

ASSESSMENT OF KNOWLEDGE, PERCEPTION AND PREVENTIVE MEASURES OF COVID-19 AMONG UNDERGRADUATE STUDENTS IN SOUTHWESTERN NIGERIA

OMOZUSI MERCY OMOSEFE
Department of Social Work & Human Services
Babcock University, Ilisan Remo
Ogun State, Nigeria.

&

OKONDU OGECHUKWU EMMANUEL
Department of Public Health,
Babcock University, Ilisan Remo
Ogun State, Nigeria.

&

KALEJAIYE ATINSOLA OLAJUMOKE
Department of Social Work & Human Services
Babcock University, Ilisan Remo
Ogun State, Nigeria.

&

BANJO OLUWAFIKAYOMI OPEYEMI
Department of Social Work & Human Services
Babcock University, Ilisan Remo
Ogun State, Nigeria.
Email: obasohanm@babcock.edu.ng
+2348051292057; +2348030428450

Abstract

The battle against Covid-19 is still continuing globally. To guarantee the final success, people's adherence to these control measures is essential, which is largely affected by their knowledge, perception, and practices towards Covid-19. Hence the study assessed the knowledge, perception and preventive measures of Covid-19 among undergraduate students. The study adopted a descriptive survey conducted on an online platform using a google form, a cloud base system data collector that allows big data. The target population for this study consisted of undergraduates from three universities in Southwest, Nigeria. The sample size was 384 and the respondents were stratified into different strata of sex, age at last birthday, religion, ethnicity and class level. From the study it was found that a great majority seemed to be very knowledgeable about the subject of Covid-19, though a significantly high number held some misconception about Covid-19. In terms of perception, majority of the respondents had an average perception of Covid-19. Considering the notion that the Coronavirus can be killed in hot regions, majority (51%) did not support it, though an almost equal number (49%) responded in the affirmative. It was also found from the study that the preventive measures practiced were decent enough. It was therefore recommended that there is need for publicity especially at the grassroots' level (rural community) to enlighten people about what Covid-19 is, in order to correct the myths about the disease.

Keywords: Knowledge, Perception, Preventive Measures, Undergraduate students

Introduction

Coronavirus disease 2019 which is abbreviated “COVID-19, is a developing respiratory disease that is triggered by a new coronavirus. The newest member of the coronavirus family (COVID-19) has been recently identified as acute and severe respiratory syndrome in humans. It was established that in China, 18.5% of the patients with COVID-19 develop to the severe stage, which is characterized by acute respiratory distress syndrome, septic shock, difficult-to-tackle metabolic acidosis, and bleeding and coagulation dysfunction (The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team, 2020). Some of the unparalleled measures adopted to control the COVID-19 transmission in Hubei and other provinces of China and other parts of the world, include the suspension of public transportation, the closing of public places, close management of communities, and isolation and care for infected people and suspected cases (World Health Organization, 2019).

Until January 23, government authorities had locked down the whole province of Hubei, and Chinese residents, both inside and outside of Hubei, were also required to just stay at home to avoid contact with others (Deutsche, 2020). The people in these badly hit communities were spontaneous in learning and adhering to preventive measures instruction. They were open to knowledge acquisition about COVID-19, and as a result it was possible for them to quickly gain control over this killer disease. COVID-19 is spread by human-to-human through droplets, feco-oral, and direct contact, with an incubation period of 2-14 days (World Health Organization, 2020). World Health Organization (WHO) declared COVID-19 as a public health emergency of international concern (PHEIC), on 30 January 2020 (World Health Organization, 2020).

COVID-19 has paralyzed educational system, private and public sectors. Healthcare authorities already initiated awareness and preparedness activities across nations. Evidence shows that there is a poor understanding of the treatment and the rapid spread of infection of the disease among Nigerian populace, particularly among university students. The behaviour of the general public will probably have an important effect on the cause of the coronavirus disease pandemic (Geldsetzer, 2020). Human behaviour is said to be influenced by knowledge, perceptions and unprecedented measures that are being adapted to control the rapid spread of the ongoing COVID-19 epidemic. People's adherence to control measures is affected by what people know or what they do with COVID-19 as World Health Organization and the media disseminate different preventive propaganda directed at educating people globally.

