



## Social Media Exposure and Preventive Behaviors against

### COVID-19 in Pakistan

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#### Abstract

COVID-19 has been declared a pandemic since March 2020. Pakistan has become the 20th most-affected country from the virus by May 2020. The only perfect cure from the virus is to take preventive measures from getting affected. Dissemination and exchange of information play a significant role in letting the public know about those measures. This study attempts to explore how social media exposure could influence the adoption of preventive measures by taking into account the roles of self-relevant emotions, belief on conspiracy beliefs, and trust in the measures taken by the government. The sample (n=378) was collected from public and private universities (two each) of Pakistan. Hierarchical regression was used to measure the relationship between the variables. The results showed that self-relevant emotions have been triggered from the information available on social media which further enhanced the adoption of preventive measures. Also, trust in government is an important factor in deciding whether the preventive measures would be taken or not. The findings also suggest that the conspiracy beliefs related to COVID-19 are a significant predictor of less preventive behaviors among the public. Practical implications of self-relevant emotions and trust in government have also been discussed regarding the public health crisis.

**Keyword:** *Constructive approach, Talk Shows, Corona outbreak*

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**Introduction**

World Health Organization (WHO) had declared the novel Covid-19 (formally known as SARS-CoV-2) a pandemic in March 2020 (WHO, 2020). Till June 28, 2020, the tally of the affected people from the virus crossed 9 million across the world (WHO, 2020). In Pakistan, the first patient of the following pandemic was tested positive on 26th February 2020 who had returned from Iran (Latif, 2020). Till 30th May of the same year, the toll raised to 69,496 positive cases. The numbers crossed over 213 thousand till 1st July 2020 (see COVID-19 Dashboard, 2020). Pakistan imposed a lockdown of a few days at the start but lifted it before time. Due to which the COVID-19 infected calculation caught fire. To preserve the economy, the people were asked to follow preventive measures on their own, instead of an imposed lockdown by the Pakistani government (Jamal, 2020). Since this pandemic does not account for the perfect cure prescription yet, 'prevention' goes far beyond the proverb of considering it better than cure. Rather, it has become essential to mitigate the consequences before the cure or vaccine becomes readily available.

It has been observed that during recent infectious diseases including East Respiratory Syndrome (MERS), Zika, Ebola, Middle, and influenza (etc.), social media networking sites ('social media exposure' hereafter) has emerged as a tool to obtain first-hand information to know the updates and exchange it with family, neighbors and peer groups (Jang & Paek, 2019). The outbreak of H1N1 flu was reported for the first time on social media and then the information traveled faster than anticipated

(Ding & Zhang, 2010). It was also explored that during the MERS outbreak, 71.5% obtained the information from social media platforms in South Korea (Kim & Yang, 2015). Similarly, the panic of Covid-19 on social media has traveled faster than the disease (Depoux et al., 2020). The effects of information about pandemics on social media have manifolds. Gao et al. (2020) explored the relationship between social media exposure and mental health during Covid-19 and discovered that social media exposure was causing mental health problems. Another study found that social media exposure during the MERS outbreak has a profound effect on risk perception (Choi, Yoo, Noh, & Park, 2017). It is also noted that governments actively used social media platforms to inform and educate the public about their policies during pandemics (Chan et al., 2018). Despite the existing literature in the following domain has charted an increase in studying the role of social media platforms during infectious diseases, the question of how the use of social media can influence the behaviors of the users towards preventive measures (i.e., wearing masks, maintaining social distance) has yet to be fully explored.

Hence, this study attempted to explore how social media exposure is related to taking preventive measures during Covid-19. Existing literature has been explored which offered the following factors explaining the relationship.

### **Social Media Exposure during Covid-19 and Self-Relevant Emotions**

The momentary feelings that arise from the thoughts of one's self and life are called self-relevant emotions (Dunlop, Wakefield, & Kashima, 2008). To control the risk, those feelings

strongly shape behaviors (Dunlop et al., 2008). Self-relevant emotions arouse through media by the vivid depiction of the risks (Snyder & Rouse, 1995). Social Media provides a platform for the people of the areas, where the outbreak of an infectious disease spreads, to share their opinions and expressions about the disease (Ofoghi, Mann, & Verspoor, 2016).

Oh, Lee and Han (2020) discussed that social media exposure triggered self-relevant emotions (hereafter fear and anger) which eventually affected prevent behaviors from an infectious disease. Another research also explored that social media exposure related to health-crises information was every so often framed in terms of emotions (Do et al. 2016). All infectious diseases (including Covid-19) are considered as negative events because it puts the health and mortality of people at stake (You et al.2017). These negative effects of an infectious disease elicit negative self-relevant emotions (Oh, Lee, & Han, 2020).

