

Leisure Time, Physical Activity, and Psychological Well-Being among Adolescents during COVID-19

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Abstract

Background: The current coronavirus disease 2019 (COVID-19) is a public health emergency and universal hazard. Governments have ordered all people to spend all their time at home and imposed school closures as an emergency measure. In such situations, physical and mental health problems are significant concerns. **Aim:** This study aimed to evaluate leisure time, physical activity, and psychological well-being among adolescents during COVID-19. **Study design:** A cross-sectional research design. **Setting:** The study was conducted in Dakahlia Governorate, Egypt. **Sample:** The study involved a convenience sample of 1200 adolescents through a validated self-administered online questionnaire. **Tools:** It included four parts; Part I: Characteristics of studied adolescents, Part II: leisure time questionnaire, Part III: Physical activity questionnaire, and Part IV: Psychological well-being scale. **Results:** 55.0% of the studied adolescents reported that relaxing activities were the type of activity that was practiced more habitually during leisure time. 59.80% of the studied adolescents had low physical activity. 64.9% of the studied adolescents had moderate psychological well-being. There was a statistically significant positive correlation between practicing the practical sport in leisure time and satisfaction with leisure time, physical activity, and psychological well-being among adolescents during COVID-19. **Conclusion:** The results from this study concluded that the studied adolescents do low physical activity without any satisfaction about leisure time which is reflected in their psychological well-being during COVID-19. **Recommendations:** Future research should replicate these analyses in a non-pandemic situation. It must focus on testing the longitudinal associations reported here in non-pandemic circumstances.

Keywords: Adolescents, COVID -19, Leisure Time, Physical Activity, Psychological Well-being,

Introduction

Coronavirus disease 2019 (COVID-19) is the reason for the increased mortality rate worldwide. It progressed from an infectious organism with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) **Silveira, Moreira, & Mendonça, (2021):** Firstly, it appeared in Wuhan city, China, in early December 2019, and having to its unlimited, rapid spread and mortal cases, the World Health Organization (WHO) considered it 'Public Health Emergency of International Concern' **Beig Parikhani et al., (2021) & Ganesh, et al. (2021).** On 18th November 2021,

254,847,065 cases diseased by COVID-19 and 5,120,712 fatal cases were reported to WHO, while 346,808 COVID-19 cases and 19,707 deaths were reported from Egypt (**Alotaibi, et al., 2022**).

Children and adolescents have experienced major interruptions in their living circumstances because of many disorders, such as the coronavirus disease (COVID-19) pandemic (**Ettekal & Agans 2020**).

Adolescence is a crucial period of growth and development. During this period, there is a fast maturity with unique self-contradictory features. People now better

understand the importance of physical activity in preserving mental health due to increased public knowledge and awareness (**Kushal et al., 2021**).

Physical exercise is a vital means that trains and enables adolescents to develop in an integrated and comprehensive way. It positively influences adolescents' psychological quality, enhancing their ability to resist life's pressure and solve social troubles. Moreover, physical exercise also has an essential effect on mental health as it may improve the intelligence capacity of adolescents, promoting their mental abilities (**Guo & Zhang, 2022**).

Leisure is perceived as "free time". However, leisure is more than just "free time," as it is considered an essential aspect of life. (**COŞKUN, 2022**). Leisure time, free time consumed in making recreational activities such as the time to stay outside, meet with peers or play and do exercises, would be anticipated to encourage the highest sense of emotional health. It is not only a promoting factor for health and a method of quantity but also involved in essential and sufficient activities. It might be viewed as a resilience driver under challenging times. Community programs and national and local societies have to advertise outside refreshing breaks for adolescents through disasters (**Cosma et al., 2021**).

The national COVID-19 outbreak has led to a unique public health disaster worldwide (**Mayne et al., 2021**). The population was subjected to life-altering challenges due to this COVID-19 outbreak, which affected adolescents' daily routines and activities. Schools were closed, and planned activities or other societal and cultural events were strictly prohibited (**Chaabane et al., 2021**).

Non - pharmacological interventions (NPIs) are required to decrease COVID-19 transmission. NPIs are anticipated to change disease-related lifestyle behaviors such that they should no longer donate to the spread of this disease (**Hu et al., 2020**).

