Foundation University Journal of Psychology
Vol 5, No.2 (July, 2021)

FUJP Open Access Journal

Research Article DOI 10.33897/fujp.v5i2.377

Common Myths About Coronavirus Disease-19 (COVID-19) Among Adults

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Abstract

Objective. People adopted different attitudes and behaviors during the outbreak of COVID19 pandemic. It results in development of various myths among the peoplewhichalso effect adoption of precautionary measures. The present study thus attempted to assess common myths related to COVID-19 in Pakistan among general population of adults.

Method. A list of 33 myths was generated based on literature, opinion of subject matter experts, and general observation of myths prevailing in Pakistan. It was used to assess myths about COVID-19 for the sample (N=220) of adults (M_{age}=27.9; SD_{age}=10.2).

Results. Results suggested that the most prevalent myths are:(a)older people are more vulnerable to get infected of COVID-19 (82%) and (b) thermal scanners can detect if the person is infected of virus (75%). Participants also mention some associated indigenous myths e.g., COVID-19 doesn't prevail, deaths are misreported as caused by Corona virus, and Corona recovered people can't get infected again etc. Results of t-test suggested that men are stronger myths believers as compared to women. Differences with respect to education demonstrated that undergraduates and graduates are significantly higher believers of myth than postgraduates.

Implications. Findings could help to develop a clear awareness of the false beliefs about COVID-19. Addressing the false beliefs would assist in ensuring the adoption of necessary precautionsas beliefs closely associate with preventive measures adopted.

Keywords. *Pandemic, COVID-19, myths, Pakistan, prevalence*.

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Introduction

Coronavirus disease-19 (COVID-19) pandemic imposed a global public health emergency. The first case of COVID-19 was reported at Wuhan, China in December 2019 (Holshue et al., 2020; Sohrabi et al., 2020). The World Health Organization's (WHO, 2020) Public Health Emergency of International Concern (PHEIC) has reported the spread of this virus on January 30, 2020 in four different countries. The spread was attributed to human-human interaction as happened in the previous pandemics (WHO, 2008). The International Health Regulations (IHR) (as cited in Chen et al., 2020) emergency committee also declared the outbreak of this virus. It is an epidemic that has spread around the world whose causative factors and symptoms are yet unidentified. The precautionary measures are being taken at the national and international levels (Gupta et al., 2020; Poole et al., 2020; Sajadi et al., 2020; Tomar & Gupta, 2020) to control its massive spread. Certain preventive measures are also recommended in this regard; like maintaining social distance, frequently washing your hands, using sanitizers, and using tissue in case of coughing or sneezing (WHO, 2020). Pakistan being the central part of South Asia and locating near China (Khalid & Ali, 2020) is largely been affected by the COVID-19. Pakistan confirmed its first two cases of the coronavirus in Gilgit-Baltistan resulting in an indefinite period of lockdown. Afterwards countrywide lockdown situation was declared by Federal Government and an arrest was announced for violation (WHO, 2020).

To minimize the spread of disease the government of effected countries has taken several measures like raising awareness of the disease and encouraging protective behaviors (Wise et al., 2020). These behaviors include washing hands, social distancing, and medical attention-seeking in case of symptoms experience. Meanwhile, some myths about the spreading agents and protective channels to be used against this disease are also prevailing the society. The folklore kind of narratives about the cure and treatment of this disease are spreading worldwide. They are participating to indulge people in risky or dangerous behaviors making it complicated to practice protective behaviors (Sahoo et al., 2020) presented by medical specialists.

While the healthcare systems are unable to find a solution/cure to the COVID-19 pandemic, various facts have emerged, which have low validity and are gradually turning into potential myths related to COVID-19 (Carbone et al., 2020; World Health Organization, n.d.). If we compare the myths related to COVID-19 with myths being associated with Leprosy, Tuberculosis, and Flu in the past, there are some commonalities about the major themes of myths, i.e., the myths mainly prevail around the causation, disease transmission, and cure (Van Reeth et al., 2009).