It seems that the current widespread outbreak has been partly associated with a delay in diagnosis and poor infection control procedures. As transmission within hospitals and protection of healthcare workers are important steps in the epidemic, the understanding or having enough information regarding sources, clinical manifestations, transmission routes, and preventive measure among healthcare workers could have played roles for assessment (Nemati, Ebrahimi, & Nemati, online ahead of print). Since nurses and doctors are in close contact with infected people, they are the main part of the infection transmission other than air travellers. Lack of adequate knowledge, perception, and prevention measure is likely to affect human's behaviour towards COVID-19. This is why this paper would be investigating university students' knowledge, perception and their understanding of instituted preventive measures. Sadly enough, Nigerian students understanding of COVID-19 is likely to be in sync with the entire Nigerian populace. Common expression among Nigerian populace is that COVID-19 has some mythical implications; that African cannot be infected based on the high temperatures; that COVID-19 is the disease of rich and famous (Padayachee & Claire du Toit, 2020).

Currently, adherence to government's institution of ‘No movement’ order is almost near. Nigerians are not respecter of social distancing, motorcyclist ride around obliviously carrying three or more passengers; individuals go around without mask or sanitizers; open markets are always jam-packed without regards to 6 meter gap between people. Attitudes such as this call for concern and thorough investigation and reorientation of the whole populace including the university students.

Therefore the aim of this study is to investigate and assess knowledge, perception, and preventive measures of COVID-19 among undergraduate students.

The specific objectives are to

1. examine undergraduate's knowledge level of COVID 19;
2. examine undergraduate students perception of COVID-19
3. examine the preventive measures of COVID 19 among undergraduate students.

Theoretical framework

Theory of planned behaviour provided a framework for this study. It is a theory that links ones beliefs and behaviour. The theory states that intention towards attitude, subject norms, and perceived behavioural control, together shape an individual's behavioural intentions and behaviours. The concept was proposed by Icek Ajzen (1991), to improve on the predictive power of the theory of reasoned action by including perceived behaviour control. It has been applied to studies of the relations among beliefs, attitudes behavioural intention and behaviour in various fields such as advertising, public relations, advertising campaigns, healthcare, sport management and sustainability.

Methodology

The research design that was adopted for this study was the descriptive survey method using an online data collection using the google form, a cloud base system data collector that allows big data. The survey method was used because the study wanted to assess the knowledge level, perception and preventive measures of COVID 19 among undergraduates. It involves direct contact with a population sample that has same features and attributes that are relevant to a specific group. Also, inferences were made easily from the data collated.

Participant

The population for this study consisted of undergraduates from three universities from Southwest, Nigeria. Three hundred and eighty four (384) undergraduates responded to the online google form link sent to their groups whatsapp. The universities are University of Ibadan, Ibadan, Oyo State; Tai Solarin University of Education, Ijebu-ode and Babcock University, Ilisan-Remo both in Ogun State respectively. The respondents were stratified into strata of gender, age at last birthday, sex, level, Faculty, religion, marital status and family status.

Measures

A questionnaire titled "Assessment of Knowledge, Perception and Preventive measures of COVID-19 among undergraduates (AKPPMCU)" was developed by the researchers. The thirty-four (34) items questionnaire was both positively and negatively worded. The instrument consisted of four sections. Section A consisted of the demographic data while the other three sections consisted of questions on knowledge, perception and preventive measures. The five point likert scale type responses format was adopted thus Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree.

Result

A total of 384 students participated in the online survey measuring the knowledge, perception and preventive measures on Covid-19 among respondents in a Private-Christian Institution of higher learning in South-Western Nigeria. Other measurements included their Socio-demographic characteristics (Age, gender, marital status, employment status, class level, etc) and the scale measurements for Knowledge, Perception and Preventive measures (10-item questions, 30-point rating scale) respectively, with the ratings; strongly agree = 3, agree = 2, disagree = 1, strongly disagree and neutral = 0.

