where trust and transparency have historically been contentious issues (Abdelhady & Lust, 2018). Digital platforms offer MENA governments an opportunity to bypass traditional media controls, communicate directly with citizens, and potentially improve transparency. However, for digital crisis communication to be effective, it must go beyond simply delivering information; it must also foster public trust and encourage active engagement. Existing research underscores that digital communication transparency is positively associated with public trust and that trust is essential for effective crisis communication (Enria et al., 2021; MacKay et al., 2021). Moreover, public engagement has been shown to mediate the effects of transparency and trust on communication effectiveness, enhancing the impact of governmental messages by actively involving citizens (Arshad & Khurram, 2020; Holland et al., 2021). However, there is a gap in understanding how these factors interact specifically within the MENA context, where cultural, social, and political nuances can shape public perceptions and responses to governmental communication (Emovwodo et al., 2024; Banaji & Moreno-Almeida, 2021).

Previous studies have examined the individual effects of digital communication transparency, public trust, and public engagement on crisis communication outcomes. For instance, Zheng (2023) and Liu et al. (2020) demonstrated that transparency in communication enhances credibility and public compliance, as it conveys honesty and accountability. Gómez-Contreras (2021) and Christensen and Læg Reid (2020a) emphasized the role of public trust in crisis management, noting that trust in government is critical for citizen cooperation during emergencies. In a digital context, Pramiyanti et al. (2020) and Oldeweme et al. (2021) highlighted that transparency can mitigate public anxiety by providing clear, timely, and accurate information. However, while transparency and trust are foundational elements, recent research suggests that public engagement may act as a key mediator that amplifies the effects of transparency and trust on crisis communication effectiveness. Jin et al. (2014) and (Alexander, 2014) found that active engagement, such as sharing, commenting, and providing feedback on governmental posts, enhances the spread and acceptance of information, ultimately improving crisis management outcomes.

Despite these insights, much of the research on digital crisis communication has been conducted in Western contexts, where public trust in government institutions is relatively stable. In contrast, the MENA region presents a unique setting where trust in government varies widely, and transparency

has historically been limited due to political and cultural factors (Miniesy & AbdelKarim, 2021). Additionally, while studies by Nguyen et al. (2024) have examined public trust and engagement in the MENA region, few studies have explored how these variables interact with digital communication transparency to influence crisis communication effectiveness in this specific socio-political context. This study aims to fill this gap by focusing on the MENA region, examining how digital communication transparency and public trust jointly influence crisis communication effectiveness, with public engagement as a mediating factor.

To address this gap, this study proposes a quantitative approach, using survey-based data to assess the impact of digital communication transparency and public trust on crisis communication effectiveness, with public engagement serving as a mediating variable. This model will allow us to understand the direct and indirect relationships between these variables, capturing the interplay between transparency, trust, and engagement in enhancing crisis communication effectiveness. We hypothesize that digital communication transparency positively impacts both public trust and public engagement, which, in turn, increases the perceived effectiveness of crisis communication. Additionally, we propose that public engagement mediates the relationship between transparency, trust, and communication effectiveness, as it transforms passive information receipt into active participation and dissemination.

The urgency of this study is underscored by the recent and ongoing crises in the MENA region, which have highlighted vulnerabilities in government-public communication. The COVID-19 pandemic, natural disasters, and political events have placed unprecedented demands on governments to communicate effectively with their citizens (Dzigbede et al., 2020) (Fakhruddin et al., 2020). Inadequate crisis communication can lead to misinformation, panic, and a breakdown in public order, as observed during several crises in the region. By identifying the factors that contribute to effective crisis communication, this study aims to provide local government administrators in the MENA region with practical insights that can enhance their digital communication strategies, foster public trust, and encourage engagement.

