DIETARY MODIFICATION AND LIFE STYLE CHANGES DUE TO COVID-19 PANDEMIC HOMESTAY AMONG NURSING STUDENTS OF POKHARA: DESCRIPTIVE CROSS-SECTIONAL STUDY

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ABSTRACT

INTRODUCTION

In December 2019, new coronavirus SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) emerged in Wuhan, China causing pandemic all over the world which results in homestay order. Homestay lead to changes in lifestyle like sedentary life, sleeping habits and eating behavior. So, the objective is to assess dietary and life style modification among nursing students of Manipal College of Medical Sciences, Pokhara, Nepal.

MATERIAL AND METHODS

A descriptive cross-sectional online survey was conducted from August 1 to October 15, 2020. The setting of study (Manipal) was selected purposively in which enumerative sampling technique was used constituting total sample size of 216 nursing students. Data was collected through self-administer semi-structure questionnaire via online mode which was further analyzed using descriptive statistics SPSS 20.0 version.

RESULTS

There was slight modification in intake of food items like fruits, vegetable, protein, fats, commercialized items, carbonated/sweetened beverages and non-vegetarian diets (chicken and fish). During COVID-19, less than one-fifth (15%) wake up before 7 AM and 78.2% sleep duration was 7-9 hours. About 64.1% passed their leisure time watching TV/ facebook/ messenger/ youtube/ whatsapp/ instagram. Nearly 99.1% engaged in household activities during home stay. Although more than three-fourth (77.8%) of respondents were doing physical activity, 69.9% had weight gain.

CONCLUSION

Despite physical and household activities, some unhealthy practices like waking up late, increased sleep duration and use of screen was observed. There was less modification in dietary pattern. So it is recommended to follow healthy diet like Mediterranean diet having several health benefits like weight reduction, prevention from non-communicable diseases and boost immune system in period of pandemic.

KEYWORDS

COVID-19, Dietary modification, Homestay, Lifestyle.

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INTRODUCTION

In December 2019, new coronavirus SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) emerged in Wuhan, China.[1] The virus spread rapidly throughout the world and was declared a pandemic on March 11, 2020.[2] To prevent the virus from spreading, initially Chinese Government put up "lockdown" measure with mass-quarantine or stay-at-home orders in absence of effective treatment or vaccine.[3] Then other countries followed the same.[4] In Nepal, lockdown started from March 23, 2020 in Kailali [5] and country-wide lockdown came into effect from March 24, 2020.[6]
Homestay lead to changes in lifestyle like sedentary life, sleeping habits and eating behavior.[7] During lockdown, there was limited access to fresh food and variety of food groups.[8] Instead, people might turn to more processed foods high in energy and low in nutrients. All these changes might adversely effect on health.

For this reason, World Health Organization and European Federation of Association of Dietitians offered several nutritional and lifestyle recommendations to follow during lockdown.[9] In particular, Mediterranean diet (MD) has been proposed as healthy and immune supportive diet.[10]

Study on dietary and life style modification during COVID-19 among young adults is less in context of Nepal. So, objective is to assess dietary and life style modification among nursing students of Manipal College of Medical Sciences, Pokhara, Nepal.

MATERIAL AND METHODS

A descriptive cross-sectional web-based survey was conduc ted on the dietary modification and lifestyle changes due to COVID-19 Pandemic homestay. The study was conducted among nursing students of Manipal college of Medical Sciences, Phulbari-11, Pokhara from August 1 to October 15, 2020.

The setting of the study (Manipal College of Medical Sciences) was selected purposively in which enumerative sampling technique was used with the sample size of 216. The response rate was 100%. The semi-structured self-designed questionnaire was used to collect the data which consisted of four sections: socio-demographic characteristics, dietary pattern before and during pandemic, life style changes, activities performed and changes in weight during the pandemic. Logical sequence of questionnaire was maintained and checked for content validity. As per the suggestion of the senior experts and extensive literature review, necessary modifications were made in the tool. For testing reliability of the tool, chronbach's alpha was used to measure internal consistency of instrument which was found to be 0.75.

The data was collected through the self-administered questionnaire via online mode. Separate groups were formed in the Microsoft team named as research data collection in which all the students (B.Sc and PCL) were added. And the self-designed questionnaires prepared with the help of google form were attached in the group along with the letter of informed consent. Before the data collection all the students were informed about the study topic and the purpose of conducting the study. Digital informed consent was obtained from all the respondents by asking the question whether they are willing to participate in the study or not. Almost all the students responded within a week. Those who didn't respond to the questionnaire, notification was send to the individual students through the team chat, messenger, email. Collected data were entered into the master chart prepared in the MS Excel 2008 which is checked, verified and converted to the SPSS version 20. Descriptive statistics was mainly used like frequency, percentage, mean and standard deviation to describe the characteristics of the collected data. Tabular representation was used to display the various characteristics of the data. Ethical clearance letter was obtained from Institutional Review Committee of Manipal college of Medical Sciences. Digital informed consent was taken from all the respondents before data collection. Confidentiality and anonymity was maintained by removing personal identifiers and not disclosing information to anyone except for research purpose.

