## Asian Journal of Individual and Organizational Behavior

# Experiencing Loneliness among Students at the Faculty of Science and Arts during the Covid-19 Pandemic

**Nawal Hamid Mohammed Hamid[1]\***

1.  Department of Education, Faculty of Science and Arts, Northern Border University, Rafha Campus, KSA.

**Abstract**

This study focuses on assessing the degree of loneliness among students at the Faculty of Science and Arts in Rafha, Northern Border University, KSA, during the COVID-19 pandemic and examines the impact of gender and marital status on this experience. The researcher used a descriptive approach, creating a preliminary data form and using the UCLA Loneliness Scale to collect data. With a total student population of 1160, the sample consisted of 365 individuals. The data was collected online during the first semester of the 2020-2021 academic year. The findings indicated that, overall, the level of loneliness among students was relatively low during the pandemic. Notably, significant gender differences were observed, with female students (mean = 191.59) reporting higher levels of loneliness than their male counterparts (mean = 153.82). However, marital status did not appear to have a significant impact on the level of loneliness.

**Keywords:** COVID-19, loneliness, Novel coronavirus, Students of the faculty.

## Introduction

In January 2020, the World Health Organization (WHO) recognized COVID-19 as a Public Health Emergency of International Concern, acknowledging the high likelihood of the virus spreading worldwide [1, 2]. By March of the same year, the pandemic status was officially declared. The global crisis has resulted in significant stress across populations worldwide [3].
During times of pandemics, attention must be directed towards not only the physical health of individuals but also the mental well-being of those affected. The fear of virus transmission has the potential to weaken social ties within communities [4].
To curb the virus's spread, several interventions were enforced, including social distancing. Additionally, those infected or exposed to COVID-19 were required to isolate, and a broader social distancing policy was enacted to prevent further transmission [5]. While these measures, particularly lockdowns, helped reduce the spread of the virus, they also presented substantial challenges to public mental health and well-being [6]. Loneliness, as a serious mental health concern, has only intensified during the pandemic, and it is essential for governments, health leaders, and policymakers to consider its long-term consequences as part of recovery strategies [7].
Across the globe, mental health services were unprepared for the effects brought on by the pandemic [8]. Consequently, loneliness became a pressing public health challenge, with growing concerns that the lockdown measures would exacerbate

the problem [9]. Research by Brodeur *et al.* [6] also pointed to significant negative effects of lockdowns on mental health, highlighting the need for targeted interventions.

*Research Problem*

The onset of the COVID-19 pandemic led to the implementation of several global restrictions aimed at containing the virus's spread, such as lockdowns, quarantine protocols, social distancing, e-learning, and remote working. While these measures helped in controlling the virus, they inadvertently contributed to an increase in feelings of loneliness. Hwang *et al.* [5] noted that although quarantine and social distancing are essential to limiting the virus's transmission, they also result in heightened social isolation and loneliness, which have detrimental effects on both physical and mental well-being. The broad societal consequences of these effects have posed significant challenges. Furthermore, there are rising concerns that the lockdown and stay-at-home orders may lead to a surge in loneliness, a growing public health concern. However, the specific characteristics of loneliness during the pandemic and the risk factors involved are not yet fully understood [10]. Research by Killgore *et al.* [7] revealed that an increase in loneliness is strongly associated with depression and suicidal thoughts. Algeeg [11] also indicated that mental health issues, including loneliness and depression, are closely linked. Additionally, Bu *et al.* [9] found that students, in particular, are more vulnerable to loneliness during lockdowns, and Kecojevic *et al.* [12] highlighted the profound impact of the pandemic on college students' mental health.

Given these observations, it is crucial to examine the level of loneliness experienced by students during the COVID-19 crisis. The current study focuses on understanding this issue among students and aims to answer the following research questions:

1. What is the level of loneliness among students of the Faculty of Science and Arts in Rafha during the COVID-19 outbreak?
2. Are there significant differences in loneliness levels among students based on gender and marital status during the pandemic?

*Research Objectives*

This study aims to:

3. Assess the level of loneliness among students of the Faculty of Science and Arts in Rafha during the COVID-19 pandemic.
4. Investigate whether there are differences in loneliness levels based on gender and marital status during the pandemic.