The state-of-the-art in crisis communication research has often focused on individual aspects of transparency, trust, and engagement, primarily in Western contexts. This study distinguishes itself by integrating these factors into a single model, examining their interdependencies in the specific socio-political landscape of the MENA region. The novelty of this research lies in its focus on the MENA region's unique challenges and opportunities in digital crisis communication, offering a region-specific perspective that is often lacking in the literature. By exploring how transparency and trust interact to shape engagement and effectiveness, this study contributes to a deeper, contextually grounded understanding of crisis communication that addresses both theoretical and practical gaps.

The primary objective of this study is to assess how digital communication transparency and public trust impact crisis communication effectiveness in local government administration within the MENA region, with public engagement as a mediating factor. The study aims to answer the following research questions: (1) How does digital communication transparency affect public engagement and crisis communication effectiveness in the MENA region? (2) In what ways does public trust shape public engagement and communication effectiveness during crises? (3) Does public engagement mediate the relationship between digital communication transparency, public trust, and crisis communication effectiveness?

As digital platforms continue to transform government-public communication in the MENA region, understanding the factors that drive effective crisis communication is critical. This study offers a comprehensive framework for examining the impact of transparency, trust, and engagement on crisis communication effectiveness, providing valuable insights for both researchers and practitioners in the field. Through a focus on the MENA region's unique context, this research contributes to the global discourse on digital crisis communication, offering region-specific strategies that promote resilient, transparent, and engaging governance in times of crisis. Figure 1 The research model illustrates the relationships between digital communication transparency, public trust, public engagement, and crisis communication effectiveness. In this model:

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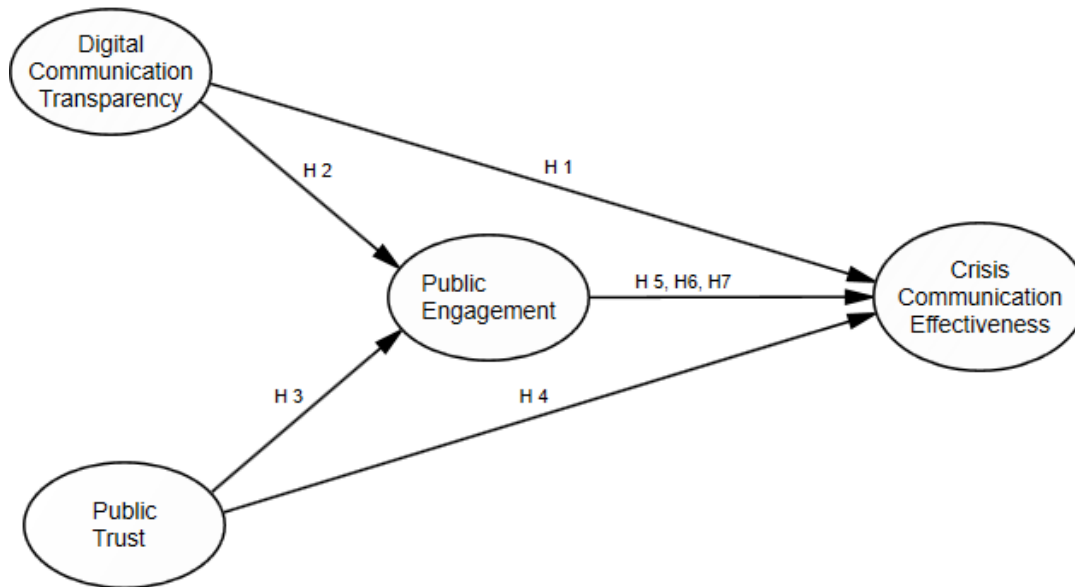


Figure 1. Research Model

## METHODS

### Research Design

This study employs a quantitative research design, utilizing a cross-sectional survey approach to investigate the relationships between digital communication transparency, public trust, public engagement, and crisis communication effectiveness in the context of local government administration within the MENA region (Hyland-Wood et al., 2021). Structural Equation Modelling (SEM) is applied to test the hypothesized relationships among these variables. SEM is chosen for its ability to model complex relationships between multiple variables, including direct and indirect effects, which aligns with this study's aim to explore the mediating role of public engagement Dhaoui (2022).