However, COVID-19 has emerged very recently and affected almost all the countries of the world in a short period. Accordingly, the myths related to its spread, transmissions are much more. This is complicated because there is social media's availability to almost everyone in the world. Hence, these myths spread very fast and extensively across the globe. Further, the lack of any potential medicine, cure, or vaccine has also led to the emergence of multiple claims about the various aspects of COVID-19.The very nature of the myth is that it gets publicized widely in a very short time, and people tend to follow a myth without questioning its authenticity or evidence for/against a myth. Moreover, during a pandemic, crowd psychology plays a major driving force in believing and practicing a ritual or procedure to find a solution. Certain acts or beliefs can enhance public stigma related to COVID-19. A majority of the myths are related to the spread of disease and stigma associated with patients recovered from COVID-19 pandemic and the health care workers; resulting in avoiding interaction with them (Bhandari, 2020).

The focus of the present study was to assess the COVID-19 related myths among the people of Pakistan. The lockdown situation related practices associated with the treatment and the myths about them were also the concern of the present study. The disease-related myths and their practices often enforce people to display health-seeking behavior that is socially suggestible. The confirmation and performance of local health-related myths often help these people to relieve their stress and settle down their worries from a pandemic. Crowd psychology explains that individuals perform certain rituals because of public stigma (Bhandari, 2020).

It also directs a person to maintain beliefs about such a pandemic situation like COVID-19. The information being broadcasted on social media is also spreading fear among people and is often misleading. This information is not generally verified by the people and often leads to certain rituals, which strengthen the already prevalent myths. The present study was designed to explore available guidance about the cognitive misbeliefs or myths related to COVID-19. The main objectives for the study are as follows:

1. To assess common myths related to COVID-19 in Pakistan among general population of adults.

2. To study effect of demographic variables on myths related to COVID-19.

Method

Participants

Convenient sampling technique was used to access sample (*N*=220) from Pakistani adult population. Sample was approached through different social networking mediums like Facebook, LinkedIn, Twitter, WhatsApp, and Instagram.The demographic characteristics of the sample are mentioned in **Table 1**.

Variables		*f*	%
Gender	Men	48	22%
	Women	172	78%
Marital status	Unmarried	128	58%
	Married	92	42%
Education	Undergraduate	32	15%
	Graduate	129	58%
	Postgraduate	59	27%
Residence	Islamabad Capital Territory	88	40%
	Punjab	100	45%
	Sindh	3	2%
	Balochistan	11	5%
	Khyber Pakhtunkhwa	13	6%
	Gilgit Baltistan	5	2%
Diagnosed with COVID-19	Yes	11	5%
	No	209	95%
Closed one/relative diagnosed with COVID-19	Yes	93	42%
	No	127	58%
Friend/acquaintance diagnosed with COVID-19	Yes	105	48%
	No	115	52%

Table-1 demonstrates that majority of the participants were women, unmarried, graduates, and belong to province of Punjab. Also, majority were not diagnosed with COVID-19; neither the close one/relative nor friend/acquaintance had COVID-19 diagnosis.

Measures

Demographic Form. The demographic form was used to get information about the demographic related details of participant; including, gender, age, marital status, education, residence, diagnosed with COVID-19, closed one/relative diagnosed with COVID-19, and friend/acquaintance diagnosed with COVID-19.

List of Myths Related to COVID-19. The myths related to COVID-19 were assessed by using a list of 33 myths identified through review of literature available, discussion with the subject matter experts, and general observation of the myths prevailing in Pakistan. The literature comprised of researches and the myths identified by WHO (Bhandari, 2020; Carbone et al., Gupta et al., 2020; Sahoo et al., 2020). The myths identified were about spread, diagnosis, prevention, and treatment of COVID-19 e.g., the likelihood of spreading COVID-19 through contaminated shoes is very high (item 2) and thermal scanners can detect if a person is infected of Coronavirus (item 7). A number of myths were also associated with negation of Corona virus existence and considering it the part of a conspiracy e.g., COVID-19 is a part of foreign conspiracy (item 28). The responses are to be made using dichotomous options; that is, 0 for *false* and 1 for *true*. The total score on the measure ranges from 0-33; such that, a higher score demonstrates higher beliefs on myths related to COVID-19. The last item on the scale is kept open-ended to identify indigenous myths through narratives of participants. The reliability was estimated to be .84 which demonstrates high consistency of item scores.

