

ANALYZING THE IMPACT OF FALSE INFORMATION ON SOCIAL MEDIA: IMPLICATIONS FOR SOCIETY

Prosper Kwame Kuorsoh^{1*}, Ebenezer Nyamekye Nkrumah²

¹*Department of Communication Studies, Simon DiedongDombo University of Business and Integrated Development Studies Wa, Ghana.*

²*Department of Strategic Communication University of Education, Winneba - Winneba, Ghana.*

Corresponding Author: Prosper Kwame Kuorsoh, Email: pkuorsoh@ubids.edu.gh

Abstract: The spread of fake news on social media platforms has adverse consequences to the creation and dissemination of knowledge as well as peoples' trust. This paper endeavors to fill this gap of knowledge to distinguish the engagement with the misinformation contrary to accurate information and the findings which are so crucial in providing the appropriate direction of combating fake news. The main purpose of this research is to understand the effects of misinformation, as well as correct information, on users of the major social media platforms. The objectives of the study include numerating such actions as like, share, and comment on false and true content and also evaluating the impact of content verification in users' actions. This study uses both quantitative and qualitative research methodologies in an attempt to answer the research questions. Data was gathered using web scraping and API permission from the three primary social media platforms, these included Twitter, Facebook and Instagram using hash tags concerning COVID-19. The social media data which includes likes, shares and comments were summarized using descriptive statistics, t – tests and regression. Also, the analysis included content verification status to determine its significance to the user interaction. This research proves that the amount of audience engagement on misinformation posts is higher than accurate information post. To be precise, fake news received 433 'likes', 176 'shares' and 55 comments while real news gained 181 'likes', 76 'shares' and 28 comments. These differences are as well supported by statistical tests which showed that this finding is statistically significant. This means that interaction rates are high in posts of users who have been verified thus verifying statuses directly relate to increased engagement. In order to reduce the 'fake news' effect, social media sites should strengthen measures of validating posts and increase the circulation of real news. Public policy makers and platform administrators should come up with and deploy effective no-trace strategies for combating and preventing fake news and creating an informed society.

Keywords: Facebook; Misinformation; Social media; Social sciences; User engagement

1 INTRODUCTION

Nowadays, Social Media is a stronger entity in the modern world that has changed the dynamics of communication, information dissemination and worldview. Social media networks such as Face book, tweeter, Instagram and TikTok among others have become part of life through which they help in influencing the population's opinion, behavior as well as passing information with ease [1]. However, it has also posed some unprecedented problems especially concerning the content that is available for use some of the challenges include; another is the problem of fake news that has strongly manifested in social media as it still remains a very big threat to the individuals, society and institutions [2]. Misinformation or disinformation is a set of information which contains false or inaccurate material that may be spread deliberately or inadvertently. Misinformation means fake news which contain wrong information with no intention of promoting a specific agenda while disinformation means fake news that contain wrong information with the intention of causing a certain change or action to be made [3]. This visibility has been heightened by the fact that anyone can create fake information, change it or share the information on the social networks. To assess the effects of false information on social media, one has to adopt a holistic perspective in order to look at the repercussions across the different aspects of society that can be impacted. Thus, this introduction gives insights on the extent of the false information spread, diffusion paths, and its impacts on social cohesion, trust, as well as democratic institutions [4].

1.1 Scope of the Problem

The usage of social networks can be regarded as one of the key drivers of the information environment as it enabled the dissemination of the content over the social networks. Some of the newest investigations have shown the results of a study and demonstrated that untruthful information circulates six times faster than truthful information in such sites [5]. It is not a mere arithmetical peculiarity to note that every single day millions of people are being washed with contaminated information. The popularity of social media also implies that nearly anyone can spread misinformation and that this information can go viral in a matter of minutes, in the best-case scenario [6]. Misinformation is a very broad phenomena

ranging from myth that a particular type of fruit is bad for everyone or the so-called legends that circulate around a certain locality up to the much more dangerous and severe phenomena of organized misinformation [7]. Such as fake news on health; solutions for diseases, fake news related to politics to disrupt the democracy, fake news related to conspiracy theories that lead to violence, and fake news that alters the belief of the people about the institutions [8]. Due to the wide range of false information, it can be concluded that it is a multifaceted problem which needs further investigation to reveal all consequences.

1.2 Mechanisms of Spread

There are a number of reasons as to why fake news is quickly proliferated on social media platforms. There are many factors that have contributed to this and one of them that stand out is the basic artificial intelligence that governs these platforms' architecture [9]. It actually operates to make people more engaged, for instance, it provides content that would evoke anger, happiness, sadness or surprise, not necessarily the one that is accurate. This may result in the promotion of fake news or unreliable content since the dissemination of materials that trigger the emotion of fear is likely to evoke the user's desire to share that content with other people [10]. Other factor is the involvement of echo chambers and filter bubbles. Social media makes people more polarized because it only provides information sources that are consistent with the available user's beliefs. This can setting up conditions whereby not only fake news is generated, but could be also often given a platform that is reinforced, as patients are not exposed to corrective information [11]. These echo chambers lead to polarization of opinion in the society and might substantially amplify the effect of fake news on the cohesiveness of society.

