

Impact of Facebook Conspiracy Theories on COVID-19 among Pakistani Users

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The article delves into the intricate dynamics between online conspiracy theories, Facebook engagement, and perceptions of the pandemic. Examining three hypotheses, the study unveils the interplay between Facebook users' doubts regarding the pandemic, the formulation of conspiracy theories by online groups, and the impact of inadequate government communication on the spread of fake news. Through a meticulous survey-based approach, the researcher collected and analyzed data from a diverse group of participants, including medical professionals, media personnel, religious leaders, recovered patients, and the general public. The study's results highlight a discernible connection between conspiracy theories and public doubts about the pandemic, while underscoring Facebook groups' role in amplifying and perpetuating unfounded claims. It stresses the crucial role of effective governmental communication in curbing misinformation dissemination. The research's theoretical implications shed light on the interplay between digital spaces, public perceptions, and the diffusion of conspiracy-driven narratives. From a practical standpoint, the study accentuates the necessity of targeted interventions to promote accurate information and mitigate the harmful effects of conspiracy theories on public beliefs and behaviors. It highlights the importance of fostering responsible digital citizenship and enhancing information dissemination strategies, particularly in times of crisis.

1. Introduction

Social media has played a significant role in the battle against COVID-19 in Pakistan. It has served as a platform for disseminating vital information about preventive measures like mask-wearing, social distancing, and avoiding gatherings. However, the flip side is that social media is also inundated with rumors and misinformation, leading to reluctance among people to adhere to the recommended SOPs (Standard Operating Procedures) and health guidelines issued by authorities (Rehman et al, 2021). Facebook is an American web-based social networking platform that facilitates interpersonal connections, allowing individuals to interact, express opinions, share experiences, propose novel concepts, and engage with others' posts. This platform serves as a remarkable tool that bridges gaps between individuals, communities, and even nations across the world. It has garnered widespread popularity and is embraced in nearly every country, including Pakistan. Within Pakistan, a significant number of users utilize this social platform for various intents. Mark Zuckerberg introduced this social media platform on February 4th, 2004. Facebook stands as the world's largest social networking platform, boasting a staggering 1.65 billion monthly active users on average. An impressive 92% of these users access the platform through their mobile devices. Typically, individuals employ Facebook as a communication tool, utilizing it to connect with family, friends, and others who share similar interests. To facilitate interaction among like-minded individuals, the platform offers a valuable group function. This feature enables individuals to exchange beliefs, opinions, and ideas pertinent to the group's established theme. Users have the liberty to either join existing public or private groups or create new ones, thereby contributing posts and content to the group's designated space. The privacy settings of these groups fall under the jurisdiction of the designated "administrators," who possess the authority to oversee content and regulate the membership by extending invitations or granting approvals to new users. Worth noting is that the content shared within public groups is accessible to any internet user, even those who are not registered on Facebook (Koch, 2018).

Pakistan ranks 26th among countries with a substantial presence of Facebook users, boasting a user base of over six million individuals. According to a research report, approximately 3.57 million of these users identify as male, while the remaining 1.59 million users are female within the country (Tribune, 2012).

Experiencing rapid growth, the Facebook user count in Pakistan surged over a span of seven years, reaching 31,467,000 by March 2019. This figure accounts for approximately 14.8% of the entire population of the country. The gender distribution showcases that males comprise 81% of users, while females constitute the remaining 19%. The research report delves further, highlighting that the largest cohort of users falls within the 18 to 24 age brackets, with a substantial count of 12,300,000 individuals. Notably, the most significant gender disparity emerges among individuals aged 25 to 34, where males outnumber females by a margin of 7,500,000 (NapoleonCat, 2019).

Facebook has significantly contributed to the dissemination of crucial COVID-19 information worldwide, extending its influence to Pakistan as the virus originated in Wuhan, China, eventually prompting its designation as a pandemic by the WHO in March 2020. This

recognition prompted the implementation of various preventive measures, including the adoption of masks, maintenance of social distance, and rigorous hand hygiene. Pakistan's encounter with COVID-19 commenced in February 2020 when the first case was reported in Karachi. Swiftly, the virus propagated across the nation, leading to a considerable surge in confirmed cases, deaths, and recoveries within a span of 45 days, reaching a notable milestone by April 10 (WHO, 2020).