Procedure

The present study uses cross sectional research design. Data was gathered through online survey conducted via Google forms. The instructions were clearly mentioned to present opinion on 33 myths as it appears true or false to participants. Also, they were instructed to report any indigenous myth in addition to the one mentioned in the list. The participants were ensured about the confidentiality and anonymity of their responses. The data obtained was analyzed using the SPSS Statistics version 25. The main analysis comprised of reliability estimates, frequencies, and percentages for respective myths related to COVID-19, *t*-test and ANOVA.

Results

Distribution of scores on myths related to COVID-19. The scores for myths show a moderately skewed data indicating that the scores are slightly on lower side of curve. It is shown in figure below:

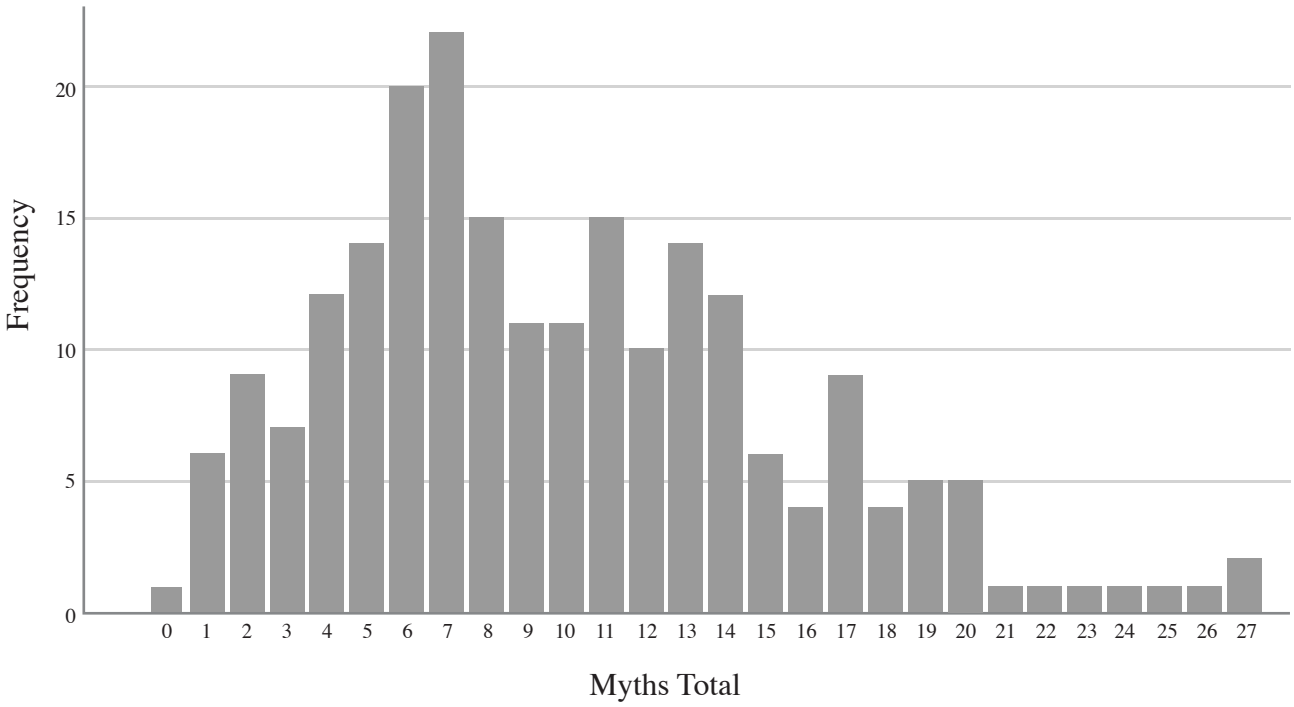

Figure 1. *Data scores for myths related to COVID-19 (N=220)*

Item-total correlation for scores on myths related to COVID-19. The item-total correlation for scores was assessed to determine internal consistency of scores (i.e., reliability). The results obtained are mentioned in table as follows:

Table 2

Item-Total Correlation for Myths Related to COVID-19 List (N=220)

Item	*r*	Item	*r*
01.	.36**	18.	.49**
02.	.41**	19.	.43**
03.	.39**	20.	.62**
04.	.24**	21.	.48**
05.	.30**	22.	.44**
06.	.27**	23.	.43**
07.	.41**	24.	.14*
08.	.43**	25.	.47**
09.	.42**	26.	.38**
10.	.19**	27.	.50**
11.	.35**	28.	.56**
12.	.40**	29.	.52**
13.	.48**	30.	.35**
14.	.39**	31.	.50**
15.	.39**	32.	.46**
16.	.23**	33.	.35**
17.	.51**		

Note. *r* = item-total correlation

**$p<.01$.

Table demonstrated that all items possess significant correlation ($r > .30$; $p < .01$) with total score on the construct of myths related to COVID-19. It provides support for internal consistency and thus reliable nature of the scale (DeVellis, 2016; Field, 2013).

Prevalence of myths related to COVID-19. The prevalence of myths related to COVID-19 was determined by the frequencies and relevant percentages of responses obtained on each myth. The findings are mentioned below:

Table 3

*Prevalence of Myths Related to COVID-19 among Sample (*N=220*)*

Myths	True		False	
	f	%	*f*	%
Older people are more vulnerable to get infected of Coronavirus.	181	82%	39	18%
Thermal scanners can detect if a person is infected of Coronavirus.	54	75%	166	25%
Taking herbal teas for example ginger, garlic, *sana makki*, and *kalonji* etc. cure or prevent COVID-19.	142	64%	78	36%
The prolonged use of medical masks even when properly wore can cause carbon dioxide intoxication or oxygen deficiency.	121	55%	99	45%
Drinking or gargling warm water can kill or flush out Coronavirus.	120	55%	100	45%
Pets and animals can transfer Coronavirus to human on interaction.	107	49%	113	51%
Every one of us has got infected of Coronavirus either in mild or severe form.	106	48%	114	52%
Coronavirus can spread in hot and humid climates.	87	39%	133	61%
People who eat processed (read to eat/frozen) or fast foods are more vulnerable to get infected of Coronavirus.	86	39%	134	61%
COVID-19 is a part of foreign conspiracy.	85	39%	135	61%
Spraying and introducing bleach or another disinfectant on your body will protect you against Coronavirus and is safe.	78	35%	142	65%
Taking a hot bath prevents COVID-19.	77	35%	143	65%
The likelihood of spreading COVID-19 through contaminated shoes is very high.	70	32%	150	68%
Being able to hold your breath for 10 seconds or more without coughing or feeling discomfort means you are not infected of Coronavirus.	71	32%	149	68%
People who are infected of Coronavirus should wear mask even while sleeping.	61	28%	159	72%
Vaccines against pneumonia protect against COVID-19.	60	27%	160	73%
Medicine for malaria has clinical benefits in treating COVID-19.	59	27%	161	73%
Rinsing your nose with saline prevents COVID-19.	54	25%	166	75%
COVID-19 is caused by bacteria.	47	22%	173	78%
Ultra-violet (UV) lamps should be used to disinfect hands or other areas of skin.	49	22%	171	78%
Hand dryers are effective in killing Coronavirus.	45	21%	175	79%
There are number of licensed drugs available for treatment and prevention of COVID-19.	39	18%	181	82%
Adding pepper to soup or other meals prevent or cure COVID-19.	38	17%	182	83%
Villages and northern areas are free of Coronavirus	37	17%	183	83%
Coronavirus transmits through houseflies.	24	11%	196	89%
Coronavirus can spread through mosquito bite.	25	11%	195	89%
The sinful person is more likely to get infected of Coronavirus.	23	11%	197	89%
Drinking methanol, ethanol, or bleach prevents or cures COVID-19 and is safe.	16	07%	204	93%
Suffering from COVID-19 means you will have it for life.	16	07%	204	93%
Drinking alcohol protects against Coronavirus and is safe.	13	06%	207	94%
Cold weather and snow can kill Coronavirus.	12	05%	208	95%

