

Effect of COVID-19 Pandemic Quarantine on Children and Adolescent Quality of Life at Tanta City

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Abstract: Background& Aim: Being quarantined in homes may produce greater physical and psychological burden on children and adolescence. Lack of outdoor activity, school closure, are likely to disrupt children's usual lifestyle, so the aim of the study was to assess the effect of COVID-19 Quarantine on children and adolescent quality of life at Tanta city. **Materials and method:** A cross-sectional study was performed from 17 June 2020 until 1 July 2020. Children and adolescent aged from 8-18 years who were able to provide informed consent were included in the study (83) using convenience and snowball sampling methods. An online questionnaire was used by the researchers to obtain the necessary data. This tool comprises five parts. Part 1; Socio-demographic questionnaire. Part 2: Screening of health-related quality of life in children and adolescents (KIDSCREEN). Part 3: Pittsburgh Sleep Quality Index (PSQI). Part 4 assess the changing in daily dietary habits. Part 5: assess the child using to the safety precautions for COVID-19 pandemic. **Result:** The total Median and quartiles score of the KIDSCREEN was low 154 (143-170). The Median and quartiles of Pittsburgh Sleep Quality Index is 11(7- 15). Nearly three quarters (73.5%) of the children had changes in their daily dietary habits. **Conclusion:** The total score of children and adolescent quality of life was low. Children had poor sleep quality during COVID-19 pandemic. Nearly three quarters of the children had changes in their daily dietary habits. More than two thirds of those children were wearing face mask and the majority of the children were washing their hands after returning homes.

Key words: COVID-19, Pandemic, Quarantine, Children and Adolescent, Quality of Life.

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I. Introduction

2019-Corona virus disease (COVID-19) is a novel infectious disease that is forecasted to have an enormous effect worldwide. In December 2019, many patients from Wuhan, China had pneumonia and respiratory failure reminiscent of the SARS epidemic in 2003⁽¹⁾. In January 2020, a new virus was obtained from respiratory samples and was a beta corona virus⁽²⁾. After that the virus denominated SARS-CoV-2, has spread all over the world. Millions of people have been diagnosed with SARS-CoV-2 infection and hundreds of thousands have died of COVID-19, the disease caused by SARS-CoV-2. SARS-CoV-2 has resulted in a long-lasting pandemic with high fatalityrates. The World Health Organization (WHO) declared COVID-19 a pandemic⁽³⁾.

Published data on COVID-19 focuses primarily on adults, and the infection rate of COVID-19 in children is relatively low. The first pediatric case was reported on 20January 2020, in a 10-year-old boy from Shenzhen, China, whose family had visited Wuhan City.⁽⁷⁾ However, a retrospective study that enrolled 366 children (≤ 16 years of age) hospitalized for respiratory infections between January 7 and 15, 2020 showed that COVID-19 was confirmed in 6 children (1.6%) whose onset of illness occurred between January 2 and 8, 2020. This study result suggests that SARS-CoV-2 infections in children were occurring early on in the epidemic⁽⁴⁾.

COVID-19 manifestations in children and adolescents are similar to influenza. Recent data have suggested that children are more likely to have milder symptoms. Among the children who were tested positive, 45% showed typical symptoms, and 42% presented with mild respiratory symptoms. While 13% were asymptomatic, no child presented with life-threatening symptoms. Children with chronic medical conditions like asthma or diabetes are at higher risk of more severe disease^(5,6).

Although medical literature illustrates that children are less likely susceptible to Corona virus disease, they are facing the hardest by psychosocial impact of this pandemic. Being stayed at homes, school closure, lack of outdoor activities, and sleeping habits are likely to disrupt children's usual lifestyle and can result in distress, impatience, annoyance and different neuropsychiatric manifestations. Incidence of domestic violence, child abuse is increased. Parents, pediatricians, psychologists, social workers, hospital authorities, government and non-governmental organizations should play an important role to decrease the psychosocial ill-effects of

COVID-19 on children and adolescents ⁽⁷⁾. Being quarantined in homes may produce greater psychological burden than the physical sufferings caused by the virus. COVID-19 is a novel disease and its quarantine effects on children and adolescent quality of life is not investigated in Tanta city, so the aim of the study was to assess the effect of COVID-19 Virus Quarantine children and adolescent quality of life at Tanta city.