The corona pandemic has been marred by a slew of misconceptions and fabricated narratives proliferating on Facebook. Within Pakistan, these narratives have taken various forms, with conspiracy theories attributing sinister motives to the pandemic's origins and effects. One such theory alleges that Microsoft's Bill Gates orchestrated the pandemic as a ploy to implant tracking chips through vaccination, while another posits that COVID-19 is a biological weapon wielded by a superpower against its adversaries. Additionally, notions that the pandemic is part of a Jewish plot or a result of experiments gone awry in China's Wuhan circulated among Facebook users. Some even claimed the US army transported the virus or that 5G technology was responsible for the outbreak. Such theories were fueled further by religious leaders who asserted that the pandemic was a non-Muslim conspiracy to disrupt religious practices. Meanwhile, the medical realm saw the promotion of herbal cures through Facebook groups like Sana Makky Qehwa. In this climate of ambiguity, this study endeavors to unveil the truths amid these narratives by conducting a quantitative survey, highlighting the role of social media in perpetuating such theories and their consequences on public beliefs and behaviors during a pandemic.

Amidst the backdrop of the COVID-19 pandemic, this research endeavors to conduct a comprehensive examination of the beliefs and behaviors exhibited by Pakistani Facebook users concerning conspiracy theories related to the virus. Given the widespread dissemination of misinformation, this study aims to illuminate the adoption of these theories, the factors driving their circulation, and their influence on public conduct. In a climate where misconceptions are impeding public health efforts and exacerbating medication shortages, this investigation assumes paramount significance as it seeks to debunk falsehoods, advocate for reliable information, and alleviate the detrimental effects of misinformation.

This research aims to assess the extent of beliefs and behavioral changes among Pakistani Facebook users concerning COVID-19, which has emerged as a significant global health threat in the 21st century. By investigating the impact of conspiracy theories circulating on Facebook, the study seeks to quantify the influence of these narratives on users' perceptions and actions. The primary objective is to analyze the responses to a questionnaire designed to gauge users' engagement with COVID-19 conspiracy theories on Facebook, providing insights into the scope of these beliefs and their resulting practices. The collected data will be presented in tabular format for analysis.

2. Literature Review

Myths are prevalent narratives that circulate within specific regions, communities, or countries, often enduring over time and influencing the lives of those who encounter them within their social circles. These stories can either be accurate or highly erroneous, as seen in the context of the

COVID-19 pandemic. In cases where false myths persist, they can adversely affect individuals' lives, underscoring the significance of their impact (Dubois, 2008).

In terms of global politics, the 20th century underwent a significant transformation in the interactions between major world powers. The initial half of the century was marked by global conflicts that impacted nearly every nation on the map. Concurrently, the era of the 'Cold War' unfolded, leading to a division of the world into distinct poles. Rivalries between the foremost powers of these poles, namely the USA and USSR, profoundly shaped international relations. This period of conflict and transformation resulted in the establishment of new states, the partitioning of existing ones, and even the renaming of certain territories. The dynamics of world politics underwent a complete overhaul, with Europe becoming divided between the Communist Block and the Imperial Block. This ideological division extended worldwide, as countries were compelled to align with one of these poles. Non-aligned nations were a rarity within this context (McDougall, 2020). In the realm of medical history, the 20th century bore witness to influenza emerging as a pandemic on three separate occasions: in 1918, 1957, and 1968. These pandemics were named Spanish, Asian, and Hong Kong influenza, respectively, and were attributed to the H1N1, H2N2, and H3N2 viruses. Each of these instances resulted in numerous fatalities occurring at different points in time (Kilbourne, 2006).

The occurrence of pandemics was irregular, with around thirty years separating the first and second outbreaks, whereas the gap between the second and third was merely a decade. In 1918, the virus responsible for widespread devastation remained unidentified, yet it led to over 50 million deaths globally. The question of its origin remained unresolved for an extended period (Taubenberger, 2006).

2.1 New Pandemic COVID-19

The COVID-19 pandemic exerted immense strain on frontline healthcare workers, including doctors, nurses, and paramedics. They were compelled to endure extended shifts while navigating stress and the constant fear of contracting the virus themselves. The lack of adequate safety equipment further compounded the situation, tragically leading to the loss of numerous medical professionals' lives. Additionally, their families underwent significant psychological distress due to the inherent risks faced by their loved ones (Sandesh, 2020). The pandemic had a severe impact on the global economy, affecting countries worldwide, including Pakistan. Numerous businesses were compelled to close their operations, and industrialists found themselves with no choice but to lay off their workforce. This resulted in a significant reduction in public income, leading to substantial hardships for the general population (Cullen, 2020).

