Prevalence and impact of depression, anxiety and stress to evaluate the health related quality of life among college students during covid 19 pandemic: a questionnaire based online survey

Bismi S*[1], Sreevidya S Nair[1], Dhanya Dharman[2]

1 6th year pharm D, Ezhuthachan College of Pharmaceutical Sciences, Trivandrum, Kerala, India.
2 Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Science, Trivandrum, Kerala, India.

*Corresponding author:

Phone : + 91 - 9447927238
Email : bismirosevilla@gmail.com

ABSTRACT

Psychological stress associated with depression is common among medical students and considered as an important indicator for mental health [1]. Mental health is one of the most important health indicators that causes considerable morbidity (2). Depression is a mood disorder which is characterized by short-term emotional responses to a serious health condition associated with impaired daily functioning accompanied by symptoms, such as sadness and frustration, feelings of guilt, insensibility, and loss of interest (5). Anxiety disorders are defined as a group of mental disorders characterized by an unpleasant feeling with uneasiness or worry about future events or the fear of responding to current events objective. An attempt was made to to assess the prevalence and impact of depression, anxiety and stress among college students during covid 19 pandemic. This study was conducted through a valid and reliable questionnaire including socio-demographic and COVID 19 knowledge data. Data were collected online from a sample of 200 respondents. Among 200 participants, 33% of responders were male while 67% were female. Specifically, in covid 19 situation the present study examined academic stress and mental health among students and tested the moderating effect of perceived social support on the relationship between study-related stress and Depressive symptoms. From this study, assessment of depression among students showed that Many participants (35.8%) were classified to have abnormal anxiety, while a smaller proportion (31.2%) was classified to have abnormal depression. Effective screening procedures would help to identify students who are at high risk of developing mental health problems, and effective interventions could prevent serious consequences.

INTRODUCTION

Psychological stress associated with depression is common among medical students and considered as an important indicator for mental health [1]. Mental health is one of the most important health indicators that causes considerable morbidity [2] According to the World Health Organization (WHO) report in 2018, one every five adults experienced mental disorders in the past year and 29.2% had a history of mental illness during their lifetime [3]. To improve mental health, WHO has developed an evidence-based mental health program for the years 2013-2020 (4).Depression is a mood disorder which is characterized by short-term emotional responses to a serious health condition associated with impaired daily functioning accompanied by symptoms, such as sadness and frustration, feelings of guilt, insensibility, and loss of interest [5].Depression is a common psychiatric disorder in the world, affecting more than 300 million people worldwide [6,7]. Anxiety disorders are defined as a group of mental disorders characterized by an unpleasant feeling with uneasiness or worry about future events or the fear of responding to current events. It may occur without an identifiable triggering stimulus [3]. In 2013, one out of

every nine people in the world had at least one of the anxiety disorders [8,9]. In stress, a person's lack of compliance with environmental conditions leads to psychological and biological changes, and the person is at risk of becoming ill [10].

Since December 2019, the outbreak of the corona virus disease has been spreading rapidly from China to other parts of the world leading to acute infectious pneumonia [11]. In March 2020, the World Health Organization (WHO) announced the corona virus disease, termed COVID-19 disease, as an international pandemic, which was caused by the infectious virus 'severe acute respiratory syndrome (SARS) coronavirus 2' [12, 13]. Similar to the previous 2002 and 2012 viral outbreaks, SARS and Middle East Respiratory Syndrome (MERS-CoV), COVID-19 symptoms included breathing difficulties accompanied with fever and coughing [14,1 5]. Although severe in the symptoms displayed, no established antiviral treatment or vaccine has been approved for the management of COVID-19 to this date [16, 17].

Social and physical distancing, in addition to self-quarantining, have been imposed by many governments worldwide, due to the spread of the virus reported to be primarily through direct contact, i.e. droplets spread by coughing or sneezing from an infected individual [19]. Quarantine is an effective measure in decreasing the spread of the virus globally [20], however, it comes with numerous substantial economic, social, and psychological effects [21]. In consequence to this, several challenges and concerns, including psychological pressures, have been enacted on individuals [16, 22].Mental health of individuals is a major health concern, expected to be disturbed during pandemics, including the COVID-19 pandemic [23]. According to previous research reports, during similar viral outbreaks, a significant increase in the risk of mental health problems among individuals happen, including anxiety, depression and traumatic stress [2427]. During the recent COVID-19 pandemic, increased levels of stress, anger, anxiety and depression have been reported among individuals in different parts of the world [21, 28, 29].