Keeping in view the discussions on social media during MERS, two self-relevant emotions were prevalent which included anger and fear (Song et al. 2017). Do et al. (2016) investigated the same two emotions as the most salient emotions on Twitter as well during MERS. Another study has also highlighted the same self-relevant emotions that were prevalent on social media during the outbreak of Ebola (Ofoghi et al., 2016). Thus, this study assumed that

H1. Social media exposure about Covid-19 is positively associated with (a) fear and (b) anger.

The depiction of an event in our minds is intrinsically associated with feelings which eventually utilizes by the

individual while making a judgment (Popova et al. 2017). For instance, fear would create a sense of uncertainty due to a little control over the situation (Lerner et al., 2003). The emotions can motivate preventive behaviors directly (Turner & Underhill, 2012). The angry people would believe in a likelihood of restraining a situation having a risk. So, the fearful people are more pessimistic considering themselves more vulnerable and angrily people are more optimistic and considered less vulnerable (Lerner & Keltner, 2001). The subsequent reaction/behavior would be based on the following underlying cognitive process.

If people believe that they are more vulnerable, they will follow the preventive behaviors (Rimal, Flora, & Schooler, 1999). So, in this case, fearful people would consider themselves more vulnerable. Thus, it was hypothesized that

H2. There is a strong and direct relationship between fear and preventive behavior.

Fearful people are likely to take preventive measures due to their vulnerability. However, the anger, as an emotion, is connected with high human control and certainty about understanding the disease and measures to take guard from it (Yang, & Chu, 2018). Turner and Underhill (2012) argued that people having more anger are likely to take preventive measures against terrorism. This can simply be theorized that if an outbreak affects a person's family, he or she will be angry at disease and will likely to take preventive measures to protect himself or herself. A study also found a positive relationship between anger and preventive measures to curb the risk (Yang & Chu, 2018). Thus, it was assumed that

H3. There is a direct and strong relationship between anger and preventive behavior.

#### Social Media Exposure and Conspiracy Beliefs about Covid-19

Conspiracy beliefs are those “false beliefs in which the ultimate cause of an event is believed to be due to a plot by multiple actors working together with a clear goal in mind, often lawfully and in secret” (Swami et al., 2014). There are several conspiracy beliefs about Covid-19 being spread daily on the internet around the world. For example, this virus is all about inserting a chip in a body to track and trace the people, and this project is started by the Microsoft CEO, Bill Gates (Oh, Lee, & Han, 2020). The conspiracy beliefs helped Covid-19 to take root in Pakistan (Aamir, 2020). At the local level of Pakistan especially in most of the rural areas, it is being heard from people spreading rumors that the government is getting money from WHO in exchange of a single Covid-19 positive dead body, due to which everyone would be declared as Covid-19 positive if he or she went to any hospital. As a result, people are reluctant to go to hospitals even if they had Covid-19 symptoms (Gillani, 2020). The conspiracy beliefs are happened to be spread faster and have a profound effect when the information about treatment or vaccine in a pandemic is not readily available (Reynolds & Seeger, 2005).

When a person does expose to information spread on social media, he or she is likely to expose to conspiracy beliefs about Covid-19 which could eventually form his or her beliefs accordingly. It was therefore hypothesized that

H4. The social media exposure is correlated with the beliefs on conspiracy ideas about Covid-19.

Most of the time, conspiracy beliefs carry negative implications for the people living in a society. In the Covid-19 time, people are needed to maintain social distance, washing hands regularly (WHO, 2020). Conspiracy beliefs may also lead to resistance against important public health and medical warnings (Landrum & Olshansky, 2019). Therefore, It was assumed that H5. The belief in conspiracy ideas have a negative relationship with preventive behaviour in Covid 19.

Social Media Exposure and Trust in Government Responses during Covid-19

Trust in government (in a pandemic) is the perceived decisiveness in taking safety measures by the government (van der Weerd, et al. 2011). It is the measure of how much the people of a country trust the decisions of its government in a particular crisis (or in general).

The government of Pakistan has been blamed for mishandling the Covid-19 patients coming from Iran at the very start of the pandemic in the country (Khattak, 2020; Saad, 2020). During his first speech to the people of Pakistan amid Covid-19, Imran Khan (current Prime Minister of Pakistan) said that people should not worry about this pandemic and Pakistan didn't need to impose lockdown to prevent the spread because of the condition of its economy and nature of the virus. Also, a little (rather say no) effort was made in asking people to wear masks and maintain social distance in the initial days of the spread. Meanwhile, a provincial government of Pakistan (Sindh) went one step further to impose lockdown. This showed a lack of uniform policy across Pakistan which eventually induced a sort

of distrust on the minds of the public about coping strategies of the government (Cheema, 2020).

Trust on government is one of the important factors in shaping a risk perception in masses. The role of social media is critical in building the public's trust in the policies of the government (Park et al. 2016). The scholars believe that losing trust in government may get boosted by E-government (Tolbert, & Mossberger, 2006). The Pakistani government had launched websites and different social media applications to convey policy and information soon after the spread of Covid-19 in the country (Rehmat, 2020). So, it was assumed that

H6. Social media exposure is a strong predictor of the perceived level of trust in the government about Covid-19 policy.

