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KEYWORDS	ABSTRACT
Fake News, Social Media Users In Pakistan, Psychological Effects	<p>Social media is leading medium which is used for communication during the COVID-19 pandemic. The abrupt episode of Corona pandemic has been joined by explosion of deception about the illness. As COVID-19 epidemic spread, virtual media outlets showed up as significant method for linking, just as a method of looking for and sharing the data about the illness. This examination targets estimating the mental impacts of phony news about COVID-19 via web-based media clients in Pakistan. Study is quantitative in nature. Survey method has been used to collect the data. The Direct Effects Model of Mass Media Theory has been employed on this study. The results of the study reveal that the element of anxiety, fear and stress are linked with social media users of Facebook. Facebook users have come across with these elements due to the circulation of fake news on Facebook and about COVID-19. This study recommends that there should be the gatekeeping mechanism to verify the authenticity of the news shared upon social media platforms. The social media authorities also need to pay heed to stop this prevailing issue, particularly in the age of pandemic when people become more vulnerable.</p>  <p>2024 Journal of Social Research Development</p>
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INTRODUCTION

The COVID-19 pandemic represents a considerable challenge to global human being. The effects of the COVID-19 pandemic depend on the actions of the individual citizens especially, how worthy the information to which people are exposed, unlike other challenges (e.g., global warming). The sudden eruption of Corona virus pandemic has been accompanied by an outburst of misinformation about the disease. Unfortunately, misinformation about COVID-19 proliferated mainly on the social media

(Frenkel, Alba & Zhong, 2020). The social media outlets appeared as vital means of communication and socializing, along with a way of seeking and sharing information about the disease as COVID19 pandemic spread. This enabled explosion of unimpeded information and spread of misinformation. The use of social media increased by 20–87% around world during this health crisis (Bruno Kessler Foundation, 2020). Similarly, social media platforms are taken as important source of information. The entire system is transformed as digitized and things are speedily shifting on the digital form in this online media ecology (Rafiq, Iqbal & Afzal, 2024). Therefore, it has ease in usage like at any time or anywhere. In the contemporary world, people usually rely on social media due to its quick reach and response.

The fake news spread like a real virus because of its rapid response of social media (Andrews, 2019). Moreover, capacity and speed of information which is being transmitted on social media platforms make it almost impossible to detect its reliability (Rafiq, Kamran & Afzal, 2024). In fact, credibility factor of news information on social media outlets is the biggest challenge right now. Thus, it is the need of hour to highlight urgency of developing well-organized systems to spot fake news, that can minimize harms of unverified news (Tacchini, Ballarin, Vedova, Moret & Alfaro, 2017). The surge of fake news information is becoming worldwide concern. The fake news culture has been profoundly penetrated in our society, where social media consumers share the information without verifying its authenticity. Due to vast range quick response of social media platforms i.e., Facebook and Twitter make transmission of any kind of news whether it is fake or really easier. On the other hand, there is no mechanism of checking and verifying the news circulation on social media (McGonagle, 2017). Despite the fact that fake news is not novel, still, it has become worrisome now since of popularity of social media, that permits people for easy interface and diffusion of diverse ideas. It is quite obvious that with the arrival of information technology, the interaction between nations and countries have become borderless.

Any kind of information can easily be dispersed in a single click now (Zhou & Zafarani, 2018). The corona virus infodemics are increasing at epidemic rate. Infodemics engross the purposeful spread of misinformation and disinformation through the online media, mainly on social media platforms. It has been observed that it can mislead from health experts' efforts, injecting public fear, insecurity, and mistrust, that could have serious personal and economic repercussions. The infodemics include such topics on which misinformation and disinformation are revealed through Facebook posts and tweets. It is commonly motorized by interested individuals, groups with underhanded political and economic gains (Rafiq, Iqbal & Afzal, 2024). People make efforts to determine their doubts and anxieties through social media to understand the situation better in times of crisis that often amplify anxiety and uncertainty about existing events and information. Additionally, the individuals who have been enforced to live alone during lockdown, became dependent on social media platforms to access information regarding number of corona cases and death toll. Consequently, this had several disadvantages for instance, increased stress, anxiety, tension, fear, as well as compulsive obsessions, essentially for those with the mental disorders who are on psychotherapy medication (Hammad & Algarni, 2021).

