



Evaluation of Prevalence of Fatigue among Jordanian University Students and its Relation to COVID-19 Quarantine

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Abstract

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BACKGROUND: The novel coronavirus outbreak (COVID-19) presented an opportunity to conduct an online survey to research the psychological fatigue as a mental health issue among the students of Jadara University, Jordan.

AIM: This study aimed at assessing prevalence of fatigue in the student population of Jadara University (Irbid, Jordan) and its association with COVID-19 quarantine.

METHODOLOGY: A cross-sectional study was conducted in Jadara University during a period of 2 months, extending from March to May, 2020. Two-hundred students (43.8% males and 56.2% females) participated in the study and filled forms of the fatigue assessment scale.

RESULTS: Psychologically-tired students constituted 59.0% of the participants whereas the remainder participants were normal students. Moreover, statistically-significant differences in fatigue between students of the various academic years ($p = 0.04$) were found. The highest proportion of students suffering from fatigue was observed in the fourth-, and 5th-year students (21 out of 42 and 9 out of 18, respectively, [i.e., 50.0%, each]). The lowest proportion of students suffering from fatigue was that of the 1st-year students (29.0%). Significant differences in fatigue were also found between working and non-working students ($p = 0.001$), where all the non-working students (92; 100.0%) suffered from fatigue while most of the working students experienced no fatigue (82; 69.0% of the working students).

CONCLUSION: The current study adds to the growing body of knowledge available to policymakers and mental health practitioners throughout the world about the links between individual mental health and the COVID-19 quarantine.

Introduction

The COVID-19 pandemic is an once-in-a-lifetime event in terms of its impact on individual's physical and mental health, as well as those of the society at large [1], [2]. Almost everywhere in the world, national and international authorities and institutions have mandated quarantine, physical separation, and isolation to reduce the chances for transfer of the Corona virus. However, quarantine may lead to adverse psychological consequences, including frustration, loneliness, and worryment about the future, which are well-documented risk factors for several mental disorders such as anxiety, affective disorders, and psychosis [3], [4].

Few studies have looked at the influence of quarantine and physical separation on the mental health of the general population during the pandemic [5], [6]. Qiu *et al.* [7] found that 35% of the population experienced psychological distress and that the women and adult individuals ranging in age from 18 to 30 years and adults older in age than 60 years were the population

groups most vulnerable to stress. In addition, the study found that these population groups are more likely than other groups to develop post-traumatic stress disorder. Furthermore, respondents in some studies were more concerned about their own health and the health of their family members and less interested than before in leisure activities and friendships [8], [9].

Jordan was one of the first countries to face the contagion of COVID-19. Nevertheless, it was one of the countries with the lowest number of COVID-19 related-deaths (<https://www.worldometers.info/coronavirus/country/jordan/>). On March 20, 2020, lockdown was forced by the Jordanian government, which took other preventive actions such as containment and quarantine measures such as interdiction of all public meetings and strict restrictions on mobility. People were allowed to go out only for working, serious health reasons, or other urgent needs. These containment measures included university students until September 5, 2021.

The psychosocial and emotional reactions to the pandemic were a global issue and special attention should be paid to such reactions in the general

population, in general, and amongst university students, in particular, which may differ significantly from the reactions of the Chinese population due to differences between countries in the socio-cultural characteristics and historical contexts that affect people's attitudes and behaviors.

Methodologically rigorous studies are needed to evaluate the impacts of COVID-19 and the associated quarantine measures on the mental health of Jordanian population [10]. The outcomes of these studies will help the public health authorities in developing appropriate strategies for controlling the psychosocial consequences of the pandemic [11], [12]. The present study responded to this need. It aimed at evaluating the effects of the COVID-19 pandemic and containment measures on prevalence of fatigue among Jordanian university students. The study was also intended to identify the factors for fatigue in this community.

Methods

Sample selection

This study was a cross-sectional survey that was made to assess the fatigue status of students of Jadara University (Irbid, Jordan) during the COVID-19 epidemic in Jordan. The research data were collected using an anonymous online questionnaire. An online survey platform was used to disseminate the questionnaire and collect the filled questionnaire forms. The first page of the questionnaire was an informed consent form (Appendix). Filling the questionnaire form was only possible after the respondent had filled the informed consent form. Two-hundred Jadara University students were enrolled in this study.

