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Social Issues During the COVID-19 Quarantine Period: Interaction of Physical Activity and Mental State

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ABSTRACT

The purpose of this research is to determine the effect of house isolation on the Palestinian people's lifestyles, mental health (MW), and physical activity during the COVID-19 pandemic (PA). The Global Health Guidelines 5 and the Pittsburgh Sleep Quality Index, as well as the Food Frequency Questionnaire (FFQ) (PSQI) (PSQI), were used to collect demographic data. To collect data from all staff and students in Palestinian universities, including faculty and staff, as well as students, a non-discriminatory approach to community sampling was used, consisting of 360 research participants. According to the statistics, men are more likely than women to be in a good emotional state. By and large, people with improved mental states reported improved sleep quality and overall health. Increased physical activity (i.e. 17.33.6) was connected with improved mental health compared to average physical activity (i.e. 13.74.2). It has been proven that there is a relationship between a mental state variable and the amount of regular daily activity. Physical activity improves mental health. Additionally, physical exercise was the strongest predictor of mental health ratings.

1. INTRODUCTION

Wuhan, China, was the site of an outbreak of a SARS-related virus, now known as Corona, in the fourth quarter of 2019. (COVID-19). Known for attacking the respiratory system brutally, this virus has spread at an unprecedented rate both within and beyond China's borders, resulting in various symptoms and the possibility of stopping breathing and even causing pulmonary emphysema in certain cases. The virus only infected millions and killed hundreds of thousands of people in the first half of 2020. The quick spread of COVID-19, which caused a pandemic and a great number of deaths, has made it one of the world's most serious disasters, particularly for the Palestinian people.

Moreover, Covid affects social life indirectly. On the contrary, all the previous difficulties faced by governments all over the world were related to financial policies and economic conditions. Additionally, its consequences are regarded as the most serious, necessitating a variety of strategies to address. The Palestinian people will undoubtedly be affected by what is happening in the rest of the world. To combat the pandemic, every country in the world is mobilising all of its economic, medical, and awareness-raising resources, as well as large finances. The Palestinian Authority is appallingly underfunded. As if that weren't bad enough, Israel's control of land and sea ports, as well as strict border controls, serves as a significant exit point for imports and exports. The Gazza region, in particular, is engulfed in a suffocating siege that prevents even the most basic humanitarian aid from reaching it. Despite the virus's development and the threats, it poses to Palestinians, Israel's primary deterrents and decision factors remain political and security concerns, rather than humanitarian ones.

As a result of the identification of many instances and confirmation of infection, the Palestinian administration announced a general closure to prevent the spread of COVID-19. Following the virus's discovery in Bethlehem, a state of emergency was declared in all Palestinian governorates for 30 days, and a series of stringent precautionary measures were implemented to halt the virus's spread and contain it to the smallest possible area, taking into account the country's difficult circumstances. As a result of the crisis, the Palestinian people operate within the limits of an emergency budget that prioritises support for the medical sector and emergency relief programmes, particularly in Gaza. It was decided to extend the state of emergency until the beginning of August, or until mobility was restored and citizens were permitted to leave their houses to run errands and perform their occupations, and life returned to normal.

Due to a lack of capacity to provide citizens with face masks and protective gloves, as well as a lack of a vaccine to prevent or treat infection, the number of COVID-19 virus cases increased in all governorates. Due to overcrowding in hospitals and a lack of medical staff and clinics, the burden on the Palestinian medical system's meagre resources increased. This prompted the government to announce a second, more severe closure across the Palestinian territories, including the closure of tourism and entertainment sectors and the cessation

of tourist arrivals from within and outside Palestine, as well as the prohibition of Palestinian workers and citizens entering Israel. Preventing Palestinians from leaving their homes, closing schools and universities, prohibiting land, air, and sea travel, and closing gyms are all examples of this.

Many preventive measures have been implemented by the majority of countries to prevent the spread of the epidemic, including limits on individual travel, such as quarantine or physical isolation [1]. These constraints have had a detrimental physical and psychological impact, including increased anxiety and depression symptoms that may last beyond the lockdown period [2]. As a result, it's vital to comprehend the serious ramifications of these effects, such as increased anxiety levels linked to various lifestyle choices, such as sleep quality alterations [3].