*Research Significance*

This study is significant because it addresses the growing issue of loneliness among university students during the COVID-19 outbreak, a topic that has become increasingly critical. Zhang *et al*. [13] pointed out that the negative impacts on mental health have not received adequate attention, nor have effective interventions been explored to mitigate these effects. Additionally, Holmes *et al.* [14] called for more research into how to protect vulnerable groups from the mental health consequences of pandemics. Moreover, this research is particularly relevant because there is a limited body of work that focuses on loneliness among university students in Arab countries during the COVID-19 pandemic.

*Research Terminologies*

*Loneliness*

Loneliness refers to a distressing emotional state that arises when a person perceives their social connections as lacking in either depth or number [15].

*Students of the Faculty*

This term denotes individuals enrolled at the Faculty of Science and Arts in Rafha, Northern Border University, KSA.

*Novel Coronavirus (COVID-19)*

The World Health Organization classified the novel coronavirus as SARS-CoV-2, with the disease it causes named COVID-19. The abbreviation stands for "CO" (corona), "VI" (virus), and "D" (disease) [4].

*Theoretical Context and Prior Research*

The COVID-19 pandemic has presented an unprecedented global health crisis, necessitating widespread behavioral adjustments while exerting profound psychological pressures on populations [16]. The unexpected emergence of the virus posed serious challenges to healthcare systems worldwide. In response, authorities enforced various containment strategies, including social distancing, remote work, and temporary shutdowns of businesses. Additionally, educational institutions were required to shift from traditional classroom settings to online learning platforms [17, 18].

The pandemic's impact has extended across economic, social, and psychological domains, affecting individuals' well-being in significant ways. Quarantine measures and movement restrictions have led to heightened psychological distress, with a

major concern being the limitations placed on social interactions. These constraints have disrupted daily social exchanges, which play a crucial role in human well-being [19].

## Mental Health Effects of COVID-19

The COVID-19 crisis is unlike any previous global health emergency due to the scarcity of immediate treatment options. Its rapid transmission has strained economies and intensified public anxiety. Addressing its mental health implications requires the development of proactive strategies to mitigate its long-term psychological effects [20]. Ozamiz-Etxebarria *et al*. [21] emphasized the necessity of continued studies to explore effective interventions that can help prevent and manage mental health issues arising from the pandemic.

There is strong evidence linking loneliness to negative psychological outcomes [15]. Heinrich and Gullone [22] argued that fulfilling social relationships is fundamental to mental and physical well-being. They advocated for prioritizing interventions that reduce social disconnection as part of psychological care.

## Understanding Loneliness

Loneliness is characterized as an individual's perception of a deficiency in their social relationships, rather than the mere state of being alone [23]. It is a subjective experience that varies between individuals and is often associated with low self-esteem and increased vulnerability to depression [24]. Research indicates that loneliness can pose significant health risks [25].

Concerns over rising loneliness levels have intensified globally [26, 27]. The COVID-19 pandemic has exacerbated this issue, with social isolation contributing to increasing levels of loneliness. The continued spread of the virus presents ongoing challenges, making this a pressing public health concern.

## Loneliness Amid the COVID-19 Pandemic

A sense of isolation can pose significant risks to emotional well-being and personal development. Although its link to mental health has been well recognized, strategies for mitigating loneliness—particularly during global crises like the COVID-19 pandemic—remain underexplored [28].

The unprecedented spread of COVID-19 led to strict lockdown measures worldwide, prompting widespread changes in daily life. This situation spurred extensive research into the prevalence and impact of loneliness during the pandemic [7, 9, 10, 29-34].

A significant increase in loneliness was reported in many studies. Bu *et al*. [10] identified four distinct groups categorized by their baseline loneliness levels, while Bu *et al*. [9] noted that risk factors for loneliness remained largely unchanged before and during the pandemic. Interestingly, Luchetti *et al.* [33] found that older adults reported lower levels of loneliness than younger individuals. Conversely, women and younger adults were more likely to experience loneliness [9, 10, 32]. Research also indicated that strong social connections—such as being married, living with others, and receiving high levels of social support—acted as protective factors [29]. Moreover, González-Sanguino *et al*. [35] determined that spiritual well-being significantly reduced loneliness, while loneliness itself strongly correlated with conditions like depression, anxiety, and post-traumatic stress disorder.

