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# Impact of Health Literacy on Fear of Covid-19, Protective Behavior, and Conspiracy Beliefs: University Students' Perspective

by

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## Abstract

*Health literacy is an essential to respond proactively to pandemic situations like Covid-19. It helps the general public to reduce the spread of infectious diseases, prevent from over-reactions, reduce carelessness, adopt health protective behavior. The purpose of this research was to examine the impact of health literacy on fear of Covid-19, protective behavior, and conspiracy beliefs of university students in Pakistan. A cross-sectional survey using an online questionnaire was conducted at two public sector universities in Punjab with permission. A total of 271 received responses were analyzed by applying both descriptive and inferential statistics in SPSS. The results indicated students' gender had a relationship with their health protective behavior indicating that female students were more likely to adopt health protective behavior as compared to male students. Besides, the students' health literacy did not predict their fear of Covid-19 and conspiracy beliefs. However, the health literacy of university students predicted their health protective behavior which meant that the students with better health literacy likely to adopt health protective behavior related to Covid-19 infection. There was a need for promotion of health literacy related to Covid-19 to fight not only the current pandemic situation but also an infodemic associated with it. These results are useful for policymakers, health professionals, university and library administration for promoting health and creating awareness related to Covid-19 pandemic. It would also be helpful in developing useful directions for health literacy programs promoting health education and protective behavior to avoid and management Covid-19 infection. This research would make a worthy addition to existing research on health literacy as limited empirical studies have been conducted so far.*

**Keywords:** Covid-19 pandemic, Health literacy, Covid-19 fear, Protective behavior, Conspiracy beliefs, Public health, Infodemic, Pakistan

## Introduction

"We don't know enough!" was the crux of the first response of many of the frontline statesmen, health practitioners, and policymakers to the news of the Covid-19 outbreak. The guidelines of the World health Organization (WHO), under such circumstances, emphasized on avoiding the infection spread by increasing the health literacy among the general public globally (Paakkari and Okan, 2020). The need for development of health literacy was realized during the Covid-19 pandemic like never before (Abdel-Latif, 2020). Health literacy is an important factor in behavioral and emotional management in unforeseen situations like Covid-19 pandemic (Abel and McQueen,

2020; Moro et. al., 2010). Therefore, it was emphasized as the core and frontline element of the global strategy to fight against the Covid-19 pandemic, especially after the limited capacity of the healthcare system was exposed (Bao et al., 2020; Xu et al., 2020; Naveed & Shaukat, 2020).

The Covid-19 outbreak affected the health-related behavior and raised fear of getting infected among the individuals (Nguyen et. al. 2020b). On the other hand, it also opened the Pandora's Box of conspiracy theories labeled as Covid-19 infodemic (Allington et al. 2020; Bierwiazzonek et al. 2020; Chen et. al. 2020). The decision-makers like WHO and governments started emphasizing to increase the public health literacy not only for Covid-19 pandemic but also for infodemic. For instance, the Director-General of WHO Mr. Tedros Adhanom Ghebreyesus said, "we're not just fighting an epidemic; we're fighting an infodemic," in his address at the Munich Security Conference on February 15, 2020 and declared the Covid-19 epidemic as pandemic and then infodemic (Zarocostas 2020; Okan et. al. 2020). WHO and the governments established the information portals (e.g. covid19.who.int, cdc.gov, ecdc.europa.eu, covid.gov.pk, etc.) to disseminate Covid-19 relate information, stats, and health advisories to increase the health literacy among public, policymakers and researchers (Košir and Sørensen 2020). Besides, a lot of holistic and dynamic strategies and decision making to stop the spread of Covid-19 infection is also evident in different parts of the world that included awareness campaigns, curfew, lockdown, smart lockdown, and temperature scanning. The Covid-19 statistics from around the world are still presenting an unfavorable situation as August 2020 is ending (WHO Coronavirus Disease Dashboard). The time calls for creating more knowledge around the world to understand the behavioral, social, economic, and environmental effects of the Covid-19 pandemic and take informed decisions to respond Covid-19 pandemic and infodemic proactively.