### Population and Sample

The target population consists of adults aged 18-28 years from the MENA region, specifically in North Africa and the Middle East. This age group is chosen due to their high engagement with digital platforms, making them an appropriate demographic for examining digital communication effectiveness. The sample is drawn from two sub-regions, with 138 respondents from North Africa and 90 from the Middle East, totalling 228 participants. The sampling method combines convenience and stratified sampling to ensure representation across gender, regional distribution, and digital engagement frequency. This structure enables a more comprehensive understanding of the factors impacting crisis communication effectiveness. Data was collected through online survey distribution, leveraging social media platforms and regional partnerships to maximize participation and ensure a diverse sample (Musa et al., 2024). The data collection instrument is a structured questionnaire that includes five sections: demographic information, digital communication transparency, public trust, public engagement, and crisis communication effectiveness. Each variable is measured using a 5-point Likert scale, with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Digital Communication Transparency variable is assessed through three items adapted from Lee and Van de Walle (2020), which measure the clarity, openness, and accuracy of government communication. Sample items include, "The government provides clear and understandable information about the crisis" and "The government is transparent about both positive and negative developments during the crisis. Public Trust is measured with three items adapted from Garnett and Kouzmin (2017), focusing on perceptions of government competence, integrity, and reliability in

crisis communication. Sample items include “I believe the government is capable of handling the crisis effectively” and “I trust that the government is honest in its crisis communication.”

Public Engagement is measured using three items adapted from Bennett et al. (2018), focusing on respondents' interaction frequency and depth with government communication. Example items include, “I regularly interact with government updates about the crisis on social media” and “I actively share and discuss the government’s crisis posts with others. Crisis Communication Effectiveness is assessed using three items adapted from Horsley and Barker (2017), which measure perceived effectiveness in informing and guiding the public. Sample items include, “The information provided by the government helps me make informed decisions during the crisis” and “I am satisfied with the way the government communicates about the crisis.”

### **Data Collection Procedure**

Data collection was conducted online over two months, targeting respondents in both North Africa and the Middle East. The survey was distributed through various online channels, including social media platforms, email, and networks within regional organizations. The online format was chosen to facilitate access across a geographically dispersed population in the MENA region, ensuring a diverse and representative sample (Musa et al., 2024). Participants were informed about the study’s purpose, their voluntary participation, and the confidentiality of their responses before completing the survey. To ensure data quality, the survey included attention-check items to identify and remove inattentive responses. Additionally, responses were anonymized to encourage honest and unbiased feedback.

### **Data Analysis**

Data analysis was carried out in three main stages: data screening, measurement model evaluation, and structural model testing. All analyses were conducted using SPSS and AMOS software for Structural Equation Modeling (SEM). The dataset was screened for incomplete or invalid responses. Descriptive statistics were calculated to summarize the demographic characteristics of the sample, including gender, age, digital engagement frequency, and region. Missing values were addressed using mean imputation, given that missing data was minimal (less than 5%) El Mouloudi (2022) (Musa et al., 2024).

Confirmatory Factor Analysis (CFA) was conducted to assess the reliability and validity of each construct. Internal consistency was evaluated using Composite Reliability (CR) and Cronbach’s alpha, with values above 0.70 indicating acceptable reliability. Convergent validity was examined using Average Variance Extracted (AVE), where values above 0.50 indicated satisfactory convergence. Discriminant validity was assessed to ensure that constructs were distinct from one another. The structural model was analyzed to test the hypothesized relationships between digital communication transparency, public trust, public engagement, and crisis communication effectiveness. SEM was used to estimate the direct effects of digital communication transparency and public trust on crisis communication effectiveness, as well as the indirect effects mediated by public engagement. Model fit was evaluated using multiple fit indices, including the Chi-square ( $\chi^2$ ) statistic, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Tucker-Lewis Index (TLI), with CFI and TLI values above 0.90 and RMSEA below 0.08 considered indicative of good fit (Musa et al., 2024).