Research Objectives

1. To investigate whether or not the element of anxiety, fear and stress amongst users are linked with fake news on social media.
2. If yes, to what extent the elements of anxiety, fear and stress are raised due to fake news about Covid-19.
3. To examine if the psychological effects of fake news are related with demographics of social media consumers.

Research Questions

1. RQ1: Whether or not the element of anxiety, fear and stress amongst users are linked with fake news on social media?
2. RQ2: If yes, to what extent the elements of anxiety, fear and stress are raised due to the fake news about Covid-19?
3. RQ3: Whether the psychological effects of fake news are related with the demographics of social media consumers or not?

LITERATURE REVIEW

Fake News & COVID-19

The study explored that the rapid increase of false news is rising in the age of COVID-19 epidemic. A few research studies have been conducted to establish the relationship between social media and fake news in this era of the COVID-19 pandemic. The more people make use of the social media to obtain corona virus updates, the more there is a threat perception regarding the virus. However, the consequences of fake news and misinformation on social media about deadly virus can be harmful and threaten to the mental health of social media users (Hou, Du, Jiang, Zhou, Lin, Assessment & Commission, 2020). The power of social media has the unmatched dominance in all over the world. Thus, allowing spread of misinformation that is frequently presented as realities by fearful citizens, looking for a sense of the security. However, there has been seen an increase in online fake news information, since the COVID-19 emerged, proposing preventive cures and tips on how to cope with deadly virus. The fake information regarding the cure of Corona virus has remained talk of the town during the pandemic.

The viral pieces of information contained different organic treatments with the help of weeds etc. and many other prevention measurements were exposed. Even, in the early days of pandemic, when scientists were making vaccination while people were spreading false information on social media about the treatment (Pennycook, McPhetres, Zhang & Rand, 2020). Similarly, spell of fake news information on the pandemic has made many to believe that they could get cured by using salted water, drinking bleach, and eating oregano. The results also revealed that many people believed the Chinese government had produced virus to gain political and economic interest in the world. On the other hand, other speculations were also there to understand that US government formed virus to destabilize Chinese government. This fake news information escalated not only in creating hatred on the Chinese race but also put the health of people at risk. It also damaged the efforts of government in executing precautionary measures as well (Lampos, Moura, Yom, Cox, McKendry & Edelstein, 2020).

Psychological Effects & COVID-19

The sudden outbreak of the Corona virus pandemic established a global public health crisis around the globe. People faced problems and difficulties to continue their normal life tasks, as the COVID-19 fears, uncertainty, and stress were too much to cope virtually. The Corona virus pandemic health crisis affected marital life of couples. Females faced many challenges amidst health emergency. The continuing epidemic affected hospital staff and life quality of health experts. Most of the countries in the world-imposed lockdowns and confined regional social gatherings with the initial outbreak of COVID-19, which resultantly triggered mental stress. Though, overthrowing measures affected individuals' routine life worldwide. Insecurity in global health crisis led to fear and mental health issues because of the heightened sense of life threat (NeJhaddadgar Ziapour & Zakkipou, 2020). Likewise, the ongoing COVID-19 pandemic virus resulted as the deadliest global health calamity in the present times.

The COVID-19 epidemic outbreak triggered the massive challenges and crisis management issues. Which includes the economic crisis, environmental effects and health emergency worldwide (Rafiq, Afzal & Kamran, 2022). The misinformation about COVID-19's severity, symptoms, and transmission can heighten anxiety and fear. Users constantly exposed to alarming fake news may experience increased stress and worry about their health and safety. The lethal virus has the interrupted social interactions, congregations, economic activities, international relations, and global markets. Thus, the countries like the third world, which make up a huge fraction of their population, are labor and the low-wage countries. The COVID-19 epidemic has left adverse effects on them. Furthermore, the closure of cities across country has resulted to anxiety levels, depression, hunger, unemployment, and other mental health problems (Arshad, Baloch & Ahmed, 2020; Rafiq, Kamran, Zia, Munir & Afzal, 2024).