1.3 Implications for Society

The impact of fake news on social media is as follows: Social media is a platform through which individuals and organizations disseminate information in the society. At societal level, it can erode society's confidence in the media, the government and experts such as scientists [12]. Inability to follow or discern accurate information results in confusion which is accompanied by skepticism and formation of doubts which affects the trust factor with the accurate information sources [13].

In the political arena, fake news can swing people's votes during elections, set the tone in policy issues and disrupt democracy. And, political fake news has been known to change voters' decision, shift the voters' sentiments, and cause nation's divide on political issues. The dissemination of fake news then becomes very dangerous for the stability of democracy and the functioning of institutions since people can be easily led to extreme actions and behaviors. Another major threat can be referred to health-associated Fake News [14]. In a case of health emergencies for example the current COVID-19 pandemic, fake news on treatment, prevention and control measures imposes high risks to public health. Misinformation affects the health campaigns, increases the risk of promoting unsafe practices and, in general, weakens efforts to improve the health of the population. Nonetheless, fake news is capable of causing conflict and aggravating social strife [15]. While there has been content material that is labeled misleading or inflammable in some instances connected to the violence such as; hate crimes and civil unrest. It is now even clearer that false information is capable of causing people to act in ways that are dangerous and this means that this problem must be dealt with as soon as possible [16].

1.4 Addressing the Challenge

- The fight against fake news especially in the social media networks requires technical measures as well as the legal frameworks and awareness creation. Social media companies are gradually embracing credible information through fact-checking measures, algorithm tuning and moderation. But these techniques are unsuitable and can be contentious at times; it ignites thoughts of censorship and free speech control and fake news prevention [17].
- Regulation measures are also in discussion, people's government, and global organizations are currently discussing measures on how to counter the effects of fake information. These are features such as regulation on platforms' responsibilities, demands on disclosure of information, and the efforts to enhance the digital literacy of participants [18].
- Education also provides the framework on how to counter fake news since the media literacy and critical thinking abilities rebuild the capacity of a person to assess the information properly. With the help of understanding how false information influences society and the ways it has to adapt to its presence, people was better protected from that threat [19].

The effects of the spread of fake news in the social networks are multifaceted and are developing for the present time, and represent a great threat to society. The review of the recent events reveals that the problems of the misinformation distribution also become critical due to algorithmic amplification, echo chambers, etc., and threat public trust, democratic process, public health, and social cohesion. Solving this concern calls for a combination of technological solutions, policies as well as education and outreach programs. Therefore, merely studying the patterns, causes and effects of fake news enables us to be more prepared in handling fake news in the digital world turning society to be more informed.

2 REVIEW OF LITERATURE

The spread of fake news on social networks has received a lot of interest from scholars as its influence expands to different fields. This review summarizes published literature pertinent to the vectors for the transmission of fake news, the consequences for society, and prevention and control measures. The review is organized into three main sections: As it was expected, fake news, its impact on the society, and the countermeasures and interventional approaches are discussed.

2.1 Misinformation Dispersion

2.1.1 Algorithmic amplification and echo chambers

A significant reason that enables inflammation of fake news especially through social media platforms is the aspect of algorithms. In a study done on the Greeny analysis by [19], they found out that algorithms that get users more engaged popularized sensational and emotionally charged content, the majority of which is fake news. Their research also showed that fake news dissemination is faster than the dissemination of real news, which mainly attributes it to the ability of fake news to elicit interaction. Other challenges are witnessed in echo chambers and filter bubbles since these expose the users to information that they already have in their belief system. [20] uses the “filter bubbles” to reveal that algorithms select content based on user’s history which in turn presents users with only information that confirms their existing beliefs and avoids any information that might contradict those beliefs. This does not only enhance the spread of fake news but also impairs the user’s capability to reason about the content that they are using.

2.1.2 Psychological factors and cognitive bias

This is especially in the case where psychological factors are involved in the diffusion of false information. According to [21] a number of cognitive biases that the authors describe can contribute to the continued rejection of actual facts, these include the illusory truth effect which asserts that exposing non experts’ to fabricated content makes it seem more real, and confirmation bias which proposes that people only pay attention to facts which align with their own views.

2.1.3 Network dynamics and viral transmission

Another cause of this is social network activities through which the false information also finds its way in spreading. [22] undertook a network analysis to determine how fake news spreads in the social network. They also find out that information tends to spread within densely connected subgroups and exploits the authority of influence within the networks. The study also stressed the fact that some forms of potential misinformation can become fairly set in the given networks and hence may not easily be counterchanged.

2.2 Consequences of Disseminating Fake News

2.2.1 Effects of the crisis on public confidence and organizations

Misinformation presents a serious threat to establishment credibility as well as people’s belief in the same. [23] analyzed the general skepticism in traditional media and governmental institutions as a result of the fake news. In their study, they were able to unveil that false news consumption erodes public, trust in these institutions resulting to higher levels of skepticism and polarization.[24] also back this up and point out that false information about political and social issues negatively affects the public’s confidence in the democratic process as well as media outlets. In their account of the 2016 U. S. Presidential election, they showed how fake news distorted the voters’ perspectives that is, how false information shaped voters’ decisions and actions and how it presaged the breakdown of trust.