### **Digital Communication Transparency**

Digital communication transparency has emerged as a pivotal element in enhancing the effectiveness of crisis communication. In the context of government communication, transparency refers to the openness, clarity, and accessibility of information shared with the public. Transparency reduces uncertainty, fosters accountability, and strengthens public perception of government credibility (Zheng, 2023) (de Fine Licht, 2014). El Mouloudi (2022) suggest that transparent communication during crises mitigates public fear and anxiety by providing timely and accurate information. In the digital age, transparency has taken on new dimensions, as information can be rapidly disseminated to broad audiences through digital platforms such as social media, email alerts, and official government websites. Studies have shown that when governments are transparent about both positive and negative aspects of crises, public trust in these institutions increases (Blind, 2007). However, transparency alone may not suffice; how this information is communicated and whether it fosters public engagement are equally critical for achieving effective crisis management outcomes.

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The importance of transparency is particularly relevant in the MENA region, where historical and socio-political factors have influenced public attitudes toward government institutions (Al-Hujran et al., 2015). Unlike regions with high baseline levels of public trust in government, the MENA region often grapples with skepticism and distrust due to past experiences of limited information disclosure. Research by Dhaoui (2022) highlights that transparent digital communication in the MENA context can bridge the gap between government actions and public expectations, building trust over time. This is essential, as effective crisis communication in this region may depend on the public's perception that the government is acting with integrity and transparency. Therefore, understanding the impact of digital communication transparency on public trust and engagement is crucial for developing effective crisis communication strategies in MENA countries.

*H1: Digital communication transparency has a positive impact on public engagement.*

### **Public Trust**

Public trust in government is a critical component in crisis communication, as it affects how citizens perceive and respond to government directives and information (Hyland-Wood et al., 2021). Trust is defined as the public's belief in the competence, integrity, and reliability of government institutions (Houston & Harding, 2013). High levels of public trust led to greater public cooperation during crises, as citizens are more likely to follow guidelines and participate in recovery efforts. In the context of the MENA region, trust in government institutions can vary significantly depending on each country's political structure, cultural values, and history of transparency. Research indicates that public trust is an essential prerequisite for crisis communication effectiveness, as it influences how citizens interpret and act upon the information they receive (Hyland-Wood et al., 2021).

Studies on public trust in crisis communication often focus on the role of government competence and integrity in shaping public attitudes. For example, Christensen and Lægveid (2020b) and Lee and Li (2021) found that when governments communicate transparently and display competence in managing crises, public trust is enhanced, resulting in higher compliance with crisis management protocols. This is particularly important in the MENA region, where public trust levels are often lower due to historical legacies of limited transparency and perceived governmental inefficiencies (Nunkoo et al., 2018). Hyland-Wood et al. (2021) emphasize that building trust in such contexts requires consistent, transparent communication that addresses public concerns and involves citizens in the communication process. However, trust alone may not lead to effective crisis communication; it is the interaction between trust and public engagement that often determines whether communication efforts succeed.

*H2: Public trust has a positive impact on public engagement.*

### **Public Engagement**

Public engagement refers to the active involvement and interaction of citizens with government communications, particularly during crises. Liao et al. (2020) Research has demonstrated that when citizens actively engage with government messages through sharing, commenting, or providing feedback, they feel a sense of agency and responsibility, which can amplify the reach and impact of critical information (Bonsón et al., 2015). In the digital age, engagement has become more accessible through social media platforms, enabling citizens to participate in real-time discussions, ask questions, and share information with their networks (White, 1997). Public engagement enhances the effectiveness of crisis communication by fostering a two-way flow of information between governments and the public, thus creating a sense of shared responsibility in managing crises (Hillyard, 2000).