Criteria

Inclusion criteria

The inclusion criteria were the following:

1. The respondent is student in Jadara University
2. Age is 18–35 years
3. The respondent has no history of any psychiatric or neurological diseases
4. The respondent did not use any illicit drug.

Exclusion criteria

In addition the foregoing inclusion criteria, the study had three exclusion criteria, which are:

1. Age is higher than 35 years or lower than 18 years
2. The respondent has a history of psychiatric or neurological disease

3. The respondent is not student in Jadara University.

Fatigue assessment

Fatigue among the university students was evaluated by using the fatigue assessment scale (FAS), which is a validated tool that was designed by Michielson *et al.* for assessment of general fatigue in population. This scale was validated in the sarcoidosis setting [13]. It demonstrated good differentiability, reliability, and construct validity in assessments of the type, degree, and characteristics of fatigue in various populations. The FAS is a ten-item scale, in which five questions address physical fatigue and five questions address mental fatigue [13], [14]. The various items of this scale are graded on a five-point Likert scale of frequency of manifestation of fatigue symptoms that ranges from 1 (Never) to 5 (Always). Items four and ten are reverse-scored items. The total scores on this scale can vary from 10 to 50, with 10 representing the least extent of weariness and 50 indicating the highest extent. Hence, a total score on the FAS that is <22 indicates no fatigue (normal person) and a score ≥ 22 indicates fatigue. In other words, scores on the FAS scale that range from 10 to 21 indicate no fatigue (normal state or condition) whereas scores ranging from 22 to 50 point to fatigue.

Ethical approval

Ethical approval was obtained from the Faculty of Pharmacy in Jadara University. The individuals who had met the inclusion criteria were asked if they were interested in participating in the study or not after being informed of its nature and objectives. The individuals who showed interest in participating in the study were provided with copy of a Consent Form to sign. Then, they were recruited in the study.

Statistical analysis

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS, v. 20.0). Categorical variables were subjected to Frequency Distribution Analysis to determine the frequencies and percentages in each of their categories. The Chi-squared test was used to evaluate associations among qualitative variables. Furthermore, student's t-test was employed to determine significant differences between each two independent groups in the mean values of variables. In the event when the groups under comparison were more than two groups, one-way analysis of variance was conducted to test for potential significant differences between the groups in their mean scores on the various study variables. All statistical tests were two-tailed tests that were run at the 0.05 level of statistical significance ($\alpha = 0.05$).

Results

Demographic characteristics

We received responses from 200 students, including working students (54%) and non-working students (46%). More than half of the participants were women (56.2%) and more than half of the sample members were aged 18–23 years (50.7%; Table 1). Most of the participants (66.2%) were residents of urban centers. In terms of the marital status, slightly more than half the respondents (54.5%) were singles. Meanwhile, nearly 41.5% of the sample members were medical college students.

Table 1: Baseline characteristics of the sample members (n = 200)

Variable	n = 200 n (%)	Having fatigue (118) n (%)	Not having fatigue (82) n (%)	p*
Gender				0.79
Male	88 (43.8)	51 (43.2)	37 (45.1)	
Female	112 (56.2)	67 (56.8)	45 (54.9)	
Age (years)				0.31
18–23 years	101 (50.7)	56 (47.5)	45 (54.9)	
24–28 years	71 (35.3)	42 (35.6)	29 (35.4)	
29–34 years	28 (13.9)	20 (16.9)	8 (9.8)	
Residence				0.56
Rural area	68 (33.8)	42 (35.6)	26 (31.7)	
Urban center	132 (66.2)	76 (64.4)	56 (68.3)	
College				0.34
Literature college	71 (35.6)	42 (35.6)	29 (35.4)	
Medical college	83 (41.5)	45 (38.1)	38 (46.3)	
Scientific college	46 (23.0)	31 (26.3)	15 (18.3)	
Academic year				0.04
1 st year	31 (15.4)	22 (18.6)	9 (11.0)	
2 nd year	60 (30.0)	37 (31.4)	23 (28.0)	
3 rd year	49 (24.5)	29 (24.6)	20 (24.4)	
4 th year	42 (21.0)	21 (17.8)	21 (25.6)	
5 th year	18 (9.2)	9 (7.6)	9 (11.0)	
Marital status				0.10
Married	79 (39.3)	53 (44.9)	26 (31.7)	
Single	109 (54.5)	57 (48.3)	52 (63.4)	
Divorced	12 (6.0)	8 (6.8)	4 (4.9)	
Working during COVID-19 quarantine				0.001
Yes	108 (54.0)	26 (22.0)	82 (100.0)	
No	92 (46.0)	92 (78.0)	0 (0.0)	