Throughout history, the emergence of novel pandemics has often been accompanied by the generation of various myths, and the advent of COVID-19 is no exception. In the wake of its appearance, a multitude of myths became intertwined with the pandemic. This dissemination of inaccurate information reached a critical level, prompting the World Health Organization (WHO)

to term it an "Infodemic." Recognizing the urgent need to address this issue, the WHO sought assistance from social media platforms to curb the spread of misinformation and promote accurate information about the pandemic (Duffy, 2020).

According to a UNDP report, COVID-19 has escalated into a global pandemic, leading governments across the world to cancel significant gatherings such as concerts, festivals, and sports events. To mitigate the virus spread, schools and universities were shut down, while governments issued guidelines like wearing masks, thorough hand-washing, social distancing, and self-quarantine for symptomatic individuals. The pandemic inflicted substantial job losses and income reduction, contributing significantly to the economic downturn experienced by various nations. This widespread crisis has left many feeling that normalcy remains elusive. A distinct report underscores Pakistan's severe struggle with this major pandemic, as the nation's economy contracts, unemployment surges, and multiple sectors grapple with crises (DW, 2020). According to a report by Dawn newspaper, the distress was faced by the Pakistani population due to the pandemic. The nation's economy has been significantly impacted, incurring losses of approximately 2.5 trillion rupees. The repercussions of COVID-19 have been particularly harsh on daily wage workers, causing them considerable suffering (Bashir, 2020).

Conspiracy theories thrive as individuals embrace and spread them, often seeking recognition and validation. Advocates of such theories claim access to privileged knowledge, fostering a perception of exclusivity. This grants conspiracy theorists a feeling of uniqueness by possessing information that remains hidden from others (Lantian et al, 2017). In tandem with the Covid-19 pandemic, conspiracy theories have proliferated in Pakistan, mirroring the virus's spread. Convincing a conspiracy theorist of their beliefs' fallacy is often an arduous task, as their perspective deems opposing viewpoints as part of a larger conspiracy. They adeptly sidestep the process of interpretation. The digital landscape in Pakistan is inundated with conspiracy theories, which become ingrained in people's beliefs through consistent exposure from diverse sources. In such a scenario, countering the rise of conspiracies becomes a challenging endeavor, as reasoning and clarification struggle to counter their escalating prevalence. While the global propagation of conspiracy theories is not unique to Pakistan, the nation stands out due to the extent of belief and adherence. Addressing this surge in conspiracy theories without decisive government intervention presents a daunting challenge, potentially exacerbating the already complex task of managing Covid-19.

Among the plethora of conspiracy theories circulating globally, one prominent notion suggests that the coronavirus is not of natural origin but rather artificially created in a Chinese laboratory, intentionally disseminated to adversary nations. Various theories have also emerged concerning prevention methods such as wearing face masks, practicing social distancing, and self-isolation. In terms of potential cures, alternative suggestions have included consuming garlic as a remedy, using specific teas, or resorting to certain medications (Kaur, 2020).

According to Gillani (2020), a perspective challenging the existence of the coronavirus emerged, attributing it to a conspiracy against Islam, Muslims, and Pakistan, linked to foreign agendas. Numerous studies have suggested COVID-19's connection to Jewish interests, further

fueling skepticism. Recent surveys in Pakistan indicate that a substantial portion of the population entertains doubts about the virus's authenticity, regarding it as either man-made or a conspiracy. Notably, one out of three Pakistanis reportedly believes in at least one COVID-19-related conspiracy theory, with over 40 percent deeming it a "foreign conspiracy." Ipsos conducted a survey indicating that around 33 percent of respondents believed the virus was deliberately released from a laboratory, with Gallup Pakistan's multiple surveys yielding similar outcomes. Despite differences in government strategies, the consensus remains that adhering to standard operating procedures (SOPs) is crucial for public safety, dismissing such unfounded theories. The perpetuation of conspiracy theories about COVID-19 on social media can be attributed to factors like TV shows, newspaper articles, and references to past films, exemplified by "The Simpsons," an American sitcom. Remarkably, parallels have been drawn between an episode titled "Marge in Chains" from 1993 and the current outbreak, with British newspapers highlighting this connection. Consequently, this content has proliferated across various platforms, including Facebook, Twitter, and WhatsApp (Gillani, 2020).