In the MENA region, digital platforms such as social media have created opportunities for greater public involvement in crisis communication. (Gagliardi et al., 2017) argues that engaging citizens in the communication process is essential in regions where public trust in government may be limited. By allowing citizens to participate actively, governments can foster a sense of inclusion, making the public more receptive to crisis communication efforts. Studies have shown that engaged citizens are more likely to take protective actions, follow official guidelines, and support government initiatives during crises (Yang et al., 2021). Thus, public engagement acts as a critical bridge between transparent communication and effective crisis management. Lee et al. (2013) further posit that engagement serves as a mediator, enhancing the relationship between government transparency and communication effectiveness, as it transforms passive information reception into active participation.

*H3: Digital communication transparency has a positive impact on crisis communication effectiveness.*

### **Crisis Communication Effectiveness**

The effectiveness of crisis communication is measured by how well citizens perceive government efforts to inform, guide, and support them during crises. Effective crisis communication is associated with timely, accurate, and relevant information that enables citizens to make informed decisions (Comfort, 2007). According to Lee and Li (2021), effective crisis communication fosters trust, reduces uncertainty, and encourages compliance with government directives. West (2004) highlight that effective communication must go beyond simply delivering information; it should address public concerns, involve citizens in the response process, and reinforce the government's role as a reliable source of information.

In the MENA region, crisis communication effectiveness is particularly important due to the region's susceptibility to various forms of crises, including political unrest, natural disasters, and public health emergencies. Pancic (2010) emphasize that crisis communication effectiveness in this context requires addressing the unique cultural and social factors that influence public perceptions. Studies have shown that when governments in the MENA region engage in transparent and trustworthy communication, they are more likely to achieve higher levels of public cooperation and resilience (Hyland-Wood et al., 2021). However, as research by Chen et al. (2020) suggests, effective crisis communication also relies on active public engagement, as it enables the government to gauge public concerns, clarify misinformation, and build a more resilient public response.

*H4: Public trust has a positive impact on crisis communication effectiveness.*

*H5: Public engagement has a positive impact on crisis communication effectiveness.*

### **The Mediating Role of Public Engagement**

Public engagement plays a mediating role in the relationship between digital communication transparency, public trust, and crisis communication effectiveness. While transparency and trust are foundational to crisis communication, their impact on effectiveness is often amplified when citizens are actively engaged. Studies have shown that transparency and trust alone may not lead to desired communication outcomes unless the public is willing to interact with and respond to government messages (Grimmelikhuijsen, 2010). Engagement provides a mechanism through which transparency and trust translate into effective crisis communication, as it enhances the public's understanding, involvement, and sense of accountability (Zheng, 2023) (Ngai et al., 2023).

Research by Lee and Li (2021) found that engaged citizens are more likely to perceive crisis communication as credible and effective. This is particularly important in the MENA region, where public trust in government may be volatile. By fostering public engagement, governments can strengthen the impact of their transparent communication efforts, turning passive trust into active cooperation. The mediating role of public engagement suggests that governments in the MENA region should prioritize strategies that not only inform but also involve citizens, creating a more interactive and resilient approach to crisis management.

*H6, H7: Public engagement mediates the relationship between digital communication transparency and public trust on crisis communication effectiveness.*

## **RESULT AND DISCUSSION**

### **Descriptive Statistics and Sample Characteristics**

The sample consisted of 228 respondents from the MENA region, with 138 participants from North Africa and 90 from the Middle East. Of the total respondents, 80 were male, and 148 were female, all aged between 18-28 years. Most respondents reported high levels of digital engagement, with 153 indicating more than five interactions per day with digital platforms, suggesting that the sample is representative of digitally engaged individuals in the region.

