



Physical activity, screen time and psychological well-being during COVID-19 in disabled children.

Researcher/Rahaf Baqleh ⁽¹⁾, DR/Hasan Al-Oran ⁽²⁾, DR/Mohammed Fakehy ⁽³⁾, DR/Harran Al- Rahamneh ⁽⁴⁾

(1) instructor at the university of Jordan.

(2) Associate Professor at the university of Jordan.

(3) Associate Professor at King Saud University.

(4) Associate Professor at the university of Jordan.

Abstract

Vulnerable groups, such as children and adolescents, have been affected by quarantine, especially those with disabilities. This has been amplified by the worldwide measures that were implemented in many countries like school closures and social distancing to control the spread of COVID-19. However, the consequences of such procedures on physical disability, screen time and psychological well-being among disabled children are not clear. This study investigates the impact of COVID-19 on physical disability, screen time and psychological well-being among Jordanian children with disabilities in the (5–11) age range. A total of 119 parents with disabled children between (5-11) years of age were asked to fill out a survey that included a set of questions to measure their children's physical disability, screen time and psychological well-being during the COVID-19 pandemic. Being irritable (65.6%), dependent on us (63.1%), bored (62.2%), nervous (58.8%), reluctant (57.1%), worried when one of us leaves the house (54.4%) and cried easily (54.4%) were the most frequently reported symptoms by parents during the COVID-19 pandemic. They reported that screen time of ≥ 120 minutes a day was shown among 22.7% of disabled children and 44.5% of disabled children performed < 30 minutes a day of physical activity. ≤ 8 hours of sleep per night was reported by 51.3% of the parents with disabled children during COVID-19. Disabled persons and their parents should have access to all kinds of facilities, services and information related to COVID-19. Governments may provide free applications to the parents of disabled children to get psychological support easily and conveniently during such difficult times. Moreover, parents of disabled children could be allowed for short walks and to have access to national parks during lockdown, to increase physical activity, decrease screen time and reduce negative psychological effects.

Keywords : (COVID-19; disabled children; physical activity; screen time; psychological well-being)

Introduction:

Disabled people are estimated to be more than 1 billion worldwide (Armitage & Nellums, 2020). This involves physical, mental, intellectual, sensory disabilities and autism. About 80% of disabled persons live in low-income and middle-income countries (The Lancet, 2019).

Disabled normal individuals, have greater health needs and are more likely to lead to worse outcomes (The Lancet, 2019; Oluka, 2020).

Of these worse outcomes are higher prevalence of preterm birth and stillbirth, greater risk of malnourishment in childhood, higher rates of HIV, diabetes, and cardiovascular disease, and lower life expectancy (The Lancet, 2019).

In December 2019, the first case of a novel pneumonia was reported in Wuhan, the capital of Hubei province in China (Phelan et al., 2020). The disease has then spread quickly worldwide. In January 2020, the novel Corona virus was linked to the severe acute respiratory disease called COVID-

19 (World Health Organization, 2020) (WHO) which declared it as a pandemic on the 11th of March 2020 due to its serious and rapid spread (World Health Organization, 2020). To date, there are 252, 902, 685 people infected by COVID-19, 5, 094, 826 of them died because of the infection worldwide (WHO website, 2021). In Jordan, there

are about 892, 123 people reported to be infected by COVID-19 and 11, 238 deaths resulted.

COVID-19 might affect disabled individuals differently compared to healthy-normal individuals. Therefore, there are three issues that must be considered during COVID-19 pandemic concerning disabled individuals. First, disabled persons might face inequities regarding their access to public health messaging (Oluka, 2020). Therefore, sign language interpreters and health-care providers should be wearing transparent mask to allow lips reading for the targeted persons (Armitage & Nellums, 2020). Second, physical distance and quarantine measures might disrupt food delivery, medication, and personal care for disabled persons (Armitage & Nellums, 2020). Finally, disabled persons might be at higher risk of COVID-19 infection or severe disease because of the existing comorbidities (UN News, 2020).