The trust is also associated with the adoption of measures recommended by the government (Khosravi, 2020). Another study explored that the perception of the effectiveness of the steps taken by the government in a pandemic is associated with the perceived level of trust in the government (Leppin & Aro, 2009; Taylor, Raphael, Barr, Agho, Stevens, & Jorm, 2009). During the time of a pandemic, the information (coming from different sources like provincial and federal government) converging on a single point increases the level of adoption of that information (Smith, 2006). Another study found that a higher level of perceived trust in government was positively associated with the acceptance of the vaccine of the H1N1 pandemic (van der Weerd et al., 2011).

Keeping in view the previous arguments about the variety of decisions taken by federal and provincial governments



of Pakistan, the information was not converged at one point. The provincial government suggested lockdown but the federal opposed. As a result, the preventive measures would not have been followed as they should have been obeyed. Similarly, it was hypothesized in another way;

H7: The perceived trust in government measures have a strong and direct relationship with preventive behavior.

### **Theoretical Framework**

The study found its conceptual roots from Model of Affect-as-Information and differential impact hypothesis which can be described as the use of emotional states (i.e. Fear, anger) in a heuristic way to make the judgments about risk as long as those emotions seem relevant to the target of the assessment (status of Covid-19). This model further describes that people use their feelings (emerged from the information) to interpret their environment instead of the information itself. Those people who trigger negative emotions from the information tend to treat their mood diagnostically to interpret the situation (Casper, 2001). This model helped to theorize how self-relevant emotion could trigger preventive behaviors.

The study also sought theoretical conceptualization from the Protection Motivation Theory (PTM) which describes that the preventive behaviors can be injected into the minds of people by creating a high level of risk perception about a risk (van der Weerd et al., 2011). Instructions from the government as well as information from other sources may provide information in such a way that the preventive behaviors could be influenced (Smith, 2006). Trust and Confidence Model have further helped to

theorize that trust in information can affect the judgments of the people and therefore can affect their decisions about preventive measures.

### **Methodology**

A cross-sectional survey was conducted online from four different universities (two public and two private sectors) of Lahore, and Sialkot, Pakistan. The data was collected between May 1 to May 20, 2020. A total sample of 450 was selected through purposive sampling. The link of the questionnaire was sent online to all of them, but only 378 responses were counted. The rest of the others were discarded due to providing incomplete data or for being outliers. The average age of respondents was 23.71 (SD=3.78). Out of the counted 378 respondents, 185 were males and 193 were females.

### Measures

In previous pandemics, many researchers have worked in different domains on the same variables which are also being used in this study. Hence, the scales (except a few) were adopted from previous literature done by scholars. The scale of social media exposure refers to a 5 point-Likert scale with a statement, "how much information have you seen on social media (such as Twitter, Facebook, Blogs, Instagram, TikTok, and WhatsApp) about Covid-19. The social media exposure scale consists of six items. The scales of two self-relevant emotions, i.e. fear and anger, were adapted (with a slight changing of converting the word MERS into Covid-19) along with preventive behaviors from previous work in the same domain during MERS (Oh, Lee, & Han, 2020). The fear and anger scale consist of eight items while seven

questions were included to measure preventive behavior. To measure the scale of conspiracy beliefs, a scale was adopted from a study that was conducted on the Covid-19 (Georgiou, Delfabbro, & Balzan, 2020). The conspiracy belief scale consists of 10 items. The scale for trust in government was adopted from the study which was conducted on H1N1 (van der Weerd, 2011). The trust in government scale consists of five items. All the scales were measured on a five-point Likert scale. All the scales have a reliability score between  $\alpha=0.73$  to  $\alpha=0.86$ .

### **Data Analysis**

SPSS 25 version was used for descriptive statistics, hierarchical regression, and bivariate correlation analysis. Descriptive statistics were used to measure the frequency, percentages, mean and standard deviation. While, the bivariate correlation was used to examine the relationship between social media exposure, fear and anger, trust in government, Covid-19 conspiracy beliefs, and preventive behaviors taken by students during government lockdown. Two separate hierarchical regression analyses were performed to examine the effect of independent variables on the dependent variable. In both hierarchical regression demographic variables which include gender, age, education level, and family income were controlled.

