



Knowledge and Beliefs of University Students with Reference to COVID-19: An Exploratory Study

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Abstract

COVID-19 became a topic of discussion among the masses since December 2019, worldwide. In this context, present study was conducted on university students to assess their knowledge and belief with reference to COVID-19. Out of 210 students from department of education, Mizoram University, 85 students were participated in online survey. It was found that half of the sample possessed moderate knowledge and more than one fourth of the sample had good knowledge with reference to COVID-19. Further, significant difference was found between the knowledge of male and female students with reference to COVID-19. Female students found to have more knowledge than male students of university, however no difference was found in knowledge of rural and urban university students with reference to COVID-19. Findings of the study indicate that there is a need to aware all the students in context of transmission of disease and intensify the awareness among male students in general. In context of belief, it is recommended the there is a need of awareness program regarding removal of misconceptions about treatments, pros and cons of online shopping and adverse effect of information related to COVID-19.

Keywords: *Knowledge, Beliefs, COVID-19, University Students.*

Introduction

The COVID-19 pandemic is the defining global health crisis of this era and greatest challenge that the world has faced since World War II. It spread all over the world with more than 207 countries. The pandemic is moving like a wave and proved much more than a health crisis. It rose many problems such as threat to trade, economic crisis, educational loss, psychological distress to humanity. Countries are racing to slow the spread of the virus by testing and treating patients carrying out contact tracing, limiting travel, quarantining citizens, and cancelling large gatherings such as sporting events, concerts, schools and higher educational institutions. A pneumonia caused by Corona virus was detected in Wuhan, China

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first reported to WHO Country office in China on 31st December, 2019. The outbreak was declared a Public Health Emergency of International Concern on 30th January, 2020. On 11th February, 2020 WHO concerned a name for the new corona virus disease: COVID-19.

The first case of corona virus pandemic in India was reported on 30th January, 2020. The data related to active, recovered and death cases is changed continuously and increasing at exponential rate in every passing day. The spread of infection has been rapid due to poor understanding about the disease and delayed treatment (Farhana & Manan 2020). Although the media is covering all the information across the borders to make people aware about the situation (Roy, et. al. 2020), variations were found in the knowledge of the population in different studies. Farhana & Mannan (2020) and Bhagavathula, et al. (2020) reported that a large number of respondents had poor knowledge of the transmission of COVID-19. Roy, et. al. (2020) also reported that more than 80% of the population were preoccupied with the thoughts of COVID-19 and have moderate knowledge.

Knowledge related to COVID-19 includes many aspects such as its origin, structure, transmission, symptoms, treatment and precautions. People must be aware about various guidelines provided by W.H.O. and advisory issued by the Government time to time to curb the spread in the community. Corona viruses are a family of viruses that range from the common cold to MERS (Middle East Respiratory Syndrome) corona virus and SARS (Severe Acute Respiratory Syndrome) corona virus. The actual name of this virus is Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2) that caused COVID-19. It is a respiratory infectious disease having symptoms such as dry cough, difficulty in breathing, abdominal pain, muscle pain, high fever etc. The symptoms may arise within 2-14 days after infection and this period is mostly contagious. Some reports recently revealed that the incubation period of the virus can be longer than 14 days. A person having COVID-19 may have the chance to live about 2-3 weeks if not treated properly. The virus is proved to be more lethal among older population. The death rate is incomparably higher in the age group 80 and above. Possible Vaccines and specific drug treatments are under investigations. Many pharmaceuticals companies of various developed countries are indulged in clinical trials; however, it is not approved yet. The testing kit for detecting the infections is RT-PCR (Reverse Transcription Polymerase Chain Reaction) which is being used widely. A person testing positive for COVID-19 should be isolated and be treated with nebulization, bronchodilator and all kinds of deep breathing treatment exercise, all of which should be dealt only with the use of Personal Protective Equipment's (PPE).