The literature highlights that health literacy (HL) is one of the prime factors for not only controlling the spread of infectious diseases like Covid-19 but also prevents from over-reactions, and reduces carelessness (Abel and McQueen 2020; Naveed, Shaukat and Anwar, 2020; Maverick Insider 2020; Moro et al. 2010; Naveed and Shaukat 2020; Nguyen et al. 2020a). World Health Organization (1998) defined health literacy as the set of cognitive and social skills that not only motivates and but also enables the individuals to acquire, understand and apply credible health-related information to promote sustainable health. Seng et al. (2020) referred it to as the people's ability to obtain and act according to the critical medical information to survive through the Covid-19 pandemic and infodemic. A perusal of published literature indicated that people with limited health literacy are more vulnerable to Covid-19 infection (Fauzi et al. 2020; Sørensen 2020), likely to have higher fear and depressions (Nguyen et al. 2020a; Nguyen et al. 2020b), less likely to adopt health protective behaviors (Clements 2020; McCaffery et al. 2020; Riad, et al. 2020; Riiser et al. 2020), greater endorsements toward conspiracy belief related to Covid-19 (Chen et al. 2020; Song and Karako 2020).

Fear of Covid-19 (FCoV-19) emerged as a behavioral phenomenon during the ongoing global pandemic. It can be stated as the exuberant adoption of protective behavior of an individual to avoid the possible Covid-19 infliction. Nguyen et al. (2020) define the fear of Covid-19 as the unfavorable mental health in anticipation of Covid-19 infection. Its consequences may range from healthcare access delays (Lazzerini et al. 2020) to excessive smoking or alcohol consumption (Nguyen, et. al., 2020a) to suicide (Goyal et al. 2020). 'Stay safe, stay at home!' has become a

global slogan to instigate people for adopting protective behavior to avoid the disease having no known cure yet. The concept of health-preventive or protective behavior refers to an individual behaving in a way to protect one's self and others from unusual health conditions during the Covid-19 pandemic (Allington et. al. 2020; Allington and Dhavan 2020; Freeman et al. 2020; Watkins 2020). A recent study of Allington et al. (2020) reported that the protective behavior is positively associated with the usage of broadcast media as an information source, and negatively associated with the use of social media as an information source about Covid-19 and conspiracy beliefs. Conspiracy beliefs, in this study, generally refer to the faith in the conspiracy theories, especially related to the Covid-19. Such theories have resulted in reduced social distancing, therefore, are a significant threat to public health (Bierwiazzonek et al. 2020). The conspiracy beliefs are negatively related to the favourable behavior towards the HPV vaccine, perceived norms regarding being vaccinated, and vaccination intentions (Chen et al. 2020). Conspiracy beliefs have played a significant role in spread of Covid-19 as well as promoting the fear of Covid-19.

Adequate health literacy is essential to respond proactively to the Covid-19 pandemic as it not only enables people to apply credible health information but also motivates them to adopt health protective behavior. There was a need for surveying the general public to understand the levels of health literacy for developing the basis for designing the strategy for moving forward (Seng et al. 2020). Keeping in view the national demographics, health literacy among youth is of utmost importance as they comprise the population bulge. However, no such study has been recently published that explains the health literacy among Pakistani university students and its impact on the fear of Covid-19, protective behavior, and conspiracy beliefs. This research, therefore, aimed to investigate the impact of health literacy on fear of Covid-19 knowledge, protective behavior and conspiracy beliefs of university students of two public sectors universities from Punjab, Pakistan.

### **Research questions**

This study addressed specifically the following research questions:

1. Is there a relationship of health literacy, fear of Covid-19, protective behaviors, and conspiracy beliefs with personal and academic variables?
2. Is there any relationship of health literacy with fear of Covid-19, protective behavior, and conspiracy beliefs of university students?
3. Does the health literacy predict fear of Covid-19, protective behavior, and conspiracy beliefs of university students?

### **Research hypotheses**

**H<sub>1</sub>:** University students' health literacy predicts their fear of Covid-19.

**H<sub>2</sub>:** University students' health literacy predicts their protective behavior.

**H<sub>3</sub>:** University students' health literacy predicts their conspiracy beliefs.

### **Research Design**

A cross-sectional survey using an online questionnaire was conducted from mid-June to mid-July to investigate the impact of health literacy of university students on their fear of Covid-19, health protective behavior, and conspiracy beliefs. The recruitment of students was made from two public

sector universities such as the University of the Punjab, Lahore, and University of Sargodha, Sargodha. The former is the oldest, largest, and research-intensive university of Pakistan whereas the latter is an emerging and fast-growing university in Punjab.

