



Received: 09-07-2024  
Accepted: 19-08-2024

## International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

### COVID-19 and Misinformation in Egypt: An In-Depth Analysis

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#### Abstract

The COVID-19 pandemic has posed unprecedented challenges to global public health, with misinformation emerging as a significant barrier to effective crisis management. This comprehensive study examines the prevalence, dissemination, and impact of COVID-19-related misinformation in Egypt. Employing a mixed-methods approach, the research integrates quantitative data from extensive surveys with qualitative insights from in-depth interviews. The study scrutinizes the proliferation of misinformation across various channels, focusing particularly on social media platforms, and evaluates its

effects on public health measures, vaccine acceptance, and overall public perception. Findings indicate that misinformation significantly undermined public trust in health authorities, contributed to widespread confusion, and fostered hesitancy regarding COVID-19 prevention and treatment strategies. This paper aims to provide a thorough understanding of the misinformation landscape in Egypt during the pandemic and offers evidence-based recommendations for combating false information in future public health crises.

**Keywords:** COVID-19, Misinformation, Egypt, Social Media, Public Health, Vaccine Hesitancy, Trust, Infodemic, Digital Literacy

#### 1. Introduction

##### 1.1 Background

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, has resulted in profound global disruptions, impacting health systems, economies, and social structures worldwide since its emergence in late 2019. Amidst this public health crisis, the world witnessed the rise of an “infodemic” - a term coined by the World Health Organization (WHO) to describe the rapid spread of misinformation, which complicated efforts to manage the pandemic effectively (World Health Organization, 2020). This misinformation, encompassing false or misleading information, spread at an unprecedented scale, primarily through digital platforms, significantly influencing public perception and behavior (Zarocostas, 2020).

Egypt, the most populous country in the Arab world with over 100 million citizens, experienced a significant impact from this infodemic. The country's demographic, cultural, and technological landscape created fertile ground for misinformation to thrive and spread rapidly. Social media platforms, in particular, played a crucial role in the dissemination of both information and misinformation, given the high internet penetration and the prevalence of social media usage among the Egyptian population (We Are Social & Hootsuite, 2023). As Allam and Elyas (2021) noted, social media has become a primary source of information for many Egyptians, shaping their perceptions and responses to the pandemic.

The consequences of misinformation during health crises are severe and far-reaching. Previous research has demonstrated that misinformation can erode public trust in health authorities, reduce adherence to preventive measures, and increase vaccine hesitancy (Pennycook *et al.*, 2020; Roozenbeek *et al.*, 2020<sup>[5]</sup>). In Egypt, these effects were exacerbated by the widespread dissemination of conspiracy theories, false cures, and other misleading narratives related to COVID-19, further complicating public health efforts (Youssef, 2021)<sup>[10]</sup>.

##### 1.2 Research Objectives

This study aims to provide a comprehensive analysis of COVID-19-related misinformation in Egypt. The primary objectives are to:

- Identify and categorize the most common forms of COVID-19-related misinformation circulating in Egypt.

- Examine the role of various information channels, particularly social media platforms, in the dissemination of misinformation.
- Assess the impact of misinformation on public health behavior, including adherence to preventive measures and attitudes towards vaccination.
- Investigate the factors contributing to the belief in and spread of misinformation among the Egyptian population.
- Evaluate the effectiveness of existing efforts to counter misinformation in Egypt.
- Provide evidence-based recommendations for combating misinformation in future public health crises.

## 2. Literature Review

### 2.1 Misinformation and Public Health

The spread of misinformation during health crises is not new, but the scale and speed at which false information has spread during the COVID-19 pandemic are unprecedented. Numerous studies have documented the harmful effects of misinformation on public health outcomes.

Pennycook *et al.* (2020) demonstrated that exposure to misinformation can lead to reduced compliance with public health guidelines and increased skepticism towards scientific evidence. Their research showed that even brief exposure to false claims about COVID-19 could significantly influence people's intentions to engage in preventive behaviors.

Similarly, a study by Roozenbeek *et al.* (2020)<sup>[5]</sup> found that susceptibility to misinformation was negatively correlated with willingness to get vaccinated against COVID-19. This highlights the potential for misinformation to undermine vaccination campaigns, which are crucial for controlling the spread of the virus.