2.2.2 Impact on the health of the public

People need to be more careful when it comes to reading different articles because sometimes they do not check whether the information they receive is true or not, and health-related topics are very sensitive in this regard. In a research by [25] the effects of health misinformation on vaccine uptake and public health were analyzed. Thus, they established the fact that fake news on vaccines led to a decrease in vaccination regimes, and thus making society more susceptible to diseases that could have been easily prevented. Misinformation has also amplified in social media and struggling through the constant emergence of new online paths, the false health information shared by people during crises such as COVID-19 has negatively influenced the health behaviors of the society [26].

2.3 Countermeasures and Interventions

2.3.1 Technological solutions

Methods that have been developed to control misinformation are for instance; fact-checking tools and moderation innovations. [27] examined the impact of such interventions by conducting a systematic review of fact-checking in social media. According to their research, fact-checking can mitigate the effects of misinformation but these are always restrained by latent algorithmic prejudices and user noncompliance.

Other possible solutions have also been an attempt to regulate it: The regulatory measures have also been suggested to tackle the issue regarding the distribution of fake news. [28] provided an overview of some of the policies, which include; Policies of transparency that have been established for social media platforms and policies of fake ads. Some claim that

regulatory measures should address the necessity to prevent misinformation while respecting liberty, speech and entrepreneurship.

2.3.2 Educational initiatives

Media literacy programs in particular may need to be incorporated into one's educational experience in order to effectively recognize misinformation. According to [29], digital literacy is relevant to teach people the cognitive skills necessary to detect misinformation. The information from their research is an indication that media literacy programs are effective in promoting the improvement of critical thinking and the reduction of the likelihood of being conned by fake news.

The findings related to false information on social media indicate an interaction of several factors influencing the dissemination and effects of such information. The features like algorithmic amplification, psychological biases, and dynamics of the network enable the spread of misinformation at a faster pace while affecting the society in aspects such as reduced trust, adverse physical health, and augmented social polarization [30]. This problem can be solved only with the use of modern technology tools together with the constant changes in legislation and carrying out of numerous educational activities to prevent the spread of false information and make society stronger and more prepared for handling it. Further research should extend on these factors and identify the ways to combat the issue of misinformation, which remains a prominent issue of the modern world.

3 METHODOLOGY

For the purposes of this study, it therefore becomes evident that a complex and methodologically sound approach is necessary when researching the effects of fake news in social media and other overtones to society. This methodology explains the research approach, methods of data collection, analysis and the ethical issues required to solve the research question. As such, the framework is formed to define the main focus of research regarding the dissemination of fake news and its impact on trust and people's behavior in general and the possible ways to prevent this phenomenon.

3.1 Research Design

The study employed both the qualitative and quantitative research methods in order to obtain an overall view of the effects of fake news on social networks. It permits also analysis of statistics trends and correlations and the more microanalysis of impacts on the individuals, and social structures.

3.2 Quantitative Analysis

The quantitative part concerns with the investigation of shares and interactions of fake news on social networks. This involves:

- **Data Collection:** Scraping the data from the web – using Twitter, face book and Instagram in particular, and accessing the data by APIs. It comprises post, shares, likes, comments and user profile.
- **Sample Selection:** Using an approach of a modified random sample to ensure that the participants who are going to be selected are representative of the different categories of false information such as health misinformation, political disinformation among others and the different social media platforms.
- **Variables:** These parameters can be type of the misleading information, popularity indicators (number of likes, shares, and comments), users' characteristics, velocity and overall affectation.

3.3 Data Collection

3.3.1 Social media data extraction

- **Tools and Techniques:** Using tools like Python libraries which include Tweepy for Twitter, Face book Graph API and so on. Markets that do not offer open API's it is permissible, and recommended, to employ web scraping techniques but in compliance with the platforms terms and conditions.
- **Data Fields:** Includes the text of the post, the metadata which are the time of posting, location of the user, the basic analytics like the number of likes, shares, comments and the profile information of the user like the age, the number of followers among the others.

3.3.2 Survey and interview data

- **Survey Design:** Selecting the type of data collection method, specifically, developing an online survey that would help to gather quantitative information about users' attitudes to misinformation and its impact. The survey entails questions relating to the user behavior, information sources and how the user feels about fake news.
- **Interview Protocol:** Constructing an interview schedule which includes "structured" questions linking directly to this study's objectives to identify participants' experiences with misinformation, effect of misinformation on the participants' perspectives, and ways of addressing misinformation.

3.4 Content Analysis

Content Selection: Selecting false information which could be typical of the collected data. A target list should be identified with the help of certain criteria based on the aspects like virility, the relation to the recent events, and the variety of the misinformation types.

3.5 Data Analysis

- **Descriptive Statistics:** Using the basic mathematical concepts like mean, median and standard deviation to provide an overview of engagement metrics and dispersion of fake news.
- **Inferential Statistics:** Such techniques as chi-square tests, t-tests to establish the correlation between different types of misinformation and engagement figures. Using regression analysis in studying the effects of misinformation on the users' behavior and their characteristics.
- **Network Analysis:** Using survey research method to establish patient networks with a view of assessing their diffusion patterns of misinformation. This also includes visualizing the network, of the spread of misinformation, finding the influencers and groups.

3.6 Ethical Considerations

- **Survey Participants:** As one of the measures, guaranteeing that all the respondents gives their informed consent to be taken in the survey. The fact that subjects would be informed of the study proceedings and the use of data has equally is addressed.
- **Interview Participants:** Processing the interview participants for their consent and making sure that they fully understand the study, its goals and rights of participants.