A study done in Australia concluded alterations in physical activity that were

accompanied by an increased rate of psychological problems such as depression, anxiety, and stress manifestations during the exaggerated virus period, while other studies done in America showed that participants who have decreased physical activity level and increased screen time before and after COVID-19 were high risks to manifest psychological upset as depression, stress and loneliness while another personnel reported a positive influence of light activities on psychological health results, this means that depression, anxiety, and psychological health were adversely connected with moderately to the high physical activity level in the day (**Pears et al., 2022**).

Up to now, many studies were concentrated on physical activities instead of inactive behavior, and there is evidence of an adverse effect on emotional well-being even in a short period of one week (**Vancampfort et al., 2021**).

On the other hand, it has never yet been identified if physical activity might alleviate psychological well-being throughout the lockdown restriction period. At the same time, there is a need for more investigation into the impact of other elements, such as socioeconomic status and other health-related factors already realized as predictors of poor psychological well-being during the lockdown period (**Ames et al., 2022**).

The influence of (COVID-19) and the constraints aroused by the government on psychological well-being have been reported in many countries (**Panchal et al., 2021**). The study done in Australia evaluated psychological health during the COVID-19 lockdown period and its effect on age, gender, income, work, and physical activity. Depressive manifestations (21%) and anxiety manifestations (19%) are higher during COVID-19 compared with previous epidemiological data. Also, 16% rated over the cut-off for moderate or severe clinical insomnia. This pandemic and lockdown restrictions look particularly stressful for young adults (<35 years), women, people without work, and lower-income (**Pieh et al., 2020**).

The pediatric nurse should encourage adolescents to maintain social interactions with friends to decrease loneliness and promote optimal physical and psychological well-being (Imran et al., 2020). This will be attained by helping adolescents arrange outdoor activities, develop a daily routine, and increase creative leisure time and various physical activities (Jaskulska et al., 2022). So, this study emerged to evaluate leisure time, physical activity, and psychological well-being among adolescents during COVID-19.

Aim of the study

This study aimed to evaluate adolescents' leisure time, physical activity, and psychological well-being during COVID-19.

Research questions:

- 1: Is leisure time important for adolescents during COVID- 19?
- 2: What is the level of physical activities among adolescents during COVID- 19?
- 3: What is the level of psychological well-being among adolescents during COVID-19?
- 4: Is there any relation between leisure time, physical activity, and psychological well-being?

Subjects &Methods

Research design:

A cross-sectional research design was utilized to accomplish the aim of this study.

Setting

The study was conducted in Dakahalia Governorate, Egypt.

Subjects:

The study involved a convenience sample of 1200 adolescents. The sample size was calculated using the **MedCalc software**

program (www.medcalc.org/index.php) at 5% α error (95% significance) and 20% β error (80% power of the study). The study was conducted in Dakahalia Governorate, Egypt, from November 2020 to the end of October 2021. The sample depends on adolescents aged from 12 to 18 years of both genders.

Tools of Data Collection:

Four parts were used for data collection: the characteristics of studied adolescents, the leisure time questionnaire, the physical activity questionnaire, and the psychological well-being scale.

Part I: Characteristics of studied adolescents: This part was developed by the researchers and included age, gender, residence, working, and educational level.

Part II: Leisure time questionnaire: It was well established by the researchers after reviewing the related literature and translated into Arabic (Laroche et al., 2019 & Hulteen et al., 2017) for assessing leisure time among adolescents during COVID-19. It included five items spending time in nature in a month, satisfaction with leisure these days, spending most of the free time in the past 7 days, time spent on leisure activities daily last Weekend, and type of activity practiced more habitually at leisure time.

Part III: The Physical activity questionnaire: It was adapted from Jurca et al. (2005) and translated into Arabic by the researchers to assess the adolescents' level of physical activity. It was measured by using a single item the adolescents chose according to the level representing their physical activity. The researchers asked them to rate their natural activity level during COVID- 19. The present study was modified to ask adolescents about their usual activity level in the last month. They should select one of five possible levels and consider that increasing levels indicate a higher amount of physical activity.