### **Instrumentations**

Health literacy of the university students was measured using the short form health literacy questionnaire (HLS-SF12) developed by Duong, et al., (2019) for the general public. HLS-SF12 was a unidimensional scale comprising of 12 statements. It is a reliable and valid measure of health literacy for evaluation of people's ability for accessing, understanding, appraising, and applying health information on healthcare, disease prevention, and health promotion. Besides, it was not only in agreement with the original and comprehensive 47-item European Health Literacy Questionnaire (HLS-EU-Q47) developed by Sørensen et al. (2013) but also validated with Asian countries such as Indonesia, Malaysia, Kazakhstan, Myanmar, Taiwan, and Vietnam (Duong et al. 2017; Duong et al. 2019). It is a comprehensive measure expanding its ability by adding virtual media and social support lacking in other instruments (Liu et al. 2018). The shortness of HLS-SF12 allows the researcher to combine it with other instruments to investigate its relationship with other constructs. The students were asked to respond each statement on 4-point Likert Scale such as '1= very difficult', '2= difficult', '3= easy', and '4= very easy'. The composite variable for health literacy was created by computing the mean scores of all the participating statements that represented the overall health literacy for each student. The greater mean scores indicated better health literacy among university students.

The Covid-19 fear was assessed using Fear of Covid-19 Scale (FCOV-19S) which was developed by Ahorsu et al. (2020) for general populations. FCOV-19S was also a unidimensional, standardized, reliable, and valid instrument consisting of 7-items having the potential to assess fear of the Covid-19 pandemic among general populations. Each statement was measured on a five-point Likert scale such as '1= strongly disagree', '2= disagree', '3= neither disagree nor agree', '4= agree', '5= strongly agree'. The composite variable for fear of the Covid-19 scale was also created by computing the mean scores of seven items for each student with a higher mean score representing greater Covid-19 fear.

Health protective behavior in the Covid-19 pandemic was assessed using 11 statements adopted from Naveed and Shaukat's (2020) questionnaire. Each statement was measured on a five-point frequency response scale, '1= Never', '2= Rarely', '3= Sometimes', '4= Often', and '5=Always'. The composite variable for health protective behavior was also created by computing means a score of all the 11 items for each student with a greater mean score representing a higher frequency of health protective behavior. However, the statements for conspiracy beliefs were carefully generated in the absence of a standardized instrument based on an extensive review of the related literature. There were 8-items for conspiracy beliefs. The initial draft of the questionnaire was submitted to a panel of experts (e.g. three doctors, two educationists, and one researcher with an extensive research experience related to health information-seeking) for face and content validity and revised following their comments which was later on pilot tested with 31 students that were not included in the study sample. The students were requested to respond statements related to conspiracy beliefs on a five-point Likert scale such as '1= strongly disagree',

'2= disagree', '3= neither disagree nor agree', '4= agree', '5= strongly agree'. The total means score was computed for conspiracy beliefs by computing 8 statements for each student with a higher mean score indicating greater agreements to conspiracy beliefs.

### Reliability of the questionnaire

The reliability of HLS-SF12, FCOV-19S, health protective behavior, and conspiracy beliefs was checked using Cronbach alpha based on the data set of this study (Table 1). The high values of Cronbach alpha indicated the internal consistency of the instruments used in this study such as HLS-SF12 (12 items, CA= .811), FCOV-19S, (7 items, CA=.913), health protective behavior (11 items, CA=.800), and conspiracy beliefs (8 items, CA=.885).

Table 1  
Reliability analysis of the instruments used in the survey

S. No	Variable	No. of items	Cronbach's Alpha
1	Health Literacy (HLS-SF12)	12	0.811
2	Fear of Covid-19 (FCOV-19S)	7	0.913
3	Health Protective Behaviors	11	0.800
4	Conspiracy Beliefs	8	0.885

### Population and data collection

All the students enrolled in different programs of social science and business science disciplines at the above-mentioned universities were considered as the study population. The students from social science and business science disciplines were purposively selected as it was convenient to collect data from these students in the pandemic and lockdown situation. The questionnaire was created in Google forms and administered online for data collection with the permission of concerned authorities. The collection of data through an online questionnaire was possible due to online classes being carried out in these universities due to the Covid-19 pandemic. The students were asked to participate in the survey voluntarily. A total of 271 responses were received that were imported in SPSS for data analysis.