Role of Social-Media in Health Crisis

In the advent of Corona virus pandemic, people are using social media platforms more than usual routine to pursue health information. The use of social media has become a comfortable relief in the health calamity and global crisis amidst COVID-19 epidemic. According to US Census Bureau, more than 42% of people and recognized symptoms of depression and higher anxiety in December 2020. Which was recorded 11% higher than the previous year. Similarly, the survey findings of Hazarika disclosed similar results of corona virus pandemic mental stress worldwide. Thus, it was an adequate suggestion to convince Government to launch nationwide remote mental health (Saqib et al., 2020). In the view of above context, after enabling lockdowns and restrictions on social distancing, the telephonic service collected 43,000 people data and found that 9% of people had symptoms of anxiety, 4% had depression, and more than 12% of individuals stated stress related to the health crisis. Thus, certainly, social media platforms have provided an easy access to get the health related information. Which authorized people to evaluate health-related risks and mitigate global health apprehensions. Typically, social media users share health information available through local and international sources in response to a worldwide public health crisis. Social media tools have been adopting by the health professionals and governments to contain and manage health crisis (Hu & Zhang, 2020).

Social Media, Social Support, & Health Information

The content of social provision to the public seeking health information is being delivered through social media platforms. Social media platforms offer a significant benefit of online information to people suffering from health anxiety. The description of social support perception and sensibleness that how social networks care for and value of people in a network. It clarifies how social networks implant individuals into social responsibilities and communication networks. The most common one is how the social network is helpful (Dai & Menhas, 2020). Also, concept of social support mentions to the perception of available relief, help, and degree to which individual is integrated into social obligation. Foundations of social support are coworkers, friends, family members, and organizations. It includes shuffling of available resources among people who perceive it as envisioned. Likewise, many clinicians are attracted through effects of social support related imperious factors, scholars, scientists, and scholars globally. This study also reviewed the role of social support on mental health (Yang et al., 2017).

RESEARCH METHODOLOGY

This study adopts a quantitative approach, utilizing a research survey method to achieve objectives. A structured questionnaire with closed-ended questions serves as a primary data collection tool, ensuring consistency and ease of analysis. The study population consists of social media users from Lahore, representing a diverse demographic, with a sample size of 350 participants, including male, female, and transgender individuals. Sample is selected using simple random sampling technique to ensure each member of population has equal chance of inclusion, by enhancing representativeness of the findings. Surveys are a well-established research method for determining public perception and attitudes. In this study, questionnaire is meticulously designed to cover various aspects relevant to research objectives.

It is distributed among the selected respondents, who are requested to provide their responses to the specified questions. The structured nature of the questionnaire ensures that data collected is both comprehensive and comparable across different respondent groups. To analyze the collected data, SPSS version 21 is employed. This powerful statistical software enables the researchers to perform a wide range of analyses, from basic descriptive statistics to more complex inferential tests. By using SPSS, study ensures that data is rigorously examined, facilitating accurate and reliable conclusions. The use of this software also allows for the identification of patterns and relationships within the data, providing deeper insights into the public perception of social media usage among different gender groups in Lahore.

RESULTS OF STUDY

The results of current study as outcomes of the statistical procedures have been presented in this section to better understand main findings. Demographic information of respondents includes age, gender, qualification & income. The age wise distribution of the social media users is following. Age groups are divided into four main groups. 23 (6.6%) respondents are from age group 16-20, 148 (42.3%) respondents are from age group 20-24, 95 (27.1%) from 24-28, while 84 (24%) respondents are from age group 28-32. All demographic tabulations are self-explanatory representing information leading information.

