



ORIGINAL ARTICLE

Effects of Stay-at-Home (Curfew) as a Result of COVID-19 Pandemic on Obesity, Depression and Physical Activity in People Living in Jordan

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Abstract

Objects: The Coronavirus pandemic has had a clear impact on the Jordanian society in several aspects, especially the health aspect. Therefore, this study is conducted to discover the effects of staying at home (quarantine) during the Coronavirus pandemic on the Jordanian society in terms of obesity, depression, and physical activities.

Methods: 1252 members from both genders of the Jordanian society completed the questionnaire, three questions were developed, and a questionnaire was created to answer these questions by youths and the elderlies between the ages of (15-65) years from both genders. The procedures included an evaluation of obesity, depression and physical activity during the period of quarantine.

Results: The highest mean according to the obesity, depression and physical activity among genders and age groups was (3.59, 1.69, 3.57) respectively and standard deviation for them (0.572, 0.267, 0.609) respectively.

Conclusion: It is found that there are no significant differences between both genders and ages group but there are a numerical differences in most questions.

Keywords

Coronavirus, Quarantine, Weight, Stress and exercise

Introduction

Coronavirus disease 2019 (COVID-19) is caused by a novel coronavirus, called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) started in the Wuhan city of China and spread to the whole world

and was declared a pandemic by the World Health Organization [1,2].

The number of injuries in the world exceeded 75 million and more than 1.6 million deaths were announced worldwide [3]. In Jordan, the number of injuries reached more than 285 thousands, till December 2020, and the deaths exceeded 3700 deaths [4]. Because of that, several countries in the whole world such as United states, United Kingdom and many other countries have enacted numerous restrictions on human movement, physical interactions and introduced formal social curfew measures [2,5].

In Jordan, following the numerous restriction and curfew measures, the middle schools and universities in all regions of the Kingdom have been closed until the end of the academic year 2019-2020, however, the individuals can no longer engage in physical activities, and fitness, also activity classes for youth are canceled, also public parks and gyms, have all been closed. All government and private institutions have been closed as well, and social distancing measures are being followed to slow down the spread of COVID-19 [6]. This sudden and stressful condition plus the prolonged stays at home may imply a radical change in lifestyle behavior such as physical activity, eating habits, mental health, quality of sleep, and there is a general concern about the negative health implications of inactivity and sedentary behavior [7,8].



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Researchers found that 37.1% of the participants reported distress from nervousness and stress to a greater degree and they observed an increase of depression, difficulty sleeping and worsening chronic conditions in the population during curfew [9,10].

Therefore, this study is conducted to find out the effects of stay-at-home (curfew) as a result of COVID-19 pandemic on obesity, depression, stress and physical activity in people living in Jordan.

Methods

Study design

A retrospective cohort survey design assessed the effects of curfew as a result of COVID-19 pandemic on obesity, depression and physical activity in people living in Jordan by using online reported surveys (<https://forms.gle/tQaLiDcYGGRAz65w8>) that was completed between (14-28) November, 2020.

Study population and sampling procedure

An appropriate sampling strategy, which focuses on including young individuals and elderlies in the Jordanian society, was used during the COVID-19 pandemic. A potential respondent have been invited electronically through various social media platforms and emails lists in some universities for students, faculty, and staff. Inclusion criterions were as follows: (15-65) years, able to read and speak Arabic and live in Jordan. A pilot of 10 subjects' data were tested to assess the content validity of the survey form, which is the extent to which the information required within the survey form are relevant and representative of the all sample's data about effects of curfew as a result of COVID-19 pandemic on obesity, depression and physical activity in people living in Jordan.

Measures

After providing consent, participants completed measures, including self-reported weight and height. Participants also reported whether they had ever been diagnosed with a psychiatric condition (e.g. depression and stress). The major question was developed to measure the effect of curfew during the Corona pandemic on the Jordanian society by studying the percentages of obesity, depression, and physical activity is: What is the impact of curfew during the Coronavirus pandemic on the Jordanian society in terms of physical activity, obesity and depression. Therefore, a questionnaire was conducted to answer this question by the two groups of youth and the elderly for both genders and the ages of ≥ 15 -years-old, and they completed the questionnaire online between the 14th and the 28th of November, 2020, and the procedures included an assessment the quality of food and drinks consumed during the ban period, as well as the amount of physical activity practiced during day or week in a randomized order.