In an effort to halt the spread of the virus, most governments took several safety measures varying from temporary postpone of activities and events in educational institutions to a complete closure of schools and universities [30, 31]. Distance learning became the route of education implemented in most countries, and unsurprisingly, enclosing new concerns and challenges for students [3133]. Thus, as a consequence to this major change from the norm, mental health of college students was expected to be affected [31].Anxiety and depression have been reported to be caused by public emergencies including pandemics, affecting the mental health of people, including college students [34, 35]. It has been acknowledged that COVID-19 pandemic significantly affected the educational process, career progression, health and safety of medical students [36]. More concerns have been brought to light regarding medical students' education as a consequence to the impact of COVID-19. The COVID-19 pandemic has had a significant impact on public mental health. Therefore, monitoring and oversight of the population mental health during crises such as a pandemic is an immediate priority. This study aimed to investigate the prevalence and associated predictors of stress, anxiety, and depression in adult population using data from a large population-based study and associated predictors .Comparison of findings with previous population-based studies may help health system managers to design and implement appropriate interventional strategies for health promotion. The aim of this study is to evaluation of prevalence and impact of depression,

anxiety and stress affect the health related quality of life among college students during covid 19 pandemic.

METHODOLOGY

A prospective online based descriptive cross sectional survey was carried out using the information's gathered from college students in Kerala. Study provides the prevalence of depression, anxiety and stress and evaluation of health related quality of students. The study was carried out for a period of 1 month. and have sample size of 200 participants. The data were collected using questionnaires which was comprised of two sections. First part was about demographic and socioeconomic data (age, gender, income, education)and second part of questionnaire comprises of Dass (depression, anxiety and stress scale) was used. Students demographics details, triggering factors, DASS details was collected and analyzed properly and response was recorded. College students with age group between 18 26 years , and students who were willing to participate in the study were included . People under Age group < 18 and > 26 years were excluded.

An online semi-structured questionnaire was developed by using google forms, with a consent form appended to it. The link of the questionnaire was sent through emails, WhatsApp and other social media to the contacts of the investigators. Thus, the link was forwarded to people apart from the first point of contact and so on. On receiving and clicking the link the participants got auto directed to the information about the study and informed consent. After they accept to take the survey they fill up the demographic details. Then a set of several questions appeared sequentially, which the participants were to answer. The collected data was recorded and analyzed using MS excel spreadsheet and statistical process control (spc) method.

DESCRIPTION OF TOOL USED

- **Personal data**: this included age, sex, batch, religion and course.

- **Depression, anxiety and stress scale (dass 21)**

It is a self- rated questionnaire which assesses the severity of the symptoms of depression, anxiety and stress. It contains statements referring to the past week. Each item is rated on a 4-point scale (did not apply to me at all means score of 0, applied to me very much or most of the time means score of 3). Subjects are asked to circle a 0-3 number indicating how much each statement applied to him/her in the last week. Scores for depression, anxiety and stress are calculated by adding the scores for the relevant items. Each subscale is divided into normal, mild, moderate, severe and extremely severe

- **General health questionnaire 28 (ghq 28)**

The ghq-28 was developed by goldberg in 1978. Since then it is translated into many languages. It was developed as a screening tool for detecting those likely to have or to be at risk of developing mental illnesses. It is a 28-item measure of emotional distress. It is divided into four subscales namely, somatic symptoms (items 17); anxiety/insomnia (items 814); social dysfunction (items 1521), and severe depression (items 2228). it can be completed in less than 5 minutes.