Table 1 Age wise Distribution (n=350)

SN	Age groups	Frequency	Percentage
1	16-20	23	6.6%
2	20-24	148	42.3%
3	24-28	95	27.1%
4	28-32	84	24%
Total		350	100%

Table 2 Gender wise Distribution of Respondents (n=350)

SN	Gender	Frequency	Percentage
1	Male	110	31.4%
2	Female	240	68.6%
Total		350	100%

Table 3 Qualification wise Distribution of Respondents (n=350)

SN	Qualification	Frequency	Percentage
1	Graduation	204	58.3%
2	Masters	82	23.4%
3	MPhil.	60	17.1%
4	PhD	4	1.1%
Total		350	100%

Table 4 Income wise Distribution of Respondents (n=350)

SN	Income	Frequency	Percentage
1	25000-50000	190	54.3%
2	50000-75000	63	18%
3	75000-100000	56	16%
4	100000-125000	41	11.7%
Total		350	100%

Table 5 Facebook Account (n=350)

SN	Facebook Account	Frequency	Percentage
1	Yes	350	100%
Total		350	100%

Table 6 Facebook Consumption (n=350)

SN	Facebook Consumption	Frequency	Percentage
1	Less than one hour	118	33.7%
2	One hour	99	28.3%
3	Two hours	26	7.4%
4	More than two hours	107	30.6%
Total		350	100%

Table 7 Twitter Account (n=350)

SN	Twitter Account	Frequency	Percentage
1	Yes	350	100%
	Total	350	100%

Table 8 Twitter Consumption (n=350)

SN	Twitter Consumption	Frequency	Percentage
1	Less than one hour	190	54.3%
2	One hour	68	19.4%
3	Two hours	59	16.9%
4	More than two hours	33	9.4%
	Total	350	100%

Independent Samples t-test

The data is analyzed through independent sample t-test. The means and standard deviations of four variables of psychological effects regarding Facebook usage and twitter usage have also been measured. Similarly, the significant values of all four variables relevant to Facebook and Twitter has been found out. The gender wise mean and standard deviations of the four variables associated with Facebook.

Table 9 Gender Wise Means and Standard Deviations of Facebook

SN	Variable	Gender	Number	Mean	SD
1	Psychological effects (anxiety, fear and stress)	Male	110	3.51	.89577
		Female	240	3.56	.75692
2	Panic	Male	110	3.70	.98003
		Female	240	3.54	.06269
3	Insecurity	Male	110	3.69	.09899
		Female	240	3.44	.06826
4	Health disbelief	Male	110	3.81	.81274
		Female	240	3.93	.86526

Table 10 Gender Wise Means and Standard Deviations of Twitter

SN	Variable	Gender	Number	Mean	SD
1	Psychological effects (anxiety, fear and stress)	Male	110	4.00	.10522
		Female	240	3.93	.07058
2	Panic	Male	110	2.58	.09015
		Female	240	3.00	.06535
3	Insecurity	Male	110	1.13	.10827
		Female	240	2.84	.07422
4	Health disbelief	Male	110	2.91	.11416
		Female	240	2.85	.07215

Independent Samples t-test

The data is analyzed through independent samples t-test, which is also known as Levene's Test. The psychological effects i.e., anxiety, fear and stress of fake news about COVID-19 shared on Facebook significant value of .057 which is insignificant. It shows that the fake news about COVID-19 shared on Facebook responses of having psychologically effects on Facebook users. Likewise, panic created through fake news about COVID-19 on Facebook has significant value of .340 that is insignificant. It depicts insignificant that fake news about COVID-19 on Facebook created panic in them. While the element of insecurity, has significant value of .356 which is insignificant. The significant value clearly shows the insignificant responses of Facebook users. The health disbelief created through fake news about COVID-19 on Facebook has significant value of .523 that is insignificant. It depicts insignificant results of Facebook users on health disbeliefs created over fake news about COVID-19 on Facebook.