Even while it is common sense to believe that staying at home is the best option for limiting the spread of the virus between people, this preventative method can have significant unintended consequences. Lethargy, prolonged sitting or lying down, and an increased reliance on mobile devices have all been associated with long-term isolation from the outside world [4, 5]. When forced to confine themselves to one's own home, some people may find themselves tempted to sleep for more than eight hours due to increased leisure time and a shorter workweek, while others may sleep in late or take many daytime naps due to the lack of outside distractions.

Concerns about social distancing may lead to an increase in anxiety, anger, and social unrest, as well as feelings of isolation among individuals. According to the WHO [5], increased mental health issues have been connected to social isolation caused by COVID-19. The findings of Smith et al. [6] revealed that 36.8% of the 932 adults in the UK who were isolated from society as a result of Covid-19 were in a poor mental health state at the time. This was associated with a variety of criteria, including gender, age, annual income, smoking or not smoking, and whether or not they had chronic conditions. Additionally, some sources imply that mental health is associated with the body, state of brain and a favourable social status [7-9]. It includes being able to create connections, coping with life's ups and downs, and appreciating the good things in life. When it comes to happiness, this doesn't mean that people should always be euphoric.

Even a short jog can improve mental alertness, energy, and mood, as well as self-image [10], worry and anxiety [11], and quality of life for people suffering from mental illnesses [12]. Physical activity is essential for mental health. According to a wide range of research investigations, physical activity has a significant impact on mood. It has been found that low-intensity exercise for 30–35 minutes, 3-5 times a week, for ten to twelve weeks, promotes and strengthens positive emotions like alertness and enthusiasm [13].

According to experts, regular lockdowns and home confinement requirements, together with limits on movement, have driven people to work and learn from the comfort of their own homes. Additionally, they are concerned about their loved ones, especially those who are at high risk of catching the illness.

As a result, the World Health Organization [5] has issued recommendations and guidelines for individuals to follow at home, such as washing their hands frequently, quitting all forms of smoking, eating a healthy diet, getting up at the same times as before the epidemic, and making time for work, rest, leisure, and play with a cup of coffee [14]. The well-known negative impact of physical activity on a person's psychological state and the ability to diminish positive effects necessitates home confinement in the short and maybe long term.

Because of the great number of studies and studies undertaken on this topic prior to the Corona epidemic, we know that mental health is crucial in our daily life. There is no one-size-fits-all approach to managing stress and anxiety. Exercise, sleep, and nutrition all play a role in this. The World Health Organization defines health as an overall condition of physical, mental, spiritual, and social well-being, not just the absence of sickness. Physical activity can help people maintain or enhance their mental health during the COVID-19 pandemic, and this study aims to set physical lifestyle criteria and determine the extent to which physical activity might aid this process.

2. DESIGN AND METHOD

A cross-sectional study was conducted by sending an Arabic-language questionnaire via social media platforms (Facebook, WhatsApp, and LinkedIn) to a sample of study participants. The questionnaire was supplied as a hyperlink to be completed during home confinement and takes the form of a google form. The questionnaire was issued to all Palestinian university employees, staff, and faculty members, as well as students, resulting in 360 responses from people aged 18 to 70 who were subjected to the Palestinian government's home confinement measures. The questionnaire includes questions on the participants' demographics as well as an assessment of their levels of physical activity. At the start of the questionnaire, the participants were informed of the study's aim and goals, and their consent to participate was sought; they were also given the freedom to answer the various portions of it, as well as the option to withdraw from the study or leave any parts unanswered. The questionnaire had a ten (10) minute completion period and was to be completed and returned by pushing a designated button (done). The participants were not requested to reveal any personal information (such as their names, e-mail addresses, or dates of birth) so order to retain their anonymity and respect for their privacy. Furthermore, the volunteers were not financially paid for their participation. The questionnaire was completed by 378 people, but those who provided insufficient or partial responses were not included or considered. As a result, only the data from 360 completed questionnaires was included for analysis in this study (184 females and 176 males). The demographic data of the participants is shown in Table 1.