Demographic Characteristics of Respondents

Table 1: Demographic Characteristics of Respondents

Socio-demographic variables for consideration	Respondents in this study; N=384
---	----------------------------------

	Freq (n)	Percentage (%)
1. Age (in years) 17.6±5.1		
Rather not say	21	05.5
15	17	04.4
16	49	12.8
17	68	17.7
18	77	20.1
19	69	18.0
20	30	07.8
21	11	02.9
22	24	06.3
23	08	02.1
26	05	01.3
36	05	01.3
2. Gender		
Rather not say		
Female	03	0.80
Male	180	46.9
3. Ethnic Groups	201	52.3
Yoruba		
Igbo	190	49.5
Hausa	94	24.5
**Others	05	01.3
4. Marital Status	95	24.7
Single		
Married	379	98.7
5. Religious Affiliation	05	01.3
Christian		
Islam	368	95.8
	16	04.2
6. Students Faculty		
Sciences		
Social Sciences	215	56.0
Management Sciences	87	22.7
Medical Sciences	08	02.1
Computing and Engineering	45	11.7
7. Class Level	29	07.6
100		
200	168	43.8
300	44	11.5
400	104	27.1
500	66	16.9
600	00	0.00
8. Employment Status	03	0.80
Self-employed		
Employed	214	55.7
Not working	29	07.6
9. Family Status	141	36.7
Nuclear Family		
Extended Family	306	80.5

Single Parent	17	04.4
None	30	07.8
Polygamy	25	06.5
	02	0.80

****Ibibio, Edo, Calabari.**

The study results indicated that the mean age of respondents was 17.6±5.1. Male respondents account for about one half (52.3%) of the study compared to female respondents (46.9%), while 0.8% were indifferent. Majority (49.5%) of the respondents were of Yoruba origin, the Igbo and minor ethnic groups account for 24.5% and 24.7% respectively, and the Hausa origin was about 1.3%. Being a student, majority (98.7%) of the respondents were single and only a small proportion (1.3%) was married. Christianity (95.8%) was a dominant religion among the respondents compared to Islam (4.2%). Among the categories of faculties of the respondents, Faculty of Sciences accounts for over half (56.0%), Social Sciences 22.7%, Medical Sciences accounts for 11.7%, Computing and Engineering Sciences 7.6%, and Management Sciences 2.1%. Among the study participants, students in 100 level were the majority (43.8%), followed by 300 level students (27.1%) and 400 level students at 16.9%. On employment status, majority indicated being self-employed, 7.6% of the respondents indicated being employed while 36.7% of the respondents were neither employed nor self-employed. In terms of family status, most (80.5%) of the respondents indicated coming from a nuclear family circle, while the rest were either from an extended family (4.4%), single parent (7.8%), polygamous family (0.8%) or were indifferent (6.5%) (see table 1 above for details).

Knowledge of Respondents on Covid-19

Table 2: Knowledge of Respondents on Covid-19

Statements for Consideration	Respondents in this study; N=384			
	Strongly Agree	Agree	Disagree	Strongly Disagree/Neutral
Coronavirus is another name for Covid-19	232/60.4%	119/31.0%	18/04.7%	15/03.9%
You are familiar with the causes of Covid-19	286/74.5%	54/14.1%	44/11.5%	00/0.00%
Early diagnosis is possible	262/68.2%	86/22.3%	36/09.4%	00/0.00%
Covid-19 started from China	278/72.4%	88/22.9%	00/0.00%	18/04.7%
Stress and genetic factors are responsible for Covid-19	51/13.3%	52/13.5%	121/31.5%	160/41.7%
Covid-19 affects more men than women	30/07.8%	38/09.9%	133/34.6%	183/47.7%
Dry cough is a symptom of Covid-19	204/53.1	139/36.2%	08/02.1%	33/08.6%
Covid-19 can lead to death if not managed properly	269/70.1%	106/27.3%	00/0.0%	10/02.6%
Elderly people of 60 years and above are more susceptible to Covid-19 than young adults	165/43.0%	122/31.8%	48/12.5%	49/12.8%
Covid-19 can be treated	150/29.1%	139/36.2%	24/06.3%	71/18.5%