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Table 12 Gender Wise Means and Standard Deviations of Twitter

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3	Insecurity	Male	110	1.13	.10827
		Female	240	2.84	.07422
4	Health disbelief	Male	110	2.91	.11416
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Table 13 Independent Samples Test for Facebook

		L T E V		T-test Equality of Means		
		F	SIG.	T	DF	SIG.
Psychological	Equal variances assumed	3.655	.057	-.524	348	.600
	Equal variances not assumed			-.493	183.074	.623
Panic	Equal variances assumed	.915	.340	1.456	348	.146
	Equal variances not assumed			1.451	209.847	.148
Insecurity	Equal variances assumed	.855	.356	2.024	348	.044
	Equal variances not assumed			2.038	215.132	.043
Health Disbeliefs	Equal variances assumed	.408	.523	.682	348	.496
	Equal variances not assumed			.698	224.083	.486

The psychological effects i.e., anxiety, fear and stress of fake news about COVID-19 shared on the Twitter significant value of .722 which is insignificant. It shows that the fake news about COVID-19 shared on Twitter has insignificant results of having the psychologically effects on Twitter users. Similarly, the panic created through fake news about COVID-19 on Twitter has significant value of .607 which is also insignificant. It depicts the insignificant responses of respondents that fake news about COVID-19 on Twitter created panic in them. While the element of insecurity, has significant value of .303 which is also insignificant. In this connection, the significant value clearly presents insignificant outcomes of Twitter users. The health disbelief created through the fake news about COVID-19 on the Facebook has significant value of .480 which is also insignificant. It also depicts the insignificant responses of Twitter users on health disbeliefs created through fake news about COVID-19 on Twitter.

Table 14 Independent Samples Test for Twitter

Psychological	Equal variances assumed	.127	.722	-.111	348	.912
	Equal variances not assumed			-.111	209.791	.912
Panic	Equal variances assumed	.265	.607	.998	348	.319
	Equal variances not assumed			1.024	225.275	.307
Insecure	Equal variances assumed	1.066	.303	.718	348	.473
	Equal variances not assumed			.721	213.965	.471
Disbelief	Equal variances assumed	.499	.480	.518	348	.605
	Equal variances not assumed			.505	198.987	.614

DISCUSSION

The basic purpose of the study was to explore the psychological effects of fake news about Covid-19 on social media i.e., Facebook and Twitter. The objectives of study were to investigate whether or not element of anxiety, fear and stress amongst users were linked with fake news on social media. If yes, to what extent the elements of anxiety, fear and stress are raised due to fake news about Covid-19. Furthermore, to examine if psychological effects of fake news were related with demographics of social media consumers. Results revealed that responses of Facebook users over psychological effects i.e., anxiety, fear and stress of fake news about Covid-19 on the Facebook an insignificant approach. Out of 350 male and female respondents of Facebook, 226 (64.6%) male and female respondents agreed that they had to experience feeling of anxiety, fear and stress due to fake news circulation on Facebook about Covid-19. Likewise, out of 350 male and female Facebook users 256 (73.2%) male and female respondents agreed that, they had to face panic situation due to the fake news circulation about Covid-19 on Facebook. The element of insecurity due to spread of the fake news about Covid-19 on Facebook was also observed which disclosed that 214 (60.2%) male and female agreed that they had to come across element of insecurity since of fake news spread on social media about Covid-19.