After a week of testing the questionnaire with a pilot sample of 37 participants from both the study and non-study populations, the researchers calculated the stability factor by reapplying the questionnaire to the sample to ensure its internal and external consistency, as well as to ensure its clarity before applying it to the sample. A reasonable set of results (Cronbach a > 0.70) and an externally consistent set of results (an intraclass correlation coefficient > 0.70) have been obtained from the pilot sampling and the internal consistency test at the total and individual levels.

Table 1. Demographic information about the participants

Variables	Total (360)	Female (184)	Male (176)	T value	Statistical significance
Age	28.911.1 ±	27.09.7 ±	30.812.1 ±	3.240-	0.001
BMI	24.54.2 ±	23.53.8 ±	25.64.2 ±	5.077-	0.0001<
MET Score	229.4254.5 ±	169.0207.2 ±	292.4283.0 ±	4.703 -	0.0001<
Mental state score	14.24.4 ±	13.14.5 ±	15.34.0 ±	4.744 -	0.0001<

2.1 A description of the study sample

Participant responses were received by electronic distribution of the questionnaire after its rigour had been confirmed and the content had been changed to be more appropriate for Palestinian society. The study's sub-measures comprised demographic and cultural data, the WHO-5 mental state index, and the IPAQ's brief module. Additionally, Gender, age, height, height, educational level, marital status, health status, use of various tobacco products, area, domicile, occupation, and presence of chronic diseases were all included in the study sample's demographics. These results were obtained using DCI, which are sample-specific personal estimation measures; BMI was calculated by dividing weight in kilogrammes (KG) by height in metres (m) squared [15].

The body mass index of the subjects was used to classify them into four categories: underweight, normal weight, overweight, and obese. The mental state was assessed using the WHO-5 scale, which is composed of five dimensions: How those aspects were measured was previously clarified; scored scores reflecting those dimensions were calculated up to a maximum of 25 points; and persons scoring greater than 13 points on the (WHO) scale were regarded to be in a good mental condition [15].

The IPAQ (International Physical Activity Questionnaire) [16] was used to evaluate the degree of physical activity of each participant based on their replies to the questionnaire. MET min/week is the metabolic equivalent of a week's worth of moderate-intensity physical activity and high-intensity physical activity, respectively. The seven paragraphs in this fast model contain information about these three categories of physical activity. Sitting time is also tracked by the application. According to the MET, which was previously reported [17], the sample was divided into three groups based on how active they were (low, medium, and highly active).

Table 1 summarises the demographic characteristics of the 360 questionnaire respondents (184 females and 1176 males). The majority of participants live in Palestinian cities, and female participation outnumbered male participation by a wide margin. Obesity and weight gain are common, much more prevalent in males than females (p0.0001), and males have a higher level of physical activity and mental health than females (p0.0001).

2.2 Statistical analysis

The following software was used to conduct the statistical analysis: (SPSS Statistics software, version 23, IBM Chicago, IL, USA.). All of the constant variable data's mean, average, and standard deviation were computed ANOVA and Tukey's post hoc test for inconsistent variables followed by an independent sample t-test revealed statistical differences and distinctions between the independent samples. Data from variables connected with categories were also provided as percentages. The Chi-square test was then applied to categorical variables. Pearson Statistical significance was considered as a value of p 0.05 or greater for the correlation coefficients used to examine the link between the mental state variable and the level of physical activity.

3. RESULTS

The characteristics of the main study sample of 360 participants (176 males and 184 females) that included age, body mass index, sleep scale, and physical and mental activity are presented in Table 2 below. It shows that when using an independent sample T-test, there are statistically significant differences ($p < 0.0001$) due to gender in the variables of age, body mass index, physical activity, and mental wellbeing. The differences were not statistically significant at the level ($p < 0.0001$) in the polysomnography variable.

Table 3 shows the results of the Chi-square test for the differences in the demographic variables of the participants according to the gender variable. Accordingly, the results indicated that 51.1% of the participants are female, 48.9% are male, and 59.4% of them live in urban and suburban areas, and most of them (45.3%) are aged 18-22 years, with the normal weight for most of them being 55.6%, with an increase in weight for 28.3% of them.