According to Bu *et al.* [10], loneliness risk factors during the pandemic were similar to those observed in earlier studies. Higher vulnerability was seen among young adults, women, individuals with lower income or education, those unemployed, city residents, and people living alone. Individuals aged 18–30, low-income groups, and adults living alone were particularly at risk compared to pre-pandemic times. Additionally, being a student emerged as a significant risk factor during lockdown periods. Groarke *et al.* [29] reinforced the role of social support in mitigating loneliness, emphasizing that marriage, cohabitation, and living with multiple adults provided some degree of protection. Luchetti *et al*. [33] examined how loneliness levels fluctuated in response to social restrictions and found that although older adults generally reported less loneliness than younger individuals, their loneliness increased during the peak of the outbreak.

## Studies on University Students

Several studies have assessed how the pandemic affected loneliness among university students. Wilczewski *et al*. [36] conducted research on international students at the University of Warsaw in Poland. Their study included 357 students from 62 different countries, with 236 residing in Poland and 121 in their home countries. Their findings showed that students in both groups experienced heightened loneliness during periods of self-isolation.

Labrague *et al*. [37] investigated loneliness levels among college students in the Philippines using a cross-sectional approach with 303 participants. Their research concluded that loneliness was prevalent among students during the pandemic, but factors such as resilience, coping mechanisms, and social support played a role in reducing its impact.

Al-Fiqi and Aboel-Fetouh [38] explored various psychological challenges, including loneliness, depression, stress, compulsive behaviors, boredom, eating and sleep disorders, and social phobia, among Egyptian university students. Their

study, which followed a descriptive-analytical methodology, found that boredom was the most frequently reported issue, while other psychological challenges were experienced at moderate levels. The study also highlighted significant gender- and age-related differences in psychological distress, though environmental factors did not appear to have a major influence.

Elmer *et al.* [39] analyzed changes in social interactions and mental health among Swiss undergraduate students both before and during the pandemic. Using longitudinal data collected since 2018, they compared 212 students who experienced the pandemic with 54 students from an earlier cohort. Their analysis revealed a marked increase in stress, loneliness, anxiety, and depression among students who faced the pandemic compared to pre-pandemic levels.

*Comparison with Prior Research*

The present study aligns with research by Wilczewski *et al.* [36], Labrague *et al*. [37], and Al-Fiqi and Aboel-Fetouh [38], all of which examined the impact of loneliness on university students during the pandemic. However, this study stands apart due to its distinct sample population. Prior studies predominantly focused on students from Poland, Switzerland, the Philippines, and Egypt. Moreover, no previous studies have specifically analyzed differences in loneliness among university students based on gender and marital status during the COVID-19 crisis.

*Research Hypotheses*

5. Students at the Faculty of Science and Arts experienced a heightened level of loneliness during the Novel Coronavirus outbreak.

6. Variations in loneliness levels during the Novel Coronavirus outbreak exist among students at the Faculty of Science and Arts based on gender.

7. Differences in loneliness levels during the Novel Coronavirus outbreak are observed among students at the Faculty of Science and Arts concerning marital status.

## Materials and Methods

This study employed a descriptive research design, as it effectively captures and analyzes real-world data to address the research objectives. The study aimed to assess loneliness levels among students during the Novel Coronavirus outbreak and explore variations based on gender and marital status. The descriptive approach was chosen due to its ability to provide an accurate representation of the phenomenon as it naturally occurs.

*Population and Sample*

The research population included students from the Faculty of Science and Arts at the Rafha campus of Northern Border University during the first semester of the 2020-2021 academic year. The total population comprised 1,160 students, with 383 males and 777 females. A total of 365 students participated in the study by submitting electronic responses, making up 31.47% of the entire population. Data collection was conducted in November and December 2020.