According to the study, more than half (60.4%), and slightly above the 25th percentile of the respondents agreed and strongly agreed that Covid-19 is another name for the Coronavirus, while 4.7% disagreed and

3.9% strongly disagreed or were neutral. On being familiar with causes of Covid-19, majority (74.5%) strongly agreed to know compared to 14.1% that agreed, while 11.5% of the respondents disagreed. On account of early diagnosis being possible, 68.2% were strongly affirmative and 22.4% agreed, compared to 9.4% that disagreed. Most (72.4%) of the respondents strongly believed that Covid-19 started in China, 22.9% agreed and 4.7% disagreed. Concerning the belief that stress and genetic factors are responsible for Covid-19, 41.7% strongly disagreed or were neutral, 31.5% disagreed, 13.5% agreed and 13.3% strongly agreed that it is possible. On account of Covid-19 affecting more men than women, 47.7% of the respondents were either neutral or strongly disagreed, 34.6% disagreed, 9.9% agreed and 7.8% of the respondents strongly agreed. In the same vein, 53.1% strongly agreed that dry cough is a symptom of Covid-19, 36.2% agreed to that opinion, while 8.6% and 2.1% disagreed and strongly disagreed respectively.

Also, majority (70.1%) of the respondents strongly agreed that Covid-19 could be fatal if not managed properly, 27.3% agreed, none disagreed and 2.6% strongly disagreed or were neutral. Based on the belief that Covid-19 only affects elderly people above 60 years, 43% of the respondents strongly hold this opinion, 31.8% agreed, while 12.5% and 12.0% disagreed and strongly disagreed respectively. Concerning the statement that Covid-19 can be treated, 29.1% strongly agreed, 36.2% agreed, 6.3% disagreed, and 18.5% strongly disagreed (see table 2 above for details).

The level of knowledge among the respondents was computed on a 30-point rating scale. The results indicated a mean and standard deviation of 21.1±3.84, and a standard error of mean of 0.195. A prevalence performance of 78.3% showed that the respondents have a good knowledge of Covid-19 (See table 5 below). The participants may have had a good knowledge about the disease, nevertheless, it is not a predictor of prevention measures ($B = 0.075$; $\beta = 0.049$; t -value = 1.091; p -value = 0.276) (See table 6 below).

Perception of Respondents on Covid-19

Table 3: Perception of Respondents on Covid-19 Pandemic

Statement for Consideration	Respondents in this study; N=384			
	Strongly Agree	Agree	Disagree	Strongly Disagree/Neutral
Covid-19 is caused by a virus	291/75.8%	85/22.1%	00/0.0%	08/02.1%
Coronavirus only infects the people in Western societies	00/0.0%	13/03.4%	154/40.1%	217/56.5%
Covid-19 is contagious	282/73.4%	76/19.8%	00/0.0%	26/06.8%
Covid-19 is the disease of the wealthy	15/03.9%	11/02.9%	113/29.4%	245/63.8%
Covid-19 virus can be killed easily in a hot environment	56/14.6%	132/34.4%	51/13.3%	146/37.8%
Covid-19 does not respect geographical boundaries, ethnicities, age, ability or gender	166/43.2%	63/16.4%	04/01.0%	151/39.3%
Covid-19 can make the sufferer feel isolated and different from the rest of the world.	166/43.2%	119/31.0%	35/09.1%	64/16.7%
Covid-19 is a punishment from God for the sins of man	28/07.3%	70/18.2%	64/16.7%	222/57.8%
Risk factors include respiratory tract infections, diabetes, etc	107/27.9%	148/38.5%	35/09.1%	94/24.5%
Covid-19 does not kill black Africans	03/0.8%	00/0.0%	113/29.4%	268/69.8%