II. Materials and Methods

Research design: A cross-sectional study was performed from 17 June 2020 until 1 July 2020.

Subjects: Children and adolescent aged from 8-18 years who were able to provide informed consent were included in the study (83) using convenience and snowball sampling methods. Additionally, they were required to be living in Tanta city pre-COVID-19 and during COVID-19 periods. Also children should be free from any chronic disease which can increase the burden in the child quality of life.

Tools of the study: an online questionnaire was used by the researchers to obtain the necessary data. This tool comprises the following parts:

Part 1:- Socio-demographic questionnaire such as sex, age, level of education, and place of residence.

Part 2: assessment of health-related quality of life in Children and Adolescents by KIDSCREEN scale which developed by The KIDSCREEN Group Europe (2006)⁸. It is used to assess the well-being and subjective health (HRQoL) of healthy children and adolescents aged between 8 and 18 years. The KIDSCREEN-52 instrument measures 10 HRQoL dimensions: Physical Wellbeing (5 items); Psychological Well-being (6 items); Moods & Emotions (7 items); Self-Perception (5 items); Autonomy (5 items); Parent Relations & Home Life (6 items); Social Support & Peers (6 items); School Environment (6 items); Social Acceptance (Bullying) (3 items); and Financial Resources (3 items). The KIDSCREEN instruments consist of 52 items which are scored on a 5-point scale ranging from never / not at all to always. Recode the negatively formulated to have scorings from 1 to 5 with higher values indicating a higher HRQoL.

Part 3: Pittsburgh Sleep Quality Index (PSQI) is used to assess children and adolescent sleep quality and disturbances during COVID-19 pandemic. The PSQI was developed by Daniel J. and Buysse, M.D. (1989) to measure the complex multidimensional phenomenon of sleep quality and address the components of what constitutes sleep including: sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction in the past month (9). The PSQI is composed of 19 self-rated questions and five questions rated by a bed partner or roommate. Only the self-rated items are used in scoring the scale. In scoring the PSQI, seven component scores are derived, each scored 0 (no difficulty) to 3 (severe difficulty). The component scores are summed to produce a global score (range 0 to 21). Higher scores indicate worse sleep quality.

Part 4: it is composed from 8 questions to assess the child nutrition during COVID-19 pandemic. It assesses the changing in daily dietary habits and the changing in the amount of food from all food categories.

Part 5: it is composed from 4 questions to assess the child using the safety precautions for COVID-19 pandemic including washing hands, wearing mask, shaking hands, and staying at home.

Method: Before conducting the study, a written permission letter was obtained from the Faculty of Nursing Tanta University to obtain an approval to carry out the study. **Medical ethics:** Informed oral consent was obtained from children and their parents to participate into the study. Then the researcher stated that when they complete the questionnaire and make submit, this consider an agreement to participate in the study. Confidentiality was assured. The questionnaire was translated into Arabic language by the researchers and disseminated to the participant through social media (Facebook, what sap, and so on). At the start of the questionnaire the purpose of the study and the confidentiality of data are stated. A pilot study was done before embarking in the field of work on 10% from total subjects to ascertain the clarity and applicability of the study tools. The pilot subjects were excluded from study sample.

3.6 Statistical analysis: The data were coded, entered and analyzed using SPSS (version 20). Descriptive statistics (frequency numbers and Percentages) identified demographic characteristics. Median and quartiles (first–third quartile) were calculated for children quality of life.

III. Results

Table (1) represents the characteristics of the studied children. As regards their sex, it was found that nearly three quarters of them (74.7%) were females and only one quarter of them (25, 3 %) were males. In relation to their age, it was clear that 25.3% had 8-10 years and 10.8% had 14-16 years old with the mean age as 12.8 ± 1.5 . Regarding their education, it was evident that more than half of those children (51.8%) were primary educated and 19.3% of them were in secondary school, While only 28.9% were in high school education. **Table (2)** illustrates the children and adolescents quality of life by using Kidscreen scale. In explaining different aspects of Kidscreen test results among studied children, it was found that the studied children have problems in both physical and psychological wellbeing with median and quartile 14 (12–17) and

17 (14-21) respectively as reported by children. Also the emotional functioning of those children was slightly elevated with median and quartile 20 (17-22). The test results also revealed that the children have low self-perception and autonomy with low median and quartile 13 (12-16) and 12 (8-16) respectively. In contrast to their parent relations and home life, the median and quartile score was high 22 (15-25) in relation to normal kidscreen score. While they had problems in their social and peers relation as the median and quartile score was greatly decreased up to 18 (14-23). The children were satisfied with their school environment and financial resources as the median and quartile score was high in relation to normal kidscreen score in both items 23 (17-26) and 11 (9-11) respectively compared to their exposure to bullying, the median and quartile score was low 4 (3-8). The total Median and quartiles score of the studied children was 154 (143-170).

