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Research Paper: Depression Associated With COVID-19 and its Impact on Physical Activities of Young Adults of Pakistan

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ABSTRACT

Introduction: Coronavirus Disease 2019 (COVID-19) is a cluster of acute respiratory illnesses with unknown etiology, which firstly appeared in Wuhan, Hubei Province, China, in December 2019. All educational institutes of Pakistan were completely closed from March 13, 2020, to August 15, 2020. This condition disturbs the daily routines of children with mental health needs. This sudden closure limited their physical activities in their routine life. This study aims to observe the depression associated with COVID-19 and its impact on the physical activities of young adults of Pakistan.

Materials and Methods: A web-based cross-sectional study was conducted on 384 young adults. A modified depression scale was used to assess depression, and the revised physical activity questionnaire was used to evaluate the physical activity of Pakistani young adults in the past month.

Results: About 57.8% of the samples were sometimes sad; 44.5% sometimes felt grouchy in the mood; 43.8% never felt hopeless about the future. Also, 32.6% sometimes slept less or more than usual, 35.9% sometimes had difficulty concentrating on their work, 48.7% slept 6-8 hours per day. Besides, 49% engaged 1-3 hours in work or study per day; 43.2% watched TV, sat quietly, or listened to music for 1-3 hours. About 57.8% engaged less than 1 hour per week in light physical activities. Also, 77.9% engaged for less than 1 hour per week in moderately strenuous activities.

Conclusion: Depression could be highly associated with the COVID-19 outbreak, and it might affect the physical activities of young adults.

Keywords: Depression, COVID-19, Physical activity, Young adults

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1. Introduction

Coronavirus Disease 2019 (COVID-19) is a cluster of acute respiratory illnesses with unknown etiology. It appeared in Wuhan, Hubei Province, China, in December 2019 [1]. The Ministry of Health confirmed the first case of COVID-19 in Karachi, Sindh Province, Pakistan, on February 26, 2020. On the same day, another case was confirmed by the Pakistan Federal Ministry of Health in Islamabad [2]. After 15 days, the number of confirmed cases (COVID-19 positive) reached 20 out of 471 suspected cases, with the highest numbers reported from the Sindh Province, followed by the Gilgit Baltistan. All of the confirmed cases had recent travel history from Iran, Syria, or London. COVID-19 seems to be local, regional, and national outbreaks that can significantly impact the health of the Pakistani population and society [3]. All educational institutes of Pakistan were completely closed from March 13, 2020, to August 15, 2020. This condition disturbed the daily routines of children with mental health needs. Educational institutes help students cope with their mental health issues through routine physical activities such as sports activities and exercise classes [4]. To many students, the educational institutes act as an anchor, and due to this lockdown, students have lost their anchors [5]. This constant lockdown could potentially trigger their symptoms and lead them to develop other mental health issues [6]. Most people follow the official recommendation to isolate themselves and remain at home. Still, such acts would have a detrimental effect on the physical activities of individuals, with more time spent watching TV and a resulting impact on physical health, well-being, sleeping patterns, and quality of life [7, 8]. Recent studies have shown that the prevalence of depression in the general population varies from 3.7% to 48.3% during the COVID-19 outbreak [9].

The student-counseling Group in Hong Kong conducted a poll recently after the university exams cancellation. They found that approximately 20% of the students reported a maximum stress level on a scale of 10 [10]. Students face constant ambiguity to catch the infection by the coronavirus due to disruption of their daily routines; staying healthy was another stressor for students [11]. Depression is a common illness in the overall population, and the prevalence of this affective illness is two- to three-fold higher in patients with chronic medical diseases [12]. Many cross-sectional studies have reported that depressed patients live a sedentary lifestyle [13]. The association of depression and physical activity may be bidirectional: depression may lead to decreased physical activity levels due to low motivation and energy, and decreased physical activity may be a risk factor for depression. A recent review of the literature shows that regular physical exercise significantly reduces the risk of developing depression in the adult population [14].

There are a lot of health benefits associated with physical activity. The lack of physical activity can have harmful effects on health, such as increasing the risk for coronary heart disease, diabetes, certain cancers, obesity, and hypertension [15]. Physical fitness is a physiologic state of well-being that allows one to fulfill the demands of daily life, and this fitness is achieved by physical workouts. Routine physical activity improves psychological well-being by decreasing stress, anxiety, and depression [16]. Physical inactivity may also be associated with the development of mental disorders; cross-sectional and prospective-longitudinal studies have shown associations between physical activity and symptoms of depression and anxiety [17].

One study found that fitness cooperated with exercise such that highly fit subjects who do not exercise regularly have a reduced mental health status than all others [18]. Another study found that fit nonexercisers may have been temporarily prevented from exercising, which may worsen the mood and increase anxiety [19]. According to one study, regular exercise reduces the risk of depression [20]. Another study reports that naturally occurring changes during physical activity are inversely related to depressive symptoms during early adolescence [21]. another study on a sample of 2548 adolescents and young adults reports that subjects with regular physical activity have a substantially lower overall incidence of any and comorbid mental disorders after four years and a lower incidence of somatoform, dysthymic, and other anxiety disorders [22].

