

## Research Article

# The Efficacy of Verification Observatories in Mitigating the Psychological Impact of Rumors Disseminated via social media During wars: Gaza War on Telegram in 2023 as a case study

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## ABSTRACT

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This study investigates the effectiveness of information verification observatories in mitigating the psychological impacts of rumors and false news during the 2023 Gaza War. Utilizing a descriptive-analytical approach, the research encompasses the entire audience of information verification observatories, including (THAQAQ, KASHIF, TAYQAN), on the Telegram platform, totaling 2893 subscribers as of December 7, 2023. The sample size within this community comprised 351 individuals. Data collection was conducted through an electronic questionnaire tool. Findings reveal that 82.5% of respondents experienced positive psychological effects from information received via Telegram during the 2023 Gaza War. Moreover, 72% perceived that the performance of information verification observatories reduced the adverse psychological impacts of rumors circulated on Telegram concerning the war. Furthermore, 72% attributed the alleviation of their psychological distress to their trust in the information disseminated by these observatories via Telegram, as well as the promptness with which they verified false news and rumors related to the Gaza War. Additionally, 71.5% of respondents reported a reduction in the severity of negative psychological effects resulting from rumors, while 65.8% emphasized the positive impact of information verification observatories via Telegram on their psychological well-being.

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## Introduction

The late 20th century saw the rise of "new media," a convergence of traditional media formats (images, films, music, language) with interactive capabilities powered by technology. This fusion revolutionized how information is disseminated, transcending geographical and political boundaries (Al-Dulaimi, 2020). Social media platforms like Facebook, Twitter, YouTube, and Telegram have become dominant communication tools, boasting over 4.8 billion users globally (Kabashi, 2023; Al-Dulaimi, 2020). These platforms serve as primary information hubs, encompassing communication, news consumption, and content sharing (Abdul Hamid, 2018; Al-Dahdouh, 2019).

However, this ease of access comes with a price. Studies suggest social media can influence values, exacerbate hostility, and contribute to stress, depression, and social isolation (Khalifa, 2022). Additionally, the lack of stringent content moderation allows rumors and misinformation to flourish (Buksh, 2018). Telegram, a popular messaging app with a user-friendly interface and cloud storage, exemplifies this. By 2022, it boasted around 700 million monthly users (Telegram, 2022). Its popularity surged in the Middle East, particularly during the "Al-Aqsa Flood" operation in Palestine and the subsequent

Israeli aggression on Gaza. Many Palestinians, especially youth, turned to Telegram for communication, news updates, and information sharing during these critical events (Al-Jazeera, 2023).

Times of war and crisis create fertile ground for rumors and misinformation. Psychological factors like instability and heightened anxiety make individuals more susceptible to believing unverified information, especially when reliable sources are scarce (Abu Al-Nasr, 2010).

During the 2023 Gaza War, a wave of fake news swept across social media platforms, including Telegram. Fabrications included the death of journalist Nidal Al-Wahidi, the capture of an Israeli settler girl, and imposed curfews. Palestinian fact-checking organizations like KASHIF and TAHAQA actively debunked this misinformation through their Telegram groups. Rumors are often spread with malicious intent. They aim to undermine morale, sow panic, erode trust in opposing media sources, or even conceal truths and discredit opposing narratives (Smaisim, 2004). Young people are particularly vulnerable to the dangers of online rumors. These can induce anxiety, negatively impact mental health, and erode self-confidence. Furthermore, rumors can lead to negativity and hinder productivity and creativity among young people – the

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future leaders of society (Ali, 2021). The dangers extend beyond individuals, as rumors can tarnish the reputation of respected figures and institutions, shaking the foundation of trust within society and impacting state performance.

Recognizing the prevalence of misinformation, several initiatives have been developed to combat its spread across various media platforms. These projects range from those with political and developmental objectives to those aiming to enhance user awareness and responsible online engagement (Al-Sadiq, 2021). Palestinian organizations like the Palestine Observatory for Verification and Media Education (KASHIF), the Palestine Observatory for Information Verification and Media Education (TAHAQAQ), and the TAYQAN platform are prime examples of such efforts.

These projects actively debunk rumors and fake news on platforms like Telegram. Given the prevalence of misinformation and its impact, further investigation is needed. Specifically, the lack of information verification in Palestine and its impact on mitigating the detrimental psychological effects arising from misinformation on social media during wartime (using the 2023 Gaza War on Telegram as a case study) warrants further research.

**Main Question:**

How can information verification observatories in Palestine mitigate the negative effects of misinformation spread through social media during the 2023 Gaza War, focusing specifically on Telegram and the psychological domain?

- 1) What is the nature of fake news or rumors that followers of the Telegram platform could be exposed to during the war on Gaza in 2023?
- 2) What is the level of psychological health impact of rumors during the war on Gaza in 2023 on Telegram’s users?
- 3) How does the nature of fake news during the 2023 Gaza war affect the mental health of Telegram users?

**Table 1: Functional Analysis of some Illustrative Emotions (Smith & Lazarus, 1990, p.619)**

Emotion	Proposed adaptive function	Core relational theme Important	Appraisal components
Anger	Remove source of harm from environment and undo harm	Other-blame	1. Motivationally relevant 2. Motivationally incongruent 3. Other-accountability
Guilt	Make reparation for harm to others/motivate socially responsible behavior	Self-blame	1. Motivationally relevant 2. Motivationally incongruent 3. Self-accountability
Anxiety	Avoid potential harm	Ambiguous danger/ threat	1. Motivationally relevant 2. Motivationally incongruent 3. Low/uncertain (emotion-focused) coping potential
Sadness	Get help and support in the face of harm/disengage from a lost commitment	Irrevocable loss	1. Motivationally relevant 2. Motivationally incongruent 3. Low (problem-focused) coping potential 4. Low future expectancy
Hope	Sustain commitment and coping	Possibility of amelioration/ success	1. Motivationally relevant 2. Motivationally incongruent 3. High future expectancy

Emotions like anger, anxiety, and sadness are important targets for information verification observatories due to their potential to mitigate the negative effects of rumors on Telegram users (authors). Lazarus’s theory (1990) suggests emotions arise from how we appraise situations. Rumors can be perceived as threats, leading to anger (Smith & Lazarus, 1991). Verification observatories can lessen this anger by debunking rumors and providing clarity.