Participation in physical activities needs low levels of effort that lead to a slight increase in respiration rate and heart rate for at least 10

min at a time"; Level 3–5: participation in "aerobic exercises such as brisk, walking, jogging, or running at a comfortable step, or other activities requiring similar levels of exertion" for 20–60 min per week (level 3), 1–3 h per week (level 4) or over 3 h per week (level 5) (Wright et al., 2021). The cut-off points were low (Inactive or little activity), moderate if participants engaged in aerobic exercise for 20 – 60 min or 1- 3 per week, and high if over 3 h per week

Part IV: The Psychological Well-being Scale. It was adopted from Mehrotra et al., 2013 and translated into Arabic by the researchers to investigate adolescents' psychological well-being levels. It is a twenty-self-report scale with four subscales. The first subscale is Self-acceptance, including 5 items. The second is Positive relations with others, including 5 items. The third is Autonomy which includes 6 items. The fourth is Personal growth, which includes 4 items. Total scores were summed for each subscale as all items were answered according to the 7-point Likert scale that ranges from 1=strongly disagree to 7=strongly agree. High psychological well-being was computed with a total score >70%, moderate with a score that ranges from 50 to 70%, and low with a score <50%.

Methods:

Validity:

For validity assurance, the instrument was offered to a jury of five professional nursing specialists to evaluate content validity and modify any mandatory items of the instruments. All required modifications were done according to the opinions of the experts.

Reliability:

Reliability of the tool was estimated by applying a test-retest method with Cronbach's alpha that was calculated for leisure time emerged as good (.0.843), physical activity emerged as good (.0.877), and psychological well-being emerged as good (.0.865).

Ethical Considerations

The Research Ethics Committee of the Faculty of Nursing – Mansoura University

approved the implementation of the study. They also attained from the deans of the faculty of nursing after explanation of the aim, methods, duration, and benefits of the study. Confidentiality of the collected data was confirmed. The anonymity of the study participants was assured. Participants' voluntary participation was assured, and their right to withdraw from the study at any time was emphasized.

Pilot study:

A pilot study was carried out on 120 adolescents to test the feasibility, viability, and clarity of the tools used and evaluate the time required to fulfill the instruments. No adjustments were performed, and the adolescents in the pilot study were comprised within the main sample of the study.

Fieldwork:

Data collection tools were prepared from November 2020 to the end of October 2021. The study was conducted in Dakahalia Governorate, Egypt. Official approval was obtained from the selected faculty deans. They were knowledgeable about the study aim, data collection time, and details to acquire their cooperation during the data collection process. The researchers prepared the tools and translated them into Arabic forms to become ready for use and the data collection forms with instructions regarding how to fill them online. The time needed to complete the questionnaire form was 10 to 15 minutes.

Statistical Analysis

The collected data were organized, tabulated, and statistically analyzed using SPSS Inc; version 21; IBM Corp., Armonk, NY, USA. (Package for the Social Sciences) The one-sample Kolmogorov–Smirnov test was utilized to determine the data's normality. Numbers and percentages were utilized to illustrate quantitative data. Continuous variables were revealed as means± standard deviation. To measure linear correlation, the Pearson correlation coefficient was used. A linear regression model was utilized for modeling the relationship between a scalar response and one or more explanatory variables. The probability of error that was less than 5% ($p < 0.05$) indicated a statistical significance of the results, while the probability error that was less

than 0.1% ($p < 0.01$) indicated highly statistical significance.

Results

Table (1) showed that 41.7% of studied adolescents their aged between 14 to <16 years old, 50.8% were females, and 67.5% of them lived in urban areas (90.5% & 59.2%) of them did not work and had Secondary level respectively.

Table (2) demonstrated that 55.0% of the studied adolescents reported that relaxing activities were practiced more habitually during leisure time. Regarding free time spent in nature in a month, 49.4% had moderate. Also, 59.1 % of the adolescents reported that they were not satisfied at all with leisure these days. Moreover, 41.0% & 40.4% of them spend most of their free time in the past 7 days at home, 2 to <3 Hours as a time spent on leisure activities daily last Weekend respectively.

Table (3) illustrates that 34.4% of the studied adolescents reported that they "Regularly (≥ 5 days/week) participate in physical activities; only 9.9% of them had "participation in aerobic exercises or other activities that require similar levels of exertion over 3 hours per week".