However, there were statistically significant differences at the level of significance ($p < 0.0001$) in the BMI indicator between males and females in favour of males, and 53.3% of the participants had an educational level of a bachelor's degree and 21.7% had a high school, with statistically significant differences at the level of significance ($p <0.0001$) in the educational level between males and females in favour of females. The results showed that the level of physical activity was low for the majority (42.8%) of the participants, with an average of 29.7% in some of them and a high of 27.5% in some of them, with statistically significant differences at the level of significance ($p <0.0001$) in the level of physical activity between males and females in favour of males.

Also, the percentage of smokers among males and females reached 30.3%, most of whom were 44.3% males. This, in addition to a high ratio of chronic diseases (such as atherosclerosis, increased blood pressure, and diabetes), was 29.5% more prevalent in males compared to females. In addition, the study showed that there were no statistically significant differences at the level of significance ($p < 0.0001$) in the health status estimate ($p=0.438$), marital status ($p=0.172$), and sleep quality ($p=0.612$) between males and females. Finally, the results of the study showed that 58.3% of the participants had a good level of mental state, with statistically significant differences at the level of significance ($p < 0.0001$) in the level of mental state due to the gender variable for the sake of males.

The results of Table 4 show that there are statistically significant differences in the mental wellbeing index according to the variable of physical activity status ($F (2,357) = 46.231$; $P < 0.0001$). Also, to determine the differences, the Scheffe test was used for dimensional comparisons between the averages, and the results shown in Table 5.

It is clear from Table 4 that the mental wellbeing index (17.3

± 3.6) was higher at the high level of physical activity, and it was lower in the moderate (13.7 ± 4.2) and low (12.5 ± 4.01) physical activities. In addition, all the differences in the mental wellbeing index were between the physical activity status of low, moderate, and high and in favour of high and moderate physical activity. Figure 1 shows the mental wellbeing index at levels of low, moderate, and high physical activity.

The analysis of Pearson's correlation coefficient showed a highly significant relationship between the mental wellbeing variable and the level of daily physical activity (r=0.473; P=0.001), as it was found that the state of mind scored better results with an increase in physical activity as shown in Table 6.

Table 2. Baseline characteristics of Palestine participants and stratified according to gender

Variable	Total (360)	Female (184)	Male (176)	Value t	Significant value /moral
Age Group (years)	28.9 ± 11.1	27.0 ± 9.7	30.8 ± 12.1	-3.240	0.0001
Body Mass Index (kg/m2)	24.5 ± 4.2	23.5 ± 3.8	25.6 ± 4.2	-5.077	<0.0001
Sleep Scale (Score) **	5.1 ± 3.0	5.2 ± 3.3	5.0 ± 2.6	0.676	0.499
Physical activity measure (MET min/day)	229.4 ± 254.5	169.0 ± 207.2	292.4 ± 283.0	- 4.703	<0.0001
Mental wellbeing Scale (Score)	14.2 ± 4.4	13.1 ± 4.5	15.3 ± 4.0	- 4.744	<0.0001

***Higher score is at risk.*
#Lower means higher quality.

Table 3. The demographic characteristics of the 360 participants in the current study