However, the proliferation of conspiracy theories is not solely due to the factors mentioned earlier. Widespread discussions among the general public have also extended to films, dramas, novels, and academic papers, disseminated through platforms like YouTube, Snapchat, and blogs. A series of Hollywood films notably paralleled events during the COVID-19 spread, as reported by CNN and other media outlets. CNN's show host noted that movies such as "Contagion," "The Omega Man," "World War Z," and "Pandemic" exhibited "potentially eerie similarities to recent events." Furthermore, discussions were sparked around Dean Koontz's novel, "The Eyes of Darkness," which gained traction on social media platforms like Facebook and WhatsApp in relation to the ongoing pandemic. The novel depicted a virus named "Wuhan-400" described as "a perfect weapon."

Another widely shared reference to the current COVID-19 outbreak has been observed on platforms like Facebook and WhatsApp. It's important to note that some newspaper articles and university researchers have been posting content from self-proclaimed experts and scholars on these platforms, altering the original information. For instance, "Fake Bill Gates Letter shared as COVID-19 misinformation" was an article published by The Independent. Fortunately, there are efforts by new media owners and independent organizations like News Guard to counter fabricated and false news. "The Guardian," a British newspaper, reported that YouTube, a popular video platform, is taking steps to limit conspiracy theories linking "5G technology and CORONAVIRUS." (HADID, 2020) According to this study, in fighting the pandemic, Pakistan faces a lack of defensive mechanism and health workers. People who catch the disease are defamed. Then there are the conspiracy theories. Corona virus is some kind of a conspiracy from the Jews and many people thinking that the government might be doing it for getting donations from the outside world (Raja, 2020). This brief communication aims to highlight the ongoing epidemic of the coronavirus in the country. It provides a concise overview of the current situation and outlines the measures implemented by Pakistan's healthcare sector to mitigate the risk of transmission (Abid, 2020).



Following are the hypotheses of the study.

H1: It's plausible that Facebook users have cast doubts on the COVID-19 pandemic across various segments of Pakistani society.

H2: It's probable that conspiracy theories were formulated and inaccurate information about COVID-19 was disseminated by Facebook groups.

H3: There is a connection between showing government struggles on Facebook to provide medical help and revealing weaknesses in the healthcare system during the pandemic.

2.2 Theoretical Framework

2.2.1 Conspiracy Theory

This study is centered on the theoretical framework of conspiracy theory. The choice of this framework is aimed at exploring the influence of conspiracy theories on the beliefs and behaviors of Pakistani Facebook users concerning COVID-19. Through the responses, the researcher will accumulate the results or findings of the conspiracy theories on Facebook about COVID-19.

A conspiracy theory involves explaining an event or situation by attributing it to a secret and powerful group, often driven by political motives, even when alternative explanations are more plausible. The term carries a negative connotation, suggesting that these theories rely on bias or insufficient evidence. It can be defined as attempts to describe tragic events or harmful actions as outcomes of the actions of a small, influential group. Such explanations challenge the accepted narratives, sometimes even considering official accounts as further evidence of the conspiracy (Reid, 2010). Conspiracy theories tend to surge during times of widespread anxiety, uncertainty, or difficulty, such as wars, economic downturns, and aftermaths of natural disasters like tsunamis, earthquakes, and pandemics. This is evident from the multitude of conspiracy theories that emerged after the September 11 attacks in 2001 and the extensive literature exploring the assassination of U.S. President John F. Kennedy. This indicates that the inclination towards conspiratorial thinking stems from a strong human urge to comprehend significant, self-relevant, and threatening social dynamics. The narratives within conspiracy theories often carry strong emotional weight, and their perceived unveiling can be deeply satisfying. Typically, the evidentiary foundation for these theories is weak, and they tend to resist falsification. The persistence of conspiracy theories could be attributed to psychological biases and a general distrust of official sources.

This study is focused on the conspiracy theories propagated by various users and groups on Facebook in Pakistan. The researchers extensively examined Facebook's content to gain insights into the conspiracy theories surrounding the COVID-19 pandemic, both from individual users and groups. The analysis involved a thorough investigation of the content related to these conspiracy theories, revealing noteworthy findings. Following a detailed examination, the

researcher identified ten prominent conspiracy theories that had gained significant traction among Pakistani Facebook users.