In spite of the guidelines of W.H.O., advisory issued by the government, news telecasting with reference to COVID-19, still a large number of people get infected at very fast pace specifically in India. One of the main reason of the spread of infection is negligence and lack of knowledge regarding pandemic among the masses (Farhana & Mannan; 2020 and Bhagavathula, et al., 2020). Information is available for everyone but utilization of this information for betterment of own and society is known as awareness. Knowledge or awareness depends on the exposure and access of right information by the people. Most of the people have their own belief system which is built upon the knowledge acquired through

various sources and their surroundings. Generally, knowledge works as an input that helps to build belief system. Social Media is one of the popular sources of getting information now a days but sometimes fake and invalid information is also circulated on these platforms. Youth have a great exposure to internet and social media and being affected with the fake information. They are the prime users and transmitters of the information in their society. They play an important role to aware their family and society regarding happenings around them. Youth must have true knowledge of the situation like COVID-19, so they may spread awareness regarding pandemic in their society. In this context, it is very essential to study the level of knowledge and beliefs of educated youth such as university students with reference to COVID-19.

Few studies have been conducted with different variables and population in different countries. Zhong et al. (2020) conducted an online survey to study the knowledge, attitude and practices of Chinese residents. Galle, et. al. (2020) conducted a survey on Italian health care undergraduates to study their level of knowledge about pandemic. Further Bhagavathula, et al. (2020) and Farhana & Mannan (2020) conducted online study to assess the knowledge and perception of COVID-19 among health care workers. Abdel Wahed, et.al. (2020) assessed the knowledge, perception, and attitude of the Egyptian health care workers towards the COVID-19 disease whereas Zhang, et.al. (2020) studied the knowledge, perception, practices and attitude towards the COVID-19 disease of health care workers and medical staff in China. Recently, Agarwal et al. (2020) conducted a study on knowledge, attitudes and practices (KAP) about COVID-19 among Indian population whereas Roy, et.al. (2020) attempted to assess the knowledge, attitude, anxiety experience, and perceived mental healthcare need among adult Indian population in month of April, 2020.

Review of related literature revealed that studies are being conducted almost everywhere by taking two or more than two variables such as Knowledge, Attitude, Beliefs, Perception and Practices related to COVID-19. It is observed that reported studies were conducted on health care workers largely as they are the frontlines in medical field. Very few studies (Agarwal et al., 2020 and Roy et al. 2020) have been conducted on general population in India specifically. At the same time there is a scope to conduct such studies on university students because they may play a very significant role to prevent the infection from spreading by sensitize their society at large level. In this context, it is very essential to study the status of their knowledge related to pandemic so they can spread true knowledge in their society. In view of the above stated facts present study was conducted by taking two variables i.e. knowledge and beliefs with reference to COVID-19 of Mizoram University Students. Findings of the present study will be helpful to fill the gap between knowledge present and expected among the university students. Result of the study may be implemented on students of other universities and higher education institutions locally or globally.

Research Questions

1. What is the status of knowledge of university students with reference to COVID-19?
2. Is there any difference in the knowledge of male & female university students with reference to COVID-19?

3. Is there any difference in the knowledge of rural & urban university students with reference to COVID-19?
4. What are the beliefs of university students with reference to COVID-19?

Objectives

1. To study the knowledge of university students with reference to COVID-19.
2. To study the difference in the knowledge of male & female university students with reference to COVID-19.
3. To study the difference in the knowledge of rural & urban university students with reference to COVID-19.
4. To study the beliefs of university students with reference to COVID-19.

Methodology

Survey method was used for the present study. An online survey was conducted between 7th June 2020 to 30th June 2020. Mizoram University, Aizawl, India was considered as target area. The students of the Department of Education were considered as the population of the study. Out of 210 students from different courses viz. Bachelor of Education, Master of Education and Master of Arts in Education, 85 students participated in online survey.

Tool: A self-made questionnaire was validated and used for the study. The questionnaire was divided into two sections consisted of 19 items. Section A consisted of 10 items pertains knowledge with reference to COVID-19. Section B consisted of 9 items related to beliefs related to COVID-19. The nature of questions in Section A is multiple choice based with one score for each right response and zero for wrong response. Further Section B divided into two parts. Part I consisted of five questions with multiple options placed against each item. Students were asked to choose more than one option. Open space was also provided to give the answers in their own words for the same item. Part II consisted of four questions on belief related to spread, control, treatment and anxiety. Students were asked to give their response in two categories i.e. 'Yes' or 'No'.