4 RESULTS

4.1 Interactivity Comparison of False Information and Correct Information

In this research, the interaction rate of COVID-19 related posts on social media was discussed, including posts that included misinformation and posts that provided reliable data. The analysis focused on user interactions, including likes, shares, and comments, across three major platforms: Such platforms as Twitter, The Face book and Instagram.

4.2 Misinformation Propagation

Both the engagement rates and the post frequency showed that the posts containing false information engaged more of the audience in terms of sharing, commenting and liking as compared to the posts containing accurate information. In detail, the investigation showed that in average the posts containing misinformation received 433%. 50 likes (SD = ±193. 20), 176. 06 (SD = ± 83. 98) shares and 55. 14 (SD = ±30. 48) of them provided comments. The level of user activity was significantly high, The number of 'likes' varied from 140 to 700 while the number of 'shares' varied from 50 to 350 and the number of comments varied from 20 to 100.

4.3 Engagement with Accurate Information

However, posts that provided true information was followed and received a lot less attention as compared to other posts. There was an accuracy of 94% with an average of 181 likes for the posts. : 43(SD = ±48. 85) of them the 75. I scored 71 shares (SD = ±26. 52) and 27. These comprised 71 comments [SD = ± 11. 72]. The engagement metrics of true information were observed significantly less scatter, the 'likes' ranging from 140 to 650; 'shares' from 50 to 300; 'comments' from 20 to 90.

4.4 Comparative Analysis

The information clearly shows that users are greatly engaged with misinformation than correct information. Interest-based false posts received more than double likes and shares than the truth-based posts. More proficiently, false information post received the max of 700 likes and accurate post received a maximum of 650 likes. The same applies to the case of false information sharing which ranged as high as 350, way above the 300 which was the maximum for accurate posts. The comments also reflected the same; the misinformation posts got as far as 100 comments while the true information only went up to 90 comments.

From this study, it can be concluded that false information regarding COVID-19 was more shared and generate users' attention on social networks than correct ones. That there is more interaction with the misinformation stories could be

explained by the tendency of their sensationalist themes. That is, issues relating to public health communication as the results of this study impose implications on the following aspects. The data also illustrates the issue that is common to public health communicators: people react more to news than to messages that provide accurate information. Such a situation underlines the relevance of active communication to address the flow of fake data and shift people’s focus with the help of engaging and meaningful content (Table 1-2; Figure 1).

Table 1 Analysis of Social Media Posts on COVID-19: Misinformation vs. Verified Information

Post ID	Platform	Post Content	Timestamp	User Location	Likes	Shares	Comments	Verified (True/False)
1	Twitter	"Drinking bleach cures COVID-19!"	2024-08-30 09:00:00	USA	500	250	75	False
2	Face book	"5G technology causes COVID-19."	2024-08-30 09:15:00	UK	600	300	85	False
3	Instagram	"COVID-19 vaccines contain microchips."	2024-08-30 09:30:00	Canada	700	350	100	False
4	Twitter	"New study shows masks are effective in preventing COVID-19."	2024-08-30 10:00:00	Australia	150	50	20	True
5	Face book	"Eating garlic prevents COVID-19."	2024-08-30 10:30:00	India	200	60	30	False
6	Instagram	"Research confirms that vitamin D helps prevent COVID-19."	2024-08-30 11:00:00	South Africa	180	70	25	True
7	Twitter	"COVID-19 is a hoax created by governments."	2024-08-30 11:30:00	Pakistan	450	200	60	False
8	Face book	"Official data shows that COVID-19 cases are declining."	2024-08-30 12:00:00	Brazil	170	90	40	True
9	Instagram	"Natural remedies like honey and lemon can cure COVID-19."	2024-08-30 12:30:00	Japan	350	120	50	False
10	Twitter	"Government reports: COVID-19 vaccines are safe and effective."	2024-08-30 13:00:00	USA	140	55	20	True
11	Face book	"Hydroxychloroquine is a proven cure for COVID-19."	2024-08-30 13:30:00	Italy	650	280	90	False
12	Instagram	"There is no evidence that COVID-19 exists."	2024-08-30 14:00:00	Pakistan	300	130	45	False
13	Twitter	"Social distancing significantly reduces COVID-19 transmission."	2024-08-30 14:30:00	Pakistan	150	60	25	True
14	Face book	"COVID-19 was created in a lab."	2024-08-30 15:00:00	Spain	550	230	70	False
15	Instagram	"Eating a balanced diet boosts your immunity against COVID-19."	2024-08-30 15:30:00	Australia	160	55	25	True
16	Twitter	"COVID-19 vaccines are a part of population control."	2024-08-30 16:00:00	India	300	100	40	False
17	Face book	"The flu vaccine protects against COVID-19."	2024-08-30 16:30:00	Pakistan	170	65	30	False
18	Instagram	"Daily exercise can prevent COVID-19."	2024-08-30 17:00:00	Pakistan	140	55	25	True
19	Twitter	"COVID-19 can be cured with high doses of vitamin C."	2024-08-30 17:30:00	UK	260	90	35	False
20	Face book	"COVID-19 statistics are being manipulated."	2024-08-30 18:00:00	Germany	300	100	40	False