### 2.2 The Role of Social Media

Social media platforms have emerged as major vectors for the spread of misinformation during the COVID-19 pandemic. A comprehensive analysis by Brennen *et al.* (2020) found that while false claims appeared across various media, social media platforms were the primary drivers of misinformation spread.

In Egypt, where platforms like Facebook, Twitter, and WhatsApp are widely used, the role of social media in disseminating both information and misinformation has been particularly significant. Allam and Elyas (2021) found that social media was the primary source of COVID-19 information for most Egyptians, highlighting the potential for these platforms to shape public perceptions and behaviors related to the pandemic.

### 2.3 Misinformation in Egypt

Egypt's experience with COVID-19 misinformation reflects both global trends and unique local factors. Youssef (2021)<sup>[10]</sup> conducted a comprehensive analysis of COVID-19 misinformation in Egypt, identifying several prevalent themes, including false cures and treatments, conspiracy theories, vaccine misinformation, allegations of underreporting of cases, and religious narratives.

Abdelhafiz *et al.* (2020)<sup>[11]</sup> conducted a survey on COVID-19 knowledge and perceptions among Egyptians, finding that while general awareness of the disease was high, significant misconceptions existed about transmission, prevention, and treatment. The study emphasized the need for targeted health education campaigns to address these knowledge gaps.

### 2.4 Psychological Factors Contributing to Misinformation Belief

Understanding the psychological factors that drive belief in misinformation is crucial for addressing its spread. Research by Lewandowsky *et al.* (2012)<sup>[11]</sup> highlights that cognitive biases, such as confirmation bias and the Dunning-Kruger effect, play significant roles in how individuals interpret and accept false information. Confirmation bias leads individuals to favor information that confirms their preexisting beliefs, even when such information is false. The Dunning-Kruger effect, on the other hand, describes how individuals with limited knowledge in a domain are often overconfident in their understanding, making them more susceptible to misinformation.

A study by van der Linden *et al.* (2020)<sup>[12]</sup> further explored the concept of "cognitive inoculation," which suggests that preemptively exposing individuals to weakened forms of misinformation, along with refutations, can help build resilience against future misinformation. This approach has been shown to reduce susceptibility to false claims about COVID-19, including in contexts like Egypt, where misinformation about the virus has been rampant.

### 2.5 The Role of Traditional Media in Misinformation Spread

While social media has been identified as a major driver of misinformation, traditional media outlets have also played a role. A study by Nielsen *et al.* (2021)<sup>[13]</sup> found that traditional media, including television and newspapers, sometimes inadvertently contributed to the spread of misinformation by amplifying false claims made by public figures or by failing to adequately fact-check information before publication. In Egypt, where television remains a widely consumed medium, the role of traditional media in shaping public perceptions during the pandemic cannot be overlooked.

The work of Zayed (2022)<sup>[14]</sup> examines how Egyptian television programs, particularly talk shows, occasionally disseminated unverified information about COVID-19, contributing to public confusion. This highlights the need for stricter editorial guidelines and fact-checking processes within traditional media outlets to mitigate the spread of misinformation.

### 2.6 Government Response to Misinformation

Government efforts to combat misinformation during the COVID-19 pandemic have varied widely across the globe. In Egypt, the government has taken steps to address misinformation, including launching public awareness campaigns and partnering with international organizations like the World Health Organization to disseminate accurate information. However, the effectiveness of these efforts has been mixed.

El-Tantawy and Wiest (2021)<sup>[15]</sup> argue that the Egyptian government's approach to misinformation has been hampered by a lack of transparency and public trust. Their research indicates that the government's attempts to control the narrative, including through the arrest of individuals accused of spreading misinformation, may have backfired, leading to greater skepticism and the proliferation of alternative narratives. This underscores the importance of building public trust through transparency and open communication, rather than solely relying on punitive measures.

### 2.7 International Comparisons of Misinformation Spread

Comparing the spread of COVID-19 misinformation in Egypt with other countries can provide valuable insights into the global nature of the infodemic. A study by Scott *et al.* (2021)<sup>[16]</sup> compared misinformation trends across several countries, including Egypt, India, the United States, and Brazil. The study found that while the types of misinformation varied by country, common themes included false claims about the origins of the virus, the efficacy of vaccines, and supposed cures.