Data Collection: The questionnaire was converted in Google form and link was shared with the WhatsApp groups of students of Department of Education, Mizoram University. A total of 85 students from Departments of Education participated in the survey and submitted their responses. Out of 85 participants, 34 were males and 51 were females. Further, the participants were also bifurcated on the basis of their locality i.e., rural and urban. The numbers of rural and urban participants were 38 and 47 respectively.

Statistical Techniques: Percentage was used to present the status of knowledge and belief of university students with reference to COVID-19. Mean, S.D. and t-test was used to study the difference between group categorized on the basis of gender and locality.

Data Analysis

Data were analyzed under two sections. Knowledge of university students with reference to COVID-19 is presented in Section A, whereas Beliefs of university students with reference to COVID-19 is presented in Section B.

Section A

This study was intended to study the knowledge of university students with reference to COVID-19. Table I presented the status of knowledge of total sample and distributed sample gender wise and locality wise in terms of scores and percentage.

Table I: Knowledge of University Students with reference to COVID-19

Item no.	Statement	Scores on Knowledge Test				
		Total right response % (N=85)	Gender		Locale	
			Male % (N=34)	Female % (N=51)	Rural % (N=38)	Urban % (N=47)
1.	Which of the following disease is not caused by coronavirus?	87.06 (74)	91.18 (31)	84.31 (43)	94.74 (36)	80.85 (38)
2.	Which of the following virus is responsible for COVID-19?	81.18 (69)	79.41 (27)	82.35 (42)	78.95 (30)	82.98 (39)
3.	Where was first case of Novel Coronavirus identified?	98.82 (84)	100 (34)	98.04 (50)	97.37 (37)	100 (47)
4.	When did (WHO) announce COVID-19 as official name of corona virus infected disease?	58.82 (50)	44.12 (15)	68.63 (35)	52.63 (20)	63.83 (30)
5.	How does corona virus disease spread ?	29.41 (25)	11.76 (04)	41.18 (21)	28.95 (11)	29.95 (14)
6.	What is Incubation period of COVID-19?	90.59 (77)	85.29 (29)	94.12 (48)	89.47 (34)	91.49 (43)
7.	AarogyaSetu App launched by ...?	36.47 (31)	26.47 (09)	43.14 (22)	28.95 (11)	42.55 (20)
8.	Aayush Kawach for healthy lifestyle during COVID-19 launched by.....?	57.65 (49)	50.00 (17)	62.75 (32)	42.11 (16)	70.21 (33)
9.	Which kit is used to detect COVID-19?	71.76 (61)	70.59 (24)	72.55 (37)	73.68 (28)	70.21 (33)
10	What is the Full form of PPE?	85.88 (73)	91.18 (31)	82.35 (42)	86.84 (33)	85.11 (40)

Figures in brackets indicate number of right respondent (N)

Table I is presented, in order to address the research question no 1 i.e. 'What is the status of knowledge of university students with reference to COVID-19?'. It shows the total score and percentage of right responses of students on each item related to COVID-19. More than 80% students responded right for Item no 1,2,3,6 &10. Majority of the students (71.76 %) were aware about RTPCR kit which is used for detecting COVID-19 whereas 57.76 % students were aware about Aayush Kawatch which is launched by Uttar Pradesh Government to provide latest updates for a healthy lifestyle. Further, it is noted that only 36.47 % of the total sample had the right knowledge related to Aarogya Setu Application. The study also revealed that only 29.41% of the total sample possessed right knowledge with reference transmission of infection which is very less and need to addressed.

Mean and Standard Deviation of scores of the total sample on knowledge test with reference to COVID-19 was found to be 6.97 and 1.85 respectively. Scores obtained on Knowledge test with reference to COVID-19 of University students was categorized under three head i.e. poor, moderate and good which is presented below in Table II.