- 4) To what extent do users of the Telegram platform in Palestine trust observatories to verify information during the war on Gaza in 2023?
- 5) How does the verification observatories’ refutation of fake news via Telegram affect the mental health of the application’s users during the war on Gaza in 2023?
- 6) How can the role of information verification observatories be developed in Palestine to mitigate the negative effects left by rumors in times of war?

**Cognitive Emotion Theory**

Lazarus proposed a sequential model for understanding emotional experiences (Reisenzein, 2009). This model outlines the following stages:

- 1) Exposure to Stimuli (Triggers): An individual encounters a situation or event that has the potential to elicit an emotional response. This "trigger" could be external (e.g., witnessing an accident) or internal (e.g., a negative thought).
- 2) Cognitive Appraisal: The individual then appraises the situation or event. This appraisal process involves evaluating the event’s significance, threat potential, and personal coping resources. Factors such as beliefs, goals, and past experiences influence this cognitive evaluation.
- 3) Emotional Response: Based on the cognitive appraisal, an emotional feeling is generated. The specific emotion experienced (e.g., fear, anger, joy) depends on the nature of the appraisal. For instance, if the situation is perceived as threatening, fear might be the dominant emotion.

Lazarus (Reisenzein, 2007) suggests a consistent order for emotions: exposure, appraisal, emotion, and physical response. However, individual beliefs and experiences can influence appraisal, shaping the emotion (Lazarus, 1991). His theory also proposes functional emotions like anger and anxiety for stressful situations, Table (1) to be explored:

Similarly, anxiety can arise from rumor-induced uncertainty. Media education initiatives by these observatories can equip people with critical thinking skills to evaluate information, reducing anxiety.

Finally, verification efforts can address sadness caused by fake news. By refuting negative narratives, observatories can weaken the emotional connection people form with misinformation.

Lazarus's theory (Abdel Hafez, 2020) proposes two factors influencing emotions: environmental variables (external stimuli) and personal variables (beliefs, motivations). These factors shape how we interpret situations through a series of "intermediate processes" (Lazarus, 1991). This appraisal process considers aspects like potential harm and how the situation relates to our ability to cope.

The outcome of this appraisal shapes our emotional response. Lazarus suggests two emotional response timescales: short-term (immediate reactions) and long-term (enduring emotional outlooks and social behaviors) (Abdel Hafez, 2020)

literature review

The modern media landscape, encompassing traditional formats alongside the ever-growing realm of digital communication, has revolutionized how information is disseminated (Al-Dulaimi, 2020). Social media platforms like Facebook, Twitter, YouTube, and Telegram have become central hubs for information exchange, enabling communication, news consumption, and content sharing (Kabashi, 2023; Al-Dulaimi, 2020). However, this abundance presents challenges. The sheer volume of information can overwhelm users, making it difficult to distinguish fact from fiction (information overload). Additionally, concerns exist regarding the potential impact of social media on mental health, with studies suggesting a correlation between excessive use and feelings of isolation and depression (Khalifa, 2022).

Telegram, a popular messaging app, allows users to exchange messages, create group chats, and store files. Its ease of use, limited censorship, and large user base have fueled its adoption, particularly in the Middle East (Telegram Website, 2023). Al-Jazeera highlights Telegram's role during the Israeli-Palestinian conflict, where it became a critical platform for communication and news sharing, especially among Palestinian youth (Al-Jazeera, 2023).

Wars and crises create fertile ground for the spread of rumors and false information. Individuals often turn to social media for news and updates when official information channels are limited (Abu Al-Nasr, 2010). This reliance on unverified sources can lead to heightened anxiety and a breakdown of trust.

The Israeli-Palestinian conflict exemplifies the proliferation of misinformation on social media. During the conflict, Telegram was used to disseminate a series of false reports, including the martyrdom of a journalist and the capture of an Israeli soldier (Al-Jazeera, 2023). These fabrications were later debunked by Palestinian fact-checking organizations operating on Telegram itself (Kashif, 2023; Tahaq, 2023).

The dissemination of such misinformation serves various malicious purposes. It can aim to demoralize populations, sow panic, erode trust in legitimate sources, and manipulate public opinion (Smaisim, 2004). Ali emphasizes the destructive potential of rumors, particularly in online environments. The rapid spread of false information can create anxiety, confusion, and helplessness, ultimately weakening social cohesion and trust in authority figures (Ali, 2021).

Modern media and social media offer powerful tools for communication and connection. However, acknowledging the potential pitfalls associated with these technologies, particularly the spread of misinformation, is crucial. The case of Telegram in the Palestinian conflict serves as a stark reminder of the need for media literacy and responsible online behavior. Initiatives dedicated to fact-checking and debunking rumors are essential in combating misinformation. By fostering critical thinking skills and promoting responsible media consumption, we can navigate the ever-evolving information landscape and harness the true potential of these tools (Al-Sadiq, 2021).

