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Body weight Changes among medical doctors during the COVID-19 curfew: A cross-sectional survey

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Abstract

Background and objectives: The curfew implemented during the COVID-19 pandemic can affect several factors that contribute to energy balance, but the impact of the curfew on weight changes is unknown. We aimed to determine the impact of the COVID-19 curfew on body weight among doctors.

Methods: A survey of 380 doctors was conducted between the 15th of March 2020 and the 20th of April 2020. The survey participants were recruited from the staff of general teaching hospitals in the Kurdistan Region irrespective of the clinical origin. Three hundred and eighty doctors completed the questionnaire. The weight and height of all participants were determined at the beginning of the COVID-19 curfew and at the end of the curfew, and BMI was calculated.

Results: A total of 380 doctors from many regions of Kurdistan were included in this survey. Out of 380 doctors, 177 (47%) reported weight gain (75.2 ± 16.9 to 77.7 ± 17.1 Kg, (p:0.020), 116 (30%) reported weight loss (77.0 ± 14.1 to 74.4± 13.4 Kg, p:0.021) and 87 (23%) had no change in body weight. The study showed that the majority of subjects with weight loss 80 (69%), were those that had fewer hours of sleep (less than 6 hours sleep, p:0.010), compared to those with unchanged weight and weight gain groups (p:0.010, 18.1%, and 12.1% respectively).

Conclusion: The impact of the COVID-19 curfew on body weight among doctors was diverse, with almost half having weight gain and a third having weight loss. Identifying factors that contribute to weight changes during curfew could inform the planning of future similar situations.

Keywords: Body weight, Medical doctors, Covid-19.

Introduction

Healthcare workers including physicians are essential group of professionals whose work is critical to the maintenance of a healthy society.[1,2] The healthcare professionals are expected to demonstrate a high knowledge and awareness regarding health consequences of lifestyle changes such as obesity and related diseases,[3] and at the same time has the principal responsibility of encouraging appropriate lifestyle changes that affect the prevention of these diseases.[4-6] Obesity is one of the most serious public health challenges of the 21st century that pose a major risk for serious diet-related chronic diseases (cardiovascular disease, type 2 diabetes, hypertension and stroke, and cancer), physical disabilities and infections.[7-10] Obesity is now a worldwide epidemic, with an estimated 57.8% of adults

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worldwide expected to be classified as obese by 2030 according to figures released by the World Health Organization.[11] The World Health Organization has estimated that between 2% and 7% of healthcare spending in developed economies can be attributed to obesity.[12] A study in Scotland found that 29% of nurses, 17% of other healthcare professionals (including doctors) were obese[13]. Several studies of the health of healthcare professionals have found that a significant proportion is obese.[14-16]According to WHO, obesity is defined as a BMI ≥ 30 kg/m^2, and overweight as a BMI of 25–29 kg/m^2.[17] In this study, we aimed to investigate the impact of curfew on body weight among doctors in Kurdistan Region of Iraq, and to determine the level of physical activities of our doctors during curfew (increased, decreased or unchanged), and the calorie intake and hours of sleep during curfew time and its effect on body weight.

Method & Materials

This current study is cross sectional study in which three hundred and eighty doctors who had completed the survey questionnaire (30 to 50 years old) were enrolled in this cross-sectional study (15th of March 2020 to 20th of April 2020). The participants were from different areas of Kurdistan Region including Erbil, Sulaymaniyah, Duhok and Hallabja. They were recruited from staff of general teaching hospitals irrespective of the clinical origin. A written online survey form was sent by email for each participant. The questionnaire included questions about age, gender, residence, specialties, calorie intake and duration of exercise, types of exercise and hours of sleep. Generally, the recommended daily calorie intake is 2,000 calories a day for women and 2,500 for men (increase calorie intake which mean higher than the recommended amount).[29] Regarding the type and duration of exercise is mainly in the form of running on treadmill for 30 minutes/day or more. The weight and height of all subjects were determined by all participants that were measured the weight with clothes at the beginning of COVID-19 curfew and at the end of curfew. Both the weight and height were used for calculation of body mass index (BMI equal to weight in kilograms divided by the square of the height in meters. Weight change can be defined as a decrease or increase in body weight resulting from either voluntary (overeating, or diet, exercise) or involuntary (illness) circumstances.[28]All the participants provided written informed consent. The study protocol was approved by the Ethics Committee of the Medical College, University of Duhok. SPSS statistics (23) was used for the results that were given as frequencies and percentage to compare between responses. The ANOVA and Chi square tests were applied in Table one, whereas paired t-test was used in the second Table and Person's correlation test were used in the third table.

Results

The mean age ± SD of subjects was 36.6 ±8.5 years and the specialties were as follows: physicians 201(52.8%), surgeons 119 (31.3%) gynecologists 26 (6.8%), pediatricians 22 (5.8%) and laboratory medicine 12(3.3%). Table (1) shows the baseline characteristics of weight unchanged, weight gain and weight loss groups according to the weight change that occurred in body weight during COVID-19 curfew. As shown, 177 (46.6%) of doctors showed weight gain, 116 (30.5%) show weight loss and the remaining 87 (22.9%) had no change in body weight. No significant differences were found with respect to age, gender, BMI and exercise between these groups. A Significantly higher percentage of duration of sleep was observed in weight loss group compared to those with unchanged weight and weight

gain groups (p: 0.010). A significantly higher percentage of calories intake (almost 4 times higher) was found in the weight gain group compared to weight unchanged and weight loss groups (p<0.010).

Table (1): Baseline Characteristics of Studied Doctors

Gender	Unchanged No. (%) mean±SD	Gain No. (%) mean±SD	Loss No. (%) mean±SD	p-value
Male	44(19.7%) 79.7±14.2	106(47.5%) 85.4±16.6	73(32.7%) 80.9±10.8	0.03
Female	43(27.3%) 66.4±9.07	71(45.2%) 66.0±9.6	43(27.3%) 64.1±11.5	0.5

Table (2) shows the body weight among subjects before and at the end of COVID-19 lockdown. The mean ± SD of body weight before COVID-19 curfew for doctors with weight gain was 75.2 ± 16.9 Kg and at the end of curfew was 77.7±17.1 Kg (p*:* 0.0001). The mean ± SD of body weight before COVID-19 curfew for doctors with weight loss was 77.0± 14.1 Kg and at the end of curfew was 74.4± 13.4 Kg (p:0.0001). In Table (2), t-test was used in which no significant difference was found with respect to unchanged weight group.

Table (2): Comparison between mean ± SD of body weight among subjects before and at the end of COVID 19 curfew

Weight variable	No. (%)	Mean ± SD (Before)	Mean ± SD (At end)	*p*-value
Unchanged	87(23%)	73.2±13.9	73.3±13.8	0.3
Weight gain	177(47%)	75.2±16.9	77.7±17.1	0.0001
Weight loss	116(30%)	77.0±14.1	74.4±13.4	0.0001

The correlation between weight change and calorie intake, types of exercise, hours of exercise and sleep hours is presented in Table (3). As shown, in the weight loss group, weight change correlated negatively with hours of sleep and calories intake. That is to say, the correlations were non-significant except for hours of sleep.

Table (3): Correlation between weight change and calorie intake, types of exercise, hours of exercise and sleep hours

Weight variable	r	p-value
Calorie intake	-0.09	0.07
Type of exercise	0.06	0.2
Hours of exercise	0.09	0.07
Hours of sleep	-0.13	0.01

Discussion

There is not enough data about body weight changes among doctors during the COVID-19 curfew in Kurdistan Region, Iraq. To our knowledge, ours is the first study to determine the impact of COVID-19 curfew on the body weight among medical doctors. As expected, weight gain is associated with calories intake. The results confirm that approximately half of the medical doctors had an increase in body weight (weight gain), as the mean weight change observed in the weight gain group was about 2 times higher than that observed in weight unchanged group. These results are in accordance with previous studies.[18-20] Moreover, we

reported a significant relationship between weight loss and hours of sleep in weight loss group. The results confirm that about one-third of the studied doctors had weight loss and the majority of them (80/116) were with sleep hours of less than 6 hours/day. In contrary to our results, other study findings suggest that short-sleep duration is associated with increase body weight and obesity.[21-24]It is worthy to mention that study all participants were on duty during the research time and they were worked five days per week. With respect to physical activity, we observed that most of the participants were gained weight in the lockdown period, thus increasing the risk of over-weight and obesity. However, it is important to note that in our survey, there is no association between weight gain and some risk factors, such as exercise (types and hours). A study done by others did not support this observation which showed that the high prevalence of weight gain and obesity could mainly result from associated socio-cultural factors.[11] Considering that there is growing evidence showing that obesity is a key risk factor in this crisis.[26] It is strongly recommended that individuals should increase physical activity levels and reduce the consumption of energy-dense 'junk' food that predisposes to weight gain and susceptibility to COVID-19.[27] Thus, studies to investigate the impact of consumption of unhealthy diets and low physical activity and anxiety on the susceptibility to COVID-19 and recovery are warranted. A limitation of this study was that the measurements based on questionnaire response, which is more liable to misclassification. However, the misclassification of sleep duration is likely non-differential with respect to weight gain leading to underestimation of the true magnitude of association between sleep and weight.

Conclusion

The impact of COVID-19 curfew on body weight among doctors was diverse, weight gain exhibited in 47% of the studied doctors, weight loss in 30% and 23% with unchanged weight. The results confirm that weight gain is associated with calories intake and duration of sleep may play a role in weight loss.

Conflicts of interest

The author reports no conflicts of interest.

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