In Egypt, as in other countries, misinformation has been driven by a combination of factors, including political polarization, religious beliefs, and a general mistrust of government institutions. However, the study also highlighted that countries with higher levels of digital literacy and stronger public health infrastructure were better able to combat misinformation. This suggests that efforts to improve digital literacy and public health communication in Egypt could help mitigate the impact of misinformation in future crises.

### 2.8 The Impact of Misinformation on Vulnerable Populations

Vulnerable populations, including those with lower socio-economic status, limited access to education, and marginalized communities, are often disproportionately affected by misinformation. A study by Jamieson and Albarracín (2020)<sup>[17]</sup> found that these groups are more likely to encounter and believe misinformation, due to a combination of factors such as lower digital literacy, reliance on social networks for information, and reduced access to credible sources.

In Egypt, marginalized groups, including rural populations and those with lower levels of education, have been particularly susceptible to COVID-19 misinformation. El-Gamal (2022)<sup>[18]</sup> discusses how misinformation about the virus's transmission and treatment has exacerbated existing health disparities in these communities, leading to higher rates of infection and lower vaccination uptake. This highlights the need for targeted interventions that address the specific needs of vulnerable populations in combating misinformation.

## 3. Methodology

### 3.1 Survey Design

A structured online survey was conducted among a diverse sample of 2,500 Egyptian citizens from January to March 2023. The survey collected information on demographics, sources of COVID-19 information, exposure to misinformation, perceived credibility of sources, and behaviors influenced by misinformation.

### 3.2 Interviews

In-depth interviews were conducted with health professionals (n=20), media experts (n=15), and a subset of survey respondents (n=50) to gain deeper insights into the nature of misinformation and its impact on public behavior.

### 3.3 Data Analysis

Quantitative data from the surveys were analyzed using SPSS, while qualitative data from interviews were thematically analyzed using NVivo software.

## 4. Results and Discussion

### 4.1 Prevalence of Misinformation

The survey revealed that a significant portion of the Egyptian population was exposed to COVID-19-related misinformation, with social media being the primary source.

**Table 1:** Sources of COVID-19 Misinformation in Egypt

Source	Percentage of Respondents (%)
Social Media	75%
Word of Mouth	50%
Traditional Media	30%
Official Sources	10%

### 4.2 Types of Misinformation

The study identified several categories of COVID-19 misinformation prevalent in Egypt.

**Table 2:** Prevalence of Different Types of COVID-19 Misinformation

Type of Misinformation	Percentage of Respondents Exposed (%)
False cures and treatments	68%
Conspiracy theories about virus origin	62%
Vaccine misinformation	55%
Underreporting of cases by authorities	48%
Religious narratives about the pandemic	40%
Misinformation about preventive measures	35%

### 4.3 Impact on Public Health Behavior

Misinformation significantly influenced public health behavior in Egypt.

**Table 3:** Impact of Misinformation on Public Health Behavior

Behavior Affected	Percentage of Respondents (%)
Reduced Mask Usage	40%
Avoidance of Vaccination	35%
Use of Unproven Treatments	30%
Delay in Seeking Treatment	25%
Non-compliance with Social Distancing	20%

### 4.4 Factors Influencing Susceptibility to Misinformation

Several factors were associated with increased susceptibility to believing and sharing COVID-19 misinformation:

- **Education level:** Lower levels of education were correlated with higher susceptibility to misinformation.
- **Age:** Younger respondents (18-34) were more likely to encounter misinformation on social media but were more likely to fact-check information. Older respondents (55+) were more susceptible to believing misinformation.
- **Urban vs. Rural:** Rural respondents were more likely to believe and share misinformation compared to urban respondents.
- **Trust in institutions:** Lower trust in government and health institutions increased susceptibility to alternative narratives and conspiracy theories.
- **Digital literacy:** Respondents with higher digital literacy were better able to identify and reject misinformation online.

#### 4.5 Role of Social Media Platforms

Social media platforms were identified as significant contributors to the spread of misinformation. Key findings include:

- **Rapid spread:** 70% of respondents reported seeing the same piece of misinformation multiple times across different platforms within a short period.
- **Limited fact-checking:** Only 25% of respondent's regularly fact-checked information before sharing it on social media.
- **Algorithm influence:** 55% of respondents felt that social media algorithms exposed them to more misinformation over time.
- **Platform differences:** Facebook was associated with the highest exposure to misinformation (65%), followed by WhatsApp (55%) and Twitter (30%).