Table (3) explains children and adolescent sleep quality and disturbances during COVID-19 pandemic using Pittsburgh Sleep Quality Index. It was obvious that more than half of the studied children (57, 8%) had very good sleep quality compared to 21.7% who reported very bad sleep quality. It is also clear that 45, 8% of those children slept more than 7 hours per day while 37.3% slept about 6-7 hours per day and few percentages (12%) slept about 5-6 hours per day. Regarding their sleep efficiency, about 37.3% of those children had effective sleep more than 85% and 45.8% had effective sleep by 75-84%. On the other hand, only 4.8% of the studied children had less effective sleep pattern as the actual sleep hours were less than 5 hours.

Table (4) reveals the sleep quality and disturbances of children and adolescents during COVID-19 pandemic. In relation to sleep disturbances, the result of the table illustrates that one quarter of the studied children (25.3%) didn't have sleep disturbances during the past month while 14.4% of them had sleep disturbance less than once per week. On the other hand, nearly other quarter (24.0%) already had sleep disturbance once or twice per week and the highest percentage of those children (36.1%) had sleep disturbance three or more times a week. It is also clear from the table that 81.9% of the children didn't take any sleep medication in the past month and only 8.4% of them took sleep medication less than once per week to get into sleep despite 4.8% of the children who took sleep medication once or twice a week and the same percentage. Regarding daytime dysfunction, more than two thirds (62.7%) of the children didn't have any problems through their daytime compared to one third (20.5%) of them who had very slight problem regarding their daytime and only 9.6% of them had a very big problem with their day time. The Median (Q1-Q3) is 11(7- 15) which means that the studied children had poor sleep quality during COVID-19 pandemic.

Table (5) represents the changes in daily dietary habits of the children and adolescents during COVID-19 pandemic. The table explains that nearly three quarters (73.5%) of the children had changes in their daily dietary habits and 26.5% of them didn't have changes in their daily dietary habits. In addition, about one quarter (24.0) of those children consumed less than three meals per day and more than two thirds (65%) of them consumed 3-4 meals per day. The table also demonstrated that half of the studied children (50%) reported eating more fruits and vegetables than usual during the covid19 pandemic and nearly the other half (49.4) reported that they were eating the same amount of fruits and vegetables as before without changes in the amount. In relation to eating milk and its products, it is evident that (30.1%) of the children reported increased their consumption of milk and milk products despite 69.9% who reported consuming the same amount of milk and milk products as before. As regards eating meat and sweets, there is 32.5% of the studied children reported increased their eating of both meat and sweets respectively, and more than two thirds (67.5%) of those children declared no changes in their consumption of both meat and sweets respectively. This result is controversial with eating fish where more than two thirds (67.5%) of the children said that they were eating fish more than usual during covid19 pandemic and 32.5% of them approved that they were eating fish as the same as before the covid19 pandemic. According to eating fast foods outside home, the result of the table announces that 22.9% of the children were eating fast foods more than usual outside home during covid19 pandemic while more than three quarters (77.1%) of them agreed that their eating of fast foods outside home was decreased during the covid19 pandemic.

Table (6) shows the application of universal precaution during COVID-19 by the studied children and adolescents. It was found that, more than two thirds (67.5%) of those children were wearing face mask and 32.5% of them didn't wear it. The table also explained that 86.7% of the children were washing their hands after returning homes while 13.3% of them didn't. As regards staying at home, more than two thirds of the children stayed at home during COVID-19 pandemic and 32.5% of them didn't stay at home during the pandemic. The same table reveals that three quarters of the children (75.9) didn't shake by their hands while as 24.1% of them shook by their hands.