Research on social media rumor spread, particularly concerning fake accounts, offers valuable insights. Studies categorized into Arabic and international sources provide a comprehensive understanding of the issue. Abdel-Raouf & Khabib (2022) investigated the link between fake Facebook accounts and rumor dissemination during crises in Algeria, revealing a significant correlation. Salhi & Sabti (2021) explored the impact of rumors on university students in Algeria, highlighting their negative effects on morale and psychological well-being.

Ali (2021) delved into the risks of online rumors and proposed community-based countermeasures. Abdel-Hay (2020) examined university students' reliance on new media for information during the COVID-19 pandemic, emphasizing the need for ethical information dissemination and unified communication strategies. Salem & Shabib (2018) advocated for a multi-pronged approach to combat rumors in Iraq, including preventive, therapeutic, and organizational measures.

From a psychology perspective, Wang et al. (2023) developed a model integrating individual psychology into rumor spread dynamics, aiming to refine existing models for more accurate predictions. Liu & Qi (2022) investigated public engagement with rumors during health emergencies, proposing intervention strategies based on psychosocial stress levels. Pennycook et al. (2022) highlighted the importance of critical thinking in countering COVID-19 misinformation on social media, emphasizing simple interventions to improve information sharing behavior.

Ostic et al. (2021) explored the complex effects of social media use on mental health, revealing both positive and negative impacts mediated by social capital and smartphone addiction. Allen et al. (2020) examined the spread of fake news in the American information ecosystem.

### Research Significance

Building on prior researches, this study explores the psychological impact of rumors on Telegram during the 2023 Gaza War. It focuses on followers of Palestinian information verification observatories, examining encountered rumors, their psychological effects, and trust in these platforms. By targeting this specific group, the research aims to enhance observatory effectiveness during crises. Its focus on a unique spatial, temporal, and thematic context offers a novel contribution to rumor research, psychology, and crisis management. This study fills a gap by exploring information verification observatories' role and how to improve their fight against misinformation and the psychological effects.

### Methodology

This research investigated the impact of information verification efforts on social media during the 2023 Gaza War. A descriptive analytical approach was used, analyzing data from a survey distributed to 351 subscribers of Palestinian information verification observatories on Telegram. The questionnaire explored demographics, rumor exposure, motivations behind rumors, participants' evaluation of rumors, psychological effects, and the effectiveness of verification efforts. Statistical analysis using SPSS software assessed central tendency, variability, and relationships between variables. Ethical approval procedures were followed, and a five-point Likert scale measured responses (strongly agree to strongly disagree). This methodology enabled a comprehensive examination of the research questions within the context of the study's objectives.

**Table 2: Correction key for the study tool items according to the five-point Likert scale.**

<b>Response</b>	Strongly agree	Agree	Not agree not disagree	Disagree	Strongly disagree
<b>Rating</b>	5	4	3	2	1

**Analysis of Likert Scale Responses**

The Likert scale used in the questionnaire employed an ordinal scale, where response options ("strongly disagree," "symptoms," "not sure," etc.) represent ordered categories rather than precise numerical values. While the data analysis software (SPSS) assigns numerical weights to these responses, it is crucial to recognize the ordinal nature of the scale. Therefore,

**Table 3: Likert Scale Scores - Means, Percentages, and Interpretation**

<b>SMA</b>	<b>Above 4.20</b>	<b>4.19-3.40</b>	<b>3.39-2.60</b>	<b>2.59-1.80</b>	<b>Below 1.79</b>
percentage	84% or higher	83.9%-68%	52%-67.9%	36%-51.9%	Below 35.9%
Level	Very high	High	Moderate	Low	Very low

To establish the validity of the questionnaire, the researchers employed a content validity approach. This process involved presenting the instrument to a panel of arbitrators with expertise in media, psychology, and opinion poll design within specialized Palestinian research centers. Feedback from these experts informed revisions to the questionnaire, ensuring its alignment with the research questions and study objectives. Specifically, the arbitrators recommended reformulating certain sentences and eliminating others to enhance clarity and focus. Through this iterative process, the final questionnaire was developed, comprising 58 items distributed across six thematic axes. This approach aimed to achieve face validity, which refers to the instrument's apparent credibility and appropriateness for measuring the intended constructs.

The researchers assessed the questionnaire's internal consistency, a form of reliability, using Cronbach's Alpha coefficient. This coefficient was calculated for each of the questionnaire's axes:

**Table 4: Cronbach's coefficient A for the questionnaire questions and axes.**

<b>Construct</b>	<b>Cronbach's Alpha</b>	<b>Number of Items</b>
Exposure to rumors and fake news about the Gaza War 2023 on Telegram	0.606	5
Cognitive evaluation of rumors about the Gaza War 2023 on Telegram	0.812	10
Psychological effects of rumors and fake news about the Gaza War 2023 on Telegram	0.759	6
Psychological effects and credibility of fact-checking websites on the Gaza War 2023 on Telegram	0.853	9
The Average	0.7575	
Total	0.7575	30

The internal consistency reliability of the questionnaire was assessed using Cronbach's Alpha coefficient. The overall Cronbach's Alpha for all questionnaire items was 0.7575, which indicates good reliability according to (George & Mallery, 2003).

interpreting the arithmetic mean (average) of the five-point Likert scale directly is not recommended.

To address this, the researchers adopted a strategy for interpreting the response categories. First, they calculated the range of possible scores (5 - 1 = 4). This range was then divided into five equal intervals to represent the separation between each response category. Dividing the range by the number of categories yields an interval size of (4 / 5 = 0.8). This value of 0.8 can be used as an estimate of the separation between adjacent response categories on the Likert scale. The specific interpretation of these categories will be elaborated upon in a subsequent Table 3:

However, reliability varied across the questionnaire's sub-axes. The sub-axis measuring exposure to rumors and fake news about the 2023 Gaza War on Telegram had a lower Cronbach's Alpha of 0.606. This suggests that items within this sub-axis may be measuring a slightly less consistent underlying construct compared to the other sub-axes.