Vallejo-Slocker et al. (2020) reported that 8- to 18-year-old children and adolescents in the protection system scored statistically significantly lower on the strengths and difficulties questionnaire than the Spanish general population before the COVID-19 pandemic (i.e., assessed in 2017). These findings are coinciding with what Bronsard et al. (2016) reported regarding children and adolescents in the child welfare system having more psychological difficulties than their peers. Mbazzi et al. (2020) reported that some of the disabled participants experienced a lot of

emotional distress due to the financial difficulties, as well as home schooling measures implemented in COVID-19 pandemic. As a result of poverty, some of the disabled children’s parents reported sleepless nights, loss of appetite and anger due to stress. Parents also reported that their children are distressed (Mbazzi et al., 2020).

Many studies have shown that the measures implemented to slow the spread of COVID-19 such as school closures, lockdowns, quarantine, social distancing, hand washing and wearing facial masks have affected able-bodied children and adults’ psychological well-being, screen time and physical activity negatively in Spain, Italy, UK, and Jordan (e.g., Orgilés et al., 2020; Morgül et al., 2020; Al-Rahamneh et al., 2021). However, this negative effect of such measures on physical activity, screen time and psychological well-being during the COVID-19 has not been assessed among disabled children in Jordan. In addition, disabled individuals might be faced by stigma, negative attitude and poor communication skills among health professionals and normal populations. This might in turn affect physical activity, screen time and psychological well-being of disabled children negatively. Therefore, the aim of the current study is to assess the negative impacts of COVID-19 on physical activity, screen time and psychological well-being among disabled children in Jordan; and to assess whether these negative changes in physical activity, screen time and psychological well-being among disabled children in Jordan were affected by parents’ gender, children’s gender, parents’ educational level, parents’ job, disability type (hearing impairment, visual impairment, etc..) and school type (public, private,

etc..). We hypothesized that COVID-19 will affect physical activity, screen time and psychological well-being negatively among disabled children in Jordan and this negative outcome will not be affected by parents’ gender, children’s gender, parents’ educational level, parents’ job, disability type (hearing impairment, visual impairment, etc..) and school type (public, private, etc..).

Materials and Methods:

Participants

Data for the current study were collected from 119 parents (mothers = 92, (77.3 %); fathers =27, (22.7 %) regarding the impact of COVID-19 on children’s physical activity, screen time and psychological well-being. As shown in Table 1, most parents live in cities (77.3%) and the rest live in villages (15.4%), Badia (4.2%), and camps (3.4%). Additionally, most participants were married (87.4%). Unemployment was higher among mothers (n=80, 67.2%) than fathers (n=14, 11.8%). Half of the participants live in owned properties (50.4%), most of the participants (47.1) had balconies, the rest of the participants (52.9%) had access to outside space for their children to play or to hang out, which in most cases was a garden (26.1%). Regarding children (n =119; male = 78 (65.5%) and female = 41 (43.5%)), they were between (5-11) years old and are disabled (8.46 ± 2.287 years). With intellectual disability (33.6%), (27.7%) physical disability (17.6%), hearing impairment (13.4%), autism (5%), cerebral palsy and (2.5%) with visual impairment. Most of them were studying at public and special education schools (73.2%).

Table (1)
Participant sociodemographic characteristics and mean score of parents’ perceived changes in children’s emotional and behavioral state.

	N (%)	mean score of children’s psychological well being
Parents gender		
<i>Female</i>	92 (77.3)	3.33 ± 0.74
<i>Male</i>	27 (22.7)	3.16 ± 0.67
Living Place		
<i>City</i>	92 (77.3)	3.33 ± 0.75
<i>Village</i>	18 (15.1)	3.16 ± 0.67
<i>Camp</i>	4 (3.4)	2.75 ± 0.57
<i>Badia</i>	5 (4.2)	3.43 ± 0.63
Marital Status		
<i>Married</i>	104 (87.4)	3.31 ± 0.74
<i>Widowed</i>	6 (5)	3.51 ± 0.71
<i>Divorce</i>	4 (3.4)	3.03 ± 0.40
<i>Never married</i>	5 (4.2)	2.96 ± 0.68
Mostly used outside space?		
<i>Garden</i>	31 (26.1)	3.10 ± 0.76
<i>Balcony</i>	56 (47.1)	3.49 ± 0.59
<i>The roof of the building</i>	14 (11.8)	2.67 ± 0.57
<i>Basement</i>	18 (15.1)	3.51 ± 0.85
Mother’s education		
<i>Less than High School</i>	24 (20.2)	3.09 ± 0.81
<i>High School</i>	35 (29.4)	3.46 ± 0.65
<i>Diploma</i>	14 (11.8)	3.11 ± 0.72