Table II: Categorization of knowledge with reference to COVID-19

Score	Category
> (Mean+1.S.D.)	Good
Between (Mean+1.S.D.) to (Mean – 1.S.D.)	Moderate
<(Mean – 1.S.D.)	Poor

It was found that 27.05 % of the sample scored more than 8.82 i.e. (Mean +1.S.D.) whereas 23.52 % of the sample scored less than 5.12 i.e. (Mean – 1.S.D.). At the same time 49.41 % of the sample scored between 5.12 and 8.82. It may be concluded that nearly half of the respondents possessed moderate knowledge and more than one fourth of the respondents had good knowledge with reference to COVID-19 whereas less than one fourth of the respondent had poor knowledge with reference to COVID-19.

Difference between Groups regarding Knowledge with reference to COVID-19

In order to address research question no 2 & 3, following null hypotheses were tested:

- 1) H0: There is no significant difference in the knowledge of male and female university students with reference to COVID-19.
- 2) H0: There is no significant difference in the knowledge of rural and urban university students with reference to COVID-19.

Table III: Significance of Difference in Mean scores of Male & Female Students on knowledge with reference to COVID-19

Group	N	Mean	S.D.	t value
Male	34	6.5	1.65	2.02*
Female	51	7.29	1.93	

(df=N₁+N₂-2=83) table value at .05 level of Significance=1.96

* Significant at .05 level

Table III reflects the mean score of male and female students on knowledge test with reference to COVID-19. It is evident from the table that calculated value is greater than table value. Therefore, the null hypothesis is refuted and alternative hypothesis, “there is a significant difference in the knowledge of male and female students with reference to COVID-19” is accepted. It means knowledge with reference to COVID-19 is differed in terms of gender. Further, it is also noted from table III that mean score of female students is greater than their male counterpart, which signifies that female students of Mizoram University possessed more knowledge than male students with reference to COVID-19.

Table IV: Significance of Difference in Mean scores of Rural & Urban Students on knowledge with reference to COVID-19

Group	N	Mean	S.D.	t value
Rural	38	6.73	2.06	1.073 ^{NS}
Urban	47	7.17	1.65	

(df=N₁+N₂-2=83) table value at .05 level of Significance=1.96

NS: Not Significant

Table IV reflects the mean score of rural and urban students on knowledge test with reference to COVID-19. It is evident from the table that calculated value is less than table value. Therefore null hypothesis, “there is no significant difference between the knowledge of rural and urban students with reference to COVID-19” is accepted. It indicates that knowledge with reference to COVID-19 is differed in terms of locality of the students.

Section B: Beliefs of University Students with reference to COVID-19

In order to address the research question 4, i.e. 'What are the beliefs of University students with reference to COVID-19?' nine items related to belief were asked from the students. This section comprises of the percentage of respondents on different options for each item which are further categorized into two parts. Part A consists of responses on five items with multiple options and part B consists of responses on four items with two options.

Part A: It presents the percentage of responses in context of beliefs with reference to COVID-19. Most of the students gave more than one responses against each question so far as their belief with reference to COVID-19 is concerned. Very few students wrote the response in their own words. Items and percentages of their responses is given below.

Item I: What do you think about corona virus infection?

Option of Responses	Percentage of Respondent
a) It is highly contagious.	51.76%
b) It is deadly disease.	10.58%
c) It is highly fatal.	27.05%
d) It is common flu	14.11%

In context of item I, it can be concluded that more than half of the students believed that it is contagious disease which is approved by W.H.O. also. At the early stage of the

pandemic, most estimates of fatality ratios in various countries was from less than 0.1% to over 25%. Statistics revealed that recovery rate is very high all over the world. In India recovery rate is greater than active cases as reported daily. It is a contagious disease called as influenza which spread through close contact with the infected person and fatality ratio is very less.

Item II: What are the right ways to prevent the Corona Virus infection?