*t-test.

Fatigue status

Statistical analysis uncovered that 118 of the 200 sample students (59.0%) were suffering from fatigue whereas 82 students (41.0%) were not (Table 1). Moreover, analysis disclosed statistically-significant differences in fatigue between students of the various academic years ($p = 0.04$). The highest proportion of students suffering from fatigue was observed in the fourth-, and 5th-year students (21 out of 42 and 9 out of 18, respectively, (i.e., 50.0%, each)). The lowest proportion of students suffering from fatigue was that of the 1st-year students (29.0%). Meantime, the proportions of students suffering from fatigue were somewhat comparable for the 2nd-year (38.3%) and 3rd-year students (40.8%). Significant differences in fatigue were also found between working and non-working students ($p = 0.001$), where all the non-working students (92; 100.0%) suffered from fatigue while most of the working students experienced no fatigue (82; 69.0% of the working students).

Discussion

To the best of our knowledge, there are so far few published studies that investigated the relation between fatigue and the COVID-19 pandemic among Jordanian university students. The current study employed the FAS. This instrument defines weariness as the inability to start and finish everyday chores, a lack of enthusiasm to achieve things, and difficulties in thinking clearly and concentrating on work.

Statistical analysis revealed that 59.0% of the sample university students were suffering from physical and mental exhaustion. Analysis also showed that there is statistically-significant association between fatigue and the student's academic year and working status. The highest proportion of students suffering from fatigue was concomitant to the fourth-, and 5th-year students (50.0% of all sample members) while the lowest proportion of students suffering from fatigue was that of the 1st-year students (29.0%). In the meantime, all the non-working students (92; 100.0%) were suffering from fatigue whereas most of the working students experienced no fatigue (69.0% of the working students). This finding may be ascribed to the fact that non-working people were forced to stay in their homes during the quarantine times, and, thereupon, they might have been more prone to fatigue, especially mental fatigue. Those people need special preventive measures to enhance their physical and psychological well-being during pandemic times. This finding is consistent with the findings of some previous studies [15], [16]. In the time of the COVID-19 pandemic, most individuals were exposed to unprecedented stressful conditions of unknown duration [17]. This might have resulted in sleep disturbance and an increase in the levels of daily stress, worry, and depression [10]. Control of the sleeping problems during home confinement can limit stress and, possibly, prevent incidence and intensity of fatigue and the disruption of social relationships [18].

A higher level of fatigue was observed among the female students than the level observed among the male students. However, the difference between the female and the male students in the mean level of fatigue was statistically insignificant ($p > 0.05$). A study in China reported that females experienced 3.01 times the fatigue experienced by the males during the time of the COVID-19 pandemic [19]. Moreover, the present study observed a non-significant increase in the fatigue scores of young students within the "18–28 Years" age group during the pandemic time.