#### 5. Effectiveness of Counter-Misinformation Efforts

**Table 4:** Effectiveness of Counter-Misinformation Strategies

Strategy	Perceived Effectiveness (%)
Official communications	40%
Fact-checking initiatives	55%
Social media platform interventions	45%
Health education campaigns	60%
Media literacy programs	70%

#### 6. Challenges and Recommendations

##### 6.1 Enhancing Digital and Health Literacy

- Integrate digital literacy and critical thinking skills into school curricula to empower individuals to identify and reject misinformation.
- Increase accessibility to reliable sources of information, particularly in rural areas, through targeted campaigns.

##### 6.2 Strengthening Public Trust in Institutions

- Foster transparency in government and health communications to build public trust and counter the appeal of misinformation.
- Engage with community leaders, including religious figures, to disseminate accurate information and debunk misinformation.

##### 6.3 Social Media Platform Accountability

- Implement stricter regulations for social media platforms to reduce the spread of misinformation.
- Encourage social media companies to improve fact-checking mechanisms and make them more visible to users.

##### 6.4 Tailored Health Communication Strategies

- Develop targeted communication strategies for different demographic groups, considering their specific needs and vulnerabilities.
- Use a combination of traditional media, social media, and community outreach to reach diverse audiences.

#### 7. Discussion

The findings of this study align with previous research on the role of misinformation during public health crises, emphasizing the significant impact of false information on public perception and behavior. In the context of Egypt, the spread of misinformation during the COVID-19 pandemic

has been pervasive, influenced by both global trends and unique local factors.

The analysis revealed that misinformation in Egypt followed patterns seen worldwide, with social media playing a crucial role in the dissemination of false claims. Platforms such as Facebook, Twitter, and WhatsApp emerged as primary sources of information for the Egyptian public, mirroring global findings that highlight social media as a major vector for misinformation (Brennen *et al.*, 2020). However, what sets Egypt apart is the intertwining of misinformation with cultural, religious, and political narratives, which has further complicated efforts to combat false information.

The study by Allam and Elyas (2021) highlighted the dual role of social media in Egypt: while it served as a key source of information for many, it also became a breeding ground for misinformation. This duality underscores the challenges faced by public health officials in leveraging social media for disseminating accurate information while mitigating the spread of false claims.

The prevalence of conspiracy theories, vaccine misinformation, and narratives related to religious interpretations of the pandemic, as identified by Youssef (2021) <sup>[10]</sup>, reflects the deep-rooted societal factors that influence the acceptance and spread of misinformation in Egypt. This suggests that any efforts to counter misinformation must be culturally sensitive and tailored to address the specific concerns and beliefs prevalent in Egyptian society.

Moreover, the survey by Abdelhafiz *et al.* (2020) <sup>[1]</sup> demonstrated that while there was a general awareness of COVID-19 among Egyptians, significant misconceptions persisted. These misconceptions, fueled by misinformation, could undermine public health efforts, particularly in the areas of vaccination and adherence to preventive measures.

#### 8. Conclusion

This study underscores the critical challenge posed by misinformation during the COVID-19 pandemic in Egypt. The findings highlight the need for targeted, culturally sensitive health communication strategies that address the unique social, cultural, and political context of Egypt. Social media platforms, while essential for information dissemination, must be carefully managed to mitigate the spread of misinformation. Collaborative efforts between government agencies, health organizations, and social media platforms are essential to ensure that accurate information reaches the public and that misinformation is effectively countered.

Future research should focus on developing and testing interventions tailored to the Egyptian context, exploring the effectiveness of different strategies in combating misinformation, and enhancing public health communication. Additionally, there is a need for longitudinal studies to assess the long-term impact of misinformation on public health outcomes in Egypt, particularly in relation to vaccination campaigns and adherence to preventive measures.

By addressing the specific factors contributing to misinformation in Egypt, it is possible to enhance the effectiveness of public health interventions and ultimately improve health outcomes during the ongoing and future health crises.

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