Title: COVID-19: Fear and anxiety among healthcare students in Saudi Arabia: A cross-sectional study

Sameer Shaikh

Faculty Member in the Divisions of Oral Medicine and Oral Diagnosis, OMFS and Diagnostic Sciences Department, College of Dentistry, University of Hail, Saudi Arabia.
Email: smrshaikh@gmail.com

Syed Fareed Mohsin (Corresponding Author):

Associate Professor, Department of Oral Maxillofacial Surgery and Diagnostic Sciences, College of Dentistry in Ar Rass, Qassim University, Ar Rass, Kingdom of Saudi Arabia.
Address: Alshunanah street, Postal code 52719, Ar Rass, Qassim. KSA
Email: sfareedmohsin@gmail.com, dr.fareed.mohsin@qudent.org

Muhammad Atif Saleem Agwan

Assistant Professor, Department of Restorative Dentistry, College of Dentistry in Ar Rass, Qassim University, Ar Rass, Kingdom of Saudi Arabia.
Address: Alshunanah street, Postal code 52719, Ar Rass, Qassim. KSA
Email: dr.atif.agwan@qudent.org, dratifagwan@yahoo.com

Saqib Ali

Department of Biomedical Dental Sciences, College of Dentistry, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia
Email: drsaqiibali@gmail.com

Ziyad Ahmad Alsuwaydani

5th Year Dentistry Student, College of Dentistry in Ar Rass, Qassim University, Ar Rass, Kingdom of Saudi Arabia. Address: Alshunanah street, Postal code 52719, Ar Rass, Qassim. KSA
Email: ziyad.alsuwaydani@qudent.org, Zyad917@gmail.com

Saleh Ahmad AlSuwaydani

Teaching assistant, Unaizah College of Medicine, Qassim University, Unaizah, Kingdom of Saudi Arabia.
Email: Saleh.alsowedany@gmail.com

Abstract:

Coronavirus disease of 2019 (COVID-19) is a newly discovered respiratory syndrome which has adversely affected millions of people around the world. The study aims to estimate the psychological impacts of COVID-19 in the form of fear and anxiety among the healthcare students of the Central Region of Saudi Arabia. A cross-sectional study was conducted amongst health care students in Saudi Arabia. A non-probability convenience sampling

approach was adopted to collect data by mean of an online questionnaire on social media. The sample size was determined by using Epi info software; the minimum sample required for this study was 567. Likert scale with five points was used to measure healthcare students' fear and anxiety level. Data were analysed using SPSS version 23. The descriptive data were expressed as frequencies and percentages. Spearman correlation was used to determine the strength of the relationship between variables. Amongst 571 health care students, 359 were males, and 212 were females. Data revealed that 84 (15%) of students had a severe level of anxiety, 438 (77%) had a moderate level of anxiety and 49 (9%) of the students had mild level of anxiety. Correlation coefficient was found insignificant between gender, academic year and institute (ρ=0.066, p=0.116), (ρ=0.018, p=0.661) and (ρ=0.034, p=0.423) respectively. The COVID-19 pandemic has a negative impact on higher education because of the long-lasting pandemic situation. Our study's results illustrate the critical need to implement approaches and prevention measures to address healthcare students' mental health.
Keywords: COVID-19, Fear, Anxiety, Healthcare students, Psychological impact, Saudi Arabia

INTRODUCTION:

Coronavirus disease of 2019 (COVID-19) is a newly discovered respiratory syndrome caused by a novel coronavirus (SARS-CoV-2) which spread throughout the world, leading to the global pandemic. This disease has adversely affected millions of people around the world in some way or another, leading to illness and ultimately death (1)(2). At present there is no specific cure for the disease and is being treated symptomatically by antivirals and organ function support, creating chaos among the health care providers for not being able to cure their patients (3).

COVID-19 has caused confusion and uncertainty due to the fear of disease contraction, commuting restrictions, closure of businesses and schools. This pandemic has led to unprecedented psychological stress around the world and effectuated catastrophic psychological consequences in the form of fear and anxiety (4). Various nations around the globe scrambled into action to limit the spread of the virus. The steps taken in Saudi Arabia were also noteworthy such as the closure of schools and universities, moving onto e-learning for carrying out the academic activities, banning of all social gatherings & major events and imposition of lockdown and curfews. Even though these measures were necessary to curb the spread of COVID-19, these measures were profoundly frustrating to be understood and accepted by a large number of people in Saudi Arabia (5).