Table (1): Frequency Distribution of the Studied Adolescents Regarding their Characteristics (no.=1200)

Items	No.	%
Age:		
12 <14	340	28.3
14 <16	500	41.7
16 - 18	360	30
Gender:		
Male	590	49.2
Female	610	50.8
Residence:		
Rural	390	32.5
Urban	810	67.5
Working:		
Work	114	9.5
Not work	1086	90.5
Education level:		
Preparatory	370	30.8
Secondary	710	59.2
University	120	10

Figure (1) demonstrates that 59.80% of the studied adolescents had low physical activity, while only 9.9% had high physical activity.

Table (4) represents that 25.4% & 24.8% of studied adolescents had high "positive relations with others & self-acceptance," respectively; about three-quarters of them had moderate personal growth while only 8.7% had low Autonomy.

Figure (2) reveals that 64.9% of the studied adolescents had moderate psychological well-being, while only 8.9% had low psychological well-being.

Table (5) demonstrates a significant positive correlation between psychological well-being, physical activity, practical sport in leisure time, and satisfaction with leisure these days when the p-value was $< 0.05^*$.

Table (6) reveals that the highly significant model recognized by the F-test value was 10.776 with a p-value. 001. This model explained 49% of the variation in psychological well-being found by an R^2 of 0.49. In addition, satisfaction with today's leisure time is stated to have a p-value of less than 1. 0.01**. Frequently has a positive effect on psychological well-being. Physical activity, recreational sports practice, age, and working with $p < 0.05^*$ had a slightly negative effect on psychological well-being.

Table (2): Frequency distribution of studied adolescents related to their leisure time during COVID-19 (no=1200)

Items	No.	%
Type of activity do practice more habitually at leisure time		
Activities that do not require physical activity	340	28.3
Relaxing activities	664	55.3
Practice a sport or intense physical activities.	196	16.4
Spent time in nature in a month		
Low	398	33.2
Moderate	593	49.4
High	209	17.4
Satisfaction about leisure these days		
Very satisfied	109	9.1
Sometimes Satisfied	381	31.8
Not satisfied at all	710	59.1
Spent most of free time in the past 7 days		
Outdoors	298	24.8
At home	492	41
About the same	410	34.2
Time spend on leisure activities daily last Weekend		
<1 hour	205	17.1
1 to <2 hours	310	25.8
2 to <3 hours	485	40.4
3 hours or more	200	16.7

Table (3): Frequency distribution of studied adolescents related to their physical activity during COVID-19 (no=1200)

Items	No.	%
Inactive or little activity other than usual daily activities	305	25.4
Regularly (≥ 5 days/week) participate in physical activities requiring low levels of exertion	412	34.3
participation in aerobic exercises or other activities requiring similar levels of exertion for 20–60 min per week	154	12.8
participation in aerobic exercises or other activities that require similar levels of exertion for 1–3 hours per week	210	17.6
Participation in aerobic exercises or other activities requiring similar exertion levels over 3 hours per week.	119	9.9

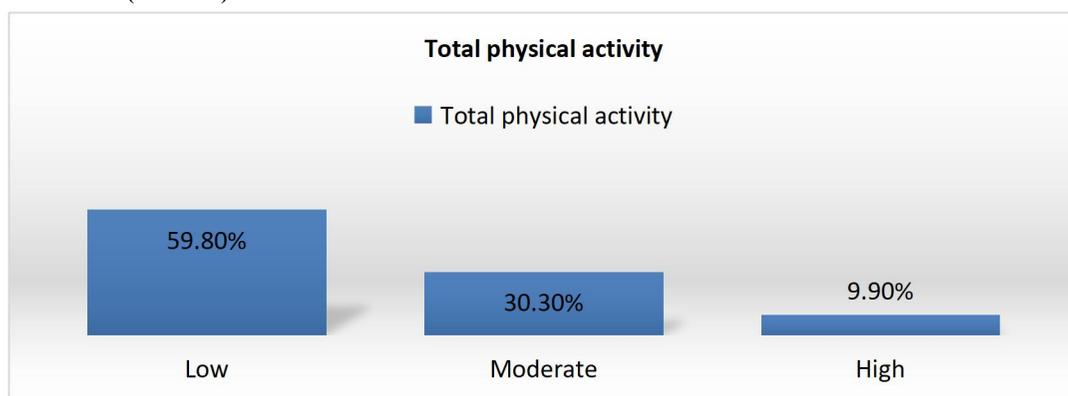
Figure (1): Distribution of studied adolescents related to their total physical activity during COVID-19 (no=1200)