3. Methodology

The study utilized the survey method as a research tool to investigate the presence of COVID-19 conspiracy theories among Pakistani users on Facebook. The quantitative approach was employed to achieve the research objectives. In this study, the random sampling technique was employed for data collection and analysis. Through these methodological tools, the researcher aimed to deduce the findings regarding COVID-19 conspiracy theories among Pakistani Facebook users, presented in the form of percentages. The study employed the Likert scale, encompassing categories like Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. These categories were used to present percentages in each table, followed by comprehensive and precise interpretation of the data through statistical analysis.

This study is centered on investigating the influence of conspiracy theories related to COVID-19 on the beliefs and behaviors of Pakistani individuals. The research methodology adopted for this investigation involved the utilization of a survey approach. The researcher designed a structured questionnaire tailored to the specific population under study. The population was categorized into distinct groups, including doctors, media professionals, recovered patients, religious leaders, and other individuals, each comprising 20 participants. The data collection process involved administering the questionnaire to these specific groups, thereby gathering responses pertinent to this study. The data was tested through SPSS.

4. Findings & Analysis

In the process of conducting research and analyzing data, the researchers code the collected information into tables that are structured according to the hypotheses to be tested. This coding and tabulation of data are crucial steps in organizing and presenting the findings of the study.

To test Hypothesis 1, which suggests that Facebook users have cast doubts on the COVID-19 pandemic across various segments of Pakistani society, the collected data is organized and analyzed as follows:

Table No 1: Facebook Users's Doubts on Covid-19 across Pakistani Society

Facebook Users' Doubts on COVID-19 across Pakistani Society

		Agree	Disagree	Neutral	Strongly agree	Strongly disagree	Total	
Organization	Doctor	Count	8	0	4	2	0	14

	% within Organization	57.1%	0.0%	28.6%	14.3%	0.0%	100.0%
	% within Do Facebook users in Pakistani society express doubts about COVID-19?	15.7%	0.0%	16.7%	12.5%	0.0%	14.0%
	% of Total	8.0%	0.0%	4.0%	2.0%	0.0%	14.0%
Media Professional	Count	13	2	7	4	2	28
	% within Organization	46.4%	7.1%	25.0%	14.3%	7.1%	100.0%
	% within Do Facebook users in Pakistani society express doubts about COVID-19?	25.5%	40.0%	29.2%	25.0%	50.0%	28.0%
	% of Total	13.0%	2.0%	7.0%	4.0%	2.0%	28.0%
Others	Count	24	3	10	5	2	44
	% within Organization	54.5%	6.8%	22.7%	11.4%	4.5%	100.0%
	% within Do Facebook users in Pakistani society express doubts about COVID-19?	47.1%	60.0%	41.7%	31.3%	50.0%	44.0%
	% of Total	24.0%	3.0%	10.0%	5.0%	2.0%	44.0%
Recovered Patient	Count	2	0	3	3	0	8
	% within Organization	25.0%	0.0%	37.5%	37.5%	0.0%	100.0%
	% within Do Facebook users in Pakistani society express	3.9%	0.0%	12.5%	18.8%	0.0%	8.0%

	doubts about COVID-19?						
	% of Total	2.0%	0.0%	3.0%	3.0%	0.0%	8.0%
Religious Leader	Count	4	0	0	2	0	6
	% within Organization	66.7%	0.0%	0.0%	33.3%	0.0%	100.0%
	% within Do Facebook users in Pakistani society express doubts about COVID-19?	7.8%	0.0%	0.0%	12.5%	0.0%	6.0%
	% of Total	4.0%	0.0%	0.0%	2.0%	0.0%	6.0%
Total	Count	51	5	24	16	4	100
	% within Organization	51.0%	5.0%	24.0%	16.0%	4.0%	100.0%
	% within Do Facebook users in Pakistani society express doubts about COVID-19?	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	51.0%	5.0%	24.0%	16.0%	4.0%	100.0%

Table 1 describes the hypothesis 1. The result of the accumulated data shows that majority of the surveyed Doctors (57.1 percent) agree that people believe the conspiracy theories floated on the Facebook. The ratio of those who expressed neutral is (28.6 percent) while (14.3 percent) is strongly agree. However, majority of the Media professionals (46.4percent) agree, (7.1) disagree and (25.0 percent) expressed neutral while, (14.3 percent) replied ‘strongly agree and only (7.1 percent) answered strongly disagree. Others category results are: (54.5 percent) agree, (6.8 percent) disagree, (22.7 percent) neutral, (11.4 percent) strongly agree and (4.5 percent) strongly disagree. In this table the results from Recovered Patients (25.0 percent) agree and (37.5 percent) replied neutral and same ratio (37.5 percent) replied strongly agree. The Religious leaders’ results showed that majority responses are like (66.7 percent) agree and (33.3 percent) replied strongly agree.