The frontline warriors of any country are affected first by public health emergencies. The MERS-CoV outbreak in 2014 was also responsible for high public anxiety, and the medical community was affected the most due to the emergency situation(6). Disastrous pandemics have always left a negative impact on the health care providers leading to fear and anxiety (7). The medical community is not only affected physically but also psychologically in this regard, the feeling of loneliness, helplessness from isolation always prevails due to high-intensity working hours caused by such public health emergencies(8). Studies have prevailed that when the medical

staff is in contiguity with patients infected by novel diseases like SARS, MERS-Cov (9), Ebola (10), H1N1 (11), always suffers from loneliness, fear, anxiety, insomnia, and other mental health problems.

Among the Gulf Cooperation Council (GCC) countries, Saudi Arabia has the highest number of confirmed COVID-19 cases, which increases the likelihood of burden on the healthcare system and the fear of contracting an infection. This factor is also considered to be having a considerable contribution to bringing about the stress among the people of Saudi Arabia (12).

COVID-19 is likely to infuse fear and anxiety within the academic community, and in particular healthcare, students are considered to be the most psychologically susceptible among various academic groups (13).

To the best of our knowledge, no study so far evaluated the impact of COVID 19 on the psychological wellbeing of healthcare students in Saudi Arabia. The current study aims to estimate the psychological impacts of COVID-19 in the form of fear and anxiety among the healthcare students of the Central Region of Saudi Arabia. The findings from this study can be utilised to assist in the development of effective screening tools and intervention strategies to bolster psychological resilience among healthcare students during the COVID-19 pandemic or any other public health crisis in the future.

MATERIAL AND METHODS:

E-survey was conducted using non-probability sampling technique to gather information from healthcare students in Saudi Arabia. The data was collected from 1st of August to the 10th of August 2020 through a digital survey. The questionnaire was distributed among the participants using WhatsApp, Twitter, Telegram and email. All healthcare students were approached to fill the questionnaire, whereas non healthcare students and the general public were excluded from the survey. The study was approved by Qassim University Ethical Review Board (ERB) number DRC/0016FA/20.

This survey used the COVID-19 self-reported questionnaire of fear and anxiety, which was originally in English. The authors translated the study into Arabic and adapted it to English to ensure that the original English version of the translation was preserved.

A proforma was prepared to gather information from the participants. Online informed consent was obtained. The first part of the proforma was related to sociodemographic features such as age, gender, academic year and institute. In the second section, a Likert scale with five points was used to measure healthcare students' fear and anxiety. Each question was scored 1 (Strongly disagree), 2 (disagreed), 3 (Neutral), 4 (Agreed) and 5 (Strongly agreed) a high score suggested a more significant stressful impact and vice versa. A cut-off value of ≥50 was used to demonstrate a moderate-to-severe impact. The Cronbach's alpha coefficient of the fear and anxiety questionnaire was 0.887 in our sample, reflecting acceptable internal coherence(14). Furthermore, an open-ended question was used to evaluate the individual perspective on a widespread effect of COVID-19.

The sample size was determined by using Epi info software(15), with a prevalence of 50% at a 5% margin of error and a 95% confidence interval. The study required minimum sample size of 567.

Statistical analyses were performed by using SPSS version 23. The qualitative data presented as frequency and percentage. Spearman correlation was used to determine the strength of association between variables. A significant difference was recorded as $p < 0.05$.

RESULTS:

A total of 571 (359 males and 212 females) healthcare students between 18-30 years responded to the survey. In terms of the academic year, 263 (46%) students belonged to the 5th year, 139 (24%) to the 4th year, 93 (16%) to the 3rd year, 49 (9%) to the 2nd year, and 27 (5%) to the 1st year. Two hundred twenty-two (39%) of the medical students were from Dentistry institute, 194 (34%) from the Institute of Medicine, 80 (14%) were from College of Applied Health Sciences, and 49 (9%) were from the Institute of Pharmacy. One hundred (17.5%) of the students were previously infected with COVID-19, while 39 (7%) were unsure about their COVID-19 status. 61 (11%) of students reported that someone in their immediate family was infected with COVID-19 while 18 (3%) were unsure. On rating the concerns of healthcare students regarding COVID-19, severe levels of anxiety were recorded in 84 (15%) of students, moderate levels of anxiety in 438 (77%) while mild levels of anxiety scores in 49 (9%) of the students [Table I].