### **Results**

In bivariate correlation analysis, social media exposure had a positive association with fear ( $r=.26$ ,  $p<.01$ ), anger ( $r=.19$ ,  $p<.01$ ), trust in government ( $r=.23$ ,  $p<.01$ ), conspiracy beliefs ( $r=.28$ ,  $p<.01$ ) and preventive behavior ( $r=.53$ ,  $p<.01$ ). The first self-relevant emotion fear was positively related to anger ( $r=.51$ ,

$p < .01$ ), conspiracy beliefs ( $r = .42, p < .01$ ), and preventive behaviors ( $r = .50, p < .01$ ) while it was negatively related with trust on government ( $r = -.65, p < .01$ ). Second self-relevant emotions anger was also positively associated with conspiracy beliefs ( $r = .39, p < .01$ ), and preventive behaviors ( $r = .43, p < .01$ ) while it was negatively associated with trust on government ( $r = -.46, p < .01$ ). This shows that those respondents who are having COVID-19 fear and anger are less likely to believe in government actions and promises. Those respondents who have trust in government actions are less likely to believe in COVID-19 related conspiracy beliefs ( $r = -.51, p < .01$ ). On the other hand, trust in government had a positive association with preventive behaviors ( $r = .62, p < .01$ ). Conspiracy beliefs were negatively associated with preventive behaviors ( $r = -.48, p < .01$ ) which shows that those individuals who believe in conspiracy beliefs are less likely to engage in preventive behaviors related to coronavirus.

**Table 1:** *Descriptive statistics and bivariate correlations between key variables.*

Variables	1	2	3	4	5	6
1. SNS Exposure						
2. Fear	.26**					
3. Anger	.19**	.53**				
4. Trust on Government	.23**	-.65**	-.46**			
5. COVID-19 conspiracy beliefs	.28**	.42**	.39**	.51**		
6. Preventive behaviors	.23**	.53**	.43**	.62**	.48**	
Mean	3.94	4.21	4.33	4.13	4.48	4.57
SD	1.47	1.17	1.22	1.24	1.41	1.27

Hierarchical regression was performed to test the hypotheses and to control the demographic variables. In the first step, all the demographic variables were entered in block 1 which includes gender, age, education, and family income. Social media exposure was entered in the second block in the second step. Dependent variables were placed in the dependent variable box and several hierarchical regressions were performed for each dependent variable (fear, anger, trust in government, and conspiracy beliefs). In Table 2 results show that demographic factors predicted a 4% variance in fear. In addition to this, social media exposure explained the 30% variance in fear. The overall model was significant and social media exposure was positively associated and significant predictor of fear ( $\beta = .38, p < .01$ ). As expected, the result indicates that a higher level of social media exposure was significantly associated with a higher level of fear in respondents. H1(a) was supported. For anger, demographic factors predicted 12% of all variance. In addition to this, social media exposure explained the 26% variance in anger. The overall model was significant and social media exposure was positively associated and significant predictor of anger ( $\beta = .52, p < .01$ ). The result indicates that a higher level of social media exposure was significantly associated with a higher level of anger in respondents. H1(b) was supported. For trust in government, demographic factors predicted 8% of all variance. While social media exposure explained 15% of the variance in trust in government. The overall model was significant and social media exposure was negatively associated and significant predictor of trust in government ( $\beta = -.29, p < .01$ ). As expected, the results

indicate that a higher level of social media exposure was significantly associated with a lower level of trust in government. H6 was accepted. For conspiracy beliefs related to Covid-19, demographic factors predicted 13% of all variance. While social media exposure explained 20% of the variance in conspiracy beliefs related to coronavirus. The overall model was significant and social media exposure was a positive and significant predictor of conspiracy beliefs related to coronavirus ( $\beta = .38, p < .01$ ). As expected, the results indicate that a higher level of social media exposure was significantly associated with higher conspiracy beliefs related to coronavirus. H4 was supported.

**Table 2:** *Hierarchical regression analysis predicting Fear, Anger, Trust and Conspiracy beliefs*

Independent Variables	Fear	Anger	Trust	Conspiracy Beliefs
Block 1: control variables				
Gender	.06	.08*	.05	.26*
Age	.15*	.15*	.06*	.12*
Education	.17*	.34*	.04	.09*
Family Income	.05	.05	.10*	.16*
Adjusted R2	.04%	.12%	.08%	.13%
Block 2: Social Media				
Exposure	.59*	.52**	-.29**	.38**
Incremental adjusted R2	.30%	.26%	.15%	.20%
Total adjusted R2	34.3%	37.6%	23.2%	33.4%

For Table 3 results, all the demographic variables were entered in block 1, in the first step which includes gender, age, education, and family income. In the second step, social media exposure was entered in the second block. Fear was entered in

block 3, anger was entered in block 4, trust in government in block 5, and conspiracy beliefs in block 6. Preventive behavior was entered into the independent variable box in a hierarchical regression. Results in Table 3 show that demographic factors predicted 9% of all the variance. In addition to this, social media exposure explained the 13% variance in preventive behavior. The overall model was significant and social media exposure was positively associated and significant predictor of preventive behavior related to Covid-19 ( $\beta = .36, p < .001$ ). As expected, the result indicates that a higher level of social media exposure was significantly associated with a higher level of preventive behavior in respondents. Fear explained the 11% variance in preventive behavior. Fear was a positively related and significant predictor of preventive behavior related to Covid-19 ( $\beta = .32, p < .01$ ). The result indicates that a higher level of fear was significantly associated with a higher level of preventive behavior in respondents. H2 was supported. Anger explained the 9% variance in preventive behavior. Anger was a positively related and significant predictor of preventive behavior related to Covid-19 ( $\beta = .26, p < .01$ ). The result indicates that a higher level of anger was significantly associated with a higher level of preventive behavior in respondents. H3 was supported. Trust in government explained the 7% variance in preventive behavior. Trust in government was a positively related and significant predictor of preventive behavior related to Covid-19 ( $\beta = .29, p < .01$ ). As expected, the result indicates that a higher level of trust in government was significantly associated with a higher level of preventive behavior in respondents. H7 was supported.