### Data analysis

Prior to data analysis, all the received responses were screened for missing values resulting in zero questionnaires with missing values. The negatively worded statements were reversed so that all the statements might be measured in the same direction. The composite variables for health literacy, fear of Covid-19, and health protective behavior, and conspiracy were used for data analysis. A series of simple linear regression was performed using SPSS to determine the impact of the health literacy of university students on their fear of Covid-19, health protective behavior, and conspiracy beliefs of university students.

## Results

### Characteristics of the survey participants

Out of 271 students who participated in the survey, 147 (54.24%) students belonged to the University of the Punjab, Lahore whereas 124 (45.76%) were from University of Sargodha, Sargodha. There were 126 (46.49%) males and 145 (53.51%) females. Most of these students ( $n=201$ , 74.16%) were enrolled in BS/MS program (16 years), followed by those students ( $n=47$ , 17.34%) enrolled in MS/MPhil programs (18 years), and doctoral program ( $n=23$ , 8.48%). The ages of these students were ranged from 18 to 49 years along with 205 (75.64%) students having age group up to 25 years, followed by those students having an age group of 26 – 30 years ( $n=46$ , 16.97%). Only 20 (7.38%) students had their age larger than 30 years.

### RQ1: Relationship of health literacy, fear of Covid-19, protective behaviors, and conspiracy beliefs with personal and academic variables

Table 2 indicated that students' age, university, and study program did correlate with their health literacy, fear of Covid-19, health protective behavior, and conspiracy beliefs ( $p$ -value  $> .05$ ). Similarly, there was no statistically significant mean difference in the index of health literacy, fear of Covid-19, and conspiracy beliefs of university students ( $p$ -value  $> .05$ ). However, the gender of university students appeared to predict their health protective behavior ( $p$ -value  $< .05$ ). In other words, the female students ( $M= 3.70$ ,  $SD= .727$ ) were more likely to adopt health protective behaviour as compared to male students ( $M= 3.41$ ,  $SD= .781$ ) as the mean score of females were greater than the males.

Table 2

Relationship of health literacy, fear of Covid-19, proactive behaviors, and conspiracy beliefs with personal and academic variables

Variable	Age		Gender		University		Study Program	
	<i>r</i>	<i>Sig.</i>	<i>t-stats</i>	<i>Sig.</i>	<i>t-stats</i>	<i>Sig.</i>	<i>F-stats</i>	<i>Sig.</i>
Health Literacy (HLS-SF12)	.007	.912	-.595	.521	-.691	.423	.895	.410
Fear of Covid-19 (FCOV-19S)	.113	.075	-.797	.481	-.591	.581	1.311	.272
Health Protective Behaviors	-.013	.839	-3.07	.002*	-.704	.231	1.467	.233
Conspiracy Beliefs	-.015	.809	-1.07	.296	-.611	.397	.127	.888

\*  $p < .05$

### RQ2: Nature of Relationship of health literacy with fear of Covid-19, protective behavior, and conspiracy beliefs

Pearson correlation coefficient was calculated to examine the relationship of health literacy with fear of Covid-19, protective behavior, and conspiracy beliefs of university students. Table 3 revealed no relationship of university students' health literacy with their fear of Covid-19 ( $r = -.088$ ,  $p = .168 > .05$ ), and conspiracy beliefs ( $r = -.037$ ,  $p = .565 > .05$ ). However, a statistically significant but positive relationship of university students' health literacy with their health

protective behavior ( $r = .177$ ,  $p = .005 < .05$ ) which meant that health protective behaviour university students increased as their health literacy increased and vice versa.

Table 3

Correlation between health literacy, fear of Covid-19, protective behavior, and conspiracy beliefs of university students (N=271)

Variables	Fear of Covid-19		Protective Behaviors		Conspiracy Beliefs	
	Pearson Correlation	Sig.	Pearson Correlation	Sig.	Pearson Correlation	Sig.
Health Literacy	-.088	.168	.177*	.005	-.037	.565

\*Correlation is significant at the 0.05 level

### RQ3: Impact of health literacy of university students on their fear of Covid-19, protective behavior, and conspiracy beliefs