In contrast, the sub-axes measuring cognitive assessment of rumors ( $\alpha = 0.812$ ), psychological effects of rumors and fake news ( $\alpha = 0.759$ ), and psychological effects and credibility of fact-checking websites ( $\alpha = 0.853$ ) all demonstrated good internal consistency reliability. These Cronbach's Alpha values exceed the recommended threshold of 0.70 for most research purposes (Nunnally, 1978).

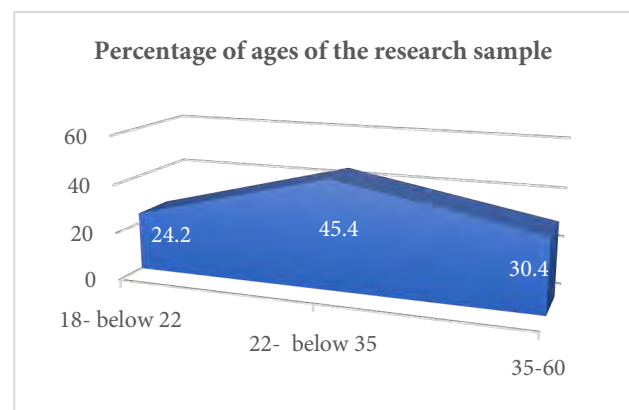
**Results and discussion**

This study yielded several noteworthy findings, with particular emphasis on addressing the primary sub-inquiry: "What is the nature of fake news or rumors that followers of the Telegram platform could be exposed to during the war on Gaza in 2023?"

The data presented herein depicts the distribution of respondent age groups engaging with verification platforms via Telegram, as illustrated in the accompanying graph:

This study aims to investigate the characteristics of Telegram users, with a particular focus on their age distribution. Figure (1) presents an age distribution of the study participants, revealing a predominance of young users on the platform.

**Figure 1 :Percentages of ages of respondents who follow verification platforms via Telegram**



The Figure (1) presents the age distribution of participants in the study. Notably, the proportion of respondents aged between 22 and under 35 years constituted 45.4% of the total, underscoring the predominant youth demographic utilizing the

Telegram platform. Conversely, the segment of respondents aged 18 to under 22 years represented the lowest proportion at 24.2%.

This study delves into the prevalence of exposure to fake news among individuals during this war, shedding light on the extent of its impact and the factors contributing to its dissemination, The Table (5) represents the Frequencies and percentages of Telegram users' exposure to rumors during the war on Gaza in 2023

**Table 5: Frequencies and percentages of Telegram users' exposure to rumors during the war on Gaza in 2023**

Question	Answer	Frequencies	Percentage
Have you been exposed to fake news or rumors on Telegram during the 2023 Gaza war?	maybe	50	16.3%
	No	30	9.8%
	yes	226	73.9%
	Total	306	100.0%

The study found that 73.9% of respondents were exposed to fake news during the 2023 Gaza conflict, while 9.8% reported no

**Table 6: The extent to which the nature of fake news or rumors during the 2023 Gaza war adversely affected the psychological health of Telegram users**

Emotions	Captivate citizens	Building Bombing	Displacement of Citizens	Killing of Citizens	Hunger and Thirst	Total	Average	Feeling Nothing
Sadness	64.10%	65.70%	64.10%	68.00%	68.30%	65.62%	43.95%	21.60%
Hopelessness	35.90%	41.20%	43.50%	37.60%	36.30%	38.08%	25.53%	19.90%
Guilt	32.00%	34.60%	34.00%	40.20%	47.10%	37.58%	24.92%	18.00%
Anxiety	53.90%	52.00%	52.90%	49.70%	47.40%	51.28%	34.23%	53.90%
Anger	56.20%	63.40%	57.20%	63.10%	52.90%	59.38%	39.59%	56.20%
Others	21.60%	19.90%	18.00%	25.20%	21.90%	21.32%	14.21%	21.60%
Total	43.95%	46.13%	44.95%	47.30%	45.65%	45.65%	30.65%	2.00%
Average	36.63%	38.41%	37.45%	39.26%	37.99%	37.99%	20.44%	1.30%

Table (6) illustrates the varied impact of fake news from the 2023 Gaza war on the psychological well-being of Telegram users, ranging from 68.30% to 32%. The highest impact was on profound sadness regarding hunger and thirst, while feelings of guilt towards fake news on captive civilians were minimal. Some respondents (1.30%) showed no emotional response to certain fake news topics. Wang et al. (2023) suggest that engagement with significant events affects psychological state. Researchers attribute heightened sadness to the emotive nature of humanitarian issues, compounded by solidarity with Gaza and awareness of shared suffering. Conversely, minimal guilt towards captive civilians may stem from resignation to

exposure and 16.3% were uncertain. The researchers attribute this to the heightened vulnerability of war periods to misinformation, especially on social media, due to limited oversight. They note the ease of spreading misinformation online. Limited access to authentic information from Gaza increased reliance on social media, particularly among the youth, who are more susceptible to rumors on platforms like Telegram. This aligns with Abdel Hafez's (2020) assertion that young individuals trust social media more for information, unlike older generations who rely on traditional media less prone to rumor dissemination.

In an era dominated by digital communication, the dissemination of information, both accurate and misleading, holds significant implications for individuals' psychological well-being. The aftermath of the 2023 Gaza war presents a compelling case study, shedding light on the nuanced impact of fake news on the emotional states of Telegram users. Table (6) encapsulates the multifaceted repercussions of fake news consumption during this period, offering insights into the varying degrees of psychological distress experienced by individuals.

recurring captivity under Israeli occupation. The rarity of hunger and thirst among Palestinians may intensify emotional responses to news on these basic needs compared to captivity concerns.