Many studies have been conducted on depression during the COVID-19 outbreak, but none has shown the association of depression with COVID-19 and its impact on physical activities. Physical activity is one of the essential factors to remain fit and healthy, especially for young adults. So this study aims to investigate the depression associated with COVID-19 and its impact on the physical activities of young adults of Pakistan.

2. Materials and Methods

A web-based cross-sectional study has been conducted on 384 young adults to assess the impact of depression on the physical activities of young adults during May 2020. The sample size was calculated by the Raosoft calculator

with a 95% confidence interval. Then, the samples were collected with a convenient sampling method. The inclusion criteria include young adults who were 18-25 years old and were Pakistani residents. Modified depression scale has been used to assess depression, and the revised physical activity questionnaire to evaluate the physical activity of young adults in the past month. The announcement was made in different Groups to ask young adults to participate in the study. Complete information regarding the study was provided to each participant, and upon acceptance, written informed consent was taken before participation. Both questionnaires were uploaded on Google form, and the link was shared with all Groups. The test-retest reliability of the modified depression scale is high. Also, its sensitivity, specificity, and positive predictive value were 97%, 84%, and 85%, respectively [23]. Each participant had one-time access to the form, so they were requested to fill the form and submit it immediately. The study was conducted after the approval of the Ethics Review Committee of KIPRS (Karachi Institute of Physiotherapy and Rehabilitation Sciences) with the reference number REF: KIPRS/R&D/ERC/2020-05. Frequency tables were used to determine the depression associated with COVID-19 and its impact on the physical activities of young adults of Pakistan. All statistical analysis was done in SPSS version 22.

3. Results

Data were analyzed using SPSS v.21. Descriptive statistics of frequency and percentage were used to interpret the results. Table 1 presents that out of 384 participants, 77.3% were female, and 22.7% were male. It also shows that most participants (57.8%) were sometimes sad, and only a few (4.4%) were always sad. Besides, most participants (44.5%) sometimes felt grouchy or irritable, and only 9.1% never felt grouchy or irritable. Table 1 also shows that 43.8% of the participants never felt hopeless about the future, whereas 6% often felt hopeless about the future. The majority of the participants (32.6%) sometimes slept less or more than usual, while only a few (14.1%) always slept less or more than usual. Also, 35.9% sometimes had difficulty in concentrating on their work, while 9.9% often had difficulty in focusing on their work. It shows that most participants with the upper limit (33.3%) sometimes felt like not eating or eating more than usual. In comparison, only a few participants (9.1%) always felt like not eating or eating more than usual.

The frequencies and percentages of physical activity of participants are presented in Table 2. Most participants (48.7%) slept 6-8 hours per day, whereas 3.6% slept 1-3 hours per day. Also, 49% of the participants engaged 1-3 hours in work/study per day, and only 14.1% engaged 6-8 hours in work/study per day. Most participants (43.2%) used to sit and watch TV quietly or listen to music for 1-3 hours in leisure time, and only a few (6.5%) sat and watched TV quietly or listened to music for 6-8 hours in their leisure time. It also shows that 81.8% engaged themselves less than 1 hour in riding a bicycle or walking to and from work, and only 0.3% of participants engaged less than 1 hour in riding a bicycle or walking to and from work. It is also shown that the majority of participants with the upper limit (57.8%) engaged themselves for less than 1 hour per week in light physical activities like walking, cleaning, raking the lawn, or yoga. Only a few participants (5.5%) engage themselves for 4-6 hours per week in light physical activities. Besides, 77.9% of the participants engaged themselves for less than 1 hour per week in gardening, carrying loads upstairs, and moderate strenuous activities such as gymnastics, swimming, or bicycling. Only 1.6% engage themselves for 6-8 hours per week in gardening, carrying loads upstairs, and moderate strenuous activities. Table 2 also shows that most participants (74.5%) engaged less than 1 hour per week in strenuous sports and conditioning exercises, such as running, jogging, soccer, tennis, and aerobics, and only 1.3% of the participants engaged 6-8 hours per week in strenuous sports and conditioning exercises.

4. Discussion

This web-based cross-sectional study aims to assess the association of depression with COVID-19 and its impact on the physical activities of young adults of Pakistan. This study shows that depression is highly associated with the COVID-19 outbreak and negatively influences the physical activity of young adults. The study results suggested that the level of depression in society increases during the COVID-19 outbreak and decreases the level of physical activities among young adults. This study shows that majority of participants started feeling sadness as well as feeling grouchy or irritable in the mood. They sometimes slept less or more than usual during the COVID-19 outbreak, but they never felt hopeless about the future. This study also shows that most participants started having difficulty concentrating on their work and even felt like not eating or eating more than usual.