A simple linear regression was performed to predict fear of Covid-19, protective behavior, and conspiracy beliefs based on health literacy. Table 4 presented the details of the results. These figures revealed non-significant regression equations ( $F(1, 269) = 1.168$ ,  $p = .168 > .05$ ), with an  $R^2$  of .008 and ( $F(1, 269) = .333$ ,  $p = .565 > .05$ ), with an  $R^2$  of .001 for fear of Covid-19 and conspiracy beliefs respectively based on health literacy. In other words, the health literacy of university students is not the predictor of their fear of Covid-19 and conspiracy beliefs. Therefore, the research hypotheses **H<sub>1</sub>** and **H<sub>3</sub>** were rejected based on these results. However, these figures showed a statistically significant regression equation ( $F(1, 269) = 7.980$ ,  $p = .005 < .05$ ), with an  $R^2$  of .031. These figures indicated that health literacy ( $Beta = .177$ ,  $p = .005 < .05$ ) was a statistically significant and positive predictor of protective behavior. It meant that the health protective behavior of university students increased as their health literacy increased. Thus, the research hypothesis **H<sub>2</sub>** is accepted.

Table 4

Impact of health literacy on fear of Covid-19, protective behavior, and conspiracy beliefs

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	F	Sig <sup>b</sup>	R <sup>2</sup>
	B	Std. Error	Beta ( $\beta$ )					
1. (Constant)	3.007	.314		9.576	.000			
Health Literacy	-.142	.103	-.088	-1.382	.168	1.909	.168	.008
2. (Constant)	2.935	.234		12.593	.000			
Health Literacy	.217	.077	.177	2.825	.005	7.980	.005	.031
3. (Constant)	3.205	.275		11.665	.000			
Health Literacy	-.052	.090	-.037	-.577	.565	.333	.565	.001

a. Dependent Variable: Fear of Covid-19<sup>1</sup>, Protective behaviors<sup>2</sup>, and Conspiracy beliefs<sup>3</sup>

b. Predictors: (Constant), Health Literacy



## Discussion

This research intended to investigate the impact of health literacy on fear of Covid-19, health protective behavior, and conspiracy beliefs among the university of students using a cross-sectional survey in Pakistan. The results indicated that health literacy did not predict fear of Covid-19 among university students and rejected the research hypothesis **H<sub>1</sub>**. These results were unexpected and quite surprising as health literacy is generally associated with better health status and quality of life (Duong et al. 2015; Greenhalgh 2015; Kayupova et al. 2017; Nguyen et al. 2020a; Watson 2011). Naveed and Shaukat (2020) argued that adequate health literacy is essential to respond to the Covid-19 pandemic as it enabled people for acquisition and usage of credible health information and adoption of health protective behavior. There might be certain cultural and religious reasons for this surprising finding as a large majority of Pakistani population is Muslim and believe that the timings and date of death are pre-decided by Allah (Al-Quran: Surah 71, Verse 4; Surah 4, Verse 78; Surah 3, Verse 154). Therefore, there is no need to worry about anything as we would die as per the pre-decided date and timings and nobody can interfere in it. One can easily observe the people in Pakistan with less fear and were careless about Covid-19 even having a reasonably good level of education. In addition, there is Hadith of Holy Prophet Muhammad (Peace Be Upon Him) that if one is died by an infectious disease like the plague, cholera, etc., oneself would be treated as martyred (Sahih Bukhari: 2829). It was logical and worth examining here that the descriptive (e.g. mean, standard deviation, etc.) for overall Fear of Covid-19 scale and its each statement. The means scores for each statement of Fear of Covid-19 Scale indicated quite low mean scores ranging from 2.12 to 3.04 along with about one standard deviation. The mean scores ( $M = 2.58$ ) and standard deviation ( $SD = 1.01$ ) for overall scale indicated low fear of Covid-19 among these survey participants. These findings were in line with that of Abdullah and Zakar (2019) who reported that the religious and cultural beliefs of the local community in Pakistan affect their wellbeing even in a better awareness of health issues. These results appeared to disagree with that of Nguyen et al. (2020a) who reported that medical students in Vietnam with higher health literacy were less likely to have fear of Covid-19 and Nguyen, et al. (2020b) who discovered that peoples' health literacy in Vietnam indicated a protective effect on depression caused by Covid-19 pandemic and infodemic and improve quality of life.