Majority (75.8%) of the respondents strongly agreed that Covid-19 is caused by a virus, 22.1% agreed, none disagreed, and only 2.1% strongly disagreed or were neutral. Concerning the notion that the Coronavirus affects only people in the western world, the study indicated that more than half (56.5%) of the respondents did not subscribe to this belief at all, 40.1% of them disagreed, and just 3.4% of them agreed that the virus infects only those in the western world. On account of Covid-19 being contagious, majority (73.4%) strongly affirmed this opinion, 19.8% agreed, none disagreed, and 6.8% strongly disagreed or were neutral about it. More than half (63.8%) of the respondents strongly disagreed that Covid-19 is a disease of the wealthy, 29.4% disagreed, 2.9% agreed, and 3.9% strongly agreed. About 37.8% of the respondents strongly disagreed that the Coronavirus cannot survive in hot weather regions, 13.3% disagreed, while 34.4% and 14.6% agreed and strongly agreed respectively. Similarly, 43.2% strongly agreed and 16.4% agreed that the

Coronavirus is no respecter of regions or ethnicities, while 1.0% disagreed and 39.3% strongly disagreed. About 43.2% of the respondents strongly perceived and 31.0% agreed that Covid-19 can make its victims feel isolated from the rest of the world, while 9.1% disagreed and 16.7% strongly opposed this opinion. More so, over half (57.8%) of the respondents strongly disagreed and 16.7% disagreed that the Covid-19 pandemic is a punishment from God, while 18.2% of the respondents agreed and 7.3% strongly believed that it is a punishment from God. The statement that risk factors for Covid-19 include respiratory tract infections, diabetes, and so on was strongly supported by 27.9%, 38.5% agreed, 9.1% disagreed and 24.5% strongly disagreed. On the notion that Covid-19 does not kill Africans, over half (69.8%) of the respondents strongly disagreed or were neutral, 29.4% disagreed, none agreed, and only 0.8% strongly agreed. (see table 3 above for details).

The perception of respondents was further tested and computed on a 30-point rating scale, indicating a mean and standard deviation of 13.9±3.84 and a standard error of mean of 0.196. These suggest that the perception of respondents on Covid-19 containment in Nigeria was not favourable, with a prevalence performance of 46.3% (see table 5 below). The data from the multiple linear regression also suggested that the perception among the respondents is a major predictor of preventive skills or measures (B = 0.765; β = 0.501; t-value = 11.16; p-value = 0.001) (See table 6 below).

Preventive Measures against Covid-19 among the Study Population.

Table 4: Covid-19 Preventive Measures among Respondents

Statements for Considerations	Respondents in this study; N=384			
	Strongly Agree	Agree	Disagree	Strongly Disagree/Neutral
Washing hands frequently with soap and water	229/59.6%	128/33.3%	00/0.0%	27/07.0%
Avoid touching eyes, nose and ears	261/68.0%	92/24.0%	00/0.0%	31/08.1%
Sneezing and coughing into the elbow	276/71.9%	67/17.4%	09/02.3%	32/08.3%
Using hand sanitizers often	260/67.7%	86/22.4%	03/0.8%	35/09.1%
Staying safe by visiting loved ones	14/03.6%	21/5.5%	139/36.3%	210/54.7%
Going for testing if one is feeling feverish	154/40.1%	136/35.4%	09/02.3%	86/22.1%
Observing personal hygiene and social distancing	296/76.8%	67/17.4%	00/0.0%	22/05.7%
Eating a lot of vegetables and fruits can increase one’s immunity against the virus	207/53.9%	96/25.0%	16/04.2%	65/16.9%
Feeling sad, worried, scared and angry	46/12.0%	36/09.4%	93/24.2%	209/54.4%
Isolating oneself for a period of 2 weeks if one has made contact with persons positive to Covid-19	249/64.0%	84/21.9%	14/03.6%	37/09.6%