STATISTICAL ANALYSIS

All data collected were statistically analyzed and performed all statistical assessments were two tailed and the level of
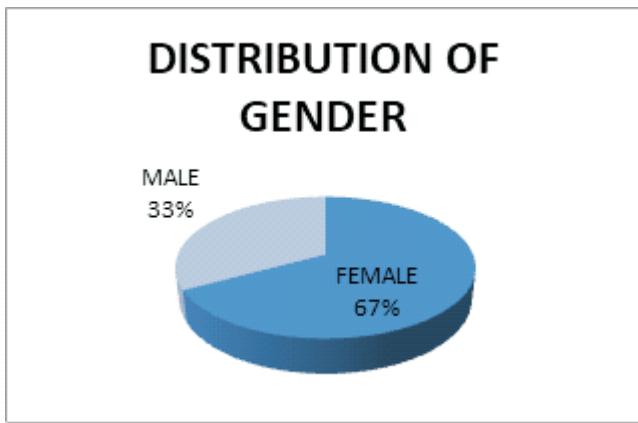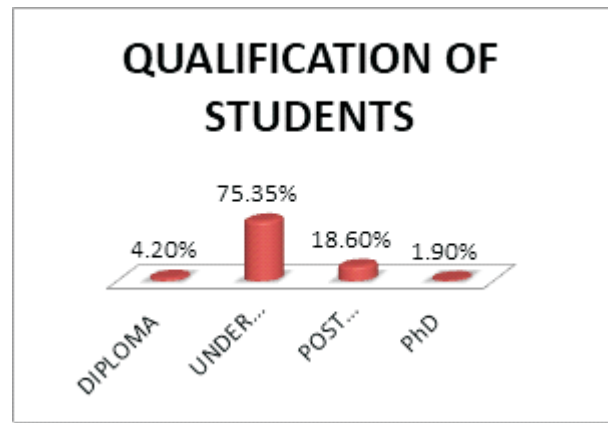
Fig. 1 : Piechart Of distribution

Fig. 2 : Qualification of Students of Gender

significance was set at p < 0.05.

RESULT

A prospective observational questionnaire study was conducted to assess the prevalence and impact of depression, anxiety and stress among college students during covid 19 pandemic.

The data was collected from 200 Participants using questionnaires. The questionnaire consisted of two sections. Section one was about demographic and socioeconomic data (age, gender, income, education) whereas section two was DASS 21 about depression, anxiety and stress of college students during COVID 19.

DEMOGRAPHIC CHARACTERISTICS OF STUDENTS

Demographic data showed most of the students being females 134 (67%) out of 200 participants. ajority of the participants were undergraduate n=182(91%) followed by post graduate students, medicine students (44.7%), single (94%), non-smokers (81.3%),

living in a city type zone (80.0%) and reporting a family income between 500 and 1000 rupees per day. Most participants were not taking any medications 131(65.%), while others were taking over the counter medications (OTCs) including multivitamins, paracetamol, antihistamines, muscle relaxants, NSAIDs and puffers. Only few (6.3%) of the participants reported were taking prescribed medications, including thyroxin, carbamazepine, tramadol, proton pump inhibitors (PPI), probiotics, metformin, and insulin. Most of students are living with their family (76.5%).

EVALUATION OF LIFESTYLE CHANGES

The data was collected from 200 participants. Among 200 participants, Most of students (59.65%) shows good in their Personal Health. A decreased in total past food consumption during lockdown has been reported in 60% of participants.16.5% students didn't consume any fast food during lockdown. Most of students were not Lagging Academically (85.6%) because they Follow Online Platform ,But some students have Difficulty During Online Classes such as Portion Understanding (62.5%), Head Ache (24.2%), Academic stress (25.6), lack Of sources
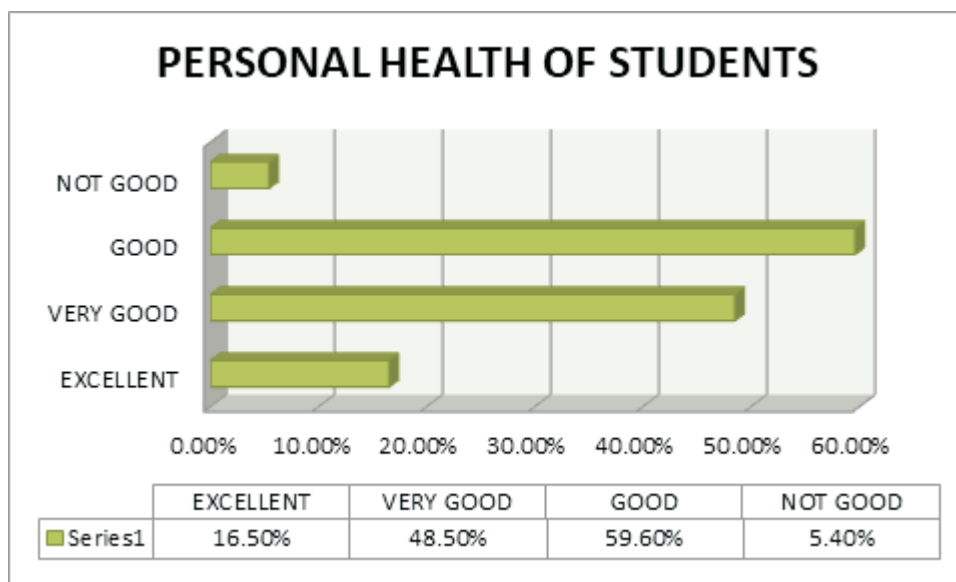