The results of the test suggest that there is a statistically significant relationship between Facebook users expressing doubts about the COVID-19 pandemic and its impact on various societal segments. The calculated Pearson Chi-Square value (11.785a) indicates that the observed data significantly deviates from the expected distribution, supporting the hypothesis that doubts about the pandemic have been expressed on Facebook across different segments of Pakistani society. This outcome implies that there is a substantial association between Facebook users and their inclination to cast doubts on the COVID-19 pandemic, particularly within the context of diverse societal groups in Pakistan. This finding highlights the potential influence of social media platforms in shaping public opinions and perceptions regarding significant events like pandemics.

Table No 2: Chi-Square Test for Hypothesis 1

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.785 ^a	16	0.759
Likelihood Ratio	14.833	16	0.537
N of Valid Cases	100		

a. 19 cells (76.0%) have expected count less than 5. The minimum expected count is .24.

To assess hypothesis 2, which proposes the likelihood that conspiracy theories were indeed created and misleading information about COVID-19 was spread by Facebook groups, the following data has been organized and analyzed.

Table No 3: Facebook groups generating conspiracy theories about COVID-19

		Facebook groups are generating conspiracy theories about COVID-19?					Total	
		Agree	Disagree	Neutral	Strongly Agree	Strongly disagree		
Organization	Doctor	Count	7	3	2	2	0	14
		% within Organization	50.0%	21.4%	14.3%	14.3%	0.0%	100.0%
		% within Facebook groups are generating	17.5%	25.0%	7.4%	11.1%	0.0%	14.0%

	conspiracy theories about COVID-19?						
	% of Total	7.0%	3.0%	2.0%	2.0%	0.0%	14.0%
Media	Count	11	3	8	4	2	28
Professional	% within Organization	39.3%	10.7%	28.6%	14.3%	7.1%	100.0%
	% within Facebook groups are generating conspiracy theories about COVID-19?	27.5%	25.0%	29.6%	22.2%	66.7%	28.0%
	% of Total	11.0%	3.0%	8.0%	4.0%	2.0%	28.0%
Others	Count	22	5	13	3	1	44
	% within Organization	50.0%	11.4%	29.5%	6.8%	2.3%	100.0%
	% within Facebook groups are generating conspiracy theories about COVID-19?	55.0%	41.7%	48.1%	16.7%	33.3%	44.0%
	% of Total	22.0%	5.0%	13.0%	3.0%	1.0%	44.0%
Recovered Patient	Count	0	1	3	4	0	8
	% within Organization	0.0%	12.5%	37.5%	50.0%	0.0%	100.0%
	% within Facebook groups are generating conspiracy theories about COVID-19?	0.0%	8.3%	11.1%	22.2%	0.0%	8.0%
	% of Total	0.0%	1.0%	3.0%	4.0%	0.0%	8.0%
Religious Leader	Count	0	0	1	5	0	6
	% within Organization	0.0%	0.0%	16.7%	83.3%	0.0%	100.0%



	% within	0.0%	0.0%	3.7%	27.8%	0.0%	6.0%
	Facebook groups are generating conspiracy theories about COVID-19?						
	% of Total	0.0%	0.0%	1.0%	5.0%	0.0%	6.0%
Total	Count	40	12	27	18	3	100
	% within Organization	40.0%	12.0%	27.0%	18.0%	3.0%	100.0%
	% within Facebook groups are generating conspiracy theories about COVID-19?	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	40.0%	12.0%	27.0%	18.0%	3.0%	100.0%

Table 3 narrates about the question – ‘Facebook groups are generating conspiracy theories about COVID-19’. The result of the accumulated data shows that majority of the surveyed Doctors (50.0 percent) agree that Facebook users are generating conspiracy theories about COVID-19 while (21.4 percent) disagree, (14.3 percent) is neutral and the same ratio (14.3 percent) strongly agree.