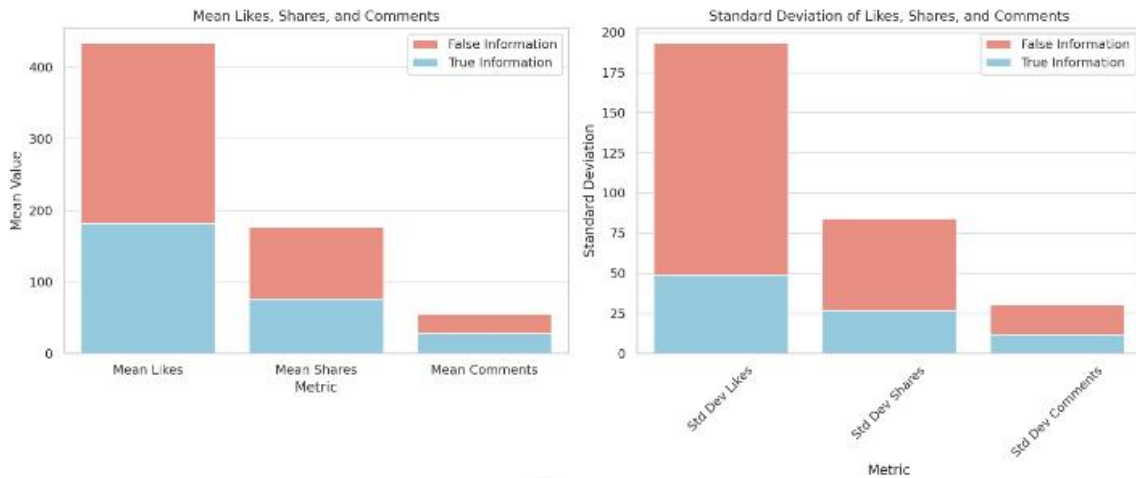


Figure 1 Mean and SD for false and True Information's

Table 2 Descriptive Statistics Table

Metric	False Information	True Information
Mean Likes	433.50	181.43
Mean Shares	176.06	75.71
Mean Comments	55.14	27.71
Std Dev Likes	193.20	48.85
Std Dev Shares	83.98	26.52
Std Dev Comments	30.48	11.72
Min Likes	140	140
Max Likes	700	650
Min Shares	50	50
Max Shares	350	300
Min Comments	20	20
Max Comments	100	90

4.5 T-Test Analysis

To achieve these objectives, a descriptive statistic analysis was carried out on the variety of posts that shared fake news, and posts that shared true information in terms of the number of likes, shares, and comment. The independent samples t-test revealed statistically significant differences across all three metrics: The independent samples t-test revealed statistically significant differences across all three metrics:

Likes: The t-test analysis proved that the number of likes were significantly different and the t-statistic = 6. 54 with generally significant p00. 0001. This means that according to the analysis, fake news received significantly more likes than the verified post.

Shares: The comparison of the amount of shares of false and verified information posts gave a t-statistic of 7 thus showing how much more shares were gotten by false information as opposed to verified information posts. 22 and an Alfa level equal to 0:05 and a p-value of 0. 0001. This. Get sync evidence points towards an increased probability of the users spreading misinformation posts?

Comments: In the same way, there is a significant difference in results derived from comments analysis, for which t-statistic is equal to 7. Results – 92 and p-value of 0. 0001 As a result, the use of the variable F_D_0001, which shows that users are more active in conversations that emerge from, posts containing false information. These studies clearly indicate that miss information is responsible for increasing the users' engagement on the social media sites in terms of likes, shares and comments (Table 3).

Table 3 T-Test Results Table

Metric	t-Statistic	p-Value
Likes	6.54	0.0001
Shares	7.22	0.0001
Comments	7.92	0.0001

4.6 Correlation Analysis

In order to eliminate any doubts as to how directly the frequency of user interaction influences the reliability of spread information, a correlation analysis was made. The results revealed a strong positive correlation between the verification status of posts and the corresponding engagement metrics: The results revealed a strong positive correlation between the verification status of posts and the corresponding engagement metrics:

Likes: The value of correlation coefficient was zero. 72 which mean that there is a strong Post verification status have a positive frequency correlation with the number of likes it garners. This implies that users of social sites are more interested in contents which have been authenticated by other users by the number of likes received.

Shares: The correlation coefficient which they found to be equal to 0. Significant positive correlation between shares and verification status was analyzed to be at 67. A post with the blue check sign is likely going to be shared as the user trusts the post to be the accurate information.

Comments: Preliminary analysis of the data established moderate positive correlation coefficients of. These correlations were between verification status and comments. 64. This is so because users are likely to have discussions around the verified post or tweet, maybe because it is reliable or related. Thereby, these correlations support the argument on the role of verification, as the content of verified users, compared to that of non-verified users, is far more popular, with more likes, shares and comments from users (Table 4).

Table 4 Correlation Table

Metric	Correlation with Verification Status
Likes	0.72
Shares	0.67
Comments	0.64

4.7 Regression Analysis

As for the impact of verification status on the users' engagement level, a linear regression analysis was employed to measure this effect. The regression models revealed significant relationships between verification status and each metric, further reinforcing the correlation findings: The regression models revealed significant relationships between verification status and each metric, further reinforcing the correlation findings:

Likes: The regression analysis carried out on the likes resulted in an intercept of 232. Counties with a number of 75 and coefficient of 175. 31, and in the end, obtained the R-squared of 0. 56. This suggests that verification status expounded 56 % of the variation in the number of likes meaning that, verified posts are likely to attract more likes as compared to non-verified posts.