Health literacy of university students positively predicted their health protective behavior which meant that the students with better health literacy more likely to adopt health protective behavior in Covid-19. Thus, these results supported the research hypothesis **H<sub>2</sub>**. These results were quite logical and anticipated as health literacy generally improve people's awareness about a particular disease and instigate them to respond it properly while adopting health protective behavior. Similarly, it is applicable in Covid-19 pandemic situations. Able and McQueen (2020) stated that the ability of people for reflection and evaluation of critical health issues not only improves their decision making but also enable to reduce carelessness, prevent over-reactions, and adapt to existing lifestyles. It also enhances people' knowledge about a particular disease, prepares them for the collective societal response, and encourage them for the adoption of more appropriate health protective behavior especially in pandemic situations like Covid-19 (McCaffery et al. 2020; Naveed and Shaukat 2020; Paakkari and Okan 2020; Zarocostas 2020). These results were

consistent with that of Riiser et al. (2020) who reported a positive association between health literacy and adoption of protective measures among adolescents in Norway during Covid-19 pandemic. This finding also appeared to be in line with that of Riad et al. (2020) who found that the people's knowledge of Covid-19 was more likely to adopt protective behavior. This result was also supported by the findings of Naveed and Shaukat (2020) who reported that health literacy positively predicted protective behavior among university students. This finding also confirms the results of Dobe (2012) who reported that people's knowledge positively impacts health-related behavior. The study of Warner (2003) also discovered that individuals' knowledge about particular disease (e.g. Alzheimer) is linked to their health-seeking behavior. The results of DiClemente et al. (1990) revealed that the knowledge of college students about AIDS predicted their HIV preventive behavior.

As far as the impact of health literacy on conspiracy beliefs related to the Covid-19 pandemic is concerned, these results did not support the research hypothesis **H<sub>3</sub>** as there was no association between health literacy and conspiracy beliefs of university students. These results were not surprising as many conspiracy theories about the origin of Covid-19 were widespread and circulated through social and mass media and even the high ranked officials and political leadership of different countries had propagated such theories (Bierwiazzonek et al., 2020; World Health Organization, 2020a). Conspiracy theories were not just passive, actively traveled far and further, and challenged unprecedentedly the measures of social distancing and preventive behavior among people. Therefore, it was declared as an infodemic by World Health Organization (2020b). It is very difficult for a layman to verify such conspiracy theories even being literate and a good level of education. Therefore, health literacy did not appear to predict conspiracy beliefs of university students about Covid-19. This finding contradicted the results of McCaffery et al., (2020) who found that lower health literacy predicted the higher endorsement of conspiracy beliefs related to coronavirus and vaccination among the general public in Australia. On the other hand, the study of Chen et al. (2020) reported that the beliefs of Chinese young adults toward anti-vaccine conspiracy resulted in a less favorable attitude towards the HPV vaccine and getting vaccinated. The people with more knowledge about the HPV vaccine had favourable attitude and behavior.

## Conclusions

The current research showed that health literacy appeared to predict the health protective behavior of university students. In addition, female students more likely to adopt health protective behavior than male students. Therefore, health literacy should be considered as a frontline tool for the prevention and spread of Covid-19 infection as individual preparedness along with system preparedness is necessary proactively pandemic situation. The development of health literacy is much needed now than ever as it has the potential to enable people for understanding the reason behind recommendations and the outcome of adopting protective behavior. The governments should health promotion to take sustainable and strategic measures to respond actively to the Covid-19 pandemic. It would not only reduce the cost of health expenditures but also alleviate the overwhelming burden on health care systems. Paakkari and Okan (2020) stated that health literacy

is an underestimated problem in Covid-19 requiring attention by the governments. They further argued that health literacy should be seen as a key element of social responsibility and solidarity and a crucial tool for information providers and receivers for mitigation of the Covid-19 pandemic. Sentell et al. (2020) advocated an interdisciplinary approach to improve health literacy. Therefore, interdisciplinary and strategic health interventions are suggested to promote health literacy not only in Pakistan but also in other developing countries sharing similar characteristics. The results of this study are useful for policymakers, health professionals, university administration and library staff for promoting health and creating awareness related to Covid-19 pandemic. It would also be helpful in developing useful directions for health literacy programs promoting health education and protective behavior to avoid and management Covid-19 infection. More investigations are needed to determine the potential benefits of health literacy for health care providers and health information providers in the Covid-19 pandemic.

In limitations, the findings of this research should carefully be generalized as the survey was conducted at two universities with social and business science students using an online questionnaire. Although the sample size was sufficient to determine causal relationships, it is suggested that nation-wide surveys should be conducted to explore the potential benefits of health literacy in controlling Covid-19 infection. However, this research did claim, in any way, to be the voice of neither whole university students nor the whole community in Pakistan.

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