Table (4): Distribution of studied adolescents related to their psychological well-being scale during COVID-19 (no=1200)

Domains	High		Moderate		Low	
	No.	%	No.	%	No.	%
Self-acceptance	297	24.8	801	66.8	102	8.6
Positive relations with others	305	25.4	796	66.3	99	8.3
Autonomy	276	23	819	68.3	105	8.7
Personal growth	221	18.4	890	74.2	89	7.4

Figure (2): Distribution of studied adolescents related to their total psychological well-being during COVID-19 (no=1200)

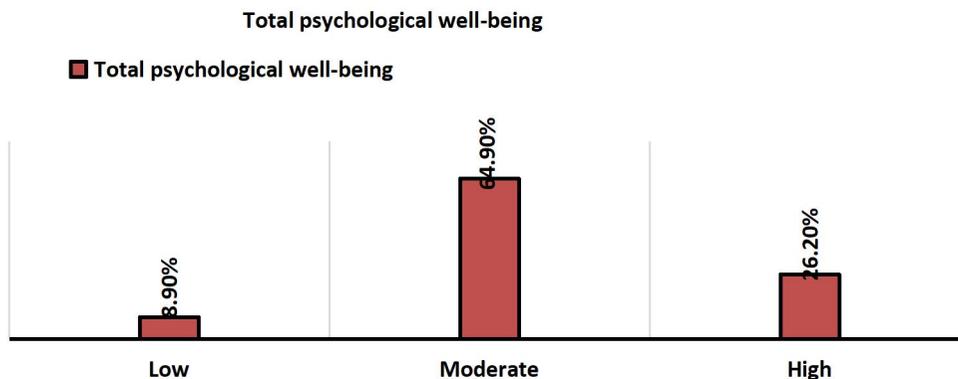


Table (5): Correlations among Psychological well-being, Physical activity, doing practical sport in leisure time, and Satisfaction about leisure these days during COVID-19

	Psychological well-being	Physical activity	Doing sports in practical leisure time	Satisfaction about leisure these days
Psychological well-being	r.	0.415	0.399	0.376
	p	<0.05*	<0.05*	<0.05*
Physical activity	r.		0.603	0.380
	p		<0.01**	<0.05*
Doing practical sport in leisure time	r.			0.298
	p			<0.05*
Satisfaction about leisure these days	r.			
	p			

Table (6): Multiple Linear regression model for psychological well-being during COVID-19 (no.=1200).

	Unstandardized Coefficients B	Standardized Coefficients B	T	P. value
Physical activity	.210	.178	4.039	.012*
Doing practical sports in leisure time	.254	.196	4.114	.017*
Satisfaction about leisure these days	.367	.290	6.798	.002**
Age	.276	.190	2.664	.032*
Working	.250	.201	3.998	.021*
Model R ²				
Regression	0.49			
	Df.	F		P. value
	4	10.776		.001**

a. Dependent Variable: psychological well-being

b. Predictors: (constant): Physical activity, Doing practical sport in leisure time, Satisfaction with leisure these days, Age and Working.

Discussion:

Outdoor physical activity holds strong potential as a competent coping and preventive strategy for physical, social, and mental health benefits for people of all ages, especially adolescents. Physical activity can prevent chronic diseases (e.g., cardiovascular disease, diabetes, and obesity), improve brain health, promote mental health (e.g., reduced depression and anxiety), and lessen falls or fall-related injuries. COVID-19 has carried a different layer of problems and constraints to our health and healthy lifestyle. People worldwide report many problems involving the healthy quantity of physical activity during the pandemic, with up to a 50% decrease in physical activity in some areas (**Park, Zhong, Yang, Jeong & Lee, 2022**). This study aimed to assess adolescents' leisure time, physical activity, and psychological well-being during COVID-19.