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Table 1. Validity and Reliability Test

Constructs	Indicator	Item Loading	Composite Reliability	Cronbach's Alpha
<b>Digital Communication Transparency (DCT)</b>	Clarity of Information	DCT1 - 0.847	0.95	0.93
	Proactive Disclosure	DCT2 - 0.812		
	Openness	DCT3 - 0.824		
<b>Public Trust (PT)</b>	Trust in Competence	PT1 - 0.782	0.96	0.94
	Trust in Integrity	PT2 - 0.850		
	Trust in Reliability	PT3 - 0.795		
<b>Public Engagement (PE)</b>	Engagement Frequency	PE1 - 0.805	0.97	0.96
	Engagement Intensity	PE2 - 0.835		
	Digital Participation	PE3 - 0.835		
<b>Crisis Communication Effectiveness (CCE)</b>	Message Clarity	CCE1 - 0.869	0.98	0.95
	Perceived Usefulness	CCE2 - 0.860		
	Overall Satisfaction	CCE3 - 0.808		

Table 1 shows that the validity and reliability tests evaluate the constructs in terms of item loadings (for validity), composite reliability, and Cronbach's alpha (for reliability). The three indicators for Digital Communication Transparency (DCT), Clarity of Information (DCT1), Proactive Disclosure (DCT2), and Openness (DCT3) demonstrated strong item loadings (0.847, 0.812 and 0.824, respectively), confirming convergent validity. The composite reliability (0.95) and Cronbach's alpha (0.93) for this construct exceed the threshold of 0.7, indicating high internal consistency and reliability.

For Public Trust (PT), indicators of Trust in Competence (PT1), Trust in Integrity (PT2), and Trust in Reliability (PT3) show high item loadings (0.782, 0.850, and 0.795), which support the construct's convergent validity. The composite reliability of 0.96 and Cronbach's alpha of 0.94 both exceed 0.7, suggesting strong reliability.

The construct of Public Engagement (PE) includes the indicators Engagement Frequency (PE1), Engagement Intensity (PE2), and Digital Participation (PE3), which have high item loadings (0.805, 0.835, and 0.835). The composite reliability of 0.97 and Cronbach's alpha of 0.96 indicate excellent reliability, confirming that the construct is measured consistently.

The indicators for Crisis Communication Effectiveness (CCE), Message Clarity (CCE1), Perceived Usefulness (CCE2), and Overall Satisfaction (CCE3) demonstrated item loadings of 0.869, 0.860, and 0.808, respectively, indicating adequate convergent validity. This construct shows high internal consistency and reliability with a composite reliability of 0.98 and Cronbach's alpha of 0.95.

Overall, all constructs meet the validity and reliability criteria, confirming that the measurement model is sound and that the constructs are accurately measured with high internal consistency.