*Sample Characteristics*

**Table 1** provides a breakdown of the study sample based on marital status and gender.

**Table 1.** Study sample descriptions according to gender and marital status variables

| Descriptions variables | Levels | Frequency | % |
|---|---|---|---|
| Gender | Males | 83 | 22.7 |
| | Females | 282 | 77.3 |
| | Total | 365 | 100.0 |
| Marital status | Married | 45 | 12.3 |
| | Single | 320 | 87.7 |
| | Total | 365 | 100.0 |

*Research Tools*

The following tools were employed in this study:

1. A preliminary data form was created by the researcher.

2. The UCLA Loneliness scale was originally developed by Russell *et al.* [40] and later translated and adapted for the Saudi context by Khider and Al-Shennawi, as mentioned by Al-Asimi [41]. The rationale for using this scale includes:

   1. The scale's robust psychometric properties and excellent reliability, with Cronbach's alpha values of 0.94 (Russell), 0.87 (Khider & Al-Shennawi), and 0.86 (Al-Asimi), demonstrating high internal consistency through Split-half reliability.
   2. Its previous application in measuring loneliness among university students.

3.  Its standardization within Saudi Arabia makes it relevant to the study's context.

The scale includes 20 items, where responses are chosen from four options: never, rarely, sometimes, and always. Positive items are scored in a descending order (4, 3, 2, 1), and negative items in an ascending order (1, 2, 3, 4).

*Scale Reliability and Validity in This Study*

*Pilot Testing for the Loneliness Scale:*
To evaluate the reliability and validity of the scale, a pilot study was conducted with a randomly selected sample of 40 students from the target population. Following the data collection, the researcher undertook the following procedures:

*A – Internal Consistency Check*
Pearson correlation coefficients were calculated to assess the internal consistency of the items about the total score on the Loneliness Scale. The results from these calculations are provided in **Table 2**.

**Table 2.** Person-corrected item-total Person correlation coefficients for items of the Loneliness Scale (n = 40).

| Item No. | Item-total correlation | Probability (significant) | Item No. | Item-total correlation | Probability (significant) |
|---|---|---|---|---|---|
| 1 | 0.730 | 0.001 | 11 | 0.704 | 0.001 |
| 2 | 0.299 | 0.031 | 12 | 0.702 | 0.001 |
| 3 | 0.462 | 0.001 | 13 | 0.408 | 0.004 |
| 4 | 0.724 | 0.001 | 14 | 0.716 | 0.001 |
| 5 | 0.549 | 0.001 | 15 | 0.670 | 0.001 |
| 6 | 0.715 | 0.001 | 16 | 0.399 | 0.005 |
| 7 | 0.705 | 0.001 | 17 | 0.318 | 0.023 |
| 8 | 0.622 | 0.001 | 18 | 0.635 | 0.001 |
| 9 | 0.499 | 0.001 | 19 | 0.608 | 0.001 |
| 10 | 0.818 | 0.001 | 20 | 0.587 | 0.001 |

From **Table 2**, it can be observed that all correlation coefficients were positive, with the majority reaching statistical significance at the 0.001 level, while the remaining coefficients were significant at the 0.05 level. These findings suggest that all items within the scale demonstrate strong internal consistency when compared to the overall score of the scale.

*B – Reliability Coefficients*
To assess the reliability of the total loneliness scores, the researcher calculated both Cronbach's Alpha and Spearman-Brown coefficients. The results from these calculations are presented in **Table 3**.

**Table 3.** Results of Cronbach's alpha and Spearman-Brown reliability coefficients Loneliness total scores

|  | No of items | Reliability coefficients | |
|---|---|---|---|
|  |  | **Alpha** | **Spearman-brown** |
| Loneliness total scores | 20 | 0.902 | 0.937 |

# Results and Discussion

*Hypothesis 1*
To assess the first hypothesis, which asserts that "students at the Faculty of Science and Arts experienced a high level of loneliness during the Novel Coronavirus outbreak," a one-sample t-test was applied. The subsequent table displays the outcomes of these calculations.

**Table 4.** Results of the one-sample T-Test to determine the level of loneliness among the students of the Faculty of Science and Arts during the outbreak of the novel coronavirus (n = 365)

| Variable | Mean | SD | Test value[*] | Cal. (t) value | P. (Sig) | Statistical inference |
|---|---|---|---|---|---|---|
| Loneliness total cores | 42.65 | 12.84 | 50 | -10.929 | .001 | Below the average |

(*) The test value is the theoretical mean for the theoretical scores.