Table 1: Characteristics of the Studied Children

Characteristics of the studied children	studied children No= 83	
	No	%
Sex:		
Males	21	25.3
Females	62	74.7
Age in Years:		
8 ->10	21	25.3
10 ->12	18	21.7
12 ->14	16	19.3
14 ->16	9	10.8
16 -18	19	22.9
Range	8-18	
Mean±SD	12.8 ± 1.5	
Place of residence:		
Urban	35	42.2
rural	48	57.8
Education level:		
- Primary	43	51.8
- Secondary	16	19.3
- High school	24	28.9

Table 2: Children and Adolescents Quality of Life (KIDSCREEN)

Children and Adolescents Quality of Life (KIDSCREEN)	Studied children	
	Median and quartiles (first–third quartile)	
Physical Wellbeing (25 point)	14 (12-17)	
Psychological Well-being (30 point)	17 (14-21)	
Moods & Emotions (35 point)	20 (17-22)	
Self-Perception (25 point)	13 (12-16)	
Autonomy (25 point)	12 (8-16)	
Parent Relations & Home Life (30 point)	22 (15-25)	
Social Support & Peers (30 point)	18 (14-23)	
School Environment (30 point)	23 (17-26)	
Social Acceptance (Bullying) (15 point)	4 (3-8)	
Financial Resources(15 point)	11 (9-11)	
Total KIDSCREEN(260 point)	154 (143-170)	

Table 3: Pittsburgh Sleep Quality Index (PSQI) Part 1

Pittsburgh Sleep Quality Index (PSQI)	Studied children	
	No	%
Subjective sleep quality		
Very good	48	57.8
Fairly good	7	8.4
Fairly bad	10	12.0
Very bad	18	21.7
Sleep latency (Median and quartiles (first–third quartile))	5 (3-6)	
Sleep duration		
> 7 hours	38	45.8
6-7 hours	31	37.3
5-6 hours	10	12.0
Sleep efficiency		
> 85%	31	37.3
75-84%	38	45.8
65-74%	10	12.0
< 5 hours	4	4.8

Table 4: Pittsburgh Sleep Quality Index (PSQI)Part 2

Pittsburgh Sleep Quality Index (PSQI)	Studied children	
	No	%
Sleep disturbance		
Not during past month	21	25.3
Less than once a week	12	14.4
Once or twice a week	20	24.0
Three or more times a week	30	36.1
Use of sleep medication		
Not during past month	68	81.9
Less than once a week	7	8.4
Once or twice a week	4	4.8
Three or more times a week	4	4.8
Daytime dysfunction		
No problem at all	52	62.7
Only a very slight problem	17	20.5
Somewhat of a problem	6	7.2
A very big problem	8	9.6
Total PSQI Score(21 point)	Median(Q1-Q3) 11(7- 15)	

Table 5: Changing in daily dietary habits

Changing in dietary habits	Studied children	
	No	%
Changing in daily dietary habits		
- Yes	61	73.5
- No	22	26.5
Numbers of diet in the day		
- < 3	20	24.0
- 3-4	54	65
- > 4	9	10.8
Eating fruits and vegetables		
- Increased	42	50.6
- The same as before	41	49.4
Eating milk and its products		
- Increased	25	30.1
- The same as before	58	69.9
Eating meat		
- Increased	27	32.5
- The same as before	56	67.5
Eating fish		
- Increased	56	67.5
- The same as before	27	32.5
Eating sweets		
- Increased	27	32.5
- Decrease	56	67.5
Eating fast food (outside home)		
- Increased	19	22.9
- Decrease	64	77.1

Table 6: Following universal precautions during COVID-19

Universal Precaution during COVID-19	Studied children	
	No	%
Wearing face mask		
- Yes	56	67.5
- No	27	32.5
Washing hands after returning to home		
- Yes	72	86.7
- No	11	13.3
Staying at home		
- Yes	26	67.5
- No	57	32.5
shack by hands		
- Yes	20	24.1
- No	63	75.9

IV. Discussion

Despite less susceptibility of children to 2019-Corona virus disease (COVID-19), they are facing the hardest impact of this pandemic. Being quarantined in homes may produce greater psychological burden than the physical sufferings caused by the virus. Lack of outdoor activity, School closure, aberrant dietary and sleeping habits are likely to disrupt children’s usual lifestyle and can potentially promote distress, impatience, annoyance and varied neuropsychiatric manifestations.

The result of the current study revealed that the children and adolescents had problems with their physical and psychological wellbeing and had lower self perception. From the researchers point of view, these problems arose due to inability to go outside homes and practicing the usual activities as before the pandemic which produces negative impact on the children both physical psychological wellbeing and lower self perception.