The frequencies and respective percentages suggest that most prevalent myths (i.e., >50%) among the participants of study are: (a) older people are more susceptible to develop COVID-19 (i.e., 82%), (b) thermal scanners can detect COVID-19 (i.e., 75%), (c) taking herbal teas for example ginger, garlic, *sanamakki, kalonji,* and etc. cure or prevent COVID-19 (i.e., 64%), (d) the prolonged use of medical masks even when properly wore can cause carbon dioxide intoxication or oxygen deficiency (i.e., 55%), and (e) drinking or gargling warm water can kill or flush out COVID-19 (i.e., 55%).

Indigenous myths related to COVID-19. Some of the indigenous common beliefs in the context of COVID-19 were also identified by participants of survey. The most mentioned myths are:(a) COVID-19 is notthe reality, (b) in hospitals doctors misreport the deaths as caused by corona virus, (c) Corona recovered person can't get infected by Corona throughout his / her life, (d) it will fade away in summers, (e) it is due to sins of people, and (f) children don't catch the virus.

Gender related differences on myths related to COVID-19. The gender related differences on myths related to COVID-19 was determined through t-test. The results demonstrate significant gender differences ($t = 2.59$; $p < .05$); such that men are high scorer (M=11.69; SD=6.19) on myths than women (M=9.35; SD= 5.31).

Education related differences on myths related to COVID-19. The education related differences on myths related to COVID-19 was determined through ANOVA. The results are mentioned as follows:

Table 4

One-way ANOVA to Check Education Related Differences at Various Levels in Relation to Study Variables (N=240)

	Under graduation (n=32)	Graduation (n=129)	Post graduation (n=59)				95% CI	
Variable	*M (SD)*	*M (SD)*	*M (SD)*	*F*	*i-j*	D(*i-j*)	*LL*	*UL*
Myths related to COVID -19	10.91 (5.59)	10.57 (5.55)	7.75 (5.17)	6.12	1>2	.33	-2.27	2.93
					1>3	**3.16***	**.27**	**6.05**
					2>3	**2.82****	**.76**	**4.90**

Note. Significant difference is in boldface. *$p < .05$, **$p < .01$

Findings indicate that with change in education level from undergraduation to postgraduation myth beliefs related to COVID-19 decreases. The values of mean differences on post-hoc demonstrate that the undergraduation and graduation level of education observe a significant difference from postgraduation level; such that, score on former ones are higher than the later one.

Discussion

The literature demonstrates that various facts have emerged during the COVID-19 pandemic, which have low validity and thus gradually turn into potential myths (Carbone et al., 2020). A majority of the myths are related to the spread of disease and stigma associated with patients recovered from COVID-19 pandemic and the health care workers; resulting in avoiding interaction with them (Bhandari, 2020). The present survey explored the myths prevailing among the people of Pakistan related to COVID-19. The demographic characteristics of sample (see Table 1) demonstrate that the majority of participants are female, early adults, unmarried, possess graduate level of education, and belong to Punjab province.

Findings also indicates that a majority of individuals were not diagnosed with COVID-19; neither their closed ones/relatives nor the friends/acquaintances. Thus,majority of sample and their closed ones, relatives, friends, or acquaintances were not infected of COVID-19 as there were very few reported casesof COVID-19 in Pakistanat the time of study; that was during first wave of pandemic. The existence of myths related to COVID-19 were accessed using the scale developed by the researchers. The reliability estimates demonstrate high consistency of item scoresas signified by coefficient of reliability and significant correlation of items with total score (see Table 2) (DeVellis, 2016; Field, 2018). This indicated that the items under the list are appropriate for the assessment of myths related to COVID-19.