Conspiracy beliefs explained the 10% variance in preventive behavior. Conspiracy beliefs were negatively related and significant predictors of preventive behavior related to Covid-19 ( $\beta = -.37, p < .001$ ). As expected, the result indicates that a higher level of belief in conspiracies related to coronavirus was significantly associated with a lower level of preventive behavior in respondents. H5 was accepted. The overall model was significant, and all the predictors explained the 59% variation in preventive behavior.

**Table 3:** Predicting Preventive behaviors regarding Covid-19  
(Hierarchical Regression Analysis)

Independent variables	Covid-19 Preventive Behaviours
Block 1: Demographics	
Gender	.23**
Age	.22**
Education	.11**
Income	.13***
Adjusted R2	.09%
Block 2	
Social Media Exposure	.36***
Incremental adjusted R2	.13%
Block 3	
Fear	.32**
Incremental adjusted R2	.11%
Block 4	
Anger	.26**
Incremental adjusted R2	.09%
Block 5	
Trust	.29**
Incremental adjusted R2	.07%
Block 6	
Conspiracy Beliefs	-.37***
Incremental adjusted R2	.10%
Total adjusted R2	59.10%



**Discussion**

The purpose of this study was to enhance the knowledge related to social networking sites' exposure and involvement in preventive behaviors against COVID-19. The results of the study indicate that exposure to social networking sites is associated with two self-relevant emotions (fear, and anger), trust in government, conspiracy beliefs, and preventive behaviors related to coronavirus. In addition to this, self-relevant emotions (fear and anger), trust in government, and conspiracy beliefs are also related to preventive behaviors.

In recent outbreaks e.g. Zika virus, Ebola, and H1N1 influenza, social media emerged as a significant and important source of crisis communication. People sharing their views and opinions through their posts/videos/pictures about infectious disease outbreaks and receiving the latest information related to the current situation. During this information acquisition and exchange on social media, emotions attached to this communication can play a significant role in shaping public perception related to preventive behaviors. The literature on crisis communication has yet to explore the different dynamics of social media usage and behavioral outcomes during the coronavirus epidemic. This study was an attempt to disentangle the emotional and belief mechanism underlying the process through which social networking sites exposure in explaining trust in government, shaping conspiracy beliefs, and -preventive behaviors.

### Theoretical Implications

The findings are extending and supporting the differential impact hypothesis. As results indicate that social media exposure during coronavirus outbreak can produce fear and anger. The results of the study endorsed the work of previous scholars who explored the role of self-relevant emotions during the outbreak of MERS and Ebola (Oh, Lee, & Han, 2020; Yang & Chu, 2018). The relationship of these emotions has not been investigated with social media exposure during the coronavirus epidemic. The findings also offered an extension in the differential impact hypothesis and model of affect-as-information by explicating that social media exposure can influence the self-relevant emotions (fear and anger). People pay attention to news and information available on social media and develop personal relevance or parasocial relationship with the source of information (Basil & Brown, 1997; Snyder & Rouse, 1995; Schweisberger, Billinson, & Chock, 2014). This personal relevance with media source helps them to attach their emotions with the message.

These findings also support and extend the trust and confidence model. The model explains that trust in information can shape and change our protective behaviors (Ryu, Kim, & Kim, 2018). Protection motivation theory also explains how different factors such as trust in government motivate the people to engage in healthy or unhealthy behaviors. This theory also explicates the decision process and protecting oneself from perceived threats in times of crisis (Chambers et al., 2016; Ling, Kothe, & Mullan, 2019).

**Practical Implications**

Our findings draw attention toward self-relevant emotions, trust in government, and COVID-19 related conspiracy beliefs while predicting preventive behaviors. These findings can help public health officials, risk communicators, and policymakers in understanding the role of the above-mentioned predictors in explaining preventive behavior. Government spokespersons and health officials should pay attention to the role of fear and anger during the epidemic. The findings support the idea that people are using social media not only for personal gratification, but they are using it to express their opinions, thoughts, and emotions (Do et al., 2016; Ofoghi et al., 2016). Their emotion-filled dialogue and personal experience sharing habits about public health crises influencing people's behavior towards infectious disease outbreak. On the other hand, the findings suggest that public health officials should be careful while making the statements related to COVID-19 spread and effects. When people have less trust in government then they pay less attention to government agencies' claims, guidelines, and promises (Maxwell, 2003). Moreover, awareness is also important to minimize conspiracy beliefs because it leads the public toward careless behavior. Our findings support the argument that ignoring the public emotional reaction or considering these emotions as irrational can damage the crisis management efforts of government agencies. By monitoring the public emotions on social media, government officials can better communicate with citizens and can channelize their emotions in the right direction.