On account of preventive measures against Covid-19, majority (92.9%) of the respondents believed in washing their hands with soap and water, while 7% were neutral or strongly disagreed. A similar percentage (92%) believed one should not touch their eyes, nose and ears after having contact with many people. Also, observing personal hygiene was a priority for most (94.2%) of the respondents. Sneezing and coughing into the elbow was seen as a preventive measure by majority (71.9% and 17.4%), while about 10.6% did not share the same view. The use of hand sanitizers was also perceived to be a preventive measure by more than half (67.7%) of the students, while about 9.9% did not hold the same view. A huge number (91%) of the respondents did not agree with visiting loved ones during the pandemic. Isolating oneself for a period of two weeks after contact with infected persons was seen as a necessity by a majority (86.9%) of the respondents. More so, most (78.6%) of the respondents did not feel sad, worried or angry about all that was required to stay safe and alive. Also, most (75.5%) of the respondents believed that it is best to get tested if signs of fever surfaced, while 34.5% did not agree with the idea. Eating healthy food was of a major concern (79.8%) among the study participants (See table 4 above for details). The preventive skills of the respondents measured on a 30-point rating scale indicated a score of mean and standard deviation of 20.5±5.86 and a standard error of 0.299, translating to a prevalence performance of 68.3%. This showed that the respondents had good and favourable preventive measures against Covid-19 (See table 5 below).

Table 5: Descriptive Summaries of Composite Scores among Study Participants

Variables	Point Scale Measures Reference	Respondents in this study; N=384		Prevalence Performance (%)
		Mean/SE	SD	
Level of Knowledge	30	21.1/0.195	3.82	70.3
Perception of Respondents	30	13.9/0.196	3.84	46.3
Preventive Skills/Measures	30	20.5/0.099	3.86	68.3

Table 6: Multiple Linear Regression Coefficients of Predictors’ Variables and Outcome Variables of Preventive Measures against Covid-19

Variables	Preventive Skills/Measures				Sig (2 tail)
	B	SE	B	t-value	
Knowledge	0.075	0.069	0.049	1.091	0.276
Perception	0.765	0.069	0.501	11.16	0.001

Discussion

From the results of this study, which assessed the knowledge, perception and preventive measures against Covid-19 among undergraduate students, certain observations were made. Based on the level of knowledge of the respondents, a great majority seemed to be very knowledgeable about the subject of Covid-19, though a significantly high number held the misconception that Covid-19 is another name for the Coronavirus, while the actual name is Severe Acute Respiratory Syndrome – Coronavirus - 2 (SARS-CoV-2), and COVID-19 (Coronavirus Disease – 2019) is actually the name for the disease caused by the virus (World Health Organization, 2020).

A good number of them did not agree with the notion that more men are affected by Covid-19 than women, which is also a misconception, because recent studies have proven that men mostly tend to develop severe illness from Covid-19 infection and have a higher mortality rate than women, mainly due to the fact that men are more likely to have underlying health problems than women, and also as a result of differences in the immune system of both genders (Cunningham, 2020).

In terms of perception, majority of the respondents had an average perception of Covid-19. Considering the notion that the Coronavirus can be killed in hot regions, majority (51%) did not support it, though almost equal number (49%) responded in the affirmative. Current research shows that the Coronavirus can be transmitted and thrives in hot climates or environment, but can only be killed by temperatures above 56°C (Chan, 2011). Also, despite the majority of respondents affirming the belief that Covid-19 does not respect geographical boundaries, ethnicities, age, ability or gender, the discrepancies in the criteria of age and gender should be taken note of, as evidence so far shows that the elderly are more susceptible to infection and mortality than the young, Didac (2020) and males are more affected than females.

Most of the respondents seemed to support the appropriate measures required for prevention of the Coronavirus disease. However, considering the idea of going for Covid-19 testing when feeling feverish, the bulk of respondents supported the statement, while on the contrary, it must be noted that fever is only one of the symptoms of Covid-19, and should not prompt the sufferer to go for testing, unless other symptoms characteristic of the disease are observed (Iati, 2020). Also, it proved that despite the awareness of individuals in terms of the origin, causes, symptoms, risk factors and precautionary measures against the Coronavirus disease, there are still a number of myths being held, even by the educated population.

The findings of this study may appear similar to that of some research works like Geldsetzer (2020) in the aspect of myths conceived, but differs in highlighting the improved level of knowledge, awareness and implementation of preventive measures against Covid-19, which is in consonance with studies such as Olapegba et al. (2020) and Parikh et al. (2020).