Based on the data presented in **Table 4**, the calculated mean score is 42.65, and the t-value is -10.929, with a probability of 0.001. These findings indicate that, on average, students at the Faculty of Science and Arts experienced a lower level of loneliness during the COVID-19 outbreak.

The outcome of the first hypothesis aligns partially with the findings from Al-Fiqi and Aboel-Fetouh [38] which reported moderate loneliness among students. However, Labrague *et al.* [37] found that loneliness was more pronounced among students during the pandemic. This variation may stem from differences in sample populations. Moreover, Wilczewski *et al.* [36] observed that loneliness levels increased among students in isolation.

Although loneliness was below average among students, the importance of psychological support remains critical to protect their mental health. Previous studies confirm an increase in loneliness during the pandemic, and being a student itself has been identified as a contributing factor. The researcher agrees with Williams *et al.* [42] that immediate and effective interventions are needed to address this widespread issue. Ozamiz-Etxebarria *et al.* [21] also highlighted the significance of closely monitoring mental health to prevent and address emerging psychological conditions in light of the ongoing global crisis.

*Hypothesis 2*

To evaluate the second hypothesis, which proposes "significant gender-based differences in loneliness levels among students of the Faculty of Science and Arts during the COVID-19 outbreak," the researcher utilized the Mann-Whitney test. The findings of this test are displayed in **Table 5**.

**Table 5.** The results of the Mann-Whitney test to determine the significance of differences among the students of the Faculty of Science and Art in loneliness during the outbreak of Novel Coronavirus according to gender variable

| Variable | Gender | Mean of ranks | U value | Cal. (z) value | Sig. level | Statistical inference |
|---|---|---|---|---|---|---|
| Loneliness total cores | Males | 153.82 | 9281 | 2.868 | 0.004 | The female's mean is greater |
| | Females | 191.59 | | | | |

From Table 5, it can be seen that male students have an average score of 153.82, while female students have a higher mean of 191.59. The calculated z-value stands at 2.868, with a significance level of 0.004, showing a statistically significant difference. These findings suggest that there are notable differences in loneliness levels between male and female students at the Faculty of Science and Arts during the COVID-19 pandemic, with female students experiencing higher loneliness than male students.

Unlike studies by Al-Fiqi and Aboel-Fetouh [38], Labrague *et al.* [37], and Wilczewski *et al.* [36], which did not explore gender-related variations in loneliness, this study adds a unique contribution by investigating such differences. The results align with other research, including Bu *et al.* [10], Li and Wang [32], Bu *et al.* [9], and Rodríguez-Rey *et al.* [43], which found that women were more prone to experiencing loneliness during the pandemic. The researcher suggests that more studies are needed to examine the factors contributing to the increased loneliness among female students. Furthermore, ensuring access to psychological support for students during the pandemic is essential to mitigating its negative impact on their mental health.

*Hypothesis 3*

For hypothesis (3), which suggests "significant differences in loneliness among students based on marital status during the COVID-19 pandemic," the researcher used the Mann-Whitney test. The results of this test are shown in **Table 6**.

**Table 6.** The results of the Mann-Whitney test to determine the significance of differences among the students of the Faculty of Science and Art in loneliness during the outbreak of novel coronavirus according to the marital status variable

| Variable | Marital status | Mean of ranks | U value | Cal. (z) value | Sig. level | Statistical inference |
|---|---|---|---|---|---|---|
| Loneliness total cores | Married | 183.97 | 7157 | 0.066 | 0.474 | The difference isn't significant |
| | Single | 182.86 | | | | |

Table 6 indicates that married students have an average score of 183.97, while single students have an average score of 182.86. The computed z-value is 0.066, with a significance level of 0.474, showing no notable difference. This implies that marital status does not significantly affect the levels of loneliness experienced by students at the Faculty of Science and Arts during the COVID-19 pandemic.