Effective communication by public health officials and government spokesperson is necessary to control the health-related crisis (Lee, 2014; Lee & Basnyat, 2013; Strekalova, 2017). These researches found that the journalists are selective in disseminating the press releases and they choose their frames while writing the epidemic related news. Successful and effective risk communication by these officials helps the public to fully understand the issue and they take preventive action to safeguard themselves from disease (Reynolds & Seeger, 2005). The results of unsuccessful communication are disastrous, and it creates outrage in public (Maxwell, 2003). This study also offers help for the policymakers to prepare better communication plans.

#### **Limitations and Future Implications**

This study has certain limitations and findings should be interpreted while keeping those limitations in mind. As data of this study was collected through an online survey technique, so this online data collection can limit our ability to make causal inferences. Future studies can examine these relationships through experimental or longitudinal studies to make causal claims. We have examined only social media exposure role in preventive behavior while we have not measured the role of various information sources (Television, Newspaper, Radio, and Interpersonal communication) in predicting the preventive behavior related to Covid-19. Future studies can explore how various sources of information can influence preventive behaviors.

Future research may emphasize on other self-relevant emotions such as anxiety, stress, and sadness. Previous studies

have explored the role of anxiety during various infectious disease outbreaks (Lazarus, 1991; Yang & Chu, 2018). Therefore, the role of these negative emotions in preventive behaviors can provide interesting insights for future research. Moreover, future studies should also investigate the role of risk perception in predicting preventive behavior. Moreover, risk information is normally divided into personal and societal risk perceptions. Future studies can explore the role of personal risk perception in predicting behavioral outcomes. In addition to this, personal risk information can also be explored as a mediating variable between the relationship of social media exposure and preventive behavior.

### **Conclusion**

The study contributed to enhancing the understanding of the roles of self-relevant emotions and other factors that cause variation in the adoption of preventive measures. Moreover, it also explained the role of social media in explaining various cognitive underlying processes that could influence preventive behaviors during COVID-19. The absence of a vaccine and a perfect cure makes preventive behaviors more significant. Every communication channel which could play a role of catalyst should be utilized to mitigate the consequences of the virus by enhancing the adoption of preventive measures till the perfect cure or vaccines come into the picture.

**References**

- Aamir, A. (2020). Conspiracy theories help coronavirus take root in Pakistan. Retrieved on 1st June 2020 from <https://asia.nikkei.com/Spotlight/Coronavirus/Conspiracy-theories-help-coronavirus-take-root-in-Pakistan>
- Basil, M. D., & Brown, W. J. (1997). Marketing AIDS prevention: The differential impact hypothesis versus identification effects. *Journal of Consumer Psychology*, 6(4), 389-411.
- Chambers, R., Tingey, L., Mullany, B., Parker, S., Lee, A., & Barlow, A. (2016). Exploring sexual risk taking among American Indian adolescents through protection motivation theory. *AIDS care*, 28(9), 1089-1096.
- Chan, M. S., Winneg, K., Hawkins, L., Farhadloo, M., Jamieson, K. H., & Albarracín, D. (2018). Legacy and social media respectively influence risk perceptions and protective behaviors during emerging health threats: A multi-wave analysis of communications on Zika virus cases. *Social Science & Medicine*, 212, 50-59. doi:10.1016/j.socscimed.2018.07.007
- Cheema, U. (2020). In dealing with corona, Sindh sets benchmarks for other provinces. Retrieved on 1st May 2020 from <https://www.thenews.com.pk/print/638694-in-dealing-with-corona-sindh-sets-benchmarks-for-other-provinces>
- Choi, D. H., Yoo, W., Noh, G. Y., & Park, K. (2017). The impact of social media on risk perceptions during the MERS outbreak in South Korea. *Computers in Human Behavior*, 72, 422-431.

- Clore, G. L., Wyer, R. S., Jr., Dienes, B., Gasper, K., Gohm, C., & Isbell, L. (2001). Affective feelings as feedback: Some cognitive consequences. In L. L. Martin & G. L. Clore (Eds.), *Theories of mood and cognition: A user's guidebook* (p. 27-62). Lawrence Erlbaum Associates Publishers. COVID-19 Dashboard (2020). <http://covid.gov.pk/stats/pakistan>
- Depoux, A., Martin, S., Karafillakis, E., Preet, R., Wilder-Smith, A., & Larson, H. (2020). The pandemic of social media panic travels faster than the COVID-19 outbreak. *Journal of Travel Medicine*, 27(3), 1-2. <https://doi.org/10.1093/jtm/taaa031>
- Ding, H., & Zhang, J. (2010). Social media and participatory risk communication during the H1N1 flu epidemic: A comparative study of the United States and China. *China Media Research*, 6(4), 80-91.
- Do, H. J., Lim, C. G., Kim, Y. J., & Choi, H. J. (2016). Analyzing emotions in twitter during a crisis: A case study of the 2015 Middle East respiratory syndrome outbreak in Korea. Paper presented at 2016 International Conference on Big Data and Smart Computing (BigComp), Hong Kong, China. Paper Retrieved from <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7425960&isnumber=7425793>
- Dunlop, S., Wakefield, M., & Kashima, Y. (2008). Can you feel it? Negative emotion, risk, and narrative in health communication. *Media Psychology*, 11, 52-75. doi:10.1080/15213260701853112

- Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., Wang, Y, Fu, H., & Dai, J. (2020). Mental health problems and social media exposure during COVID-9 outbreak. *Plos one*, 15(4), e0231924.
- Georgiou, N., Delfabbro, P., & Balzan, R. (2020). Covid-19-related conspiracy beliefs and their relationship with perceived stress and pre-existing conspiracy beliefs. *Personality and Individual Differences*, 166, 110201. <https://doi.org/10.1016/j.paid.2020.110201>
- Gillani, W. (2020). Dangerous theories. Retrieved on 15 June 2020 from <https://www.thenews.com.pk/tns/detail/674847-dangerous-theories>
- Jamal, U. (2020). Will Islamabad be able to bring the pandemic under control? Retrieved from <https://thediplomat.com/2020/05/pakistan-plans-another-covid-19-lockdown-will-it-work/>
- Jang, K., & Paek, Y. M. (2019). When information from public health officials is untrustworthy: The use of online news, interpersonal networks, and social media during the MERS outbreak in South Korea. *Health Communication*, 34(9), 991–998. doi:10.1080/10410236.2018.1449552
- Khattak, D. (2020). Pakistan's Confused COVID-19 Response. Retrieved on 15 June 2020 from <https://thediplomat.com/2020/06/pakistans-confused-covid-19-response/>
- Khosravi, M. (2020). Stress Reduction Model of COVID-19 Pandemic. *Iranian Journal of Psychiatry and Behavioral Sciences*, 14(2), 1-3. <https://doi.org/10.5812/ijpbs.103865>



## Journal of Media Studies 36(1)

- Kim, S., & Yang, J. (2015, August). MERS outbreak and suggestions for press guideline. *Journalism & Broadcasting*. Retrieved from [http://azine.kr/m/\\_webzine/wz.php?c=62&b=58931&g=](http://azine.kr/m/_webzine/wz.php?c=62&b=58931&g=)
- Landrum, A. R., & Olshansky, A. (2019). The role of conspiracy mentality in denial of science and susceptibility to viral deception about science. *Politics and the Life Sciences*, 38, 193–208.
- Latif, A. (2020). Pakistan confirms 7th coronavirus case. Retrieved on 22nd May 2020 from <https://www.aa.com.tr/en/asia-pacific/pakistan-confirms-7th-coronavirus-case/1758933>
- Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, 46(8), 819-834.
- Lee, S. T. (2014). Predictors of H1N1 influenza pandemic news coverage: Explicating the relationships between framing and news release selection. *International Journal of Strategic Communication*, 8(4), 294-310.
- Lee, S. T., & Basnyat, I. (2013). From press release to news: mapping the framing of the 2009 H1N1 A influenza pandemic. *Health Communication*, 28(2), 119-132.
- Leppin, A., & Aro, A. R. (2009). Risk perceptions related to SARS and avian influenza: theoretical foundations of current empirical research. *International journal of behavioral medicine*, 16(1), 7-29.

- Lerner, J. S., & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology*, 81(1), 146–159. doi:10.1037/0022-3514.81.1.146
- Lerner, J. S., Gonzalez, R.M., Small, D.A., & Fischhoff, B. (2003). Effects of fear and anger on perceived risks of terrorism: A national field experiment. *Psychology Science*, 14(2), 144–150. doi:10.1111/1467-9280.01433
- Ling, M., Kothe, E. J., & Mullan, B. A. (2019). Predicting intention to receive a seasonal influenza vaccination using Protection Motivation Theory. *Social Science & Medicine*, 233, 87–92.
- Maxwell, T. A. (2003). The public need to know: emergencies, government organizations, and public information policies. *Government Information Quarterly*, 20(3), 233–258.
- Ofoghi, B., Mann, M., & Verspoor, K. (2016). Towards early discovery of salient health threats: A social media emotion classification technique. *Biocomputing 2016: Proceedings of the Pacific Symposium* (pp. 504– 515), Hawaii: 2016 Pacific Symposium on Biocomputing.
- Oh, S. H., Lee, S. Y., & Han, C. (2020). The effects of social media use on preventive behaviors during infectious disease outbreaks: The mediating role of self-relevant emotions and public risk perception. *Health communication*, 1-10.
- Park, M. J., Kang, D., Rho, J. J., & Lee, D. H. (2016). Policy role of social media in developing public trust: Twitter communication with government leaders. *Public Management Review*, 18(9), 1265-1288.