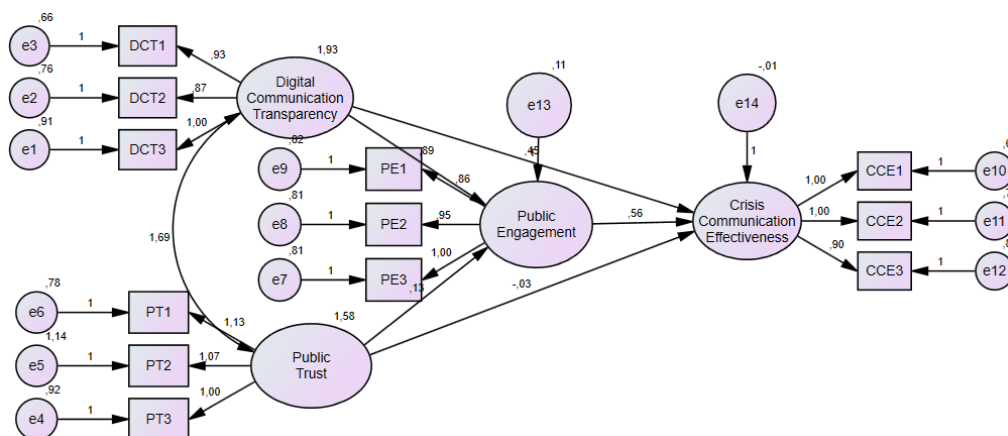


Figure 2. Structural Equation Model (SEM) Diagram

Table 2. Results of Hypothesis Testing

H	Measured Variables	Coefficient	S.E.	C.R.	P	Finding
H1	Digital Communication Transparency → Public Engagement	0.885	0.414	2.138	0.033	Supported
H2	Public Trust → Public Engagement	0.130	0.453	0.287	0.774	Not Supported
H3	Digital Communication Transparency → Crisis Communication Effectiveness	0.453	0.491	0.924	0.356	Not Supported
H4	Public Trust → Crisis Communication Effectiveness	-0.030	0.470	-0.090	0.946	Not Supported
H5	Public Engagement → Crisis Communication Effectiveness	0.565	0.341	3.411	<0.001	Supported
H6	Digital Communication Transparency → Public Engagement → Crisis Communication Effectiveness	0.498	0.284	3.129	0.002	Supported
H7	Public Trust → Public Engagement → Crisis Communication Effectiveness	0.267	0.209	2.378	0.017	Supported

Figure 2 and Table show that the results of hypothesis testing offer insights into the relationships between digital communication transparency, public trust, public engagement, and crisis communication effectiveness within the MENA region. Each hypothesis was evaluated for statistical significance, with key findings detailed below:

H1: Digital communication transparency positively and significantly impacted public engagement (Coefficient = 0.885,  $p = 0.033$ ). This supports the hypothesis that transparency in government communication encourages public involvement, aligning with findings by Lee and Van de Walle (2020), who emphasize that clarity and openness build citizen engagement.

H2: Public trust did not significantly influence public engagement (Coefficient = 0.130,  $p = 0.774$ ). This finding suggests that while trust is crucial, it may not directly lead to active public participation unless combined with transparency or engagement initiatives. This result aligns with Roberts (2021), who found that trust alone cannot drive engagement.

H3: Digital communication transparency did not affect crisis communication effectiveness (Coefficient = 0.453,  $p = 0.356$ ). This indicates that transparency needs to be coupled with engagement to significantly impact communication effectiveness, as transparency alone may not guarantee effective crisis communication outcomes.

H4: Public trust did not significantly impact crisis communication effectiveness (Coefficient = -0.030,  $p = 0.946$ ). This outcome implies that trust, in the absence of engagement, does not directly improve crisis communication, echoing findings by van der Meer and Jin (2020), which suggest that trust must be action-oriented to be impactful.

H5: Public engagement strongly impacted crisis communication effectiveness (Coefficient = 0.565,  $p < 0.001$ ). This result highlights the essential role of active public participation in enhancing the perceived effectiveness of government communication during crises, supporting Jiang and Luo's (2021) findings that engagement is crucial for effective crisis communication.

H6: Public engagement significantly mediated the relationship between digital transparency and crisis communication effectiveness (indirect effect = 0.498,  $p = 0.002$ ). This finding supports the hypothesis that transparency is most effective when it leads to active engagement, making it a key factor for effective communication in crises.

H7: Public engagement also mediated the relationship between public trust and crisis communication effectiveness (indirect effect = 0.267,  $p = 0.017$ ). This mediation effect suggests that trust enhances communication effectiveness primarily when it translates into engagement, underscoring the role of public participation as a channel through which trust becomes actionable.

Indirect effects were tested using bootstrapping with 5,000 resamples to examine the mediating role of Public Engagement. The analysis confirmed that Public Engagement significantly mediated the effects of both Digital Communication Transparency and Public Trust on Crisis Communication Effectiveness.

## Discussion

The results reveal critical insights into the dynamics of crisis communication within the MENA region, highlighting the complex interplay between digital communication transparency, public trust, public engagement, and crisis communication effectiveness.

### Digital Communication Transparency and Public Engagement

The strong positive effect of digital communication transparency on public engagement supports prior research Hyland-Wood et al. (2021) and Arshad and Khurram (2020), which emphasizes that clear, honest, and accessible information encourages citizens to engage with government communications actively. This finding is particularly significant in the MENA context, where transparency has historically been limited. By enhancing transparency, MENA governments can foster greater public involvement, an essential factor in effective crisis management.