Variable	Gender Total Number %	Female Number %	Male Number %	Chi- square	P- value
Participants	**360 (100)**	**184 (51.1)**	**176 (49.9)**		
Body Mass Index (kg/m2)					
Underweight	16 (4.4)	9 (4.9)	7 (4.0)	15.905	0.001
Normal	200 (55.6)	119 (64.7)	81 (46.0)		
Overweight	102 (28.3)	43 (23.4)	59 (33.5)		
Obese	42 (11.7)	13 (7.1)	29 (16.5)		
Age Group (years)					
18-22	163(45.3)	98 (53.3)	65(36.9)	15.508	0.001
23-31	83(23.1)	36(19.6)	47(26.7)		
32-41	56(15.6)	31(16.8)	25(14.2)		
42 and above	58(16.1)	19(10.3)	39(22.2)		
Education Level					
School	21(5.8)	8(4.3)	13(7.4)	11.837	0.019
High school	78(21.7)	46(25)	32(18.2)		
College	22(6.1)	14(7.6)	8(4.5)		
BA degree	192(53.3)	101(54.9)	91(51.7)		
Postgraduate	47(13.1)	15(8.2)	32(18.2)		
Physical Activity Status					
Law	154(42.8)	96(52.2)	58(33.0)	15.008	0.001
Average	107(29.7)	50(27.2)	57(32.4)		
High	99(27.5)	38(20.7)	61(34.7)		
Housing					
City	214(59.4)	116(63.0)	98(55.7)	2.022	0.155
Other (rural and desert)	146(40.6)	68(37.0)	78(44.3)		
Smoker					
yes	109(30.3)	31(16.8)	78(44.3)	32.156	<0.001
No	251(69.7)	153(83.2)	98(55.7)		
Chronic diseases					
Yes	64(17.8)	12(6.5)	52(29.5)	33.622	<0.001
No	296(82.2)	172(93.5)	124(70.5)		
Health status assessment					
Poor	26(7.2)	15(8.2)	11(6.3)	1.652	0.438
Good	94(26.1)	52(28.3)	42(23.9)		
Excellent	240(66.7)	117(63.6)	123(69.9)		
Marital status					
Single	214(59.4)	114(62.0)	100(56.8)	3.525	0.172
Married	137(38.1)	68(37.0)	69(39.2)		
Divorced	9(2.5)	2(1)	7(4.0)		
Sleep Status					
Poor	189(52.5)	99(53.8)	90(51.1)	0.257	0.612
Good	171(47.5)	85(46.2)	86(48.9)		
Mental wellbeing					
Poor	150(41.7)	99(53.8)	51(29.0)	22.813	<0.001
Good	210(58.3)	85(46.2)	125(71.1)		

Table 4. The results of the One-Way ANOVA analysis of the mental wellbeing index according to the variance of the Physical Activity Status variable

Variable	Source of variables	Total of squares of deviation	Degree of freedom	Mean of squares	F	significance *
Mental wellbeing index	Between groups	1435.220	2	717.61	46.321	*0.000
	Within groups	5541.444	357	15.522		
	Total	6976.664	359			

Table 5. Scheffe test results for the significance of the differences in the mental wellbeing index according to the variable of the Physical Activity Status

Variable	Mean	Standard deviation	Physical Activity Status	LOW	MODERATE	HIGH
Mental wellbeing index	12.5	4.01	low		*1.27728-	*4.83189-
	13.7	4.2	Moderate	*1.27728		*3.55461-
	17.3	3.6	High	*4.83189	*3.55461	

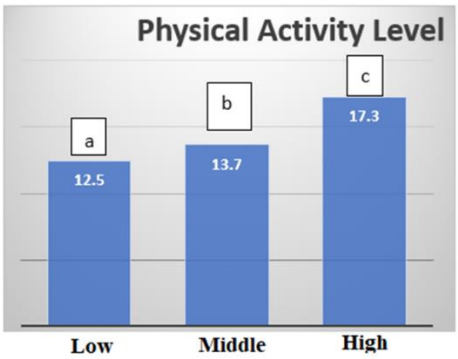

Figure 1. Mental wellbeing score

Table 6. Pearson's correlation coefficient for the relationship between Mental wellbeing and physical activity Status

Variables	Physical Activity Status	Mental wellbeing
Physical Activity Status		*0.473
Mental wellbeing	*0.473	

* Statistically significant at the level α = 0.01)).

4. DISCUSSION

Analysis of variance (ANOVA) results showed substantial statistical differences in the levels of mental state and physical activity (F (2,357) = 46.231; P 0.0001). Individuals who engage in a high level of regular activity (17.3-3.6), as shown in the study results in Figure 2, have higher scores in the indicator of mind state compared to those who engage in a medium level of physical activity (13.7-4.2) and those who engage in a lower level of physical activity (12.5-4.9). Furthermore, the differences (P 0.0001) were statistically significant.