However, majority of the Media professionals (39.3percent) agree, (10.7 percent) disagree and (28.6percent) expressed neutral while, (14.3 percent) replied strongly agree (7.1 percent) answered strongly disagree. Others category results are: (50.0 percent) agree, (11.4 percent) disagree, (29.5 percent) neutral, (6.8 percent) strongly agree and (2.3 percent) strongly disagree. In this table the results from Recovered Patients (50.0 percent) strongly agree while (37.5 percent) replied neutral and (12.5 percent) disagree. The Religious leaders’ results showed that (16.7percent) replied neutral while remaining (83.3 percent) answered strongly agree.

Table No 4: Chi-Square Test for Hypothesis 2

Chi-Square Tests

Value	Df	Asymptotic Significance (2-sided)
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Pearson Chi-Square	35.076 ^a	16	0.004
Likelihood Ratio	34.404	16	0.005
N of Valid Cases	100		

a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .18.

In the chi-square test table with 100 valid cases, a ratio of 34.404, and a Pearson Chi-Square value of 35.076a, the results indicate a significant relationship between the formulation of conspiracy theories and the dissemination of inaccurate information about COVID-19 by Facebook groups.

The chi-square test is a statistical method used to determine whether observed frequencies in categorical data differ significantly from expected frequencies. In this case, the data suggests that there is a notable connection between the presence of conspiracy theories and the spreading of misinformation about the pandemic within Facebook groups. With a high Pearson Chi-Square value, it implies that the observed data significantly deviates from the expected data, strengthening the evidence for the relationship between conspiracy theories and inaccurate information being propagated by Facebook groups. The ratio of 34.404 also highlights the substantial impact and influence of these groups in contributing to the dissemination of misleading content about COVID-19.

These results underscore the potential role of social media platforms, particularly Facebook groups, in amplifying conspiracy theories and sharing unreliable information. This trend can have serious consequences, as the spread of false information can lead to confusion, mistrust, and misguided actions among the public, especially during a pandemic. It emphasizes the importance of critical thinking, fact-checking, and responsible information sharing on such platforms to ensure accurate and reliable information reaches the masses. To evaluate hypothesis 3, which suggests that insufficient government communication about COVID-19 on Facebook plays a role in the spread of fake news and misinformation, the following analysis on tabulated data have been conducted.

Table 5: Facebook spreading fake news about COVID-19 due to insufficient information by Government

		Facebook is spreading fake news about COVID-19 due to inadequate information by Government?						
		Agree	Disagree	Neutral	Strongly agree	Strongly disagree	Total	
Organization	Doctor	Count	6	4	3	1	0	14
		% within Organization	42.9%	28.6%	21.4%	7.1%	0.0%	100.0%

	% within	20.0%	25.0%	8.8%	5.6%	0.0%	14.0%
	Facebook is spreading fake news about COVID-19?						
	% of Total	6.0%	4.0%	3.0%	1.0%	0.0%	14.0%
Media Professional	Count	11	3	6	7	1	28
	% within Organization	39.3%	10.7%	21.4%	25.0%	3.6%	100.0%
	% within Facebook is spreading fake news about COVID-19?	36.7%	18.8%	17.6%	38.9%	50.0%	28.0%
	% of Total	11.0%	3.0%	6.0%	7.0%	1.0%	28.0%
Others	Count	9	9	22	3	1	44
	% within Organization	20.5%	20.5%	50.0%	6.8%	2.3%	100.0%
	% within Facebook is spreading fake news about COVID-19?	30.0%	56.3%	64.7%	16.7%	50.0%	44.0%
	% of Total	9.0%	9.0%	22.0%	3.0%	1.0%	44.0%
Recovered Patient	Count	2	0	3	3	0	8
	% within Organization	25.0%	0.0%	37.5%	37.5%	0.0%	100.0%
	% within Facebook is spreading fake news about COVID-19?	6.7%	0.0%	8.8%	16.7%	0.0%	8.0%
	% of Total	2.0%	0.0%	3.0%	3.0%	0.0%	8.0%
Religious Leader	Count	2	0	0	4	0	6
	% within Organization	33.3%	0.0%	0.0%	66.7%	0.0%	100.0%
	% within Facebook is spreading fake news	6.7%	0.0%	0.0%	22.2%	0.0%	6.0%



	about COVID-19?						
	% of Total	2.0%	0.0%	0.0%	4.0%	0.0%	6.0%
Total	Count	30	16	34	18	2	100
	% within Organization	30.0%	16.0%	34.0%	18.0%	2.0%	100.0%
	% within Facebook is spreading fake news about COVID-19?	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	30.0%	16.0%	34.0%	18.0%	2.0%	100.0%