RESULTS

Table 1. Socio-demographic characteristics of the respondents (n=216)

Characteristics	Frequency (f)	Percentage (%)
Age (in years)		
< 20	110	50.9
≥ 20	106	49.1
Mean ± SD	19.62 ±1.98	
Permanent residence		
Metropolitan city	90	41.7
Municipality	86	39.8
Rural municipality	22	10.2
Sub-metropolitan city	18	8.3
Religion		
Hindu	174	80.6
Buddhist/Christian	42	19.5
Ethnicity		
Ungrouped caste (Terai and hilly region, Brahmin and Chettri)	92	42.6
Relatively advantaged Janajatis (Newar, Gurung, Thakali)	64	29.6
Disadvantaged Janajati (Rai, Limbu, Magar, Madhesi)	49	22.7
Others	11	5.1
Type of course		
PCL nursing	120	55.6
B Sc nursing	96	44.4
Year of study		
1st year	57	27.2
2nd year	66	27.7
3rd year	68	33.0

About half (50.9%) of the respondents were below 20 years. Majority (84.7%) of the respondents lived in the nuclear family. Majority of the respondents' (93.5%) source of information on COVID-19 was media/ Internet/ TV/ Mobile (Table 1).

Table 2. Consumption of types of protein, milk and fat before and during COVID-19 pandemic (n=216)

Characteristics	Pre-COVID-19	During COVID-19
Pulses/legumes time/week (150 g = approx. 1 bowl)		
< 3	63 (29.2)	104 (48.1)
≥ 3	153 (70.8)	112 (51.9)
Chicken instead of beef, pork or sausages		
Yes	176 (81.6)	172 (79.6)
No	40 (18.5)	44 (20.4)
Red meat or sausages consumed times/day (100g = ½ bowl)		
< 1	149 (69.0)	154 (71.3)
≥ 1	67 (31.0)	62 (28.7)
Fish/ seafood (4 – 5 pieces) times/week		
< 3	165 (76.4)	165 (76.4)
≥ 3	51 (23.6)	51 (23.6)
Eggs consumed number/day		
No egg	56 (26.0)	54 (25.0)
1	138 (63.9)	136 (63.0)
≥ 2	22 (10.2)	26 (11.0)
Milk/curd consumed cups/day		
No milk/curd	61 (28.2)	51 (23.6)
1	124 (57.4)	125 (57.9)
≥ 2	31 (14.4)	40 (18.5)
Butter, margarine/cream times/day (12 gm = 1 table spoon)	169 (78.2)	165 (76.4)

Table 2 showed that some difference in the consumption of various protein items and fats were noticed in the Pre-COVID-19 and during COVID-19. Consumption of the pulses/legumes have declined remarkably i.e. 70.8% to 51.9% in ≥ 3 times a week. Intake of chicken and red meat/ sausages also dropped with some percentage i.e. 81.6% to 79.6% and 31.0% to 28,7% respectively. Whereas, intake of other protein items like eggs increased from 74% to 75% per day, milk/curd improved from 71.8% to 76.4% per day. Consumption of fats like butter/ margarine/ cream have also inclined from 21.8% to 23.6%.

Table 3. Consumption of vegetable, fruits, salad and other items before and during COVID-19 (n = 216)

Characteristics	Pre-COVID	During COVID-19
Vegetables times/day (200g = 1 bowl)		
< 2 times	91(42.1)	97(44.9)
≥ 2 times	125(57.9)	119(55.1)
Pieces of fruits consume/ day		
< 3	132(61.1)	133(61.6)
≥ 3	84(38.9)	83(38.4)
Mixed green salad (cucumber, carrot, raddish, etc)		
Yes	178(82.4)	194(89.8)
No	38(17.6)	22(10.2)
Nuts times/week 1 times = 30 g(8 -10 pieces)		
< 3	144(66.7)	141(65.3)
≥ 3	72(33.3)	75(34.7)
Commercial (not homemade) pastry such as biscuits, cookies, ice-cream or cake times/week		
< 2	116(53.7)	119(55.1)
≥ 2	100(46.3)	97(44.9)
Carbonated (pepsi, coke) and/or sugar sweetened beverages (other cold drinks) consume/day		
< 1	145(67.1)	159(73.6)
≥ 1	71(32.9)	57(26.4)
Hot water/beverages		
Yes	89(41.2)	130(60.2)
No	127(58.8)	86(39.8)
Water consumed per day		

Consumption of the vegetable has decreased slightly from 57.9% pre-COVID to 55.1% during COVID-19. Whereas, intake of mixed green salads has increased from 82.4 to 89.8%. Consumption of commercialized unhealthy food items like biscuits/cookies/ice-cream/cake and carbonated drinks like pepsi, coke or sugar-sweetened beverages have lessened with some percentage i.e. 46.3% to 44.9% and 32.9% to 26.4% respectively The respondents have augmented the consumption of the hot beverages/water i.e. 41.2% to 60.2% (Table 3).