The prevalence of myths related to COVID-19 (see Table 3) demonstrate that a large number of myths have high prevalence among sample (i.e., >50%). These myths, however, were stated false (World Health Organization, n.d.) and the related facts are also mentioned. The most common myths are that older people are more susceptible of developing COVID-19 and thermal scanners can detect the virus. The reality, however, suggest that all age groups are equally vulnerable to get infected. Also, as per fact, thermal scanners can detect presence of high fever only which might have resulted from many others causes too and not necessarily from COVID-19. Another myth found commonly prevailing is that the prolonged use of medical masks even when properly wore can cause carbon dioxide intoxication or oxygen deficiency. The WHO, however, stated the fallacy of this myth mentioning that carbon dioxide intoxication or oxygen deficiency could only result if the medical mask doesn't fit properly, is too tight, or not disposed of as soon it gets damp.

A lot of myths prevailing were associated with the cure or prevention of COVID-19 using various herbs or vegetable. Garlic is believed among the sample as one of such preventions, however, though garlic is healthy food but yet no evidence has found on the protective properties of it for the novel Corona virus. Similarly, there is no existing verification of whether herbs like *sannamakki* and *kalonji,* and the use of warm water for drinking or gargling could cure or prevent COVID-19.Literature also demonstrates the practice of home remedies as a culture in Pakistan. People prefer to treat minor illnesses like flu, cough, joint pains, headache, and fever at home mainly through various herbal treatments. Consulting the doctor for aforementioned symptoms isn't a preferred option (Anwar et al., 2015; Shaikh et al., 2008). Also, in the recent times the home remedies are widely shared among each other through YouTube and WhatsApp (Imtiaz, 2020).

Some of the indigenous myths were also identified by participants of survey; of which the highly mentioned one is that COVID-19 is not the reality and deaths are misreported as caused by the virus no matter what real cause is. Findings from recent literature also support the prevalence of COVID-19 related myths (Bhandari, 2020; Carbone et al., 2020; World Health Organization, n.d.).

The high level of myths' existence is consistent with the previous literature supporting that at the time of pandemic, disease associated myths have a widespread among people (Mwamwenda, 2015; Van Reeth et al., 2009). The researchers also indicate that myths prevail because people don't verify them rationally (Carbone et al., 2020).

The findings from t-test suggest that significant gender related differences exist on myths related to COVID-19; such that male are stronger myth believers. The literature also supports that both genders prominently vary on their belief for myths (Jami, 2012; Naqvi, 2017; Waqar, 2015). The differences with respect to education level were also assessed using ANOVA (see Table 4). Results demonstrate that the scores on myths for postgraduates are significantly lower than undergraduates and graduates. However, as the sample comprised of highly educated individuals it is difficult to generalize that education level has a significant effect on myths related to COVID-19.

Limitations and Recommendations

The present study collected data through online Google form due to the lockdown situation in the country. The objective of the study is limited to presence of certain myths related to COVID-19 and effect of demographics for belief on these myths. Future studies could assess the effect of other associated variables also like strength of cognitive schemas, reality perception, and crowd behaviour etc.The inclusion of a diverse sample could help better generalize the findings of study.

Implications

The literature supports that our beliefs cognitively regulate the behaviors (Bhandari, 2020). Present survey identified the prevailing false beliefs related to COVID-19 among the general population. These beliefs are thus directly associated to increased ratio of wrong practices governed by the myths that prevails. The pandemic situation, however, has not yet ended and there is a significant need to be cautious about the false beliefs/myths associated with COVID-19. It will help in adopting the right preventive measures to stay healthy (i.e., both physically and mentally) and deal effectively with the pandemic. The findings of survey could also help clinical psychologists develop a clear awareness of the false beliefs and formulate the intervention based on readdressing the associated cognitive schemas.

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