- Popova, L., So, J., Sangalang, A., Neilands, T. B., & Ling, P. M. (2017). Do emotions spark interest in alternative tobacco products? *Health Education & Behavior*, 44, 598–612. doi:10.1177/1090198116683169
- Rehmat, A. (2020). Pakistan: Responding to Covid-19 challenges with innovation. Retrieved on 20 May 2020 from <https://www.mediasupport.org/media-in-pakistan-responding-to-covid-19-challenges-with-innovation/>
- Reynolds, B., & Seeger, M. W. (2005). Crisis and emergency risk communication as an integrative model. *Journal of Health Communication*, 10(1), 43–55. doi:10.1080/10810730590904571
- Rimal, R. N., Flora, J. A., & Schooler, C. (1999). Achieving improvements in overall health orientation: Effects of campaign exposure, information seeking, and health media use. *Communication Research*, 26(3), 322–348. doi:10.1177/009365099026003003
- Ryu, Y., Kim, S., & Kim, S. (2018). Does trust matter? analyzing the impact of trust on the perceived risk and acceptance of nuclear power energy. *Sustainability*, 10(3), 758–775.
- Saad, M. A. (2020). Pakistan's Fight Against the Coronavirus Threat. Retrieved on 3rd April 2020 from <https://thediplomat.com/2020/03/pakistans-fight-against-the-coronavirus-threat/>
- Schweisberger, V., Billinson, J., & Chock, T. M. (2014). Facebook, the third-person effect, and the differential impact hypothesis. *Journal of Computer-Mediated Communication*, 19(3), 403–413.

- Smith, R. D. (2006). Responding to global infectious disease outbreaks: lessons from SARS on the role of risk perception, communication and management. *Social Science & Medicine*, 63(12), 3113-3123.
- Smith, R. D. (2006). Responding to global infectious disease outbreaks: lessons from SARS on the role of risk perception, communication and management. *Social Science & Medicine*, 63(12), 3113-3123.
- Snyder, L. B., & Rouse, R. A. (1995). The media can have more than an impersonal impact: The case of AIDS risk perceptions and behavior. *Health Communication*, 7(2), 125-145.
- Snyder, L. B., & Rouse, R. A. (1995). The media can have more than an impersonal impact: The case of AIDS risk perceptions and behavior. *Health Communication*, 7, 125-145. doi:10.1207/s15327027hc0702\_3
- Song, J., Song, T. M., Seo, D. C., Jin, D. L., & Kim, J. S. (2017). Social big data analysis of information spread and perceived infection risk during the 2015 Middle East respiratory syndrome outbreak in South Korea. *Cyberpsychology, Behavior, & Social Networking*, 20(1), 22-29. doi:10.1089/cyber.2016.0126
- Strekalova, Y. A. (2017). Health risk information engagement and amplification on social media: News about an emerging pandemic on Facebook. *Health Education & Behavior*, 44(2), 332-339.

## Journal of Media Studies 36(1)

- Swami, V., Voracek, M., Stieger, S., Tran, U. S., & Furnham, A. (2014). Analytic thinking reduces belief in conspiracy theories. *Cognition*, 133(3), 572-585.
- Taylor, M, Raphael, B, Barr, M, Agho, K, Stevens, G and Jorm, L. 2009. Public health measures during an anticipated influenza pandemic: factors influencing willingness to comply. *Risk Manage Health Care Policy*, 2, 9-20.
- Tolbert, C. J., & Mossberger, K. (2006). The effects of e-government on trust and confidence in government. *Public administration review*, 66(3), 354-369.
- Turner, M. M., & Underhill, J. C. (2012). Motivating emergency preparedness behaviors: The differential effects of guilt appeals and actually anticipating guilty feelings. *Communication Quarterly*, 60(4), 545-559. doi:10.1080/01463373.2012.705780
- van der Weerd, W., Timmermans, D. R., Beaujean, D. J., Oudhoff, J., & van Steenbergen, J. E. (2011). Monitoring the level of government trust, risk perception and intention of the general public to adopt protective measures during the influenza A (H1N1) pandemic in the Netherlands. *BMC Public Health*, 11(1), 575
- World Health Organization. (2020). Ads Who.int - WHO Official Updates =. Retrieved from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- Yang, J. Z., & Chu, H. (2018). Who is afraid of the Ebola outbreak? The influence of discrete emotions on risk perception. *Journal of Risk Research*, 21(7), 834-853.

You, M., Joo, J., Park, E., Noh, G.-Y., & Ju, Y. (2017). Emerging infectious disease content in newspaper editorials: Public health concern or leadership issue? *Science Communication*, 39(3), 313–337. doi:10.1177/1075547017705392