**Results and discussion of the second question: "What is the level of psychological health impact of rumors during the war on Gaza in 2023 on Telegram's users?"**

Table (7) displays the knowledge and types of fake rumors among Telegram users who follow information verification sites on the 2023 Gaza war.

**Table 7: Arithmetic means, standard deviation, and percentage of the degree of awareness of followers of information verification observatory platforms via Telegram about rumors/fake news and their nature during the war on Gaza 2023**

Statement	Degree	Percentage	Standard Deviation	Arithmetic average
When I follow the news related to the war on Gaza on Telegram, I am fully aware of the fake news from the correct news.	Medium	58.90%	1.58	2.9
The news published by the Israeli occupation army on Telegram about what is happening in the Gaza Strip can be evaluated as fake news.	High	73.10%	1.44	3.7
I try to verify the news that I doubt the veracity of about the war on Gaza 2023 and that comes from the Telegram platform.	High	78.00%	1.25	3.9

I evaluate the news that reaches me via Telegram about the war on Gaza 2023 before interacting with it.	High	77.40%	1.29	3.9
I know the sources of the news that reach me via Telegram about the war on Gaza and I can distinguish between the true and the fake.	High	75.10%	1.1	3.8
The news related to the killing or martyrdom of citizens in the war on Gaza 2023 via Telegram is one of the most news that can be distinguished between the correct and the wrong.	Medium	55.90%	1.47	2.8
The news related to the capture of citizens in the war on Gaza 2023 via Telegram is one of the most news that can be distinguished between the correct and the wrong.	Low	41.10%	1.03	2.1
The news related to the displacement of citizens during the war on Gaza 2023 via Telegram is one of the most news that can be distinguished between the correct and the wrong.	Medium	55.70%	1.5	2.8
The news related to the starvation of citizens during the war on Gaza 2023 via Telegram is one of the most news that can be distinguished between the correct and the wrong.	Medium	64.00%	1.05	3.2
The news related to the bombing of buildings during the war on Gaza 2023 via Telegram is one of the most news that can be distinguished between the correct and the wrong.	Medium	62.10%	1.47	3.1
Average axis of cognitive evaluation of the rumor about the war on Gaza 2023 via the Telegram platform.	Medium	64.10%	0.81	3.2

The analysis found that followers of information verification observatories on Telegram had a moderate level of discernment regarding rumors about the Gaza Strip war, with a mean cognitive assessment score of 64.1%. Scores for individual statements varied, with the highest at 78% for attempting to verify doubtful news and the lowest at 41.4% for distinguishing news about captive civilians. Respondents showed varying levels of awareness of fake news, with significant to moderate awareness levels ranging from 78% to 58.9%. However, awareness of specific fake news topics, such as captive civilians or casualties, ranged from moderate to low, between 64% and 41.1%. This study contrasts with Salhi and Sabti's (2021) focus on awareness of rumors rather than their negative effects. It revealed that most students ignore suspicious information to prevent misleading public opinion, with a high degree of awareness (87.5%) and carefulness in dealing with fake news. Pennycook et al. (2022) found that discerning real from fake

content on social media was challenging but influenced by cognitive thinking and scientific knowledge. Emotional responses to rumors were attributed to prior experiences and cognitive awareness. Individuals with anxiety or grief from encounters with occupation forces may believe news aligning with their emotions. The diverse responses highlight the complexity of cognitive processes in evaluating news and exposure to rumors during conflict, impacting credibility.

**Results of the third question: How does the nature of fake news during the 2023 Gaza war affect the mental health of Telegram users?**

This analysis delves into the extent of exposure to misinformation among respondents, their confidence in news from the platform, and the implications for their mental well-being during times of crisis.

**Table 8: Exposure level to 2023 Gaza War rumors and fake news on Telegram**

Statement	Degree	Percentage	Standard Deviation	Athematic Mean
I am exposed daily to one or more fake news (rumors) about the war on Gaza.	Medium	59.40%	1.6	3
I am exposed weekly to one or more fake news (rumors) about the war on Gaza.	High	72.40%	1.39	3.6
Most of the news I am exposed to is fake rumors about the war on Gaza.	Low	48.90%	1.23	2.4
I believe that the Telegram platform is the most widespread platform for rumors during the war on Gaza.	Medium	64.40%	1.58	3.2
I trust the news published by the Telegram platform about the war on Gaza a lot.	Low	51.40%	1.31	2.6
Average axis of exposure to stimuli or triggers of rumors or fake news about the war on Gaza 2023 via the Telegram platform.	Medium	59.30%	0.89	3

The analysis found that respondents were moderately exposed to rumors or fake news about the 2023 Gaza Strip war via Telegram (59.3%) but had low confidence (51.4%) in news from the platform. Most respondents reported weekly (72.4%) and daily (59.4%) exposure to such content, considering Telegram as the primary source (64.4%) during the conflict. This parallels Ostic et al.'s (2021) findings during the COVID-19 pandemic, where global distrust in social media news was noted. Allen et al. (2020) observed a small fraction of daily fake news consumption, contrary to respondents' confidence in Telegram news (33.6%) compared to other studies on social networks (39.5% trust in Facebook, Ali, 2021). Similar findings on distrust in social media news were noted by Abdel-Hay (2020) during

COVID-19. Social media's virtual nature fosters rumor propagation despite robust interactive features, leading to lower trust compared to traditional media. Wang et al. (2023) linked psychological susceptibility and interest in rumors to their proliferation, contrasting with Allen et al.'s (2020) finding of minimal fake news in American media consumption. Increased fake news reception during crises exacerbates mental distress due to heightened anxiety and anger. Trust in media and social platforms shapes news consumption behavior, with low trust in Telegram contributing to increased exposure to rumors and fake news, fostering anxiety among users. Social, cultural, and cognitive factors, including past experiences and educational background, significantly influence susceptibility to rumors.