As evidenced by the study's findings, Figure 2 shows that there were significant statistical differences (P = 0.028) between people who engaged in medium and low levels of physical activity in terms of mental state. As shown in Table 2, the correlation between gender (male) and more active regular activity as well as a higher state of mental well-being can be explained by the fact that males reported lower levels of regular activity than females, which may be due to differences in gender characteristics in the "age" variable, which shows that females aged 23-31 were less active than males.

Additionally, Pearson's correlation coefficient analysis revealed a significant relationship between the mental state variable and the degree of physical activity; it is clear that the better one's mental condition is, the greater one's weekly physical activity level is (r=0.473; P=0.001). The current study examines the degree of link between physical activity and mental state, as physical activity can influence one's mental state during a period of COVID-19-related house confinement.

Numerous studies have shown that people who engage in consistent and regular physical activity have a better mental condition. Furthermore, a growing body of research suggests that physical activity, regardless of age or geographic location, can operate as a protective factor against depression [18]. According to McDowell et al. [19], physical activity protects against anxiety symptoms and disorders, and physical activity and mental state are favourably connected [20]. In young children, Bell et al. [21] discovered no link between mental health and physical activity. After three years of research, however, children aged 13 to 15 who engaged in rigorous physical activity experienced less mental anguish. Furthermore, our findings support those of Kilani et al. [22], who found that physical activity can help residents cope with the stresses of house confinement while also enhancing their mental health.

It's still thought that physical activity, based on prior studies, is capable of protecting study participants, particularly females, from mental decline brought on by home confinement, despite the fact that it has been shown to improve mental condition. There is a correlation between a high degree of physical activity and the reduction of anxiety and depression; in return, stretching and resistance exercises were negatively associated to each other as well as anxiety and depression, while domestic duties were negatively related to depressive symptoms.

Physical exercise, according to World Health Organization recommendations [23, 24], is a health-related topic that covers the benefits it gives in terms of psychological, physical, mental, and social well-being, as well as the drawbacks of not engaging in it. Absence and the positive impact it has on an individual's mental state are discussed. Furthermore, physical activity is regarded as a means of enhancing confidence and gaining social support [25], as it improves an individual's mood by increasing the level of a neurotransmitter (serotonin), which affects an individual's mood when exercising [26, 27]. Physical activity is also regarded as a means of gaining social support. It improves the individual's self-esteem and social acceptance [28], as well as relieves depressive symptoms, because cardio and strength activities are beneficial in improving the individual's condition [29, 30].

It also has a positive effect on the function of the heart,

arteries, muscles, and bones. Furthermore, it has been shown to lower the chance of acquiring a multitude of illnesses, including high blood pressure, chronic heart disease, stroke, diabetes, breast cancer, colon cancer, and depression [24].

Regular exercise also has a beneficial effect on common psychological diseases and depression symptoms by generating the production of beta endorphins following exercise; this endorphin is associated with a happy mood and a sense of mental well-being [30]. Additionally, physical activity aids in relaxation [31], but it is necessary to emphasise that there are numerous barriers to exercise. Some are psychological (depression, lack of motivation, lack of confidence, insomnia), while others are social (lack of social support, poor environment, insufficient time, illness, fatigue) [32-34].

Regardless of the fact that home confinement is the best course of action and the World Health Organization's most important recommendation [5], it has unintended consequences for other aspects of an individual's health. This is especially true in light of the abrupt onset of home confinement, which fundamentally alters people's lifestyles by increasing immobility (sitting) time and jeopardising routinely practised physical activity. The majority of people are spending more time in front of screens, whether it's to check the news on their phone, participate in a Zoom call with family, watch an interesting Netflix series, or spend additional hours staring at a computer while working from home. This can result in a deterioration of social ties between family members [2].