Option of Responses	Percentage of Respondent
a) Washing hands regularly	47.6%
b) Wear Mask	45.9%
c) Travelling	0 %
d) Adding more garlic to food	5.1%
e) Social Distancing	63.75%
f) Regular Visit to Doctor	2.55%
g) Intake of Vitamin C contained edibles	11.05%

In context of item II, it can be concluded that more than 45 % of sample believe that washing hands regularly and wear mask are the right way to prevent infection whereas 63.75 % participants believe that social distancing is the right way to prevent from infection. Only 2.55% believe that regular visit to doctor is the right way to prevent from infection it indicates that they are well aware about preventive measures of COVID-19 and one of the important observation is that no student opted travelling as a right way to prevent from COVID -19. It indicates that students of Mizoram university were well aware about do's and don't during pandemic situation and guidelines set by state and central government.

It is also observed that only 11.05 % students believed that intake of Vitamin C contained edibles is the right way to prevent from COVID-19. Generally, it is advisable to increase immunity to prevent from infection of any disease. If somebody get infected than his/her immunity could work to get cure soon. In context of this pandemic, ' prevention is better than cure' quotation is proved helpful. One should keep social distancing, wear mask and wash hand regularly to prevent from the disease.

Few students wrote their answers in their own words for the item, “What are the right ways to prevent the Corona Virus infection?” The kinds of responses given by few students regarding this item in the open space provided in the questionnaire are placed below:

“Do exercise regularly”

“Do exercise indoor”

“Boost immune system”

“Avoid Public Gathering

“Apply proper management techniques

Since Covid-19 is an infectious disease; the right way of prevention are wearing a mask, washing hands and maintaining social distancing.

Item III: What do you think regarding treatment of corona virus infection?

Option of Responses	Percentage of Respondent
a) There is no effective treatment as of now.	24.65%
b) Early supportive treatment may help patients to recover.	37.4%
c) Self quarantine infected person can recover itself.	10.2%
d) Isolation of infected person with medication can cure the disease.	34%

In context of item III, it can be concluded that only 24.65 % believed that there is no effective treatment as of now it means majority of the students are well aware about preparation of Vaccine and Medicine is under process. Recovery rate in India, is much higher than other countries. It is true that no proper medical treatment for Covid-19 is available as of now. However, patients are cured by the pre invented drugs such as Hydroxychloroquine in moderate cases. Corticosteroid drugs such as Methylprednisolone and Dexamethasone have been approved for the clinical management of patients with moderate and severe COVID-19. Only 10.2 % believed that self-quarantine infected person can recover itself. It is not true knowledge with reference to infection because if a person is infected by COVID-19, he/she requires some treatment to cure from this contagious disease whether it may be Allopathy, Ayurvedic, Naturopathy etc.

Item IV: What should be avoided to put a check on COVID-19 spreading?

Option of Responses	Percentage of Respondent
a) Partying	58.82%
b) Exercising	9.41%
c)Gathering	54.12%
d)Online Shopping	8.24%
e) Walking	9.41%
f) Order food items through online (mode)	17.65%
g) Social Contact	70.59%

Item V: Who is more vulnerable of COVID-19?

Option of Responses	Percentage of Respondent
a) People with pre-existing medical condition.	38.82%
b) Old people with pre-existing medical condition.	72.94%
c) Children below ten years	35.29%
d) People of all ages	23.53%

In context of item IV, it can be concluded that majority of the students believe that Partying (58.82%), Social Contact (70.59%) and Gathering (54.12%) should be avoided to spread the infection which is directed by government of India also. It also indicates that most of them did not have awareness regarding adverse effect of online shopping (91.76 %) and order food items through online mode (82.53%) during COVID-19. Above table presents that 9.41 % students believed that walking and exercising should be avoided during pandemic,

which indicates that majority of the students believed that exercising and walking is good for health and helps to fight against disease.

In context of item V, it can be concluded that 72.94% students believe that old people with pre-existing medical conditions are more vulnerable than others. Only 23.53% students believe that people of all ages are vulnerable. It is true that old people with pre-existing medical condition is more vulnerable than others. It is evident that death rate is higher in old population have some pre-existing medical condition in comparison to normal person. One of the reasons is the weak immunity of ill person and the other is age factor.