Perceived changes during COVID-19 curfew

Participants were asked 'Compared to before the COVID-19 curfew in Jordan, I have ..' and using a five-point Likert scale (very few, few, medium, many, very many) responded to 13 items on behaviors related to weight management (e.g. 'snacked', 'exercised'), followed by 6 items on the extent to which participants had experienced barriers/facilitators to physical activity (e.g. 'Had time to exercise') compared to before curfew using unipolar Likert scale (yes, no) and four-point Likert scale (not practicing, light, medium, and large). Participants also completed 4 items on mental/physical health compared to before curfew (e.g. 'suffer from stress', 'Had sleep disturbances', 'Had hormonal strike') using a unipolar Likert scale (yes, no).

Statistical analysis

Descriptive statistics of participant' basic characteristics before COVID-19 curfew and activity patterns before and after COVID-19 curfew were provided as mean and standard deviation for continuous variables and percentages for categorical variables. We used t-tests and ANOVA (or χ^2 tests for categorical variables) to evaluate the significance of differences in weight-related outcomes, depression and physical activity before and after COVID-19 curfew for each sex group. All statistical analyses were performed using SPSS [11].

Results

1252 members from both genders of the Jordanian society completed the questionnaire, where the total number of male participants was 574, with a ratio of 45.8%, while the total number of females was 678, with a ratio of 54.2%, and these numbers varied according to the questions and the variables. In the variable of sex and in questions related to obesity, depression and physical activity the number of male participants was (560, 574 and 574) respectively, and the number of females participants was (650, 678 and 678) respectively. As for questions related to the age group variable; the highest percentage of participation in the sample was in the age group of (15-35), and it was 607, with a ratio of 61.3%. The number of participants in the (15-35) category on the obesity, depression and physical activity questions was (742, 767, 767) respectively, while the number of participants in the (35-65) category was (385, 398, 398) respectively.

Table 1 shows the effect of curfew as a result of covid-19 pandemic on obesity for both sexes and age groups. The highest percentage of males and in both age group category (15-35 and 35-65) was in the sixth question, with a mean of (4.02, 4.02, 3.94) and a standard deviation of (1.032, 0.996, 1.069) respectively, while the highest percentage of females was in the seventh question, with a mean of 3.097 and a standard deviation 1.013.

The signature (2-tailed) in the questions is more than 0.05 (sample level), meaning there is no significant difference between the two genders and between the age groups at the sample level, while there was a difference on the numerical level.

In order to know the effect of quarantine on weight gain, a preliminary question 14 was asked (Table 1): Did the weight decrease or increase during the curfew and what was the amount of the increase or decrease, and the answer to it was yes or no with mentioning the

Table 1: The effect of curfew as a result of Covid-19 pandemic on obesity for both sexes and age groups.

N	The question	Gender / Age group		N	Percent %	Mean	Standard Deviation	Sig.(2- tailed)	
								Equal variances assumed	Equal variances not assumed
1	How much increase or decrease is in weight?	Mal		574	45.8	1.86	6.316	0.861	0.862
		female		678	54.2	1.80	6.087		
		15-35		767	61.3	1.83	6.477	0.667	0.657
		35-65		484	38.7	2.00	5.856		
2	How often do you eat sweets a week?	Mal		560	46.4	3.36	1.047	0.968	0.968
		female		648	53.6	3.36	1.060		
		15-35		740	61.3	3.38	1.066	0.704	0.701
		35-65		648	38.7	3.36	1.036		
3	How many times per week do you eat bread?	Mal		560	46.3	3.65	0.997	0.007	0.006
		female		649	53.7	3.49	1.048		
		15-35		741	61.3	3.53	1.043	0.055	0.052
		35-65		467	38.7	3.66	0.998		
4	How often do you eat meat a week?	Mal		559	46.3	3.47	1.052	0.778	0.778
		female		648	53.7	3.46	1.044		
		15-35		739	61.3	3.44	1.067	0.238	0.227
		35-65		467	38.7	3.51	0.990		
5	How many times per week do you eat vegetables?	Mal		560	46.4	3.48	1.103	0.291	0.291
		female		648	53.6	3.41	1.080		
		15-35		741	61.4	3.41	1.087	0.596	0.596
		35-65		466	38.6	3.45	1.088		
6	How often do you eat fruits per week?	Mal		557	46.3	4.02	1.032	0.347	0.348
		female		647	53.7	3.97	1.013		
		15-35		738	61.3	4.02	0.996	0.204	0.214
		35-65		465	38.7	3.94	1.069		
7	How often do you eat fast food per week?	Mal		557	46.3	3.75	1.038	0.107	0.108
		female		645	53.7	3.84	0.998		
		15-35		737	61.4	3.80	0.998	0.781	0.785
		35-65		464	38.6	3.78	1.051		
8	How often do you consume canned goods and processed products per week?	Mal		556	46.3	3.60	1.158	0.819	0.819
		female		646	53.7	3.62	1.119		
		15-35		739	61.5	3.62	1.136	0.609	0.610
		35-65		462	38.5	3.58	1.145		
9	How often do you drink water per day?	Mal		555	46.2	2.98	1.200	0.231	0.230
		female		646	53.8	3.07	1.234		
		15-35		739	61.6	3.11	1.214	0.004	0.004
		35-65		462	38.4	2.89	1.189		

10	How often do you drink milk per day?	Mal	556	46.3	3.32	1.162	0.227	0.224
		female	646	53.7	3.24	1.255		
		15-35	740	61.6	3.34	1.221	0.032	0.032
		35-65	461	38.4	3.17	1.213		
11	What is the rate of drinking fizzy drinks per day?	Mal	556	46.3	3.47	1.166	0.305	0.306
		female	646	53.7	3.53	1.135		
		15-35	739	61.5	3.56	1.149	0.034	0.033
		35-65	462	38.5	3.41	1.134		
12	What is the rate of drinking natural juices per day?	Mal	556	46.3	3.76	1.163	0.041	0.041
		female	646	53.7	3.72	1.071		
		15-35	739	61.5	3.76	1.058	0.437	0.443
		35-65	462	38.5	3.71	1.098		
13	The rate of drinking processed juices per day?	Mal	553	46.1	3.95	1.081	0.998	0.998
		female	646	53.9	3.95	1.067		
		15-35	738	61.6	3.98	1.058	0.143	0.150
		35-65	460	38.4	3.88	1.115		
14	Did you gain or lose weight during the Corona period?	Male	574	45.8	1.30	0.459	0.471	0.470
		female	678	54.2	1.32	0.466		
		15-35	767	61.3	1.31	0.465	0.731	0.731
		35-65	484	38.7	1.32	0.469		

*T-test (Independent Samples Test)

Table 2: The effect of curfew as a result of Covid-19 pandemic on depression for both sexes and age groups.

N	The question	Gender Age group	Yes	No	Total	Percent %	Mean	Standard Deviation	Sig.(2- tailed).	
									Equal variances assumed	Equal variances not assumed
1	Do you suffer from chronic diseases?	Male	45	529	574	45.8	1.92	0.269	0.362	0.359
		Female	63	615	678	54.2	1.91	0.291		
		15-35	95	1070	1165	93.1	1.92	0.275	0.918	0.918
		35-65	13	73	86	6.9	1.85	0.360		
2	Do you suffer from sleep disturbances?	Male	272	302	574	45.8	1.53	0.500	0.847	0.847
		Female	325	678	678	54.2	1.52	0.500		
		15-35	560	36	596	47.7	1.53	0.500	0.203	0.202
		35-65	605	50	655	52.3	1.52	0.496		
3	Do you suffer from hormonal strikes?	Male	131	244	375	29.9	1.65	0.477	0.847	0.847
		Female	104	174	278	22.2	1.63	0.485		
		15-35	209	25	234	47.7	1.65	0.473	0.413	0.415
		35-65	390	28	418	52.3	1.63	0.504		
4	Do you suffer from psychological disorders such as stress and tension?	Male	193	182	375	29.9	1.49	0.500	0.121	0.121
		Female	126	152	278	22.2	1.55	0.499		
		15-35	287	31	318	47.7	1.49	0.498	0.106	0.106
		35-65	312	22	334	52.3	1.55	0.497		