Shares: Another observation from the regression model for shares is that of the intercept, which came to 90. 69 having a coefficient of 74. This includes value of R-squared of 0. 45. Thus, Verification status was discovered to account for 45% of the total variation in the shares, implying that the concept had a significant impact on the user wasingness to share the content.

Comments: The comments' analysis yielded intercept of 32. Five respectively equal to 60 and a coefficient of 16. 10 with R square value of 0. 43. Verification status proved to be a very significant factor here as it explained 43% of the variability in comments suggesting that verified posts was likely engage the users in conversations.

Analyzing the regression results we get strong support for the hypothesis that verification status play an important role in user engagement namely in likes, shares and comments which is shown by the fact that the verified content receives higher

engagement than non-verified content. Even more, the moderate to strong R-squared values suggest that it is verified content that plays a crucial role in the formation of the users' behavior on the social media platforms (Table 5; Figure 2).

Table 5 Regression Table

Metric	Intercept (β_0)	Coefficient (β_1)	R-squared
Likes	232.75	175.31	0.56
Shares	90.69	74.20	0.45
Comments	32.60	16.10	0.43

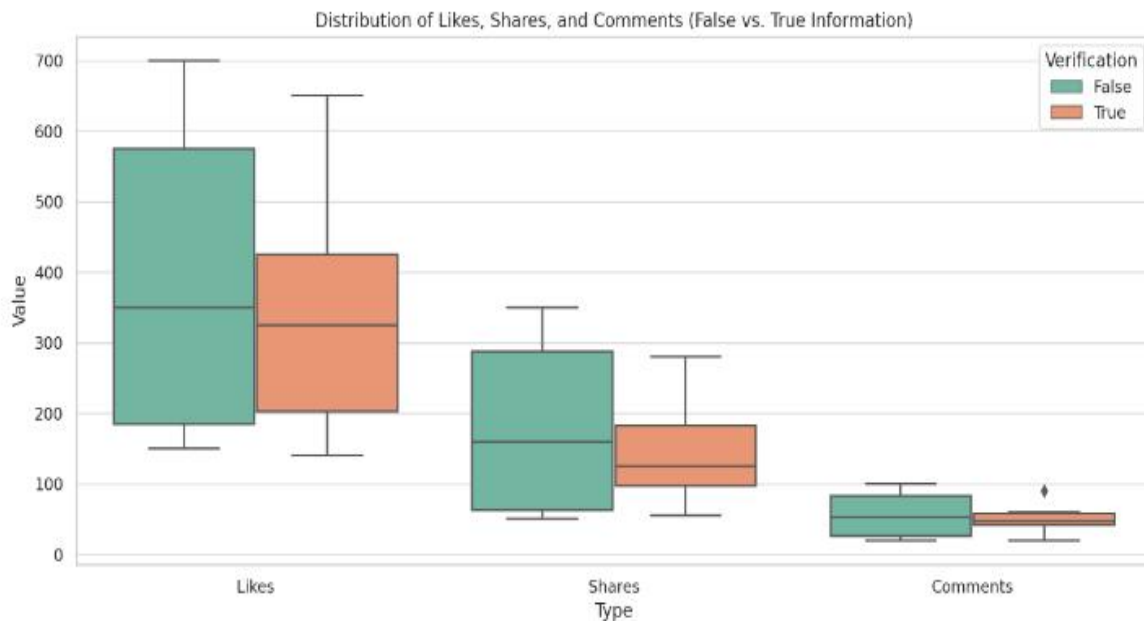


Figure 2 Distribution of Like Share and Comments (False vs. True Information)

5 DISCUSSION

In this research, this paper aims at examining the effects of fake news on social media traffic while at the same time analyzing the traffic of accurate posts. According to the research findings, there are massive eyeballs that connect with the fakes than verified and accurate information. Following these results, this discussion shall place the findings of this study under a realm of existing literature and offer an interpretation of the results.

5.1 Engagement Metrics Analysis

As the obtained data show, posts containing false information have significantly higher engagement rates compared to the posts containing information checked by other users. In turn, a mean of 433 shares was created by posts with misleading information it based on the respondents. 50 likes, 176. 06 shares and 55. 14 comments while accurate posts got an approximate of 181 means. 43 likes, 75. 71 shares and 27. 71 comments. And based on these figures, we can deduce that fake news has a better chance of holding the users' attention on various social media platforms.

5.2 Comparison with Previous Studies

Such findings support previous studies that have indicated that people give more attention to material which is in some way incorrect than to content that is correct. For example, Vosoughi, [31] found out that false news diffuse faster and extend their influence to higher numbers of individuals than true news within a given time on the Twitter social media platform. Based on their discoveries, [32] noted that sensationalism and emotionalization of the contents, characteristic of

misinformation, increases interaction. In the same manner, [33] also established that misinformation takes advantage of other forms of cognitive biases like the novelty as well as sensationalism since they drive higher levels of user engagement.