More than three-fourth (77.8%) of the respondents were involved in physical activity at home during the COVID-19 home stay as comparison to before COVID-19 pandemic (27.3%). Among those who performed physical activity, more regularity was found during the COVID-19 homestay (46.4%) as compared to before the pandemic (23.4%) (Table 4).

Table 4. Life style changes and physical activity before and during COVID-19 (n = 216)

Characteristics	Pre-COVID-19	During COVID-19
Vegetables times/day (200g = 1 bowl)		
< 2 times	91(42.1)	97(44.9)
= 2 times	125(57.9)	119(55.1)
Pieces of fruits consume/ day		
< 3	132(61.1)	133(61.6)
= 3	84(38.9)	83(38.4)
Mixed green salad (cucumber, carrot, raddish, etc)		
Yes	178(82.4)	194(89.8)
No	38(17.6)	22(10.2)
Nuts times/week 1 times = 30 g(8 -10 pieces)		
< 3	144(66.7)	141(65.3)
= 3	72(33.3)	75(34.7)
Commercial (not homemade) pastry such as biscuits, cookies, ice-cream or cake times/week		
< 2	116(53.7)	119(55.1)
= 2	100(46.3)	97(44.9)
Carbonated (pepsi, coke) and/or sugar sweetened beverages (other cold drinks) consume/day		
< 1	145(67.1)	159(73.6)
= 1	71(32.9)	57(26.4)
Hot water/beverages		
Yes	89(41.2)	130(60.2)
No	127(58.8)	86(39.8)
Water consumed per day		

Table 5. Activities performed and changes in weight during the period of homestay (n = 216)

Characteristics	Pre- COVID-19	During COVID-19
Wake up from the bed		
Before 7 AM	128 (59.3)	31 (14.3)
7 – 9 AM	78 (36.1)	141 (65.3)
After 9 AM	10 (4.6)	44 (20.4)
Night sleep (in hours)		
≤ 7	155 (71.8)	45 (20.8)
8 – 9	59 (27.3)	169 (78.2)
≥ 10	2 (0.9)	2 (0.9)
Any physical activity?		
Yes	59 (27.3)	168 (77.8)
No	157 (72.7)	48 (22.2)
If yes, what?		
Exercise/aerobic	10 (16.9)	88 (52.4)
Yoga/ meditation	22 (37.3)	28 (16.7)
Dance	21 (35.6)	27 (16.1)
Outdoor games	6 (10.2)	25 (14.9)
If yes, duration of activity (hour)		
< ½	45 (76.3)	78 (46.4)
½ - 1	12 (20.3)	59 (35.1)
> 1	2 (3.4)	31 (18.5)
Do you do it regularly?		
Yes	14 (23.7)	78 (46.4)
No	45 (76.3)	90 (53.5)

About 99.1% of the respondents like to get engaged in the household activities at home stay. Respondents used various means of passing leisure time among which the most common is use of screen like watching movie/ TV/ face book/ messenger/ youtube/ whatsapp/ Instagram (64.1%). Among 153 respondents who had measure the weight, more than two-third of the respondents (69.9%) had gain in weight (Table 5).

DISCUSSION

The present study aimed to understand how COVID-19 pandemic homestay have impacted on diet and life style among 216 nursing students during this unprecedented time. There is slight difference in consumption of few food items. Consumption of vegetable has slightly reduced from 57.9% in pre-COVID to 55.1% during COVID. Preference for chicken over beef, pork and sausages have diminished faintly i.e., 81.6% to 79.6%. Whereas, consumption of pulses/ legumes had declined remarkably i.e. 70.8% to 51.9%. The purpose behind reduced intake of such items may be due to scarcity of those items or frequency of visit to market may have lessened. A survey on Italian respondents revealed intake of fruits, vegetables, nuts, legumes and fish respectively was 58.7%, 93.7%, 75.9%, 80.9% and 63.3%, underlining improvement of dietary pattern in Mediterranean population.[7] Whereas, Górnicka et al showed during pandemic, one-fifth increased consumption of fruit, whole grain products, and pulses.[11] A study by Galali et al[11] showed highest adherence include consumption of white meat, nuts, vegetables, and legumes by 9.48%, 9.35%, 9.22% and 8.83% respectively.[12]