Fig. 3 : Personal health of students

such as mobile Phone, laptop etc (12.4%) and most of students were facing network issues (75.8%). Due to covid pandemic lock down situation, Lifestyle of students changed for students as Relatively Stressful (56.8%) and Free from Stress (12.5%). Results concerning COVID-19 pandemic period and participants' lifestyle, most participants reported to drink less than 2 cups of coffee a day (48.7%). Many (78.4%) reported a change in their sleeping pattern, with around 40.0% reported to sleep 6 to 8 hours a day and only 32.4% were just sleeping during the night. Most of the students reported that none of their family members was diagnosed with anxiety and/or depression (80.8%); only 5.0% of them reported to have a family member from both their parental sides previously diagnosed with anxiety and/or depression.

Assessment of students depression

When students were asked about enjoying the things they used to enjoy previously, only 42.2% reported not to feel the same enjoyment 'quite so much'. Only half of the students (50.4%) reported to be able to laugh and see the funny side of things 'as much as they always could'. A different insight into participants' feelings revealed that only 42.8% of them 'sometimes' felt cheerful, while others 'not often/not at all' did they feel cheerful (24.2%, 13.8% respectively).With regards to feeling slowed down, 42.2% reported 'sometimes' feeling slowed down, while others reported to 'very often/nearly all the time' felt slowed down (26.9%, 17.6% respectively). Although young in age, 26.4% of the students lost interest in their appearance during the COVID-10 pandemic period. Others reported 'I may not take quite as much care as I should (27.3%) and 'I may not take quite as much care (27.8%).

With regards to looking forward with enjoyment to things, only 11.1% reported they 'hardly did that at all' during the pandemic; 20.0% answered with doing that 'definitely less than they used to' (35.8%). Enjoying a good book/radio/TV program by participants' showed that 37.6% of them only 'sometimes experienced enjoyment during the pandemic', while 11.1% 'felt that very seldom'.Looking at these results from another angle, the DASS 21 online survey scales' assessment showed that two third of the participants had normal anxiety and depression scores, while 22.4% of them showed borderline abnormal anxiety scores, while 33.8% showed borderline abnormal depression scores.

Many participants (35.8%) were classified to have abnormal anxiety, while a smaller proportion (31.2%) was classified to have abnormal depression.

Assessment of students anxiety

Assessing students anxiety showed that 36.5% of the participants reported feeling tensed or wounded up from time to time (occasionally), while 26.4% experienced that a lot of the time. Many (34.7%) felt frightened as if something awful was about to happen, but 'not too badly'; while 33.3% felt frightened 'a little' as if something awful was about to happen but it did not worry them. Many (47.8%) had worrying thoughts go through their mind from time to time, while others (26.8%) experienced it a lot of the time.As for sitting at ease and feeling relaxed, only 40.0% responded with 'usually'; others declared that 'not often' did they sit at ease and feel relaxed (32.9%). More than half of the students (54.7%) reported not feeling frightened or to have a feeling like 'butterflies' in their stomach, while many others (23.6%) experienced that fearful feeling 'occasionally'. Only 14.7% of the participants reported feeling restless and felt on the move. Regarding having a sudden feeling of panic attacks, few (9.3%) reported to have experienced that 'often' or 'quite often' (19.8%).