	<i>N (%)</i>	<i>mean score of children's psychological well being</i>
Bachelor	36 (30.3)	3.29 ± 0.75
Postgraduate	10 (8.4)	3.50 ± 0.67
Father's education		
Less than High School	37 (31.1)	3.23 ± 0.80
High School	29 (24.4)	3.24 ± 0.67
Diploma	14 (11.8)	3.34 ± 0.48
Bachelor	27 (22.7)	3.43 ± 0.80
Postgraduate	12 (10.1)	3.27 ± 0.77
Mother's employment status		
Self-employed	2 (1.7)	4.30 ± 0.37
Part-time	11 (9.2)	3.79 ± 0.42
Full-time	14 (11.8)	3.29 ± 0.69
Unemployed	80 (67.2)	3.17 ± 0.74
Retired	7 (5.9)	3.33 ± 0.70
Lost the job due to COVID-19	5 (4.2)	3.77 ± 0.62
Father's employment status		
Self-employed	25 (21)	3.23 ± 0.69
Part time	15 (12.6)	3.09 ± 0.77
Full-time	41 (34.5)	3.41 ± 0.69
Unemployed	14 (11.8)	3.11 ± 0.83
Retired	16 (13.4)	3.23 ± 0.80
Lost job due to COVID-19	8 (6.7)	3.71 ± 0.56
Children gender		
Male	78 (65.5)	3.23 ± 0.76
Female	41 (34.5)	3.42 ± 0.65
Education type		
Private School	29 (24.4)	3.27 ± 0.66
Public School	46 (38.7)	3.16 ± 0.81
UNRWA School	2 (1.7)	3.19 ± 0.40
Military culture School	1 (0.8)	2.39 ± 0
Special Education school	41 (34.5)	3.48 ± 0.67
School year group		
Reception (5 yrs.)	21 (17.6)	3.27 ± 0.56
Year 1 (6 yrs.)	12 (10.1)	3.15 ± 0.80
Year 2 (7 yrs.)	9 (7.6)	2.87 ± 0.53
Year 3 (8 yrs.)	14 (11.8)	3.46 ± 0.55
Year 4 (9 yrs.)	10 (8.4)	3.77 ± 0.40
Year 5 (10 yrs.)	18 (15.1)	3.46 ± 0.79
Year 6 (11 yrs.)	35 (29.4)	3.17 ± 0.86
Type of disability		
Physical disability	33 (27.7)	3.19 ± 0.68
Hearing impairment	21 (17.6)	3.32 ± 0.78
Autism	16 (13.4)	3.54 ± 0.63
Mental Disability	40 (33.6)	3.34 ± 0.81
Visual impairment	3 (2.5)	2.61 ± 0.52
Cerebral palsy	6 (5)	3.08 ± 0.40

Values are n (%), means and standard deviation of the mean score of parents' perceived changes in children's emotional and behavioral state.

Procedures:

The survey was uploaded and shared on Google online survey platform. A link to the electronic survey was distributed via social networks (e.g., Facebook, Instagram), e-mails, messaging groups (e.g., WhatsApp) during the period of the 11th of April 2021 – 18th of September 2021,

using a snowball sampling strategy since face-to-face contact was not possible for all individuals due to the COVID-19 pandemic. The survey was distributed to parents' pages. Parents living in Jordan were asked to fill in the survey only. Information about the objectives of the study was provided and informed consent was requested.

Parents were also informed that they will not be paid for filling in the survey. Institutional ethics approval was obtained by the Faculty of Physical Education at the University of Jordan.

Instruments:

Children’s emotional and behavioral symptoms questionnaire was developed by Orgilés et al. (2020) to assess children’s psychological well-being during the COVID-19 lockdown. This includes, a) child and parents’ sociodemographic information including housing conditions (e.g. house size, number of rooms, the existence of outside space such as a garden, balcony, or terrace); b) parents’ perceived impact of the confinement on children’s emotional and behavioral symptoms rated on a five- point scale (1=much less compared to before lockdown - 5=much more compared to before lockdown); c) children’s daily routines during lockdown compared to before: time of screen usage and duration of physical activity rated on a six-point scale (1=less than 30 minutes - 6=more than 180 minutes), and sleeping hours a day. Orgilés et al. (2020) questionnaire was translated to Arabic by Dr. Harran Al-Rahamneh and the Arabic version was checked by three of the academic staff at the Faculty of Physical Education at the University of Jordan. It was then translated back to English by Rahaf Baqleh to ensure the accuracy of the translation. The questionnaire has demonstrated excellent internal consistency and reliability (Cronbach’s alpha = 0.931)

Data analysis:

Statistical analyses were conducted using the IBM SPSS (Statistical Package for the Social Sciences) software version.