This study stands out, as earlier research by Al-Fiqi and Aboel-Fetouh [38], Labrague *et al.* [37], and Wilczewski *et al.* [36] did not examine the impact of marital status on loneliness during the pandemic. Groarke *et al.* [29] highlighted the role of social support, like being married, in reducing loneliness, while Gubrium [44] and Stack [45] found that loneliness is less common among married individuals. Given the exceptional nature of the COVID-19 pandemic, the researcher believes further investigation is needed.

In general, the researcher aligns with Giallonardo *et al.* [8] in emphasizing the importance of understanding how the new stresses of the pandemic are impacting mental health, to inform the development of effective interventions for both the general public and vulnerable groups.

## Conclusion

The primary objective of the research was to assess the extent of loneliness among students at the Faculty of Science and Arts, Rafha campus, Northern Border University, KSA, during the Novel Coronavirus outbreak, and examine potential differences in loneliness based on marital status and gender. A descriptive approach was employed for this study, with data gathered through electronic means. Statistical analyses were applied to test the hypotheses, revealing that the overall loneliness level among students was below average during the pandemic. The study found that female students exhibited higher levels of loneliness than their male counterparts, while no significant differences were found based on marital status.

In light of these findings, the researcher offers several recommendations, emphasizing the importance of adopting strategies to safeguard students' mental well-being and alleviate the adverse effects of the COVID-19 pandemic. Additionally, proposals for future research studies are provided.

Based on the research outcomes, the following recommendations are suggested:

1. Establishing online psychological counseling services for students during the ongoing pandemic.

2. Offering online training programs aimed at supporting student's mental health and mitigating the negative psychological effects of the pandemic as the global spread of the virus continues.

3. Giving greater focus to addressing the mental health challenges faced by female university students during the pandemic.

In light of the research results, the following recommendations are suggested:

8. Initiating a study focused on the mental health conditions related to loneliness in female university students.

9. Researching to assess the impact of loneliness on depression among female students due to their correlation.

10. Extending the research to other university faculties to conduct similar studies during the pandemic.

11. Exploring the differences in loneliness levels between students who have contracted COVID-19 and those who have not, to identify which group requires more support.

## References

1. Albureikan MO. COVID-19 Outbreak in Terms of Viral Transmission and Disease Biocontrol by Healthy Microbiome. Int J Pharm Phytopharm Res. 2020; 10(3): 139-46.

2. Damanhouri ZA, Alkreathy HM, Ali AS, Karim S. The potential role of Fluoroquinolones in the management of Covid-19 a rapid review. J Adv Pharm Educ Res. 2021; 11(1): 128-34.

3. World Health Organization. Mental health and psychosocial considerations during the COVID-19 outbreak, 18 March 2020 (No. WHO/2019-nCoV/Mental Health/2020.1). World Health Organization; 2020.

4. Johns Hopkins Aramco Healthcare. Mental Health Tool Kit; 2020. Available from: https://www.jhah.com/en/new-coronavirus/mental-health-tool-kit

5. Hwang TJ, Rabheru K, Peisah C, Reichman W, Ikeda M. Loneliness and social isolation during the COVID-19 pandemic. Int Psychogeriatr. 2020; 32(10): 1217-20. doi:10.1017/S1041610220000988.

6. Brodeur A, Clark AE, Fleche S, Powdthavee N. Assessing the impact of the coronavirus lockdown on unhappiness, loneliness, and boredom using Google Trends. arXiv preprint arXiv:2004.12129. 2020. Available from: https://arxiv.org/abs/2004.12129

7. Killgore WD, Cloonan SA, Taylor EC, Lucas DA, Dailey NS. Loneliness during the first half-year of COVID-19 Lockdowns. Psychiatry Res. 2020; 294: 113551.

8.  Giallonardo V, Sampogna G, Del Vecchio V, Luciano M, Albert U, Carmassi C, et al. The impact of quarantine and physical distancing following COVID-19 on mental health: study protocol of a multicentric Italian population trial. Front Psychiatry, 2020; 11: 533.  doi:10.3389/fpsyt.2020.00533

9.  Bu F, Steptoe A, Fancourt D. Who is lonely in lockdown? Cross-cohort analyses of predictors of loneliness before and during the COVID-19 pandemic. Pub Health. 2020; 186: 31-4. doi:10.1016/j.puhe.2020.06.036

10. Bu F, Steptoe A, Fancourt D. Loneliness during a strict lockdown: Trajectories and predictors during the COVID-19 pandemic in 38,217 United Kingdom adults. Soc Sci Med. 2020; 265: 113521.