Assessment of students learning process during COVID-19

The responses of the students regarding their learning process during the COVID-19 pandemic are represented in. With regards to the theory courses, few participants ranked the online learning , i.e. during the pandemic, as compared to the regular class to be excellent/very good (27.4%), or good (32.9%), while many thought it was fair or not good (39.8%).With regards to the practical courses, the proportion of students who ranked the online learning as not good was higher as compared to the theory courses (46.7%). As for 'assessments and exams', more than half of the participants ranked their experience as 'good, very good or excellent' (57.8%).

Ranking the learning process in general showed that 45.8% of the participants thought it was 'good or very good or excellent'. The impact of the recent learning process on the participants' relationship with their doctors showed that 52.4% of them
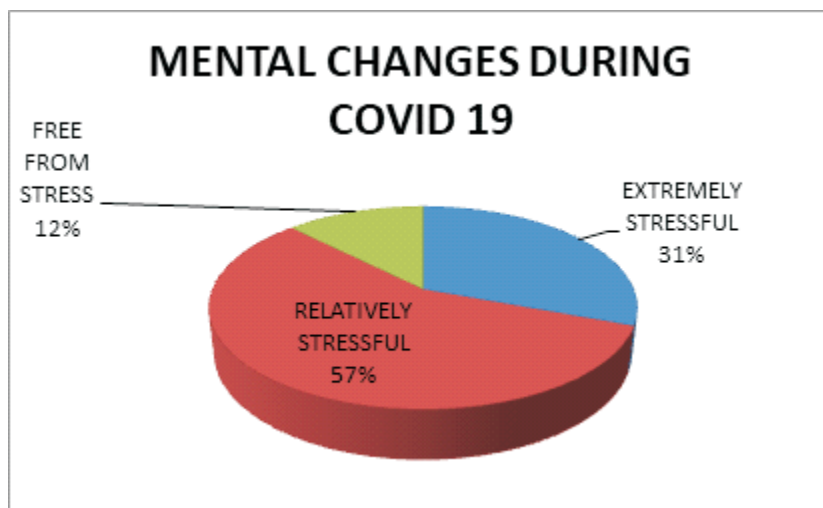
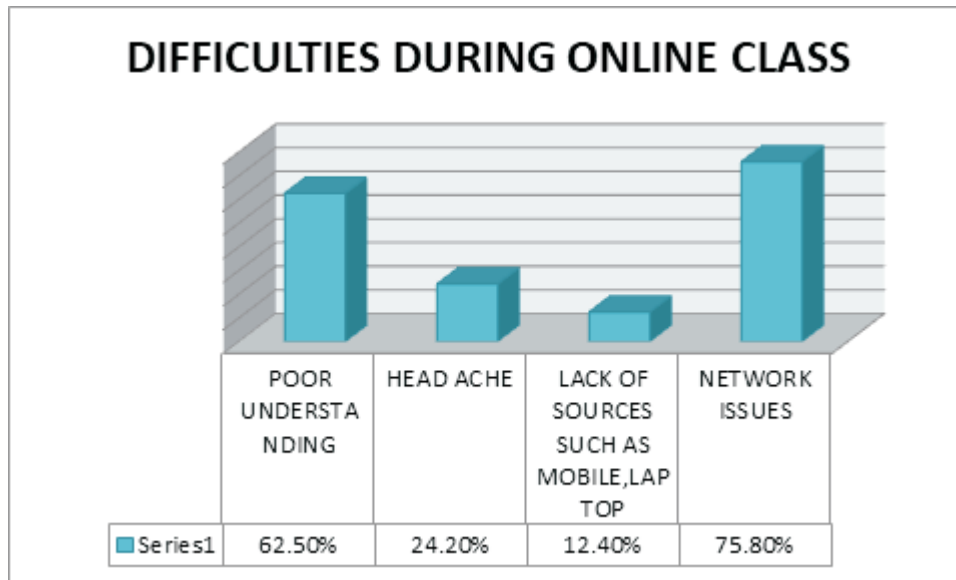

Fig. 4 : Mental changes during Covid 19

Fig. 5 : Difficulties During Online Class

believed it was 'good or very good or excellent'.

DISCUSSION

The purpose of this study was to assess the prevalence and impact of depression, anxiety and stress among college students during covid 19 pandemic. The data was collected from 200 participants. Among 200 participants 33% of responders were male while 67% were female. Specifically, in covid 19 situation the present study examined academic stress and mental health among students and tested the moderating effect of perceived social support on the relationship between study-related stress and Depressive symptoms. From this study, assessment of depression among students showed that Many participants (35.8%) were classified to have abnormal anxiety, while a smaller proportion (31.2%) was classified to have abnormal depression .The other study of Prevalence of anxiety and depression during COVID-19 pandemic among healthcare students in Jordan carried out by Iman A Basheti also indicates that many of participants were having abnormal anxiety and abnormal depression. The respondent of students regarding the learning process during the covid-19 pandemic was not good as compared to the regular classes. In a similar study of Jia liu of online mental health survey in a medical college in china during the covid-19 outbreak, the highest percentage of respondent shows that regular classes was good as compared to online classes. Several studies have been reporting increased levels of stress, anger, anxiety and depression among individuals worldwide due to the COVID-19 pandemic and public quarantine. Several studies have reported the impact of COVID-19 not only on the anxiety and depression levels, but also on the sleep pattern among individuals .Emotional distresses can lead to changes in sleep patterns and sleep difficulties, which have been reported among individuals and students who suffer from higher levels of stress, anxiety and depression. This study confirms these results, as many of the participants (78.4%) reported changes in their sleep patterns. Female students were reported to be affected more severely with regards to their sleeping patterns and their psycho-emotional symptoms compared to males during the COVID-19 pandemic.

This study showed no significant differences between females and males in this regard.

LIMITATIONS

Questionnaires can be only filled by students who can possess smartphones with Internet connectivity.

The time duration of the data collection was a little bit less.

CONCLUSION

The findings of the study suggests that universities need to take measures to prevent, identify and deal with mental health problems among students during large scale stressers.Effective screening procedures would help to identify students who are at high risk of developing mental health problems, and effective interventions could prevent serious consequences. To ensure continues involvement of education processes the university should initiate all-inclusive online based education program to reach out the students leaving in remote areas with or without devices in association with internet service. This study is the first to highpoint that students from numerous disciplines and universities in Kerala report to have symptoms of anxiety and depression during the COVID-19 pandemic. Outcomes show that the learning process during the pandemic has also been affected, with the majority of students reporting dissatisfaction with the online learning process that replaced the face-to-face educational process followed prior to the pandemic in the universities. Results of this study have important international applicability, as the universities worldwide shared comparable changes during the recent pandemic, specifically with regards to the taken measures with regards to turning to distant online healthcare education and training. Findings of this study call onto the policymakers and healthcare educators at the universities to implement different interventions and conduct workshops targeting the mental health of students, and to identify and implement resolutions that aim to optimize the learning process during the pandemic and maintain its efficiency.

CONFLICTS OF INTEREST

The author declares no conflict of interests.

REFERENCE

1. Basnet B, Jaiswal M, Adhikari B Depression among undergraduate medical students. Kathmandu Univ Med J (KUMJ) (2012):10: 56-59.

2. Mohammadi MR, Davidian H, Noorbala AA, Malekafzali H, Naghavi HR, Pouretemad HR, et al. An epidemiological survey of psychiatric disorders in Iran. Clin Pract Epidemiol Ment Health. 2005; 1: 16.

3. Noorbala AA FS, Kamali K, Bagheri Yazdi SA, Hajebi A, Mousavi MT, Akhondzadeh S, Faghihzadeh E, Nouri B. . Mental health survey of the adult population of Iran in 2015. Arch Iran Med. 2017;20(3):128-134.

4. World Health Organization. Mental health action plan 2013-2020. Geneva: WHO; 2013

5. Wahed WYA, Hassan SK. Prevalence and associated factors of stress, anxiety and depression among medical Fayoum University students. Alexandria Journal of Medicine. 2017;53(1):77-84.

6. World Health Organization. Depression and Other Common Mental Disorders. Geneva: Global Health Estimates; 2017.

7. GBD 2015 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 19902015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016;388 (10053): 1545-1602.

8. Association D-AP. Diagnostic and statistical manual of mental disorders. Arlington: American Psychiatric Publishing; 2013.

9. Craske MG SM. Anxiety. Lancet. 2016 ;388(10063):3048-59.

10. Cohen S, Kessler RC, Gordon LU. Strategies for measuring stress in studies of psychiatric and physical disorders. Measuring stress: A guide for health and social scientists. 1995:3-26.