**Table 9: The percentages and frequency of respondents' psychological effects from fake news on Telegram during the Gaza Strip war in 2023**

Question	Answer	Frequencies	Percentage
Does the spread of rumors or fake news on Telegram about the Gaza war in 2023 cause you psychological feelings such as guilt, anger, sadness, anxiety, and hopelessness?	maybe	44	14.4%
	no	10	3.3%
	yes	252	82.4%
	<b>Total</b>	<b>306</b>	<b>100.0%</b>

The findings from the preceding Table illustrate that 82.4% of respondents acknowledge experiencing psychological reactions such as feelings of guilt, anger, sadness, anxiety, and hopelessness due to rumors or fake news. The researchers attribute this phenomenon to the potential distortion of truth by rumors and fake news, which can lead individuals to entertain unreal ideas and exacerbate negative emotions. Moreover, the lack of trust in information sources and platforms amplifies these negative feelings. For instance, individuals may experience guilt over their perceived inability to aid Gaza citizens due to unverified information, as rumors distort the true nature of events. Conversely, 14.4% of respondents believe rumors or fake news might elicit psychological reactions, while 3.3% deny experiencing such feelings. This aligns with Abdul-Raouf and Khabib's (2022) study, which found that the dissemination of

rumors via Facebook fake accounts affected individuals' psychological well-being, with a prevalence of 20.21%.

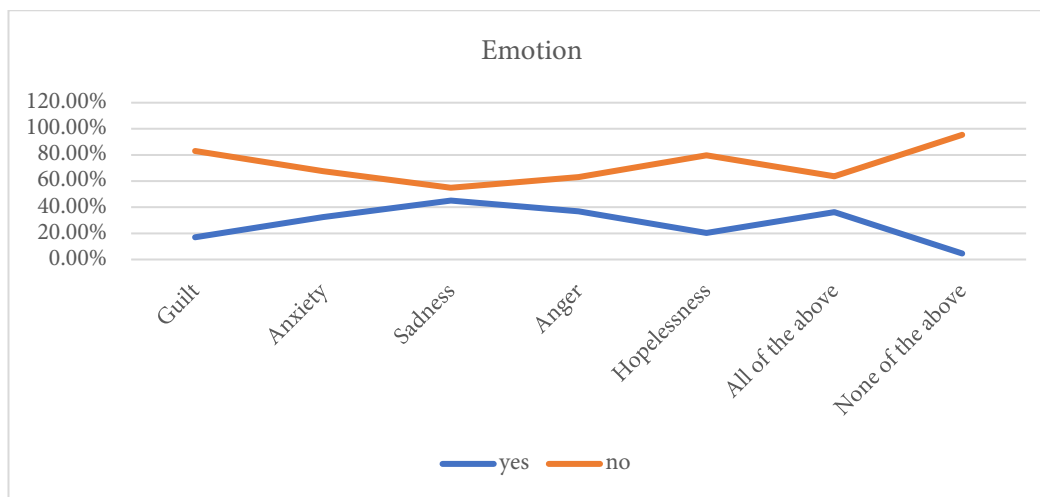
While differing from Salhi and Sabti's (2021) study in the specific nature of psychological reactions, there is similarity in the overall negative impact on psychological well-being, as rumors induce fear in 77.5% of students and diminish morale in 75%. Similar findings were observed in Ali's (2021) study, with 71% of respondents experiencing anxiety and fear regarding future job prospects, while feelings of frustration and isolation due to rumor dissemination were less prevalent.

The researchers assert that social media usage exposes the public to rumors, contributing to negative psychological effects, particularly during crises. Conversely, Ostic et al.'s (2021) study found that avoiding social media usage resulted in social isolation, while also highlighting the negative impact of smartphone addiction on psychological health.

**Table 10: The emotions that accompanied fake news during the Gaza Strip war in 2023**

Emotion	Guilt	Anxiety	Sadness	Anger	Hopelessness	All of the above	None of the above
<b>Yes</b>	17.00%	32.40%	45.10%	36.90%	20.30%	36.30%	4.60%
<b>No</b>	83.00%	67.60%	54.90%	63.10%	79.70%	63.70%	95.40%

**Figure 2: The emotions that accompanied fake news during the Gaza Strip war in 2023**



Respondents reported a range of emotions, with sadness being the most prevalent (45.1%). Anger (36.9%), anxiety (32.4%), and hopelessness (20.3%) followed, while guilt was the least common (17%). Interestingly, 36.3% experienced a combination of these emotions, highlighting the complex interplay of psychological responses.

These variations align with Lazarus' cognitive emotion theory, which emphasizes that interpretations of events determine an individual's emotional response. For example, some might feel anger towards misinformation, while others experience sadness.

The researchers suggest the high prevalence of sadness stems from the war's distressing nature and the perceived powerlessness of respondents. Social media's constant influx of negative news, often accompanied by vivid images of suffering, violence, and hardship, exacerbates these feelings. This aligns

with Al-Zubaydi's (2009) work on grief associated with loss and death.

The lower levels of guilt might be related to the external nature of the events (murders, starvation, displacement, bombings) reported on Telegram. According to Freud (George, 1999), guilt arises from internal criticism by the superego, restraining aggression. In this context, respondents attributed the distress to external factors like the Israeli occupation, not themselves, leading to less guilt compared to other emotions.