While, the fake news about Covid-19 on Facebook spread health disbeliefs amongst Facebook users also had significant findings. Out of the 350 male and female Facebook users, 262 (74.8%) respondents agreed that fake news about Corona virus on Facebook spread the health disbeliefs among Facebook users. On the other hand, results exposed that out of 350 male and female Twitter users, 79 (22%) agreed that they had to face psychological effects i.e., anxiety, fear and stress of fake news about Covid-19 on Twitter. Likewise, it also disclosed the insignificant responses. Out of 350 male and female Twitter users, 119 (34%) Twitter users, had to face panic situation due to fake news circulation about Covid-19 on Twitter. Prevalence of fake news can erode trust in legitimate news sources and public health authorities. This mistrust can hinder the dissemination of accurate information & compliance with health guidelines. Out of 350 male and female twitter respondents, 114 (32.5%) twitter respondents faced element of insecurity due to spread of fake news about Covid-19 on twitter. While, fake news about Covid-19 on Twitter spread health disbeliefs amongst Twitter users revealed insignificant results. Out of 350 male and female twitter users, 124 (35.5%) male and female respondents of twitter agreed that fake news related to Covid-19 spread health disbeliefs among Twitter users.

CONCLUSION

This research study aimed to explore Fake News about COVID-19 and their Psychological Effects on Social Media Users in Pakistan. The study was quantitative in nature. The data was collected through online survey in which 350 male and female social media users i.e., Facebook and Twitter participated. The RQ1: "Whether or not the element of anxiety, fear and stress amongst users are linked with fake news on social media"? was addressed in following way. The element of anxiety, fear and stress were found linked with social media users (Facebook). Male and female Facebook users revealed that they had to come across the feelings of anxiety, fear and stress due to fake news circulation on Facebook regarding COVID-19. These psychological effects, i.e., anxiety, fear and stress were closely associated with the Facebook users. To measure psychological effects for these

three elements, respondents were asked questions for each variable separately. On the other hand, male and female Twitter users revealed that the psychological effects i.e., anxiety, fear and stress were not associated with Twitter. The Twitter respondents showed insignificant results and mostly disagreed with it. The RQ2: "If yes, to what extent the elements of anxiety, fear and stress are raised due to fake news about Covid-19?" was addressed in the following way. In the period of COVID-19 pandemic, when everybody was feeling scary and alert, one had to come across with misinformation or fake news about pandemic. This news might be relevant to deadly virus, its spread, death cases, or either its cure.

So, male and female Facebook users had to face the element of anxiety, fear and stress. The results of the respondents showed the behavior of Facebook users that they had to face element of anxiety, fear and stress due to fake news about COVID-19 on Facebook during the pandemic and still facing. On the other hand, Male and female Twitter users also responded insignificantly that during the era of COVID-19, due to spread of fake news and disinformation about the COVID-19, they had not gone through with such psychological traumas. The RQ3: "Whether psychological effects of fake news are related with demographics of social media consumers or not?" was addressed in the following way. The demographics revealed the identity of respondents which had a correlation with the psychological effects on respondents. In this study, it was observed that people from the age group 20-24 and in gender, the females had been found quite active in using social media platforms. Similarly, the consumption of the Facebook had also been observed higher amongst the consumers as compare to Twitter. The more actively you got news content whether it fake or true, it left an impact on the consumer. So, in the spectrum of theoretical framework, psychological effects of fake news about COVID-19 were related with the demographics of social media i.e., Facebook and Twitter consumers.

Recommendations

1. There should be a gatekeeping mechanism to verify the authenticity of news shared on social media platforms.
2. The fake news culture on social media for sake of increasing traffic is badly affecting its users, which really need to be stopped.
3. Government officials like PTA should keep an eye on the social media platforms working in Pakistan to check the fake news about COVID-19 on social media.
4. Social Media authorities also need to pay heed to stop this prevailing issue, particularly in the age of pandemic when people become more vulnerable.
5. Social Media platforms can perform a great job during the pandemic if used with authentic information for the betterment of masses.

REFERENCES

- Ali, S, Baloch, M, & Ahmed, N. (2020). The outbreak of coronavirus disease 2019 (COVID-19)-an emerging global health threat. *Journal of Infect Public Health*. 13(4):644-646.
- Bruno Kessler Foundation. (2020). Fake news in the time of C19. Available at: <https://members.tortoisemedia.com/2020/03/23/the-infodemic-fake-news-coronavirus/content.html>.