In this study, a significant proportion of the sample students had high fatigue scores, especially the fourth-, and 5th-year students (21 out of 42 and 9 out of 18, respectively, [i.e., 50.0%, each]). This indicates that the fourth- and 5th-year students were more prone to the fatigue than the younger students. This may be attributed to importance of the last 2 years of university

education for gaining the knowledge, skills, and competences of the academic specialization. As such, restricted mobility during the quarantine periods must have had put substantial pressure on the university students to increase their efforts so as to cope with this sudden transition in the education system from traditional education to online education. This transition raised concerns among these students about online education and efficiency of the employed online-teaching systems in delivering the education curricula and materials in appropriate and effective manner. A previous study of Jordanian students revealed non-significant increases in depression and anxiety among 2nd-year students during the pandemic [20]. The present study found that the 1st-year university students had significantly lower fatigue scores than the students of the other academic years, which may be explained by the lower levels of depression among students of this group as was reported in a previous study [19]. As well, the results of the current study unveiled that the working students had significantly lower mean fatigue score than the unemployed students (22.0% vs. 78.0%, $p < 0.05$).

Fatigue can negatively affect mental and physical health of the individual. The results of this study provide valuable information for the health authorities and the higher education planners and decision makers to implement interventions to minimize the mental health problems which hit the university students during crises. Social support groups can be one of the simplest approaches to provision of mental care for students. Future studies can examine factors that may mediate relationship of stressful conditions with mental health problems so as to provide further understanding of the causes, solutions, and measures for prevention of mental health problems in the times of crises.

Conclusion

The present study provides valuable information for enhanced understanding of the psychological aspects of the COVID-19 pandemic amongst the population of Jordanian university students. Psychiatric disorders, notably depression, can be linked with prolonged worry, and they can significantly influence a person's physical and psychological well-being, and her/his practice of day-to-day activities. The current study shows that although setting at home and abiding by the preventive measures in force, such as social distancing and avoidance of crowded places, are necessary good practices that are particularly critical for preventing transmission of disease, they, nonetheless, contribute to tiredness. Pandemic-related dread and worry may contribute to fatigue as a psychological consequence. Policymakers and mental health experts may educate the public about the

possibility of experiencing psychological reactions to a pandemic and about strategies for dealing and coping with physical symptoms and mental exhaustion to help them improve personal well-being in the event of a pandemic.

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Appendix

developing strategies for controlling and managing the post-COVID-19 syndrome.

Participant's Information Sheet

Evaluation of Prevalence of Fatigue among Jordanian University Students and its Relation to COVID-19 Quarantine.

Purpose of Study

This study aimed at assessing prevalence of fatigue in the student population of Jadara University (Irbid, Jordan) and its association with COVID-19 quarantine.

Time Frame and Study Procedure

Prospective follow-up study. Data collection takes 6 months.

Participation in Study

You are kindly asked to participate in this study because you are university student studying online due to the restrictions on mobility and assemblages mandated by the health authorities in the country in their effort to control spread of infection in the COVID-19 crisis time. Your participation in this study is entirely voluntary and highly appreciated. You have the right not to take part in the study and the right to withdraw from it at any time without any penalty. Therefore, your decision to participate or not to participate in this study will not affect your education or the relationship of the researchers and other faculty members in Jadara University with you.

If you have any questions about the study, the questionnaire, and your rights as a research participant, then please let me know. If any questions occur to you later, then you may contact me at 00962797299027 (Irbid, Jordan) or through e-mail (aiman.s@jadara.edu.jo). You may also contact Dr. Ali Al-Sarhan by phone (00962777158347) or via e-mail (asarhan@jadar.edu.jo).

Expected Benefits of Study

The information obtained from this study will benefit researchers and the government of Jordan in

Confidentiality

The information required for the study and obtained from the students will be kept confidential by the investigators and they will not be made public unless disclosure is required by law.

Your signature on this consent form confirms that you have read the information provided and decided to participate in this study.

Consent Form

To become a participant in this research, kindly sign this consent form.

I herewith confirm that I have met the requirements for joining the study. I also confirm, and testify, that:

1. I understand the nature and scope of the research to be conducted.
2. I have read and understood all the terms and conditions of my participation in this research, which are provided in the participant's information sheet, and decided to participate in the study.
3. I voluntarily agree to take part in this research, follow the study procedures, and provide all the necessary information to the investigators as requested.
4. I may, at any time, withdraw from this research without giving reasons.
5. I have received a copy of each of the Information Sheet and the Consent Form.

Printed Name of Participant:

Signature:

I.C No:

Date:

Name of Investigator:

Signature:

I.C No: