Original article

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Lifestyle Behaviours among General Population During Lockdown Period during Corona Virus Disease-19 Pandemic

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ABSTRACT

Background: Healthy lifestyle behaviours have been consistently associated with reduced non-communicable disease related morbidity, mortality and wellbeing. Unhealthy behaviours are major contributors to the global burden of disease. The main aim of this study is to access lifestyle behaviours in adults during the corona virus disease-19 pandemic.

Methods: Cross sectional study was conducted among general population residing in Nepal. Online questionnaire was developed using Google Forms. Questionnaire comprised of three validated tools regarding the following lifestyle behaviours: Physical activity, Nutrition, Sleep. The collected data was analysed using SPSS version 20. To test the differences between changes in dietary and physical activity behaviours in relation to changes in body weight a Chi-square test was used.

Results: During Covid -19 lockdown, 124(42%) participants performed moderate level of physical activity. Of those participated, 127(43.1%) and 44(14.9%) reported an increase and decrease of weight, respectively. Among 110(37.3%) who reported snacking in lockdown led to weight gain in 68(61.8%). Availability of more time for meal preparation (24.1%) and feelings of boredom (17.4%) were the main reasons for changing dietary habits. The subjective sleep quality of participants was as follows: very good-40.3%; fairly good-45.4 %; fairly bad-11.2%; very bad 3.1%. There was significant positive correlation between sleep quality and sleep duration ($R=0.261$; $P<0.001$), sleep latency ($R=0.362$; $P<0.001$), sleeping medications ($R=0.174$; $P<0.003$) and daytime dysfunction ($R=0.308$; $P<0.001$).

Conclusions: Life style behaviours were affected during lockdown period. Higher amounts of food intake and snaking were increased. Physical activity was at a moderate level, increased sedentary behaviour was reported by most participants during lockdown. However, sleep quality was not negatively affected.

Keywords: Corona virus disease-19; diet; lockdown; lifestyle behaviour; physical activity.

INTRODUCTION

Healthy lifestyle behaviours have been consistently associated with reduced all-cause mortality, and increased lifespan and wellbeing.[1] Unhealthy behaviours (poor-diet, lack of physical exercise, tobacco and alcohol use) are major contributors to the global burden of disease.[2]

Due to the COVID-19 pandemic, people around the globe have been urged to self-isolate and refrain from social interaction.[3] Governments of all countries ordered their people to lockdown at home.[4] Lockdown was in one way better for prevention of spreading of virus while had changed lifestyle in many ways such as less physical activity which may increase negative cardio-metabolic and mental effects.[5] Lifestyle behaviours including dietary changes, restricted physical activity and the effect of it in stress and sleep remain an under-researched area.[6] To address this gap, studies on lifestyle behaviours during pandemic is a necessary step for the design of effective public policies.[7] So, interventions including lifestyle guidelines to transform evidence into policies is crucial.[8]

METHODS

Online cross-sectional study was conducted from 5th August 2021 to 29th October 2021 among general population residing in Nepal.

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Ethical permission was obtained from Institutional Review Committee of Kathmandu Medical College Reg. No 2107202104 to conduct this study. Consent was taken from all respondents before enrolling them to the study.

Nepalese population who was in the age group of 18 to 65 years Exclusion criteria: Those who cannot fill the forms online.

Adding a non-response rate of 10% the required sample size is 294.8~ 295.

Convenient sampling method was used. The main instrument to collect data was online questionnaire using Google forms. Pre-test was conducted by distributing developed draft survey questionnaire among residents of Duwakot to assess its validity and readability who were not included in the study later. Required changes were made before the final questionnaire survey was distributed to the research participants. The online form was sent to the friends and family members of all co-authors through email, viber group and facebook. Later they were requested to send their own friends (at least five). In this way a snowball sampling was created. The data was collected online due to the restriction on movements; the survey was kept brief to achieve greater response rates.