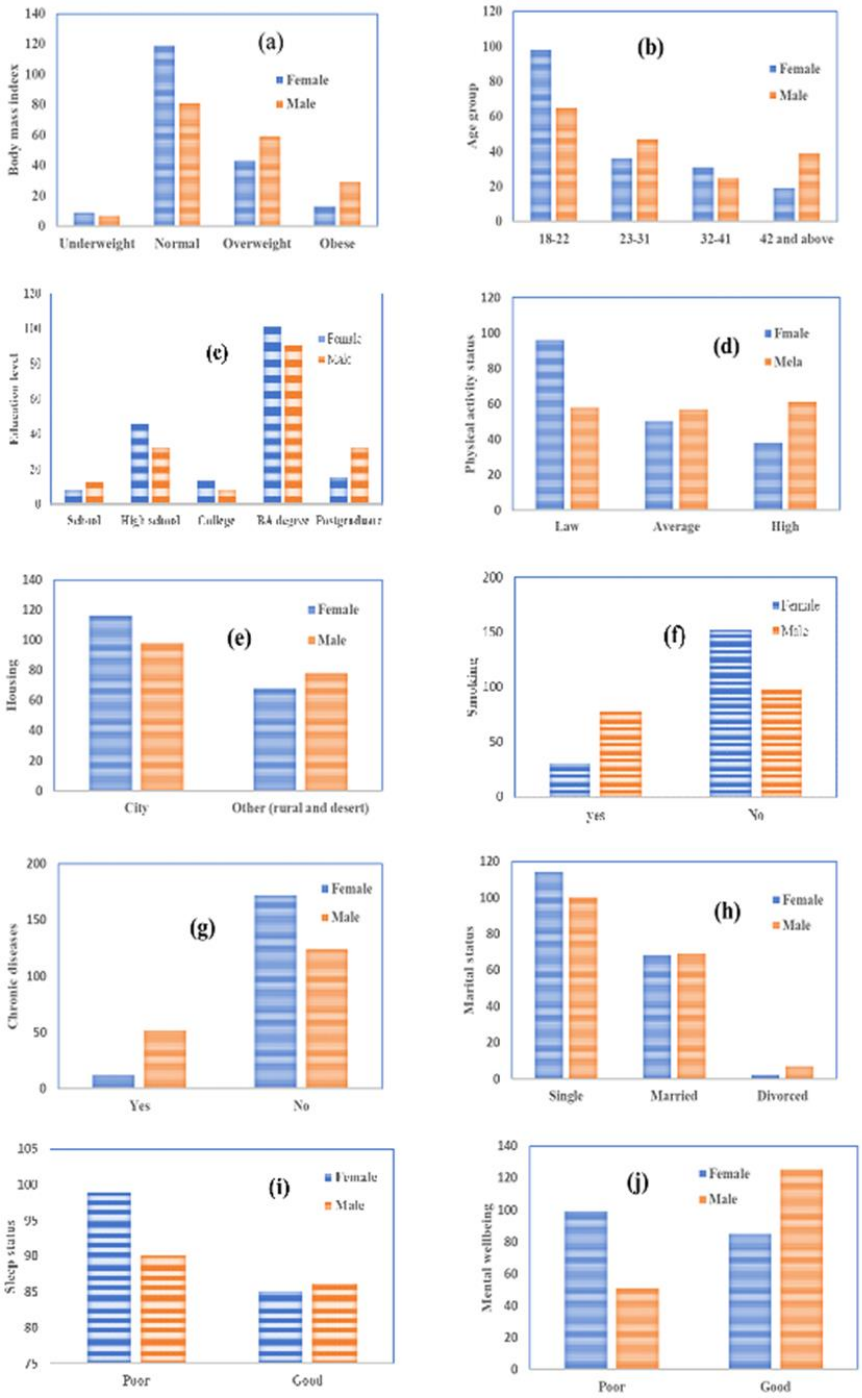

Figure 2. Evaluation the mental state variables in relation to the lifestyle-related and demographic variables that were chosen

Additionally, numerous studies have demonstrated a negative correlation between the duration of home confinement and the participants' mental state, as well as posttraumatic stress disorder and anger symptoms [35, 36]. Home confinement is associated with a variety of negative psychological effects, including posttraumatic stress disorder, confusion, anger, fear of infection, frustration, and boredom. As a result, according to the findings of Hawryluck et al. [35], individuals who were isolated for more than 10 days showed more evident signs of post-traumatic stress disorder than those who had been quarantined for less than ten days.