11. Bao Y, Sun Y, Meng S, Shi J, Lu LJTL. 2019-nCoV epidemic: address mental health care to empower society. 2020;395(10224):e37e8.

12. Coronavirus. World Health Organization. Last cited 32020. https://www.who.int/emergencies/diseases/novel-coronavirus-2019.

13. United States Centers for disease control and prevention Coronavirus(COVID-19)-Situation summary. Last cited 32020. https://www.cdc.gov/coronavirus/2019-ncov/index.html.

14. Wang C, Horby PW, Hayden FG, Gao GFJTL. A novel coronavirus outbreak of global health concern. 2020;395(10223):4703. pmid:31986257

15. Russell Clark D M JE, Baillie J Kenneth. Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury. The Lancet 2020;359. https://doi.org/10.1016/S0140-6736(20)30317-2

16. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. The Lancet. 2020;395(10223):497506.

17. Kandel N, Chungong S, Omaar A, Xing J. Health security capacities in the context of COVID-19 outbreak: an analysis of International Health Regulations annual report data from 182 countries. The Lancet. 2020; 395 (10229): 104753. pmid: 32199075

18. The Ministry of Health at the Hashemite Kingdom of Jordan. COVID-19 statistical reportJordan. Last cited 72021. https://corona.moh.gov.jo/en.

19. Rothan HA, Byrareddy SN JJoa. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. 2020:102433. pmid:32113704

20. Day T, Park A, Madras N, Gumel A, Wu JJAJoE. When is quarantine a useful control strategy for emerging infectious diseases? 2006;163(5):47985.

21. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet. 2020;395(10227):91220. pmid: 32112714 Epub 2020 Feb 26.

22. Duan L, Zhu GJT LP. Psychological interventions for people affected by the COVID-19 epidemic. 2020; 7(4):3002. pmid:32085840

23. Pfefferbaum B, North CSJNEJoM. Mental health and the Covid-19 pandemic. 2020.

24. Matsuishi K, Kawazoe A, Imai H, Ito A, Mouri K, Kitamura N, et al. Psychological impact of the pandemic (H1N1) 2009 on general hospital workers in Kobe. 2012;66(4):35360.

25. Bukhari EE, Temsah MH, Aleyadhy AA, Alrabiaa AA, Alhboob AA, Jamal AA, et al. Middle East respiratory syndrome coronavirus (MERS-CoV) outbreak perceptions of risk and stress evaluation in nurses. 2016;10(08):84550.

26. Mak WW, Law RW, Woo J, Cheung FM, Lee DJP, Health. Social support and psychological adjustment to SARS: The mediating role of self-care self-efficacy. 2009;24(2):16174. pmid:20186649

27. Elias H, Ping WS, Abdullah MC. Stress and Academic Achievement among Undergraduate Students in Universiti Putra Malaysia. ProcediaSocial and Behavioral Sciences. 2011;29:64655. https://doi.org/10.1016/j.sbspro.2011.11.288.

28. Mazza C, Ricci E, Biondi S, Colasanti M, Ferracuti S, Napoli C, et al. A nationwide survey of psychological distress among italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. 2020;17(9):3165.

29. Hyland P, Shevlin M, McBride O, Murphy J, Karatzias T, Bentall RP, et al. Anxiety and depression in the Republic of

Ireland during the COVID-19 pandemic. 2020.

30. Billy MJAaS. The Influence of Dynamic Organizations and the Application of Digital Innovations to Educational Institutions in the World during the COVID-19 Pandemic. 2020.

31. Sahu PJC. Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. 2020;12(4).

32. Gewin VJN. Five tips for moving teaching online as COVID-19 takes hold. 2020;580(7802):2956.

33. Al-Mamlaka TV: Launching "Hello Pharmacist" service to get to know the nearest pharmacy. Last cited 32020. https://www.almamlakatv.com/news/.

34. Mei S, Yu J, He B, Li JJM, Society. Psychological investigation of university students in a university in Jilin Province. 2011;24(05):846.

35. Liang L, Ren H, Cao R, Hu Y, Qin Z, Li C, et al. The effect of COVID-19 on youth mental health. 2020:112.

36. Ferrel MN, Ryan JJ JC. The impact of COVID-19 on medical education. 2020;12(3). pmid:32368424