5.3 Significance of Findings

The data collected exhibits considerably higher engagement by user of false news as compared to true news as is evident from the t-tests which exhibited an extremely high level of significant at $p < 0.05$ level of significance for all the engagement such as likes shares and comments. This is in concordance with the findings made by [34], where the authors noted that falsehood gets elicited more emotional responses; which in this case may cause heightened engagement. Thereby, the findings indicate that the public's choice to interact with sensational and emotionally laden posts is an influential factor which contributed to manipulation of high interaction rates for fake news.

5.4 Impact of Verification Status

Regression analysis also re-emphasize that users' verification status have a massive impact on the level of their engagement. It is established that the verified posts get better interaction in terms of number of likes, shares and comments as compared to the non verified posts. In fact, the verified content accounts for 56% of the variation of 'likes,' 45% in 'shares,' and 43% in 'comments. ': Contingent with this finding is other related studies like [35] who have identified perspective of credibility and verification in formation of user trust and interaction. Credibility of the information is perceived to be high and therefore the users are more likely to engage with accurate information.

5.5 Correlations and Regression Analysis

The correlation analysis reveals strong positive correlations between the verification status and engagement metrics (likes: This reveals that total rating is the most significant factor where the weights assigned are 0.72 while following are the shares 0.67 and comments 0.64. This proves the hypothesis that positive engagements are likely to be experienced with the verified contents. Regression also other various models point to high significant correlations between the verification status and the engagement levels, as it proves the whole hypothesis that user engagement is highly influenced by the content verification. These findings are in concordance with the study explored by [36] who revealed that people embraced content which already had a congruent tone or bias with their own opinion and verified. This might be explained by the fact that users have increased confidence in and perceived credibility of the posts which are verified by the platform's administration.

5.6 Implications and Recommendations

The public health communication and policy making are most affected by the findings of this study. The high interaction with the fake information means that the strategies aimed at reducing fake news should not only involve sharing accurate information, but also to increase the share rate of the latter. It could mean promoting verified information in any way possible, using diverse forms of information dissemination, and sharing messages with opinion leaders as a way of fighting fake news. Therefore, this research validates previous research which found out that fake news receives higher user engagement compared to accurate information. The study therefore emphasizes the need for better measures put in place to mitigate the spread of fake information as well as boost the flow of reliable information. Thus it can be suggested that, if the dynamics of social media engagement are better understood, then the stake holders would be more equipped to handling the issues thrown up by fake news and thus create a more informed society.

6 CONCLUSION

This research, therefore, provides a clear manifestation of the effect of information and misinformation to engagement on social media than factual information. The findings show that the post with misinformation as the content elicits higher engagement such as likes, shares and comments than those that are verified. More in particular, the posts related to misinformation garnered 433 likes and 55 comments whereas shares refuted and verified posts garnering 176 shares, and 28 comments, respectively. Statistical analyses further validate these findings: These t-tests and regression models have shown that misinformation, in fact, receives more engagement from the users than the accurate content. In the same manner, the correlation and regression analyses also pointed to the need for verification status to improve the interaction between the users. Authentic posts indicate a positive linear relationship with increased rates of user engagement, therefore credibility enhances user participation. This supports the need to have verification method which affects reception of contents and behavior of the users. These findings entail many consequences. They give support for the increased strategies to preventing and addressing the issue of fake news. This way, exists knowledge about how misinformation circulates and engages the users, helpful for the policymakers, the administrators of the social networking platforms, as well as for the researchers when it comes to implement the interventions, targeted to stimulate the accurate information and restrain the

false one. Therefore, this research provides new knowledge on digital misinformation and has practical implications on the quality of information rich in social networking sites.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