Further evidence suggests that household incarceration has a greater impact on female mental health than on male mental health, which researchers attribute to an increase in the burden women bear at home in the form of daily chores such as caring for children, performing house chores, and being burdened with the financial burdens associated with living decently, as well as feelings of loss of functional and social position as a result of being unable to participate in society's activities [37].

According to the findings of this study, men were found to have a positive mental state because of their capacity to get out of the house and go shopping, stroll through the yard or garden, or engage in physical activities. Adams-Prassl et al. [38] found that house confinement reduced the mental condition of American women and men, as well as those women experience greater negative repercussions than men because of increased domestic responsibilities, with the effect on males being close to zero.

Additionally, the researchers observed a correlation between the deterioration of mental status caused by home confinement and residence location, as research has shown that individuals who live in rural areas have a higher psychological status than those who live in urban areas or those who live in low psychological status. As a result of insomnia, exhaustion, and anxiety. Additionally, residents of larger homes with outside spaces report reduced anxiety, concern, and stress.

Moreover, a significant study conducted on children who lived in modern areas (cities) with their parents discovered that they were more likely to suffer from mental health problems as a result of being confined at home than children who lived in rural areas. According to the findings of the study, rural residents differ from city dwellers in terms of mobility while confined to their homes, owing to the strict restrictions placed on their ability to move around freely [39]. Another study discovered that children who grew up in rural areas surrounded by animals and bacteria have stronger immune systems, are more resilient to stress, and have a lower risk of developing mental health problems than city dwellers without pets. This study adds to the body of evidence demonstrating the "hygiene hypothesis," which asserts that highly sterile environments can be detrimental to health [40].

Additionally, prolonged confinement to the home as a result of closure and confinement increases lethargy, laziness, monotony, and physical activity levels, which can contribute to mental decline [41]. Regardless, being physically active at home may benefit people who are confined to their homes in terms of maintaining and protecting their mental health. Physical activity, according to Chen et al. [42], can aid children in recovering from mental health issues associated with quarantine during the COVID-19 crisis. The World Health Organization [5] has issued Adults should engage in at least one session of strenuous exercise of up to 75 minutes per week, or at least 150 minutes of moderate physical activity per week, or a combination of the two, according to special rules for those under quarantine.

Increased levels of brain-derived neurotrophic factor (BDNF) and body-induced opiates (endorphins) as a result of physical activity can help alleviate the symptoms of stress and depression. Other benefits of exercise include improved immune system function as well as an increase in one's own self-esteem [43]. Moderate to vigorous physical activity helps decrease the symptoms and effects of anxiety and depression linked with confinement at home thanks to the protective complexity and powerful neurological implications that it provides.

5. CONCLUSION AND LIMITATIONS

According to the current study, a lack of physical activity is linked to a person's poor mental health when they are housebound. The new wave of the virus necessitates a time of house confinement during which mental and physical health can be improved through various physical exercises. Exercises should be accessible to everyone and involve the least amount of time, effort, and money possible to ensure that everyone can benefit from them. If you don't know how to do an exercise correctly, you could end up hurting yourself if you don't get help from a certified trainer or watch a YouTube video by a well-known and well-recognized instructor who can explain how to perform the exercise correctly. In order to keep people's immune systems strong in the event of a probable virus infection, it is imperative that they be encouraged to engage in physical activity while in lockdown. There was no prior information or data provided to those who participated in this study before COVID 19, notably on sleep quality, mind state, and nourishment on another level, which suggests that there may have been peoples who did not receive enough nourishment prior to COVID 19.

That is, humans who were not fit and healthy prior to the epidemic may have been classified as having low levels of physical activity during their stay at home; correspondingly, healthy and active individuals may have reduced their level of activity despite being classified as having high physical activity levels during their stay at home.

The current study could not ask subjects about their impressions and physical activity levels prior to confinement, and the authors could not assess pre and post responses in all variables. Also, the current study did not compare gender respondents in this study. In addition, it has not thoroughly analysed all dependent variables such as nutrition and sleep quality in detail.

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