Part B: This part consisted of the responses against the statements related to spreading, curing, controlling and impact of excess information of COVID-19. Percentage of their response in presented below.

Table V: Belief of University Students with reference to COVID-19

Item No.	Statements	Yes %	No %
VI	An infected person can infect the countless people.	92.59	7.41
VII	COVID-19 can cure through home remedies.	50	50
VIII	COVID-19 will be successfully controlled.	72.55	27.45
IX	Getting more information than necessary about COVID-19 leads to anxiety.	71.43	28.57

Table V presents the belief of university students with reference to spreading, curing and its' impact on mental state of human being. It is indicated that majority of the students (92.59%) believe that an infected person can infect countless people. This belief perhaps helps them to take precautionary measures like social distancing and wearing mask to prevent them from being infected by virus. In context of second item, half of the sample believes that home remedies can cure this disease, whereas the other half do not believe as such. More than 70 % students are aware about COVID-19 vaccine development process and they believe that medical professionals will come up with medicine and vaccine hence it will be controlled successfully. It is also believed by 73.49 % students that getting excess information about pandemic leads to anxiety. This is very important observation that majority of students believe that getting more information than necessary about COVID-19 leads to anxiety, eventually leads to mental health issues.

Result & Discussion

It can be concluded that half of the respondents possessed moderate knowledge and more than one fourth of the respondents had good knowledge with reference to COVID-19. Further, significant difference was found between the knowledge of male and female students with reference to COVID-19. Major discrepancies were found in context of transmission of disease which is supported by the findings of Farhana & Mannan (2020) and Bhagavathula et al. (2020).

In present study, majority of the students (70.59%) opted wrong options in context of knowledge related to transmission. COVID-19 is spread through sneezing and direct contact with the droplets of infected person instead of touching and through air. Roy, et al. (2020) found that more than 80 % of the adult population had moderate knowledge whereas Galle et al. (2020) registered good level of knowledge about the epidemic and its control among students attending life sciences degree courses. Further, Abdel et al., (2020), Zhang et al. (2020) and Zhong et al. (2020) concluded that 80.4 %, 89% and 90 % of Health Care Workers respectively had sufficient knowledge of COVID-19. The comparison of the percentage of population having moderate knowledge with reference to COVID-19 of reported studies with present study indicated that knowledge of health care workers is much greater than university students with reference to COVID-19. One of the reasons of this difference may be direct association of health care workers with the disease. In the light of the above findings, it is recommended that educational interventions in context of transmission of COVID-19 should be provided to university students.

Findings of the current study in context of gender and locality indicate that female students found to have more knowledge than male students of university with reference to COVID-19. It is supported by the findings of Agarwal et al. (2020) i.e. female group scored greater on knowledge test with reference to COVID-19. Further, Agarwal et al. (2020) reported that greater knowledge score influenced precautionary behaviour with reference to COVID-19. In context of locality, no significant difference was found in the knowledge of rural and urban students of university with reference to COVID-19. It may be interpreted that rural students are well aware about the condition of internet and electricity facility in their area so generally they used to collect the information when they got good connection and updated themselves regarding current situation. In context of belief of Mizoram university students, it is evident that beliefs of university students are based on their knowledge with reference to COVID-19. In most of the question large number of participants beliefs with reference to COVID-19 were found to be in right direction, however few of these need to be addressed such as misconceptions regarding treatment, online shopping and access of information during COVID-19.

Conclusion

It can be concluded from the findings of the present study that although knowledge of Mizoram university students with reference to COVID-19 is good enough, yet there is a need of awareness program with regard to transmission of disease and its related practices. At the same time awareness program specifically for male students is much needed as findings of the study indicated that female possessed more knowledge with reference to COVID-19. In context of belief it is implied that there is an utmost need of awareness program regarding misconceptions about treatments, pros and cons of online shopping and educational intervention in context of access of authentic, reliable and adequate sources of information during COVID-19 so as to maintain mental health & well being of people. It is also recommended that if such situation arises in future than awareness programme and educational intervention must be organized by the departments and university at initial level for the betterment of the society.

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