The findings, presented in Table 11, further emphasize the significant effect of misinformation on mental well-being. The mean score for overall psychological impact was 68.6%, indicating a substantial influence. Notably, the highest-scoring item addressed increased anger due to misinformation about Israeli actions against civilians (83.7%). Conversely, the lowest-scoring item, reflecting guilt related to such news, received a moderate score of 52%.

**Table 11: The arithmetic mean, standard deviation, and percentage of the respondents' psychological feelings when receiving rumors about the war on Gaza in 2023**

Statement	Scale	Percentage	Standard Deviation	Mean
My feelings of sadness increase when I receive a large number of fake news (rumors) via Telegram about the crimes of the occupation against civilians in the Gaza Strip.	High	79.10%	1.22	4
My feelings of anger increase when I see more fake news (rumors) via Telegram about the crimes of the Israeli occupation against civilians in the Gaza Strip.	High	83.70%	0.9	4.2
My feelings of anxiety increase when I receive a large number of fake news (rumors) via Telegram about the crimes of the occupation against civilians in the Gaza Strip.	Medium	61.30%	0.91	3.1
I do not have any negative feelings towards the fake news (rumors) that I receive via Telegram about the 2023 Gaza War.	Very Low	1.44%	1.06	3.5
My feelings of guilt increase when I receive a large number of fake news (rumors) via Telegram about the crimes of the occupation against civilians in the Gaza Strip.	Medium	52.00%	0.99	2.6
My feelings of despair increase when I receive a large number of fake news (rumors) via Telegram about the crimes of the occupation against civilians in the Gaza Strip.	Medium	66.70%	1.46	3.3
Average axis of the psychological effects of rumors and fake news about the 2023 Gaza war via the Telegram platform.	High	68.60%	0.75	3.4

Affective responses to misinformation and rumors can be categorized into four main types. Firstly, individuals often experience heightened emotions like sadness and anger when exposed to fake news or rumors, leading to elevated affective states. Secondly, moderate affective responses, including feelings of anxiety and hopelessness, are commonly observed. Thirdly, minimal affective engagement is noted, with guilt having the least discernible impact on individuals' responses. Finally, there is substantial variability in affective responses among individuals, as evidenced by differences in reported percentages and standard deviations.

In this study focusing on misinformation spread via Telegram during the 2023 Gaza Strip war, only 1.44% of respondents reported no negative affective responses. This small

proportion highlights the pervasive influence of negative emotions evoked by misinformation during times of conflict. Researchers suggest that this phenomenon is influenced by the sustained hostilities against the Gaza Strip and the influx of emotionally charged information during tumultuous periods. This aligns with Al-Saqqaf's (2008) assertion that individuals facing aggression and threats beyond their control tend to exhibit defensive or retaliatory behaviors. Additionally, the observed negative emotional reactions to misinformation support the idea that rumors can leave a psychological imprint on individuals' well-being (Al-Saqqaf, 2008).

**Results of the fourth question: To what extent do users of the Telegram platform in Palestine trust observatories to verify information during the war on Gaza in 2023?**

**Table 12: Quantitative Analysis of Psychological Impact Metrics and Reliability Assessment of Information Verification Observatories on the 2023 Gaza Strip war via Telegram: Perspectives of Verification Observatory Followers**

Statement	Percentage	Standard Deviation	Mean	Level
I consider information verification observatories on Telegram to be a reliable source for verifying false information during the 2023 Gaza War.	74.80%	1.15	3.7	high
I believe that the information from the information verification	72.50%	1.14	3.6	high



observatories on Telegram was accurate during the 2023 Gaza War.				
The information from the verification observatories on Telegram during the 2023 Gaza War has a positive effect on my psychological feelings.	82.50%	1.53	4.1	high
I find that the information verification observatories on Telegram are able to provide accurate information during the 2023 Gaza War.	73.10%	1.16	3.7	high
I have other sources on Telegram that I rely on more for verifying information during the 2023 Gaza War than the information verification observatories (Kashif, Tahaqaq, Tayqan).	78.80%	1.51	3.9	high
I feel that the performance of the information verification observatories on Telegram alleviates the negative psychological effects resulting from the rumors spread about the 2023 Gaza War.	72.00%	1.16	3.6	high
The speed of the information verification observatories on Telegram in verifying false news and rumors about the 2023 Gaza War reduces the negative psychological effects I experience from them.	71.50%	1.12	3.6	high
Refuting/correcting/information verification observatories on Telegram for false news about the 2023 Gaza War does not have a positive effect on my psychological feelings.	65.80%	1.28	3.3	medium
My trust in what the verification observatories on Telegram publish alleviates my negative feelings towards the various false news about the Gaza War.	72.00%	1.08	3.6	high
Average axis of psychological effects and the reliability of information verification observatories on the 2023 Gaza War on Telegram.	73.70%	0.85	3.7	high

The findings reveal a strong positive response, with a mean score of 73.7% for trust and effectiveness.

A significant majority (74.8%) expressed trust in these verification observatories, particularly those like Kashif, Tahaqaq, and Tayqan. Similarly, 73.1% considered them highly capable of providing accurate information during the war. This aligns with Pennycook et al. (2022) who found people prioritize accuracy over intent when sharing news. Their study also highlighted the importance of honesty in accuracy assessments, further supporting the positive perception of these observatories.

Interestingly, 78.8% of respondents reported using alternative sources on Telegram for verification, suggesting a preference for diverse methods. This reflects critical thinking and a desire for information from multiple sources. Pennycook et al. (2022) also noted a disparity between accuracy judgments

and sharing intentions, where people were more likely to share misleading headlines than rate them as accurate. Their study suggests that prompting individuals to consider accuracy could improve news sharing behavior.