The study findings also suggest that physical activity levels in society reduced during the COVID-19 outbreak, and the majority of participants started to sleep for about 6-8 hours per day and engaged themselves for

Table 1. Frequency and percentage of answers related to depression

Question		No.(%)
Gender	Male	87(22.7)
	Female	297(77.3)
	Total	384(100)
Were you sad?	Never	36(9.4)
	Rarely	54(14.1)
	Sometimes	222(57.8)
	Often	55(14.3)
	Always	17(4.4)
Were you grouchy or irritable in mood?	Never	35(9.1)
	Rarely	65(16.9)
	Sometimes	171(44.5)
	Often	74(19.3)
	Always	39(10.2)
Did you feel hopeless about the future?	Never	168(43.8)
	Rarely	48(12.5)
	Sometimes	109(28.4)
	Often	23(6)
	Always	36(9.4)
Did you sleep a lot more or less than usual?	Never	63(16.4)
	Rarely	74(19.3)
	Sometimes	125(32.6)
	Often	68(17.7)
	Always	54(14.1)
Did you have difficulty concentrating on your schoolwork?	Never	83(21.6)
	Rarely	71(18.5)
	Sometimes	138(35.9)
	Often	38(9.9)
	Always	54(14.1)
How often did you feel like not eating or eating more than usual?	Never	75(19.5)
	Rarely	91(23.7)
	Sometimes	128(33.3)
	Often	55(14.3)
	Always	35(9.1)

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only 1-3 hours in work/study per day. Most of the time, they used to sit and watch TV quietly or listen to music. They engage less than 1 hour for riding a bicycle or walk for transportation to and from work and engage themselves for less than 1 hour per week in light physical activities like walking, cleaning, raking the lawn, yoga, or bowling. This study result was consistent with the study by R Stanton, QG To, S Khalesit hey that the average physical activity of participants was 312.5 min/wk, but almost half (n=729, 48.9%) reported a reduction in physical activity since the onset of the COVID-19 pandemic [24]. These results were consistent with the study results entitled "Influence of Illness Perception, Anxiety and Depression Disorders on Students' Mental Health During COVID-19 Outbreak in Pakistan". This web-based cross-sectional survey observed 500 students from different universities during the coronavirus outbreak lockdown. The study addressed the mental health status of students during the lockdown. They found that COVID-19 illness caused mental health disorders, anxi-

Table 2. Frequency and percentage of answers related to physical activities

Question		No.(%)
How many hours do you sleep on a day?	1-3 hours	14(3.6)
	4-6 hours	65(16.9)
	6-8 hours	187(48.7)
	More than 8 hours	118(30.7)
How many hours do you engage in your work/studies per day?	Less than 1 hour	69(18)
	1-3 hours	188(49)
	4-6 hours	73(19)
	6-8 hours	54(14.1)
How many hours per day do you ride a bicycle or walk to and from work?	Less than 1 hour	314(81.8)
	1-3 hours	64(16.7)
	4-6 hours	5(1.3)
	6-8 hours	1(0.3)
In your leisure time, how many hours per day do you watch TV, sit quietly, or listen to music?	Less than 1 hour	117(30.5)
	1-3 hours	166(43.2)
	4-6 hours	76(19.8)
	6-8 hours	25(6.5)
In your leisure time, how many hours per week do you engage in light physical activity, such as walking, cleaning, raking the lawn, yoga, or bowling?	Less than 1 hour	222(57.8)
	1-3 hours	117(30.5)
	4-6 hours	21(5.5)
	6-8 hours	24(6.3)
In your leisure time, how many hours per week do you engage in gardening, carrying loads upstairs, moderately strenuous activities such as gymnastics, swimming, or bicycling?	Less than 1 hour	299(77.9)
	1-3 hours	63(16.4)
	4-6 hours	16(4.2)
	6-8 hours	6(1.6)
In your leisure time, how many hours per week do you engage in strenuous sports and conditioning exercises such as running, jogging, soccer, tennis, or aerobics?	Less than 1 hour	286(74.5)
	1-3 hours	72(18.8)
	4-6 hours	21(5.5)
	6-8 hours	5(1.3)

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ety, and depression, which has impacted their overall mental health status [25].

The present study was conducted on young adults to determine the association of depression with COVID-19 and its impact on physical activity. This study shows that depression is highly associated with COVID-19 and negatively influences the physical activity of young adults of Pakistan.

5. Conclusion

Depression is strongly correlated with the outbreak of COVID-19 and negatively influences young adults' physical activities. Because of the COVID-19 outbreak lockdown, young Pakistani adults experience mild depression with a lack of normal physical activity that has affected their mental health and daily life behaviors. This study will help the clinician to correlate the effect of depression on physical activities. So, they can help their patients cope with depression by engaging them in physical activities that will boost their mental health.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the Ethical Review Committee of KIPRS (Karachi Institute of Physiotherapy and Rehabilitation Sciences) (Code: REF:KIPRS/R&D/ERC/2020-05).

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Authors contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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