Table I: Baseline demographics of medical students included in the study

Characteristics		n	(%)	Anxiety Level		
				Mild n (%)	Moderate n (%)	Severe n (%)
Gender	Male	359	62.9	40(11.1)	267(74.4)	52(14.5)
	Female	212	37.1	9(4.2)	171(80.7)	32(15.1)
Academic Year	1st year	27	4.7	0(0)	24(88.9)	3(11.3)
	2nd year	49	8.6	8(16.3)	33(67.3)	8(16.3)
	3rd year	93	16.3	10(10.8)	69(74.2)	14(15.1)
	4th year	139	24.3	12(8.6)	105(75.5)	22(15.8)
	5th year	263	46.1	19(7.2)	207(78.7)	37(14.1)
Institute	Dentistry	222	38.9	32(14.4)	151(68.0)	39(17.6)
	Medicine	194	34	10(5.2)	156(80.4)	28(14.4)
	Pharmacy	49	8.6	4(8.2)	42(85.7)	3(6.1)
	Applied Health Sciences	106	18.6	3(2.8)	89(84.0)	14(13.2)
Have you been infected with COVID-19?	Yes	100	17.5	16(16.0)	73(73.0)	11(11.0)
	No	432	75.7	33(7.6)	345(79.9)	54(12.5)
	Not sure	39	6.8	0(0)	20(51.3)	19(48.7)
Any one in your immediate family had been infected with COVID 19?	Yes	61	10.7	3(4.9)	50(82.0)	8(13.1)
	No	492	86.2	46(9.3)	388(78.9)	58(11.8)
	Not sure	18	3.2	0(0)	0(0)	18(100)
Anxiety Score				49(8.6)	438(76.7)	84(14.7)

The agreement of respondents to various stressors associated with the COVID-19 varied considerably. One hundred and seventy-eight (31%) of the healthcare students disagreed with the fact that thinking about COVID-19 made them uncomfortable, while 164 (29%) remained neutral and 101 (18%) agreed to it. 229 (40%) agreed that they were fearful of losing their life due to COVID-19, while 102 (18%) disagreed. 137 (24%) students disagreed that watching news and stories regarding COVID-19 on social media made them nervous or frightened, while 119 (21%) strongly agreed to it. 198 (35%) of students disagreed that COVID-19 causes fear and anxiety in society, while 117 (21%) remained neutral. 308 (54%) of students disagreed that COVID-19's negative impact will have affected the economy, making them anxious while 183 (32%) strongly disagreed. 185 (32%) and 170 (30%) disagreed and strongly disagreed with getting infected by COVID-19. 172 (30%) disagreed, while 162 (28%) agreed to fear duration of COVID-19 quarantine (14 days). 182 (32%) remained neutral because the uncertainty of when COVID-19 will be eradicated made them nervous while 171 (30%) strongly disagreed. 373 (65%) of students strongly agreed that getting infected by COVID-19 during patient treatments made them upset even after taking all the necessary precautions. 183 (32%) strongly agreed that they might have disturbing thoughts due to COVID-19, while the majority remained neutral that they feel disturbed of having thoughts which might make them think others around them are infected. 473 (83%) of students strongly agreed to be unable to sleep due to fear of COVID-19, and 377 (66%) had lost interest in eating when thinking about COVID-19. 413 (72%) of students strongly agreed to feel nausea and stomach problems when thinking about COVID-19 [Table II].