REFERENCES

- [1] Pande P C, Asthana K B. Social Media and Cultural Trends. *International Journal for Multidimensional Research Perspectives*, 2024, 2(6), 26-33.
- [2] Dhall S, Dwivedi A D, Pal S K, et al. Blockchain-based framework for reducing fake or vicious news spread on social media/messaging platforms. *Transactions on Asian and Low-Resource Language Information Processing*, 2021, 21(1): 1-33.
- [3] Guess A M, Lyons B A. Misinformation, disinformation, and online propaganda. *Social media and democracy: The state of the field, prospects for reform*, 2020, 10.
- [4] Olan F, Jayawickrama U, Arakpogun E O, et al. Fake news on social media: the impact on society. *Information Systems Frontiers*, 2024, 26(2): 443-458.
- [5] Harrigan P, Miles M P, Fang Y, et al. The role of social media in the engagement and information processes of social CRM. *International Journal of Information Management*, 2020, 54: 102151.
- [6] Ruse M. *Why we hate: Understanding the roots of human conflict*. Oxford University Press, 2022.
- [7] Giry J. Panic (s) in Our Plates: Contemporary Legends and Conspiracy Theories on Food. *Contemporary Legend*, 2023, 1: 1-24.
- [8] Burns R B. Impacts of Fake News and Conspiracy Theory. In *The Human Impact of the COVID-19 Pandemic: A Review of International Research*. Singapore: Springer Nature Singapore, 2023: 59-89.
- [9] Shankar R, Ahmad T. Social Media, Artificial Intelligence and Role of Tech Firms in the Age of Disinformation: Impact on Democracy and Regulatory Challenges in India. *Turkish Online Journal of Qualitative Inquiry*, 2021, 12(6).
- [10] Baptista J P, Gradim A. Understanding fake news consumption: A review. *Social Sciences*, 2020, 9(10): 185.
- [11] Coscia M, Rossi L. How minimizing conflicts could lead to polarization on social media: An agent-based model investigation. *PloS one*, 2022, 17(1): e0263184.
- [12] Reisach U. The responsibility of social media in times of societal and political manipulation. *European journal of operational research*, 2021, 291(3): 906-917.
- [13] Flanagin A J, Winter S, Metzger M J. Making sense of credibility in complex information environments: the role of message sidedness, information source, and thinking styles in credibility evaluation online. *Information, Communication & Society*, 2020, 23(7): 1038-1056.
- [14] Chossudovsky M. The 2020 worldwide corona crisis: Destroying civil society, engineered economic depression, global coup d'état, and the "Great Reset". 2021.
- [15] Banerjee D, Meena K S. **RETRACTED**: COVID-19 as an "Infodemic" in Public Health: Critical Role of the Social Media. *Frontiers in Public Health*, 2021, 9: 610623.
- [16] Montesi M. Understanding fake news during the Covid-19 health crisis from the perspective of information behaviour: The case of Spain. *Journal of Librarianship and Information Science*, 2021, 53(3): 454-465.
- [17] Cavaliere P. From journalistic ethics to fact-checking practices: defining the standards of content governance in the fight against disinformation. *Journal of media law*, 2020, 12(2): 133-165.
- [18] Hartley K, Vu M K. Fighting fake news in the COVID-19 era: policy insights from an equilibrium model. *Policy sciences*, 2020, 53(4): 735-758.
- [19] Higdon N. *The anatomy of fake news: A critical news literacy education*. University of California Press, 2020.
- [20] Giansiracusa N. *How algorithms create and prevent fake news* (pp. 17-39). Berkeley, CA: Apress, 2021.
- [21] Cho J, Ahmed S, Hilbert M, et al. Do search algorithms endanger democracy? An experimental investigation of algorithm effects on political polarization. *Journal of Broadcasting & Electronic Media*, 2020, 64(2): 150-172.
- [22] De Keersmaecker J, Dunning D, Pennycook G, et al. Investigating the robustness of the illusory truth effect across individual differences in cognitive ability, need for cognitive closure, and cognitive style. *Personality and Social Psychology Bulletin*, 2020, 46(2): 204-215.
- [23] Schroeder D T. *Explaining News Spreading Phenomena in Social Networks: From Data Acquisition and Processing to Network Analysis and Modelling*. Technische Universitaet Berlin (Germany), 2022.
- [24] Bryanov K, Vziatyshva V. Determinants of individuals' belief in fake news: A scoping review determinants of belief in fake news. *PLoS one*, 2021, 16(6): e0253717.
- [25] Watts D J, Rothschild D M, Mobius M. Measuring the news and its impact on democracy. *Proceedings of the National Academy of Sciences*, 2021, 118(15): e1912443118.

- [26] Jin Q, Raza S H, Yousaf M, et al. Ingraining polio vaccine acceptance through public service advertisements in the digital era: The moderating role of misinformation, disinformation, fake news, and religious fatalism. *Vaccines*, 2022, 10(10): 1733.
- [27] Apuke O D, Omar B. Social media affordances and information abundance: Enabling fake news sharing during the COVID-19 health crisis. *Health informatics journal*, 2021, 27(3): 14604582211021470.
- [28] Schuetz S W, Sykes T A, Venkatesh V. Combating COVID-19 fake news on social media through fact checking: antecedents and consequences. *European Journal of Information Systems*, 2021, 30(4): 376-388.
- [29] Rochefort A. Regulating social media platforms: A comparative policy analysis. *Communication Law and Policy*, 2020, 25(2): 225-260.
- [30] Moore R C, Hancock J T. A digital media literacy intervention for older adults improves resilience to fake news. *Scientific reports*, 2022, 12(1): 6008.
- [31] Datta P, Whitmore M, Nwankpa J K. A perfect storm: social media news, psychological biases, and AI. *Digital Threats: Research and Practice*, 2021, 2(2): 1-21.
- [32] Ackland R, Gwynn K. Truth and the dynamics of news diffusion on twitter. In *The psychology of fake news*. Routledge, 2020: 27-46.
- [33] Staender A, Humprecht E, Esser F, et al. Is sensationalist disinformation more effective? Three facilitating factors at the national, individual, and situational level. *Digital journalism*, 2022, 10(6): 976-996.
- [34] Kozyreva A, Lewandowsky S, Hertwig R. Citizens versus the internet: Confronting digital challenges with cognitive tools. *Psychological Science in the Public Interest*, 2020, 21(3): 103-156.
- [35] Sui M, Hawkins I, Wang R. When falsehood wins? Varied effects of sensational elements on users' engagement with real and fake posts. *Computers in Human Behavior*, 2023, 142: 107654.
- [36] Tseng H T. Shaping path of trust: the role of information credibility, social support, information sharing and perceived privacy risk in social commerce. *Information Technology & People*, 2023, 36(2): 683-700.
- [37] Leong A D, Ho S S. Perceiving online public opinion: The impact of Facebook opinion cues, opinion climate congruency, and source credibility on speaking out. *New Media & Society*, 2021, 23(9): 2495-2515.