Limitation of study

This study has some limitations which include the fact that only a few students (384) out of the total student population of the University participated in this study, hence the findings cannot be used as a solid representation for all the students within the selected region.

Similarly, the results cannot be generalized for individuals that are less educated.

A huge proportion of the sample population were from the Yoruba ethnic group, which resulted in selection bias.

Also, some students might have surfed the internet for accurate answers or consulted other means while filling the questionnaire, as measures were not taken to curb this limitation at the time the study was carried out.

Conclusion

Summarily, the results showed that quite a number of educated young adults (using Undergraduate students as a sample) had good knowledgeability, but average overall perception of the Covid-19 pandemic, and the preventive measures practiced were decent enough.

Recommendation

There is need for publicity especially at the grassroots' level (rural community) to enlighten people about what Covid-19 is, in order to correct the myths about the disease.

Strategies such as incorporating myth busters into Covid-19 sensitization campaigns should be employed. Further efforts should be made to educate people about the erroneity of certain beliefs such as the idea that the Coronavirus is not capable of survival in hot climates or weather, and the practice of drinking hot liquids or using steam therapy to treat the disease.

Adequate preventive measures should be encouraged so as to decrease the rate of transmission of the disease.

References

- Chan K. H, Peiris J. S. M. et al. (2011, October 1). The effects of temperature and relative humidity on the viability of the SARS Coronavirus. *Hindawi: Advances in Virology*, 1-3. doi:10.1155/2011/734690
- Cunningham A. (2020, April 23). *Science News*. Retrieved from sciencenews.org: <https://www.google.com/amp/s/www.sciencenews.org/article/coronavirus-covid-19-kills-more-men-than-women-why-immune-system/amp>
- Deutsche, W. (2020). COVID-19 pandemic lockdown in Hubei. Archived from the original on 24 January 2020. Retrieved 25 January 2020.
- Didac S, Castro J.P. et al. (2020, April 15). COVID-19 is an emergent disease of aging. *medRxiv*, 2-6. doi:10.1101/2020.04.15.20060095
- Geldsetzer, P (2020). Knowledge and Perceptions of COVID-19 Among the General Public in the United States and the United Kingdom: A Cross-sectional Online Survey. *Annals of Internal Medicine*. <https://doi.org/10.7326/M20-0912>
- Iati M. (2020, March 4). *The Washington Post*. Retrieved from washingtonpost.com: <https://www.google.com/amp/s/www.washingtonpost.com/health/2020/03/03/coronavirus-symptoms-test/?outputType=amp>
- Icek, A. (1991). The theory of planned behavior". *Organizational Behavior and Human Decision Processes*. 50(2): 179–211. doi:10.1016/0749-5978(91)90020-T.
- Nemati, M., Ebrahimi, B & Nemati, F Assessment of Iranian Nurses' Knowledge and Anxiety Toward COVID-19 During the Current Outbreak in Iran. *Arch Clin Infect Dis*. Online ahead of Print ; 15(COVID-19):e102848. doi: 10.5812/archcid.102848.
- Olapegba P. O, Ayandele O. et al. (2020, April 12). COVID-19 Knowledge and Perceptions in Nigeria. doi:10.31234/osf.io/j356x

- Padayachee, N & Claire du Toit, L (2020). Debunking 9 popular myths during the rounds in Africa about the coronavirus. April 13, 2020 9.40am
- Parikh P. A, Shah B. V, Phatak A. G. et al. (2020, May 15). COVID-19 Pandemic: Knowledge and Perceptions of the Public and Healthcare Professionals. *Cureus*. doi:10.7759/cureus.8144
- The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team (2020). The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. *Chinese Journal of Epidemiology*. 2020;41(2):145–151
- World Health Organization (2020). Modes of transmission of the COVID-19 virus: implications for IPC precaution recommendations Scientific brief 29 March 2020.
- World Health Organization. (2020, February 11). *World Health Organization*. Retrieved from [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it)
- World Health Organization (2019). 2019-nCoV outbreak is an emergency of international concern. <http://www.euro.who.int/en/health-topics/emergencies/pages/news/news/> (access Feb 16, 2020).