11. Algeeg NS. Loneliness among students of the Faculty of Fine Arts at Al-Aqsa University in Gaza. Journal of the Islamic University - Humanitarian Studies Series, 2011; 19: 597-618.

12. Kecojevic A, Basch CH, Sullivan M, Davi NK. The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study. PloS one.  2020; 15(9): e0239696.  doi:10.1371/journal.pone.0239696.

13. Zhang Y, Zhang H, Ma X, Di Q. Mental Health Problems during the COVID-19 Pandemics and the Mitigation Effects of Exercise: A Longitudinal Study of College Students in China. Int J Environ Res Public Health. 2020; 17(10): 3722.

14. Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Lancet Psychiat. 2020; 7(6): 547-60. doi:10.1016/S2215-0366(20)30168-1

15. Perlman D, Peplau LA, Goldston SE. Loneliness research: A survey of empirical findings. Preventing the Harmful Consequences of Severe and Persistent Loneliness, 1984; 13-46.

16. Van Bavel JJ, Baicker K, Boggio PS, Capraro V, Cichocka A, Cikara M, et al. Using social and behavioural science to support COVID-19 pandemic response. Nat Hum Behav. 2020; 4(5): 460-71. doi:10.31234/osf.io/y38m9

17. Ariantabar H, Rezaei P. Survey of geomorphic and morphotectonic indixes to assessment active tectonics in Khorram Abad river. World J. Environ Bio. 2020; 9(3-2020): 10-20.

18. Bianchi S, Gatto R, Fabiani L. Effects of the SARS-CoV-2 pandemic on medical education in Italy: considerations and tips. Appl Sci. 2020; 10(7): 2357.

19. Alasmari SSM. Threats to Mental Health Related to Home Quarantine following the Novel Coronavirus, COVID-19. Arab J Secur Stud, 2020; 36(2): 265-78. Available from: https://nauss.edu.sa, https://journals.nauss.edu.sa/index.php/ajsshe

20. Castro-de-Araujo LFS, Machado DB. Impact of COVID-19 on mental health in a Low and Middle-Income Country. Ciênc saúde coletiva. 2020; 25: 2457-60.  doi:10.1590/1413-81232020256.1.10932020

21. Ozamiz-Etxebarria N, Idoiaga Mondragon N, Dosil Santamaría M, Picaza Gorrotxategi M. Psychological symptoms during the two stages of lockdown in response to the COVID-19 outbreak: an investigation in a sample of citizens in Northern Spain. Front psychol. 2020; 11: 1491.

22. Heinrich LM, Gullone E. The clinical significance of loneliness: A literature review. Clin  Psychol  Rev, 2006;  26(6): 695-718.

23. Heu LC, Hansen N, van Zomeren M, Levy A, Ivanova TT, Gangadhar A, Radwan M. Loneliness across cultures with different levels of social embeddedness: A qualitative study. Pers Relatsh. 2021; 28(2): 379- 405. doi:10.1111/pere.12367

24. Bekhet AK, Zauszniewski JA, Nakhla W E. Loneliness: a concept analysis. In Nursing Forum (Vol. 43, No. 4, pp. 207-213). Malden, USA: Blackwell Publishing Inc.; 2008.

25. Geller J, Janson P, McGovern E, Valdini A. Loneliness as a predictor of hospital emergency department use. J Fam Pract. 1999; 48(10): 801-04.

26. Fried L, Prohaska T, Burholt V, Burns A, Golden J, Hawkley L, et al. (2020). A unified approach to loneliness. Lancet, 2020; 395(10218): 114. Available from: https://bura.brunel.ac.uk/bitstream/2438/20207/3/FullText.pdf

27. Patkar MS, Prasad RR, Rahate KS, Shetye PA, Sinha RA, Chitnis KS. Extraction and characterization of starch from tubers and its application as bioplastic. World J Environ Bio. 2020; 9(3-2020): 1-5.