This result is in an agreement with **Wang G et al, (2020)** who found in their study that home confinement imposes immediate and lingering psychosocial impact on children due to drastic change in their lifestyle, physical activity and mental excursions.⁽¹⁰⁾

The present study also clarified that the children and adolescents had problems in their social and peers relationships. This can be justified that by school closure due to the disease pandemic, the children were not able to see their friends and practice their usual activities as the school is not only an educational environment but a place for building relations. This opinion is supported by **Gifford et al(2003)⁽¹¹⁾ - Oberle (2010)⁽¹²⁾ and UNESCO organization (2020)(13)**; they reported that Social relations have been strongly limited to closest family members and contact to peers has been prohibited or severely limited . This can have a negative impact on children and adolescents given the importance of peer contact for well-being.

The result of the study also demonstrated that children and adolescents were not socially accepted and exposed to bullying this may be due to the stress which accompanied the pandemic as a result of being quarantined at homes, finance pressure and anxieties of parents regarding health of their children all may produce conflict and expose those children to domestic violence. This part is in the same direction of **Usher(2020) et al(14)** , who announced that reports of child abuse, neglect, exploitation and domestic violence are on horrendous rise at the time of CO -19 pandemic and lockdown. Particularly anxieties over health, finance, partial inactivity of several welfare organizations due to lockdown and frustration encircling forced home-stay are factors behind this rapid soaring of domestic violence at the time of CO -19.37. **(15)**.

The current study revealed that the children and adolescents dietary habits were changed through the pandemic and they ate about three to four meals during the pandemic. This may be due to prolonged home stay, lack of physical activities and spending more time on technology device so they eat more than usual. This is supported by **Panahietal (2018)⁽¹⁶⁾**, who declared that low physical activity levels have been suggested to interact both with body fat and appetite dysregulation. This result is also in an agreement with **Laura et al(2020) (17)** who reported in their study that during the COVID-19 lockdown, the sense of hunger and satiety changed for more than half of the population: 34.4% of responders increased appetite.

The study results presented that studied children and adolescents had sleep disturbances three or more times per week and they had poor sleep quality. This may be a result of long period of home stay, lack of physical activities, spending more times on front of TV and technology devices all interfere with regular sleep habits. This explanation is in the same line with **Rundle et al (18)**who agreed that exposure of the children to long-term physical inactivity, irregular sleep patterns, un favorable diet plans, sedentary life style, longer smart-phone/television screen time that are being practiced during lockdown and school-closure will result in Child hood obesity and reduced cardio-respiratory fitness.

Regarding application of universal precaution during COVID-19, more than two thirds of children and adolescents were wearing face mask and washing their hands after returning homes and they did not shake by

their hands. This result may be inquired that the three quarter of the study sample were females, and the females are more confined to practice the technique and more occupied with protecting themselves than males who may be occupied by other ideas and other activities.

This opinion is supported by several previous studies that revealed an obvious gender distinction regarding the perception, behavior, and effectiveness of hand-washing [19]. Also, Simetal (2014) (20) reported that it has been postulated that females are less willing to take risky activities, and thus more likely to follow hand-washing recommendations. This result is consistent with Xuyu Chen et al (2020) (21) who reached to the same result in their study as 42.05% of the primary school students showed a good behavior of hand-washing, while 51.60% had a good behavior of mask-wearing during the pandemic.

V. Conclusion

The total score of children and adolescent quality of life was low. Children had poor sleep quality during COVID-19 pandemic. Nearly three quarters of the children had changes in their daily dietary habits. More than two thirds of those children were wearing face mask and the majority of the children were washing their hands after returning homes.

VI. Recommendation

Based on the results of the current study the following recommendations are suggested:

1. To mitigate the psychosocial ill-effects of COVID-19 on children and adolescents proactive and targeted interventions can be proposed by parents, pediatricians, psychologists, social workers, hospital authorities, government and nongovernmental organizations have important roles.
2. Parents need to respect their identity, free space, special need in addition to monitoring child's performance, behavior and self-discipline skills.
3. Friendly interaction and communication between parents and children may help soothing their pandemic-related anxieties and other physical and mental issues.
4. Absorbing children in household and family activities as appropriate will improve their self-sufficiency.

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