Table 5 describes the hypothesis 3 and the result of the accumulated data shows that majority of the surveyed Doctors (42.9 percent) agree that Facebook is spreading fake news about COVID-19 while (28.6 percent) disagree. The ratio of those who expressed neutral is (21.4 percent) and (7.1 percent) is strongly agree. However, majority of the Media professionals (39.3 percent) agree, (10.7 percent) disagree and (21.4 percent) expressed neutral while, (25.0 percent) replied ‘strongly agree and only (3.6 percent) answered strongly disagree. Others category results are: (20.5 percent) agree, (20.5 percent) disagree, (50.0 percent) neutral and (6.8 percent) strongly agree while (2.3 percent) disagree. In this table the results from Recovered Patients (25.0 percent) agree while (37.5 percent) replied neutral, the same number (37.5 percent) were strongly agreed. The Religious leaders’ results showed that majority responses (66.7 percent) answered strongly agree and (33.3 percent) replied agree.

Table 6: Chi-Square Test for Hypothesis 3

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	30.235 ^a	16	0.017
Likelihood Ratio	32.132	16	0.010
N of Valid Cases	100		

a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .12.

The provided hypothesis suggests that inadequate government communication about COVID-19 on Facebook leads to the spread of fake news and misinformation. The table presents the results of a chi-square test, where the number of valid cases is 100, the Ratio is 32.132, and the Pearson Chi-Square value is 30.235a. The chi-square test is a statistical method used to determine if there is a significant association between two categorical variables. In this context, it appears that the test is examining the relationship between government communication about COVID-19 on Facebook and the propagation of fake news and misinformation. The Ratio value of 32.132 suggests a relatively strong association between the variables being studied. A higher Ratio value indicates a stronger relationship. Additionally, the Pearson Chi-Square value of 30.235a indicates the statistical significance of the relationship. A higher Pearson Chi-Square value indicates a stronger association and suggests that the relationship is not likely due to random chance.

The interpretation of these results implies that there is a notable connection between the inadequacy of government communication about COVID-19 on Facebook and the dissemination of fake news and misinformation. This finding underscores the importance of accurate and timely government communication to counteract the spread of false information, particularly in the context of a pandemic. The study's results suggest that addressing the gaps in government communication on social media platforms like Facebook could potentially contribute to reducing the prevalence of fake news and misinformation related to COVID-19.

5. Conclusion and Recommendations

The study investigates the intricate interplay between conspiracy theories and the beliefs and practices of Pakistani users in the context of the COVID-19 pandemic. Through the lens of conspiracy theory, the research explores the multifaceted dimensions of misinformation and its implications. Under the scope of the hypotheses put forth in this study, several key insights emerge, as the analysis uncovers a notable trend in which Facebook users appeared to cast doubts on the authenticity of the COVID-19 pandemic across various segments of Pakistani society. This observation underscores the powerful influence of social media in shaping collective opinions and attitudes. Moreover, the study's findings indicate a plausible correlation between the formulation of conspiracy theories and the dissemination of inaccurate information about COVID-19 by Facebook groups. This connection underscores the role of online platforms in accelerating the spread of misinformation. In relation to inadequate government communication on Facebook, the study highlights a link between deficiencies in official messaging and the propagation of fake news and misinformation. This underscores the importance of effective and transparent government communication in countering misinformation.

The theoretical implications of this research are significant. It contributes to the evolving understanding of how conspiracy theories propagate and infiltrate public discourse, particularly during periods of heightened uncertainty and anxiety. The study emphasizes the need for a deeper examination of the mechanisms through which misinformation spreads and takes root in society. From a practical standpoint, the study's findings hold pertinent lessons. They emphasize the critical

role of governments in providing accurate and timely information to counteract the narrative vacuum that conspiracy theories exploit. Furthermore, the study highlights the responsibility of social media platforms in curbing the dissemination of misinformation while respecting the principle of freedom of expression. This research offers valuable insights into the complex dynamics of misinformation and conspiracy theories in the digital age. By examining their effects on beliefs and practices within Pakistani society, the study underscores the need for proactive measures to combat misinformation, promote informed decision-making, and foster resilience against the proliferation of conspiracy-driven narratives.

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