*T-test (Independent Samples Test)

amount of increase or decrease. The number of males participating was 574 by 45.8%, while the number of Females were 678, by 54.2%, thus, the mean of males

and females was (1.30, 1.32) respectively and the standard deviation was (0.459, 0.466) respectively. The number of participants from the category (15-35) was

767 by 61.3%, while the number of participants from the category (35-65) was 484, by 38.7%, and the mean of the two age group categories (15-35) and (35-65) was (1.31, 1.32) respectively, and the standard deviation for them was (0.465, 0.469) respectively. The sample level for both sexes and between age groups was greater than 0.05, indicating that there were no significant differences between the sexes in the gained weight and between the two age categories.

Table 2 shows the effect of curfew as a result of covid-19 pandemic on depression for both sexes and ages groups. The highest percentage for (males, female) and for the two age category (15-35, 35-65) was in the first question, with a mean for both gender (1.92, 1.91) and for age group (1.92, 1.85), respectively, and a standard deviation of both gender (0.269, 0.291) and for both age group (0.275, 0.360) respectively.

Table 3 shows the effect of curfew as a result of Covid-19 pandemic on physical activity of both sexes and age groups. The highest percentage among males and age group (15-35) was in the fourth question, with mean and standard deviation of (2.95, 2.94), (0.854, 0.808) respectively, while the highest percentage for females and age group (35-65) was in the fifth question, with mean and standard deviation of (2.98, 3.06) and (0.834, 0.863) respectively.

Table 4 shows the effect of curfew as a result of covid-19 pandemic on obesity, depression and physical activity according to the gender and age group. The highest mean according to the obesity, depression and physical activity among genders and age groups was (3.59, 1.69, 3.57) respectively and standard deviation for them (0.572, 0.267, 0.609) respectively. The signature (2-tail) in the overall averages for them with regard to obesity, depression and physical activity during quarantine is more than 0.05 (sample level), meaning there is no significant difference between the two genders and age group at the sample level, while there was a difference at the numerical level.

Discussion

This study examine the effects of stay at home (curfew) during the Coronavirus pandemic on the Jordanian society of both genders, and for the youth and the elderly. Through its impact on obesity, depression and physical activity, as staying at home for both genders at the same time reduced daily activity because of the closure policy that occurred, which made society spend its time eating healthy and unhealthy foods, making pastries and consuming bread and sugars that contain high calories, thinking that it relieves the feelings of anxiety and tension that lead to depression, and because there is not enough space to practice Physical activities, the burning process was light and therefore there was an increase in body mass for many individuals. In line with other studies [12,13], social curfew events are have wide ranging effects which

make weight gain protective behaviors more difficult for many and there have been a number of suggestions that social restrictions to limit the spread of COVID-19 could result in population level weight gain.

We found that in the both gender there is a difference on the numerical level in eating behavior, which indicates the extent of the effect of eating behavior during the curfew on the obesity rate and there are people especially young people who are supposed to be in good health and more conscious and lively, who suffer from mental and hormonal disorders and diabetes, and that such a ban may increase psychological pressure on this group, making them more vulnerable to complications and depression. Although, other studies in UK [14,15] that examine the mental health burden of curfew during Corona pandemic, they revealed that the participant in these studies report feeling depressed, more lonely and anxious. This obesity, which affects the health of individuals and makes them more vulnerable to diseases such as diabetes, high blood pressure, and heart diseases, thus human body is weak and vulnerable to the infection with the Coronavirus, or it makes their immunity and disease resistance weaker and thus affects their lives negatively. Although another studies [5,16] found that the COVID-19 crisis may have had a disproportionately large and negative influence on weight-related behaviors among adults and a risk factors for weight gain during self-quarantine are inadequate sleep, snacking after dinner, lack of dietary restraint, eating in response to stress, and reduced physical activity. Results of this paper have shown that there is no significant difference between the sexes in the percentage of obesity, which increased by 1.31 and that the age group between (35-65), is the most affected between age groups. Consequently, a programmed and politicalized strategic plan must be made to confront those factors that affect the health of the individual during this pandemic in the long term, especially not all people vaccinated and that the rates of the infection with the Coronavirus are increasing, thus increasing anxiety and tension in the Jordanian society.