- Dai, J., & Menhas, R. (2020). Sustainable development goals, sports and physical activity: the localization of health-related sustainable development goals through sports in China: a narrative review. *Risk Manag Health Policy*.13:1419–1430.
- Frenkel, S., Alba, D., & Zhong, R. (2020, March 8). Surge of virus misinformation stumps Facebook and Twitter. *New York Times*. Retrieved from <https://www.nytimes.com/2020/03/08/technology/coronavirus-misinformation-social-media.html>.
- Hammad, M. A., & Algarni, T. (2021) Psychosocial effects of social media on the Saudi society during the Coronavirus Disease 2019 pandemic: A cross-sectional study. *PLoS ONE* 16(3): e0248811.
- Hou, Z., Du, F., Jiang, H., Zhou, X., Lin, L., Assessment, T., & Commission, N. H. (2020). Assessment of public attention, risk perception, emotional and behavioral responses to COVID-19 outbreak: social media surveillance in China. Doi:10.1101/2020.03.14.20035956.
- Hu, B., & Zhang, D. (2020). Channel selection and knowledge acquisition during the 2009 Beijing H1N1 flu crisis: a media system dependency theory perspective. *Chinese Journal of Communication*. 7(3):299–318.
- Lamos, V., Moura, S., Yom, E., Cox, I. J., McKendry, R., & Edelstein, M. (2020). Tracking COVID-19 using online search. 93, 4–9.
- McGonagle, T., 2017. “Fake news”: False fears or real concerns? *Netherlands Quarterly of Human Rights*, 35 (4), 203–209.
- NeJhaddadgar, N., Ziapour, A., & Zakkipour G. (2020). Effectiveness of telephone-based screening and triage during COVID-19 outbreak in the promoted primary healthcare system: a case study in Ardabil province, Iran. *Z Gesundh Wiss*. 2020;1–6.
- Pennycook, G., McPhetres, J., Zhang, Y., & Rand, D. (2020). Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy nudge intervention. *PsyArXiv* [Working Paper]1–24
- Rafiq, S., Afzal, A., & Kamran, F. (2022). Impact of School Environment on Students' Academic Achievements at the University Level. *VFAST Transactions on Education and Social Sciences*, 10(4), 19–30.
- Rafiq, S., Iqbal, S., & Afzal, A. (2024). The Impact of Digital Tools and Online Learning Platforms on Higher Education Learning Outcomes. *Al-Mahdi Research Journal*, 5(4), 359–369.
- Rafiq, S., Kamran, F., & Afzal, A. (2024). Investigating Benefits and Challenges of Interdisciplinary Education in Higher Education Settings. *Journal of Social Research Development*, 5(1), 87–100.
- Rafiq, S., Kamran, F., Zia, F., Munir, I., & Afzal, A. (2024). The Challenges and Opportunities of Female Leadership in Educational Institutions in Punjab Pakistan. *Remittances Review*, 9(2), 4245–4262. <https://doi.org/10.33282/rr.v9i2.221>
- Saqib, Z. A., Dai, J., & Menhas, R. (2020). Physical activity is a medicine for non-communicable diseases: a survey study regarding the perception of physical activity impact on health wellbeing. *Risk Management & Health Policy*.13:2949–2962.
- Su, Z., McDonnell, D., Wen, J. et al. Mental health consequences of COVID-19 media coverage: the need for effective crisis communication practices. *Global Health*, 17, 4 (2021).

- Tacchini, E., Ballarin, G., Vedova, L., Moret, S., & Alfaro, D. (2017). Some like it Hoax: Automated Fake News Detection in Social Networks. *CoRR abs/1704.07506*.
- Yang F, Zhong B, and Kumar A. (2017). Exchanging social support online: a longitudinal social network analysis of irritable bowel syndrome patients' interactions on a health forum. *Journal Mass Communication Quarterly*, 95(4):1033–1057.
- Zhou, X., & Zafarani, R. (2018.) The Fake News: A Survey of Research, Detection Methods. and Opportunities