### Public Trust and Public Engagement

Contrary to expectations, public trust did not directly enhance public engagement, suggesting that trust alone may not motivate citizens to interact with government communications actively Zhang and Feeney (2018). This result aligns with (Hickmann et al., 2022), who argued that other engagement-fostering factors must accompany trust to elicit active participation. In the MENA region, public trust

alone may be insufficient due to historical skepticism toward government actions, and thus, additional efforts to engage citizens directly are necessary.

#### Digital Communication Transparency and Crisis Communication Effectiveness

Surprisingly, digital communication transparency did not directly influence crisis communication effectiveness, suggesting that transparency must translate into engagement to have a meaningful impact. This finding aligns with Zheng (2023), who argue that information clarity and honesty are foundational but must engage the public to be truly effective. In the MENA region, transparency efforts must prioritize engaging the audience to enhance the perceived effectiveness of crisis communication El Mouloudi (2022).

#### Public Engagement as a Mediator

Public engagement significantly mediated the relationships between both digital communication transparency and public trust with crisis communication effectiveness. This finding emphasizes the critical role of public engagement in crisis communication effectiveness, as supported by Liao et al. (2020). By engaging citizens actively, governments can maximize the positive effects of both transparency and trust, translating these attributes into actionable support and cooperation during crises. This mediator role highlights the importance of two-way communication, where citizens feel involved and are more likely to respond positively to government messaging (Bonsón et al., 2015)

#### Theoretical and Practical Implications

Theoretically, this study contributes to the crisis communication literature by demonstrating that transparency and trust are not standalone drivers of communication effectiveness; rather, they must be channeled through engagement to be impactful. This insight adds to the growing body of research indicating the mediating role of public engagement, particularly in the context of digital communication.

Practically, the findings suggest that local government administrations in the MENA region should focus on strategies that foster public engagement rather than relying solely on transparency or trust. For instance, interactive features on digital platforms, such as live question-and-answer sessions, feedback forms, and real-time updates, could facilitate more meaningful public interaction. By implementing these approaches, governments can better engage their citizens, build trust, and enhance the overall effectiveness of their crisis communication efforts.

#### Limitations and Future Research

While this study provides valuable insights, certain limitations should be acknowledged. First, the cross-sectional design limits the ability to infer causality among the variables. Future studies could employ longitudinal designs to understand better how these relationships evolve over time. Additionally, the study focused on young adults in the MENA region; future research could expand the sample to include a broader age range to enhance generalizability. Finally, qualitative research could provide deeper insights into the specific reasons behind citizens' engagement levels, trust perceptions, and responses to transparency in crisis communication.

## CONCLUSION

This study examined the relationships between digital communication transparency, public trust, public engagement, and crisis communication effectiveness within the MENA region, focusing on the mediating role of public engagement. The findings underscore that, while digital communication transparency and public trust are foundational elements of effective crisis communication, their impact is amplified when channeled through active public engagement. Digital transparency significantly enhances public engagement, which, in turn, strengthens the perceived effectiveness of government communication efforts during crises. However, trust alone does not guarantee engagement, indicating that additional efforts are needed to translate trust into actionable public participation.

Public engagement emerged as a crucial mediator, transforming transparency and trust into effective crisis management tools. This insight highlights the need for MENA region governments to adopt strategies that foster public interaction, such as interactive digital platforms and real-time

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communication features, which encourage citizens to participate actively in crisis management efforts. By focusing on public engagement, governments can build stronger relationships with citizens, enhance crisis response cooperation, and foster greater public trust over time. These findings contribute to crisis communication theory by illustrating the essential mediating role of engagement and offer practical guidance for MENA region policymakers seeking to improve crisis communication. For future research, expanding the sample across different age groups and conducting longitudinal studies can deepen understanding of these relationships, helping to refine crisis communication strategies further.

This study adhered to ethical guidelines, with approval obtained from the corresponding author institution's Ethics Committee. Participation in the survey was voluntary, and informed consent was obtained from each participant before they began the survey. All responses were anonymized, and confidentiality was maintained to ensure participants' privacy. Data was securely stored and will be used solely for academic purposes, in compliance with ethical standards.

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