Regarding the characteristics of the adolescents, the current study reported that more than two-fifths of the studied adolescents were aged 14 to <16 years old, half were females, and more than two-thirds lived in urban areas, and most of them did not work. These findings coincide with a study by **Åvitsland et al. (2020)**, who reported that about half of the studied adolescents aged 14 to 16 years old and females.

Regarding leisure time during COVID-19 among adolescents, the type of activity practiced more habitually as a type of this leisure time; the present study demonstrated that more than half of the studied adolescents performed relaxing activities. This outcome agreed with **Ma, Hagquist & Kleppang (2020)**, who showed that the studied adolescents performed relaxing activities during leisure time. This result might be due to the studied adolescent being physically inactive during leisure time, which reflected that leisure time is not essential only during and after COVID-19 but also all over life.

Moreover, concerning physical activity, the current finding demonstrated that less than two-thirds of adolescents had low physical activity. This finding disagreed with **Pérez-**

Mármolet et al. (2021), who reported that more than one-third of the studied sample had low physical activity, while more than half had a moderate level and 14.3% had a high level. From the researcher's point of view, this result might be restricted and unequal availability of safe outside unrestricted facilities (such as parks, trails, sports, and sidewalks) that encourage physical activity.

In relation to psychological well-being among adolescents during COVID-19, the current study represented that nearly one-quarter of studied adolescents had high self-acceptance & positive relations with others. About three-quarters of them had moderate personal growth, and less than one-tenth had low Autonomy. Conversely, this finding is not aligning with **Haverkamp, Hartman, & Oosterlaan (2022)**, who revealed that most of the studied adolescents had a high level in all domains of psychological well-being.

Furthermore, two-thirds of the studied adolescents had moderate psychological well-being, while only less than one-tenth had low psychological well-being. This was agreed with **Von Soest et al. (2022)**, who revealed that most of the studied adolescents had moderate psychological well-being. This result might be due to more leisure time consumed online and more numerous practices of electronic social media to socialize in times of limited chances for planned leisure time physical activities.

There was a statistically significant positive correlation between psychological well-being, Physical activity, doing practical sport in leisure time, and leisure satisfaction these days when the p-value was <0.05*. This result was consistent with **Molina-García et al. (2019)**, who demonstrated a statistically significant positive correlation between psychological well-being, Physical activity, doing practical sport in leisure time, and leisure satisfaction these days when the p-value was <0.05*.

Finally, the current study revealed that the high significant model identified through the F test was 10.776 with a p-value of 001. This explained that 49% of the variation in

psychological well-being was detected through an R^2 value of 0.49. Also, satisfaction with leisure nowadays had a high-frequency positive effect on psychological well-being at $p < 0.01^{**}$. While, Physical activity, doing practical sports in leisure time, age, and working had a slight frequency of adverse effects on psychological well-being at a p -value $< 0.05^*$. These outcomes matched with **Sánchez-Miguel et al. (2020)**, who found that satisfaction with leisure time these days has a high frequency of positive effect on psychological well-being at P -value $< 0.01^{**}$.

Moreover, this result was supported by **Dumas, Ellis & Litt (2020)**, who found that the youngest adolescents demonstrate more negative problems through the pandemic than older adolescents. Also, this finding was supported by **Cosma et al. (2021)**. They reported that leisure as a maintenance aim for well-being is not just a subject of its extent but somewhat of a connection to significant and accomplishing activities. This result might be due to psychosocial usefulness attained from physical activities such as enhancements in physical fitness, anthropometric measures, bone structure, decrease in psychological manifestations such as depression and anxiety.

Conclusion

There was a statistically significant positive correlation between psychological well-being, physical activity, practicing the practical sport in leisure time, and satisfaction with leisure during COVID-19. Overall, the results from this study demonstrated that the studied adolescents performed low physical activity without any satisfaction about leisure time which was reflected in their physical and psychological well-being during COVID-19. Moreover, leisure time is not important only during and after COVID-19 but also all over the life.

Recommendation

It is recommended that future research should have to replicate these analyses in non-pandemic circumstances. It should concentrate

on assessing the longitudinal associations stated in this study in non-lockdown circumstances.

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