The researchers attribute the high trust in verification observatories to their consistent provision of accurate information before and during the war. This emphasizes the positive impact of these platforms in mitigating misinformation. Additionally, 35% of respondents followed all three major observatories (Tahaqaq, Kashif, and Tayqan), demonstrating a comprehensive approach to verification.

This diverse engagement pattern suggests a preference for relying on multiple information sources during conflict situations. It reflects a critical thinking approach aimed at refuting misinformation by utilizing various verification platforms and specialized websites.

**Table 13: Percentage of Followers Engaged with Information Verification Observatories on the Telegram Platform During the 2023 Gaza war**

The observatory I follow on Telegram	Yes	No
Kashif	37.6%	62.4%
Tahaqaq	39.9%	60.1%
Tayqan	11.8%	88.2%
All of above	35.0%	65.0%
Others	4.2%	95.8%

**Results of the fifth question: How does the verification observatories' refutation of fake news via Telegram affect the mental health of the application's users during the war on Gaza in 2023?**

The findings are presented in Table (14) indicate that a significant portion of respondents, comprising 82.5%, experienced positive effects from information sourced through verification channels on Telegram during the 2023 Gaza conflict. Furthermore, 72% of respondents perceived the efforts

of information verification observatories as instrumental in mitigating the adverse psychological impacts stemming from rumors disseminated via Telegram regarding the war. A parallel sentiment was expressed by 72% of participants, attributing the alleviation of their psychological distress to their trust in the information disseminated by these verification observatories on Telegram concerning the 2023 Gaza war. Moreover, a noteworthy 71.5% of respondents reported a reduction in the severity of negative psychological effects resulting from rumors spread during the 2023 Gaza war, attributable to the swift actions of verification observatories in refuting false news and

rumors disseminated via Telegram. Interestingly, 65.8% of respondents affirmed that the refutation or correction efforts undertaken by verification observatories on Telegram regarding misinformation pertaining to the 2023 Gaza war positively impacted their psychological well-being, contrary to previous perceptions.

Table (14) delineates the cognitive awareness of information verification observatories' efforts in refuting or correcting misinformation related to the 2023 Gaza war, categorized by the nature of false news encountered, alongside the corresponding percentage reductions in the severity of respondents' psychological effects.

**Table 14: Cognitive Assessment of Information Verification Observatories' Efforts in Refuting/Correcting Misinformation Pertaining to the 2023 Gaza war: Impact on Severity Reduction of Respondents' Psychological Effects**

Psychological emotion	Captive civilians	Bombing Building	Civilians being displaced	Killing civilians	Thirst and hunger
Sadness	56.50%	62.70%	57.50%	58.20%	56.20%
Hopelessness	35.00%	38.90%	37.30%	33.30%	29.70%
Feeling Guilt	24.80%	27.10%	23.90%	28.10%	31.00%
Anxiety	46.70%	42.20%	44.40%	44.40%	44.80%
Anger	42.50%	41.80%	45.40%	43.10%	39.50%
Other feeling	20.60%	21.60%	20.60%	21.20%	18.60%
Average	683.37%	05.39%	183.38%	05.38%	63.36%
Feel nothing	2.00%	1.30%	1.30%	0.70%	1.30%

The findings reveal that the effectiveness of refuting misinformation varies depending on the content.

Correcting bombing misinformation had the most significant impact (62.7%), reducing feelings of sadness. This aligns with the fear of loss associated with bombings (Al-Zubaydi, 2009). Conversely, refuting displacement misinformation had a minimal effect on guilt (23.9%). Researchers suggest this might be due to the perception of local displacement as temporary, lessening the emotional weight compared to other news.

Psychological responses like anxiety and fear fell between these extremes, ranging from 21.6% for bombings to 18.6% for hunger and thirst. Notably, those with family in Gaza were most affected by verification efforts, while those directly affected by casualties showed the least change. This aligns with Liu & Qi's (2022) research suggesting intervention effectiveness depends on the audience's emotional state.

A small percentage (2% to 0.7%) reported no change. This could be due to trust in observatories, individual perceptions, or personal war experiences.

Results of the sixth question: **How can the role of information verification observatories be developed in Palestine to mitigate the negative effects left by rumors in times of war?**

Respondents advocated for a multifaceted approach to strengthen these observatories:

- **Technology and Collaboration:** Utilize modern tools, partner with media outlets, and establish joint communication channels to expedite information access and verification.
- **Content Focus:** Prioritize disseminating accurate information through expert interviews and positive stories, while leveraging AI for swift intervention against misinformation.
- **Neutrality and Outreach:** Maintain objective and neutral content regardless of the source, and expand verification efforts across all social media platforms.

These recommendations call for a proactive and collaborative effort between verification observatories, media outlets, and civil society organizations. Similar to Ali (2021), Abdel-Hay (2020), and Salem & Shabib (2018), this study emphasizes the need for proactive rumor monitoring by observatories. However, it goes

further by assessing the effectiveness of these efforts in mitigating the psychological impact of rumors.

The current climate underscores the importance of verification observatories in safeguarding mental well-being during crises. Partnerships and awareness campaigns, as suggested by Wang et al. (2023), are crucial for disseminating accurate information and mitigating negative psychological effects like fear and anxiety. Early intervention, as emphasized by Liu & Qi (2022) and this study, is essential to address rumors in their early stages and minimize their psychological harm. Additionally, reminding users about news accuracy, as found by Pennycook et al. (2022), can enhance their ability to discern truth from falsehood, particularly during conflicts.

By implementing these recommendations and fostering collaboration, verification observatories can be empowered to combat misinformation and protect mental well-being within Palestinian communities during crises.

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