28. Arslan G. Loneliness, college belongingness, subjective vitality, and psychological adjustment during coronavirus pandemic: Development of the College Belongingness Questionnaire. J Posit Sch Psychol. 2021; 5(1): 17-31.

29. Groarke JM, Berry E, Graham-Wisener L, McKenna-Plumley PE, McGlinchey E, Armour C. Loneliness in the UK during the COVID-19 pandemic: Cross-sectional results from the COVID-19 Psychological Wellbeing Study. PloS one. 2020; 15(9): e0239698.

30. Killgore WD, Cloonan SA, Taylor EC, Miller MA, Dailey NS. Three months of loneliness during the COVID-19 lockdown. Psychiatry Res. 2020; 293: 113392.

31. Killgore WD, Cloonan SA, Taylor EC, Dailey NS. Loneliness: A signature mental health concern in the era of COVID-19. Psychiatry Res. 2020; 290: 113117.

32. Li LZ, Wang S. Prevalence and predictors of general psychiatric disorders and loneliness during COVID-19 in the United Kingdom. Psychiatry Res. 2020; 291: 113267.

33. Luchetti M, Lee JH, Aschwanden D, Sesker A, Strickhouser JE, Terracciano A, et al. The trajectory of loneliness in response to COVID-19. Am Psychol. 2020; 75(7): 897-908. doi:10.1037/amp0000690

34. Dahlberg L. Loneliness during the COVID-19 pandemic. Aging Ment Health. 2021; 25(7): 1161-64. doi:10.1080/13607863.2021.1875195

35. González-Sanguino C, Ausín B, Castellanos MÁ, Saiz J, López-Gómez A, Ugidos C, Muñoz M. Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. Brain Behav Immun. 2020; 87: 172-6.  doi:10.1016/j.bbi.2020.05.040

36. Wilczewski M, Gorbaniuk O, Giuri P. The Psychological and Academic Effects of Studying from the Home and Host Country During the COVID-19 Pandemic. Front psychol. 2021; 12: 644096.  doi:10.3389/fpsyg.2021.644096

37. Labrague LJ, De los Santos JAA, Falguera C. Social and emotional loneliness among college students during the COVID-19 pandemic: the predictive role of coping behaviors, social support, and personal resilience. Res Sq, 2020; 1-15. doi:10.21203/rs.3.rs-93878/v2

38. Al-Fiqi AI, Aboel-Fetouh MK. Psychological problems caused by Coronavirus Covid-19 among a sample of university students in Egypt. Edu J. 2020; 74. doi:10.12816/ED USOHAG. 2020

39. Elmer T, Mepham K, Stadtfeld C. Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. Plos one. 2020; 15(7): e0236337.

40. Russell D, Peplau LA,  Cutrona CE. The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. J Pers Soc Psychol. 1980; 39(3): 472-80. file:///C:/Users/acer/Downloads/TheRevisedUCLALonelinessScale%20(2).pdf

41. Al-Asimi R. Feeling of loneliness and its relationship to depression, isolation, and social support, a diagnostic study on a sample of Damascus University students. Journal of Arab Universities' Association for Education and Psychology, 2009; 7(2): 208-51.

42. Williams CY, Townson AT, Kapur M, Ferreira AF, Nunn R, Galante J, et al. Interventions to reduce social isolation and loneliness during COVID-19 physical distancing measures: A rapid systematic review. PloS one. 2021; 16(2): e0247139.

43. Rodríguez-Rey R, Garrido-Hernansaiz H, Collado S. Psychological impact and associated factors during the initial stage of the coronavirus (COVID-19) pandemic among the general population in Spain. Front psychol. 2020; 11: 1540.

44. Gubrium JF. Marital desolation and the evaluation of everyday life in old age. J Marriage Fam. 1974; 36(1): 107-13. doi:10.2307/351000. Available from: https://www.jstor.org/stable/351000

45. Stack S. Marriage, Family and Loneliness: A Cross-National Study. Sociol Perspect. 1998; 41(2): 415-32. doi:10.2307/1389484. https://www.jstor.org/stable/1389484