There was a slight increment in consumption of some type of foods. Consumption of egg has increased from 74% to 75% per day and milk/curd per day from 71.8% to 76.4%. Intakes of butter/ margarine/ cream have increased from 21.8% to 23.6%. The consumption of mixed green salad has also increased with some percentage 82.4 to 89.8%. The upsurge in these food items showed slight alteration in the dietary pattern but simultaneously it revealed the knowledge gap among the respondents regarding the types of food to be augmented. A study by Di Renzo et al showed consumption of items like white meat, dairy product, eggs have increased with some numbers.[7]

The respondents have variably increased consumption of hot water/ beverages i.e. 41.2% to 60.2%. The increment in intake of hot water/ beverages may be due to fact that it may act as anti-bacterial or anti-viral effects against COVID-19 infection. This finding is comparable to a study conducted in Italy with high variation in consumption of hot beverages before and during COVID-19.[7]

The present study revealed that consumption of unhealthy foods had reduced with certain numbers like red meat/

sausages, commercial (not homemade) pastry such as biscuits, cookies, ice-cream, or cake and carbonated (pepsi, coke). A study in Italy showed that unhealthy foods like salted snacks, spirits, sweet beverages, processed meat, packaging sweets and baked products have decreased with some percentage.[7] According to International Food Information Council (IFIC), 60% of American consumers reported cooking at home more and around 20% said they were eating healthier than usual.[13] However, Giacalone et al showed food categories affected by lockdown were higher intake of commercial (21.1%) and alcohol/ carbonated beverages.[14]

Changes in sleeping pattern were found during COVID-19 as compared to pre-COVID. In pre-COVID-19, more than half (59%) used to get up at before 7 AM and during pandemic majority (85.8%) were getting up after 7 AM and number of sleeping hours (≥ 7 hours) have increased to 79.1%. The underlying reason behind this may be in pre-COVID when college was ongoing, students have to go for clinical or attend class so they wake up early due to which number of hours also might have reduced. A study conducted in Italy showed similar findings with sleep duration (≥ 7 hours) increased from 51.3% in pre-COVID-19 to 63.1% during COVID-19.[7] Fitbit have recently confirmed this where people are going to bed later and achieving more sleep than usual since COVID-19 outbreak.[15] Study conducted in Canadian population showed deviating result with families reported same sleep duration since COVID-19 and some reported decreased sleep duration.[16] Knell et al revealed sleep duration increased in 22% and decreased in 13%; 8% defined sleep more restful and 20% less restful.[17]

A study conducted in Danish population showed 29% have increased physical activity as compared to before[14] which is comparable to present study (50.3%). The purpose behind respondents performing physical activity is as they are studying nursing so they may be more concerned upon their health and wellbeing. A study in United States showed more than two-third participants were classified as achieving either high (45.4%) or moderate (30.6%) levels of physical activity.[18] Study by Mayasari et al revealed interest in exercise, outdoor, and plant increased in March and April.[19] Cancello et al reported 27% who were sedentary before implementation of restrictive measures (inactive) started practicing physical exercise.[16] Whereas, contrast result was obtained in Ontario indicating decline in physical activity during pandemic i.e. 40%.[11] The frequency of women exercised had reduced during lockdown as compare to before i.e. 2.8±1.0 times/week before lockdown to 2.7 ±1.2 times/week during lockdown, (p=0.001).[20] More than 70.8% had measured weight in five months which showed that they are concerned about their weight. Among 153 respondents, more than two-third (69.9%) had a gain in weight which is comparable to study conducted in India with 52.6% have a significant upsurge in weight.[21] Despite the physical activity the weight gain was observed which may be due to their changes life style or decrease consumption of vegetarian protein and vegetable. A survey by Muscogiuri et al,[10] Elmacioglu et al,[22] Dogas et al,[20] and Giacalone et al[14] revealed that 48.6%, 35%, 30.7% and 28.4% respectively have increased their body weight. A study conducted in Italy showed that 39% gained weight and 19% lost 1–2 kg of weight.[11]

The study limits the generalization of findings due to non-probability sampling technique. Since, the questionnaire used is online questionnaire so the honesty of answeres provided by the respondents may be questionable.

CONCLUSION

Due to COVID-19 pandemic some positive effects like physical exercise (mainly indoor) with increased duration and household activities were observed among the respondents. The negative effects were waking up late in the morning, increased sleep duration, gain in the weight and use of the screen (TV/ mobile) to pass the leisure time. Regarding dietary habits there was less variation before and during pandemic except few food items like hot/water beverages and pulses/legumes. To address negative impact of lockdown it is recommended to increase indoor activities like exercise, dancing, yoga/ meditation and follow WHO/European dietary recommendation (Mediterranean diet) which may help in weight reduction, prevention from non-communicable diseases and boost immune system in the period of pandemic. At the policy level, advertisement can be given in different media regarding the types of food incorporated in the Mediterranean diets so as to aware the general public of the country.

CONFLICT OF INTEREST

None

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