The questionnaire was totally adapted from validated tools like International physical activity questionnaire[9], Nutrition questionnaire [10], and sleep quality assessment.[11]

The structured questionnaire was developed in English and divided into 4 sections. First section consisted of socio-demographic profile, second section consisted of questions on physical activity followed by nutrition and Sleep quality. Scores were calculated in line with published tool specific scoring instructions.

Day to day supervision of mailed questionnaires was done. Those who did not respond were sent up to three reminders. These reminders were sent at a gap of 3 days.

The data was entered into a spreadsheet and later was exported to SPSS version 20 and coded for analysis. The analysis included both descriptive and inferential statistics. Descriptive statistics (frequencies, means, and standard deviations) was used to describe the variables of interest. Univariate analysis was used in obtaining the frequency of socio-demographic characteristics and other discrete variables of the study population. The chi-squared ($x2$) test was used to assess differences between categorical variables. In all statistical tests $P< 0.05$ were considered statistically significant.

RESULTS

Table 1. General characteristic of the study participants.

Variables	N (%)
Age (mean age in years)	35.88±12.09
Sex	
Male	144(48.8)
Female	151(51.2)
Religion	
Hinduism	272(92.2)
Buddhism	16(5.4)
Others	7(2.4)
Ethnicity	
Brahmin	100(33.9)
Chettri	43(14.6)
Janajati	96(32.5)
Madhesi	18(6.1)
Others	38(12.1)
Education	
+2	34(11.5)
Bachelor level	93(31.5)
Master's level	137(46.4)
PhD	31(10.5)
Occupation	
Student	99(33.6)
Housewife	6(2.0)
Business	13(4.4)
Service holder	112(38.0)
Self employed	25(8.5)
Others	40(13.6)
Marital status	
Married	188(63.7)
Unmarried	107(36.2)
Provinces	
Province 1	15(5.1)
Province 2	13(4.4)
Province 3 Bagmati	242(82.0)
Province 4 Gandaki	11(3.7)
Province 5 Lumbini	10(3.4)
Province 6 Karnali	3(1.0)
Province 7 Sudurpashchim	1(0.3)

In Table 1, socio-demographic characteristics of the 295 participants are presented. The mean age was

35.88±12.09 years; 151 (51.2%) were female. The majority of the participants responded from Bagmati Province 242(82 %) and 137(36.4%) had attained Master's level education, 112(38%) participants were service holders and 188(63.7%) were married.

Table 2. Participants' weight changes during the COVID-19 lockdown.

Variables	N (%)
Weight Change	
No change in weight	124(42.0)
Weight gain	127(43.1)
Weight loss	44(14.9)
Expected Weight Gained (Kg)	
0.0-0.9	17(13.4)
1.0-2.9	56(44.1)
3.0-5.0	47(37.0)
> 5.0	6(4.7)
Expected Lost (Kg)	
0.0-0.9	4(9.1%)
1.0-2.9	15(34.1)
3.0-5.0	11(25.0)
> 5.0	13(29.5)

Life style habits of the participants during Covid-19 lockdown period was reported. Table 2 presents the participants' weight changes during lockdown period. Of those surveyed 127(43.1%) and 44(14.9%) reported an increase and decrease of weight, respectively, while 124(42%) reported no change. Additionally, 28.1% reported 1.0-2.9 kg weight change during lockdown. Changes in dietary habits during the COVID-19 lockdown as shown in Table 3 summarizes the quantity of food consumption and frequency of snacking and eating home-cooked, restaurant, or healthy meals in different weight change groups. During lockdown, 34.2% consumed more food quantities and 37.3% snacked between meals more frequently. Increased amount of food consumption (34.2%) and the frequency of snacking (37.3%) were higher in individuals who gained weight compared to those who reported either losing weight or no weight change ($p < 0.001$). The majority of the participants reported increased consumption of home-made foods (69.2%) and healthy meals (28.8%) during lockdown and decreased consumption of restaurants foods (71.9%). Consuming more home-cooked meals during quarantine was significantly associated with increased weight gain ($p < 0.034$). A significant difference was seen between

Table 3. Changes in dietary habits compared with weight changes during the COVID-19 lockdown.

	Total (n=295)	Weight change			P value
		Weight gain (n=127)	Weight loss (n=44)	No change (n=124)	
Quantity of food consumed					
Increased	101(34.2)	67(66.3)	9(8.9)	25(24.8)	
Decreased	61(20.7)	14(23.0)	23(37.7)	24(39.3)	0.001*
No changed	133(45.1)	46(34.6)	12(9.0)	75(56.4)	
Frequency of consuming homemade food					
Increased	204(69.2)	93(45.6)	32(15.7)	79(38.7)	
Decreased	15(5.1)	7(46.7)	5(33.3)	3(20.0)	0.034*
No changed	74(25.1)	27(36.5)	7(9.5)	40(54.1)	
Frequency of snacking					
Increased	110(37.3)	68(61.8)	10(9.1)	32(29.1)	
Decreased	54(18.3)	13(24.1)	20(37)	21(38.9)	0.001*
No changed	131(44.4)	46(35.1)	14(10.7)	71(54.2)	
Frequency of consuming restaurant food					
Increased	26(8.8)	18(69.2)	4(15.4)	4(15.4)	
Decreased	212(71.9)	93(43.9)	35(16.5)	84(39.6)	0.001*
No changed	57(19.3)	16(28.1)	5(8.8)	36(63.2)	
Frequency of consuming healthy foods					
Increased	85(28.8)	36(42.4)	8(9.4)	41(48.2)	
Decreased	17(5.8)	9(52.9)	1(5.9)	7(41.2)	0.239
No changed	193(65.4)	82(42.5)	35(18.1)	76(39.4)	
Frequency of intake of fruits and vegetables					
Increased	205(69.5)	89(43.4)	36(17.6)	80(39.0)	
Decreased	21(7.1)	12(57.1)	4(19.0)	5(23.8)	0.015*
No changed	62(21.0)	25(19.7)	2(3.2)	35(56.5)	
Frequency of intake of dairy products					
Increased	113(38.3)	62(54.9)	9(8.0)	42(37.2)	
Decreased	48(16.3)	20(41.7)	14(29.2)	14(29.2)	0.001*
No changed	122(41.4)	44(36.1)	18(14.8)	60(49.2)	
Frequency of intake of meat products					
Increased	144(48.8)	74(51.4)	24(16.7)	46(31.9)	
Decreased	53(18.0)	21(39.6)	9(17.0)	23(43.4)	0.021*
No changed	86(29.2)	29(33.7)	9(10.5)	48(55.8)	

Table 4. Changes in the level of physical activity compared to weight changes during the COVID-19 lockdown.

Level of physical activity	Total (n=295)	Weight change			P value
		Weight gain	Weight loss	No change	
Low	90(30.5)	35(38.9)	10(11.1)	45(50.0)	0.093
Moderate	124(42.0)	61(49.2)	16(12.9)	47(37.9)	
High	81(27.5)	31(38.3)	18(22.2)	32(39.7)	

the frequency of restaurant food consumption and weight changes during lockdown ($p < 0.001$). 45.1% of participants reported no changes in their consumption of food, 39% admitted increased intake of fruits and vegetables, 43.4% reported reduced intake of meat products. 55.6% did not show any changes in their consumption of sweetened juices and soft drinks.

Table 5. Correlation between sleep qualities with other variables.

Variables	Sleep quality	
	Correlation coefficient (r_s)	P value
Age	-0.156	0.007
Sleep duration	0.261	0.001
Sleep latency	0.326	0.001
Sleep medication	0.174	0.003
Daytime dysfunction	0.308	0.001

Among the participants, 46.8% (n=138) reported eating immune-boosting foods and 37.3% (n = 110) reported consuming dietary supplements during lockdown. The most consumed immune-boosting foods were Giloy (18.8%), fresh fruits (1%), turmeric (14.4%), green vegetables and herbs (9.4%).

Vitamin C was the most consumed dietary supplement during lockdown (n =53, 50%), while 18.7% used to take vitamin D, 11.6% used vitamin B-complex. Other dietary supplements reported include zinc (11%) and multivitamins (19.4%).

Fig. 1 shows some of the reasons behind the changing of dietary habits during lockdown. The availability of time for preparing meals (24.1%) and feelings of boredom and emptiness (17.4%) were the main reasons for changing dietary habits. The participants also reported on increased awareness on role of nutrition (14.2%), stress and anxiety (8.5%), easy access to new recipes (7.1%).

Table 4 reports changes in the participants' physical activity during lockdown. The participants who performed at low level of physical activity were 90(30.5%), at moderate level 124(42%), at high level 81(27.5%). The increased sedentary behaviour was reported by most participants during lockdown. The maximum hours spent sitting by most participants was >10 hrs (n=58, 19.7%). No significant change was seen in physical activity levels in individuals who reported weight gain compared to those who lost weight or those with no weight change during lockdown. (Table 4)

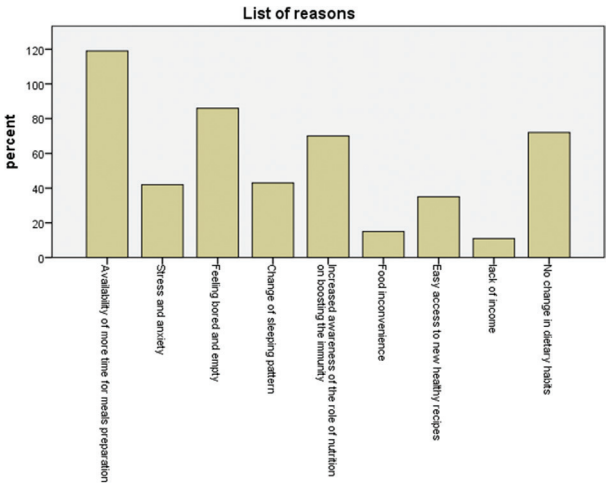

Figure 1. Reasons for changing dietary habits during the COVID-19 lockdown.

The subjective sleep quality of participants was as follows: very good-40.3%; fairly good-45.4 %; fairly bad-11.2%; very bad 3.1%. As seen from Table 5, there was significant positive correlation between sleep quality and sleep duration, sleep latency, sleeping medications and daytime dysfunction. There was significant negative correlation between sleep quality and age. Study showed that daytime sleepiness (dysfunction) may result due to sleep quality (Table 5).

DISCUSSION

Our study focuses on the life style behaviours adopted by Nepalese population during COVID-19 lockdown. Data from the current study showed that during lockdown period the participants' weight had changed. Around 28.1% participants reported 1.0-2.9 kg weight change during lockdown. Similarly, other studies have reported weight gain of ~3- 5 kg during quarantine.[12,13] During

lockdown period, in Nepal and other countries, people were restricted for home confinement to prevent from high spread of disease. So, because of less physical activity people might have gained their weight. This study has demonstrated an increase in food consumption and snacking significantly among those who gained weight during lockdown. This result was consistent with previous studies.[12-14] We can give logical explanation to this as people had more free time at home, so as to utilize it from boredom they tried new receipt and consumed more food frequently.

The study also revealed that the most commonly consumed natural food during lockdown period was Giloy, fresh fruits, turmeric, green vegetables and herbs. As people had to prevent themselves from COVID, so they tried different remedies including herbal products and natural food in different countries.[12-15] The main two reasons for changing dietary habits during lockdown were availability of more time and feeling of bored and empty which was similar to the study done in Arab[12]

This study showed moderate physical activity during lockdown which was inconsistent with the study in Saudi Arabia[12] and in Cyprus[16] where the population had low physical activity. The subjective sleep quality of participants in this study was fairly good which was similar to the study done in Cyprus.[16] The reason behind this could be the feeling of safety at home during lockdown.

CONCLUSIONS

The majority of the population have shown weight gain, increased food consumption, and performed moderate physical activity and good sleep during lockdown period. Participants who gained weight consumed more snacks, larger food quantities. During lockdown period, trend towards healthier food intake was seen, including increased intake of fruits, vegetables and decreased intake of restaurant foods, sweetened juices and soft drinks.

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