Conclusions

In general, the results of this study in the Jordanian society indicate that there is no significant difference in the percentage of the overall averages for both (gender and ages group) with regard to obesity, depression and physical activity during quarantine, while there were a difference at the numerical level. The physical activity and the quality of the foods consumed while staying at home must be taken into account to avoid obesity and the accompanying diseases.

Statement of Equal Authors' Contribution

All authors participated in the design of the study, performed data analyzing. All authors read and approved the final manuscript.

Table 3: The effect of curfew as a result of Covid-19 pandemic on physical activity of both sexes and age groups.

N	The question	Gender		Age group		Yes	No	Total	Percent %	Mean	Standard Deviation	Sig.(2-tailed)	
		Male	Female	15-35	35-65							Equal variances assumed	Equal variances not assumed
1	Do you do sports?	Male	Female	15-35	35-65	304	270	574	45.8	1.47	0.500	0.000	0.000
						261	417	678	54.2	1.62	0.487	0.511	0.511
2	Does the nature of your work require activity?	Male	Female	15-35	35-65	251	323	574	45.9	1.56	0.496	0.026	0.026
						254	423	677	54.1	1.62	0.485	0.468	0.470
3	Did you follow a certain diet during the Corona pandemic?	Male	Female	15-35	35-65	147	427	574	45.8	1.74	0.437	0.796	0.796
						178	500	678	54.2	1.74	0.440	0.009	0.011
						311	14	327	45.8	1.76	0.429	0.009	0.011
						854	72	926	54.2	1.69	0.465	0.009	0.011
N	The question.	Gender		Age group		I	Do not	Total	PERCENT %	Mean	Standard Deviation	Sig.(2-tailed).	
		Male	Female	15-35	35-65							Equal variances assumed	Equal variances not assumed
4	What is the daily activity rate at home?	Male	Female	15-35	35-65	41	277	574	45.8	2.95	0.854	0.000	0.000
						29	357	678	54.2	2.91	0.771	0.590	0.589
5	What is the rate of walking at home?	Male	Female	15-35	35-65	63	592	1165	93.1	2.94	0.808	0.026	0.026
						6	42	86	6.9	2.92	0.803	0.018	0.019
6	What is the daily rate of consuming cigarettes or hookahs?	Male	Female	15-35	35-65	37	184	574	45.8	2.95	0.907	0.796	0.796
						31	300	678	54.2	2.98	0.834	0.171	0.174
						62	484	1165	93.1	2.93	0.860	0.171	0.174
						6	28	86	6.9	3.06	0.863	0.171	0.174
						259	123	574	45.8	2.06	1.118	0.171	0.174
						473	96	678	54.2	1.69	1.127	0.171	0.174
						673	177	1165	93.1	1.84	1.142	0.171	0.174
						58	15	86	6.9	1.94	1.166	0.171	0.174

*T-test (Independent Samples Test)

Table 4: The effect of curfew as a result of Covid-19 pandemic on Obesity, depression and physical activity according to the gender and age groups.

	Gender	N	Mean	Standard deviation	F	Sig	T	Df	Sig. (2-tailed)
	Age group								
Obesity	Male	560	3.57	0.609	0.568	0.451	0.151	1208	0.880
	Female	650	3.57	0.571					
	15-35	742	3.59	0.572	1.443	0.230	1.707	1125	0.088
	35-65	385	3.53	0.616					
Depression	Male	574	1.68	0.257	3.175	0.075	-0.706	1250	0.480
	Female	678	1.69	0.267					
	15-35	767	1.69	0.258	0.561	0.454	0.446	1163	0.656
	35-65	398	1.68	0.268					
Physical activities	Male	574	2.12	0.325	3.213	0.073	1.388	1250	0.166
	Female	678	2.09	0.343					
	15-35	560	3.57	0.609	0.568	0.451	0.151	1208	0.880
	35-65	650	3.57	0.571					

*T-test (Independent Samples Test)

Conflict of Interest

No conflict of interest regarding this article, and not funded.

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