Table II: Assessment of fear and anxiety among medical students in the study

Variable	Strongly Agree n(%)	Agree n(%)	Neutral n(%)	Disagree n(%)	Strongly Disagree n(%)
It makes me uncomfortable to think about COVID-19					
	101(17.7%)	61(10.7%)	164(28.7%)	178(31.2%)	67(11.7%)
I am fearful of losing my life because of COVID-19					
	118(20.7%)	229(40.1%)	122(21.4%)	102(17.9%)	0(0.0%)
When watching news and stories about COVID-19 on social media I become nervous or frightened					
	119(20.8%)	104(18.2%)	127(22.2%)	137(24.0%)	84(14.7%)
I am fearful about the fear and anxiety caused by COVID19 in the society					
	85(14.9%)	77(13.5%)	117(20.5%)	198(34.7%)	94(16.5%)
The negative impact of the disease on the current and future economy makes me anxious					
	51(8.9%)	21(3.7%)	8(1.4%)	308(53.9%)	183(32.0%)
I fear of getting infected by others due COVID-19					
	57(10.0%)	26(4.6%)	133(23.3%)	185(32.4%)	170(29.8%)
I fear the duration of quarantine (14days) due to COVID-19					
	40(7.0%)	162(28.4%)	140(24.5%)	172(30.1%)	57(10.0%)

The uncertainty of when COVID-19 will be eradicated makes me nervous					
	16(2.8%)	86(15.1%)	182(31.9%)	116(20.3%)	171(29.9%)
Getting infected by COVID-19 despite taking all precautionary measures during the patient's treatment makes me upset					
	373(65.3%)	140(24.5%)	58(10.2%)	0(0.0%)	0(0.0%)
Having disturbing thoughts that may have caught the COVID-19.					
	183(32.0%)	87(15.2%)	108(18.9%)	136(23.8%)	57(10.0%)
I had disturbing thoughts that certain people I came in contact with may have the COVID-19					
	130(22.8%)	68(11.9%)	168(29.4%)	129(22.6%)	76(13.3%)
I felt dizzy, lightheaded, or faint when I read or listened to news about the COVID-19					
	440(77.1%)	95(16.6%)	36(6.3%)	0(0.0%)	0(0.0%)
I am unable to sleep due to fear of COVID-19					
	473(82.8%)	84(14.7%)	0(0.0%)	14(2.5%)	0(0.0%)
I lost interest in eating when I thought about or was exposed to information about the COVID-19					
	377(66.0%)	145(25.4%)	34(6.0%)	15(2.6%)	0(0.0%)
I feel nausea and have stomach problems on thinking about COVID-19					
	413(72.3%)	100(17.5%)	41(7.2%)	17(3.0%)	0(0.0%)

Correlation between score category and gender was insignificant (ρ=0.066, p=0.116), with the academic year was also insignificant (ρ=0.018, p=0.661). Likewise, the correlation between score category and institute was insignificant (ρ=0.034, p=0.423) [Table III]

Table III: The correlation of score categories with various variables

Variable	Score Category	
	ρ	p-value
Gender	0.066	0.116
Academic Year	0.018	0.661
Institute	0.034	0.423

DISCUSSION:

This study explores the perceived level of stress associated with COVID-19 among healthcare students in the Central Region of Saudi Arabia. Moderate levels of anxiety among subjects (77%) in various sociodemographic variables were determined. This finding was in concordance to the study results in Saudi Arabia, among students belonging to different educational levels.

More than half of the participants showed moderate stress levels (55%) due to the COVID-19 outbreak (16). Moderate risk perception of COVID-19 was also determined among Iranian medical students(17). However, the findings of our study differ from the results of the study conducted in Jordan. They revealed that medical students (65.0%) had significantly lower levels of fear (65.0%) about being infected with COVID-19 (18). This can be attributed to the fact that medical students had greater access to precise information and were more familiar with low-risk procedures than other students. Medical students have been shown to have substantially more excellent COVID-19 knowledge than students from other learning fields (19).

In the current study, female population showed moderate stress levels than males (80.7% versus 74.4%). Moreover, many students of the 1st year (88.9%) and students from the pharmacy faculty (85.7%) had moderate anxiety levels. However, no significant correlations were determined between anxiety level score category, gender, academic year, and institute. In some related surveys, females reported moderate to high-stress levels associated with the infectious outbreaks (20)(21). Different causes, including hormonal changes and expression of feelings and thoughts about their social situation, have been linked to high-stress levels among women. It can be inferred that the 1st year students' less clinical exposure and lower self-confidence in caring for patients have led them to experience moderate to high levels of stress and anxiety.(17).

Regarding the responses to items of questionnaires related to the fear of getting infected during patients' care and losing life by COVID-19, a larger proportion of students agreed or strongly agreed with such fears and concerns. Three-quarter of the respondents felt dizzy, lightheaded, or fainted on reading or listening to news about the COVID-19. The fear associated with COVID-19 and sensations of dizziness and light headedness might be because medical and allied health students are expected to be on the frontline addressing health-related and mental health-related consequences of COVID-19(22).A considerable number of healthcare students in this study had difficulties sleeping, eating, and encountered gastric problems due to the COVID-19 related fear and anxiety. The pandemic related depression and anxiety was found to be significantly associated with the disruption of regular sleeping and eating pattern (23)(24).

However, most respondents disagreed about the uncertainties associated with COVID-19 eradication, societal fears, and the economy's negative impact. This disagreement may be attributed to a better health literacy of the healthcare students recruited in the current study. In a previous research, health literacy was a preventive factor in mental health (e.g., depression, fear, and anxiety) (25).

Limitations and strengths of the study:

One of the limitations of this study is that the data collection was done in a brief period of one month, keeping in view the sudden impact this epidemic had on healthcare students' psychology. It can be asserted that with the evolving study and potential treatment of COVID-19, the attitudes and psychological perceptions of healthcare students could alter. Finally, the study's cross-sectional design has some potential drawbacks. A longitudinal study will certainly have more insight into how an extended duration of the quarantine influences healthcare students' psychological factors.

Together with the limitation, there were few strengths of this study. It was the first study that explored the perceived level of stress associated with COVID-19 among healthcare students in the Central Region of Saudi Arabia. Moreover, it focused on the healthcare students which are considered vulnerable to the psychological and health-related effects of the pandemics.

Recommendations:

Health policymakers can use the present study results to focus on devising strategies to control the psychological distress in the forms of anxiety, fear, and depression among students arising from infectious disease outbreaks. Psychological support programs for healthcare students can be pivotal in tackling an infectious disease outbreak's mental health-related consequences, including COVID-19.

Conclusion:

The study revealed that moderate level of fear and anxiety was evident in most of the healthcare students. Government policies should assist in protecting and prioritising the mental wellbeing of health care students. Being the future frontline warriors and finding oneself stressful and anxious, would affect the future caregivers of our community badly. There are different opportunities at each level to support the mental health of health students. Our policy makers should make time sensitive decisions to introduce e-mental health and psychiatric planning to reduce mental stress in the time of pandemic. Government and society should regard the heath care medical students as future 'gold dust' and provide them with the support they deserve.

Grant Support & Financial Disclosures: None.

Conflict of interest: None

Author's Contribution:

SFM and ASA conceived and designed the study

SFM, ASA, SA and SS did manuscript writing, drafted the article and revised it critically for important content.

ZAS and SAS did data collection and curation

SFM, ASA and SS analysed the data and editing of manuscript.

All Authors revised and approved the final version

References:

1. Zhi Zhonghua Liu Xing Bing Xue Za. [The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China]. Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. Chinese J Epidemiol. 2020;2(42):297–300.
2. Haleem A, Javaid M, Vaishya R. Effects of COVID-19 pandemic in daily life. Curr Med Res Pract. 2020;10(2):78–9.
3. Zhang C, Huang S, Zheng F, Dai Y. Controversial treatments: An updated understanding of the coronavirus disease 2019. J Med Virol. 2020;92(9):1441–8.
4. Fardin MA. Covid-19 and anxiety: A review of psychological impacts of infectious

disease outbreaks. Arch Clin Infect Dis. 2020;15(COVID-19):15–7.

5. Zitoun OA. COVID-19 Pandemic: Other Perspective. Saudi Arabia. Int J Med Students. 2020;8(1):64–5.

6. Al-Rabiaah A, Temsah MH, Al-Eyadhy AA, Hasan GM, Al-Zamil F, Al-Subaie S, et al. Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. J Infect Public Health. 2020;13(5):687–91.

7. Almutairi AF, Adlan AA, Balkhy HH, Abbas OA, Clark AM. "It feels like I'm the dirtiest person in the world.": Exploring the experiences of healthcare providers who survived MERS-CoV in Saudi Arabia. J Infect Public Health. 2018;11(2):187–91.

8. O'Boyle C, Robertson C, Secor-Turner M. Nurses' beliefs about public health emergencies: fear of abandonment. Am J Infect Control. 2006 Aug;34(6):351–7.

9. Khalid I, Khalid TJ, Qabajah MR, Barnard AG, Qushmaq IA. Healthcare Workers Emotions, Perceived Stressors and Coping Strategies During a MERS-CoV Outbreak. Clin Med Res. 2016 Mar;14(1):7–14.

10. Liu C, Wang H, Zhou L, Xie H, Yang H, Yu Y, et al. Sources and symptoms of stress among nurses in the first Chinese anti-Ebola medical team during the Sierra Leone aid mission: A qualitative study. Int J Nurs Sci. 2019 Apr;6(2):187–91.

11. Honey M, Wang WYQ. New Zealand nurses perceptions of caring for patients with influenza A (H1N1). Nurs Crit Care. 2013;18(2):63–9.

12. Al-Hanawi MK, Mwale ML, Alshareef N, Qattan AMN, Angawi K, Almubark R, et al. Psychological Distress Amongst Health Workers and the General Public During the COVID-19 Pandemic in Saudi Arabia. Risk Manag Healthc Policy. 2020;13:733–42.

13. Saddik B, Hussein A, Sharif-Askari FS, Kheder W, Temsah M-H, Koutaich RA, et al. Increased Levels of Anxiety Among Medical and Non-Medical University Students During the COVID-19 Pandemic in the United Arab Emirates. Risk Manag Healthc Policy .2020;13:2395—2406.

14. Taber K. The Use of Cronbacs Alpha When Developing and Reporting Research Instruments in Science Education. Res Sci Educ. 2018;48:1273–96.

15. CDC. Epiinfo. sample size calculator [Internet]. Available from: https://www.cdc.gov/epiinfo/.

16. AlAteeq DA, Aljhani S, AlEesa D. Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA. J Taibah Univ Med Sci [Internet]. 2020;15(5):398–403. Available from: http://dx.doi.org/10.1016/j.jtumed.2020.07.004

17. Taghrir MH, Borazjani R, Shiraly R. COVID-19 and Iranian Medical Students; A Survey on Their Related-Knowledge, Preventive Behaviors and Risk Perception. Arch Iran Med. 2020 Apr;23(4):249–54.

18. Olaimat AN, Aolymat I, Elsahoryi N, Shahbaz HM, Holley RA. Attitudes, Anxiety, and Behavioral Practices Regarding COVID-19 among University Students in Jordan: A Cross-Sectional Study. Am J Trop Med Hyg. 2020 Sep;103(3):1177–83.

19.   Olaimat AN, Aolymat I, Shahbaz HM, Holley RA. Knowledge and Information Sources About COVID-19 Among University Students in Jordan: A Cross-Sectional Study. Front public Heal. 2020;8:254.

20.   George S, Joseph B. Level of stress and its causes among 1st-year dental students - A cross-sectional study. Natl J Physiol Pharm Pharmacol. 2018;8(9):1518.

21.   Shah M, Hasan S, Malik S, Sreeramareddy CT. Perceived Stress, Sources and Severity of Stress among medical undergraduates in a Pakistani Medical School. BMC Med Educ. 2010;10(1):2. Available from: https://doi.org/10.1186/1472-6920-10-2

22.   Zolotov Y, Reznik A, Bender S, Isralowitz R. COVID-19 Fear, Mental Health, and Substance Use Among Israeli University Students. Int J Ment Health Addict. 2020;

23.   Son C, Hegde S, Smith A, Wang X, Sasangohar F. Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. J Med Internet Res. 2020 Sep;22(9):e21279.

24.   Al-Musharaf S. Prevalence and Predictors of Emotional Eating among Healthy Young Saudi Women during the COVID-19 Pandemic. Nutrients. 2020 Sep;12(10).

25.   Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TTP, Pham KM, et al. People with Suspected COVID-19 Symptoms Were More Likely Depressed and Had Lower Health-Related Quality of Life: The Potential Benefit of Health Literacy. J Clin Med. 2020 Mar;9(4).