16.0. Mainly, means, standard deviation, and percentages were used. An independent sample t-test was used to compare whether there was a difference in the mean score

of children’s psychological well-being during compared to before the COVID-19 between boys and girls. In addition, a series of analysis of variance (ANOVA) was used to compare whether there was a difference in the mean score of children’s psychological well-being during the COVID-19 due, children’s age, available outside spaces, fathers’, and mothers’ educational and employment status. Leven’s test was used to check homogeneity of variance in t-test and ANOVA and if this assumption was violated, degrees of freedom were adjusted using Green-house Geisser.

Result:

In order to assess parents’ perceived changes in children’s psychological well-being during the COVID-19 period compared to before COVID-19, the percentages of somewhat more and much more were summed and the percentage of much less and somewhat less were summed. For example, 41.2% of parents reported changes in “my child is restless” as somewhat more and 10.9% of them reported these changes as much more; therefore, the percentage of parent’s perceived changes in this item is 52.1%. Parents who noticed changes in their children’s behavior and emotional states before and during the COVID-19 are presented in Table 2. According to parents’ report (table 2) children were more irritable (65.6%), very dependent on us (63.1%), bored (62.2%), nervous (58.8%) , reluctant (57.1%), worried when one of us leaves the house, cried easily (54.4%), argued with the rest of the family (54.1%), anxious (53.8%), restless (52.1%), feels lonely (52.1%), angry (51.3%), difficulty in concentrating (47.9%), behavioral problems and uneasy (47.1%), sad (46.2%), worried (45.4%), afraid of COVID-19 infection (42.8%), feels frustrated (40.3%) during the period of the implemented measures such as lockdown, social distancing and online schooling during the COVID-19 pandemic.

Table (2)

Parents’ perception of the change in children’s emotional and behavioral symptoms during the COVID-19 pandemic

Child symptoms	Much less n (%)	me what less n (%)	Same n (%)	me what more n (%)	Much more n (%)
My child is worried.	8 (6.7)	18 (15.1)	39 (32.8)	40 (33.6)	14 (11.8)
My child is restless.	6 (5)	21 (17.6)	30 (25.2)	49 (41.2)	13 (10.9)
My child is anxious.	7 (5.9)	25 (21)	23 (19.3)	49 (41.2)	15 (12.6)
My child is sad.	13 (10.9)	20 (16.8)	31 (26.1)	34 (28.6)	21 (17.6)
My child has nightmares.	16 (13.4)	24 (20.2)	53 (44.5)	24 (20.2)	2 (1.7)
My child is reluctant.	14 (11.8)	19 (16)	18 (15.1)	43 (36.1)	25 (21)
My child feels lonely.	12 (10.1)	22 (18.5)	23 (19.3)	34 (28.6)	28 (23.5)
My child is uneasy.	17 (14.3)	25 (21)	21 (17.6)	34 (28.6)	22 (18.5)
My child is nervous.	9 (7.6)	18 (15.1)	22 (18.5)	40 (33.6)	30 (25.2)
My child argues with the rest of the family.	6 (5)	21 (17.6)	27 (22.7)	37 (31.1)	28 (23.5)
My child is very quiet.	22 (18.5)	41 (34.5)	34 (28.6)	13 (10.9)	9 (7.6)
My child cries easily.	9 (7.6)	14 (11.8)	30 (25.2)	45 (37.8)	21 (17.6)
My child is angry.	7 (5.9)	19 (16)	32 (26.9)	37 (31.1)	24 (20.2)
My child feels frustrated.	12 (10.1)	17 (14.3)	42 (35.3)	32 (26.9)	16 (13.4)
My child is bored.	6 (5)	16 (13.4)	23 (19.3)	33 (27.7)	41 (34.5)
My child is irritable.	4 (3.4)	14 (11.8)	23 (19.3)	46 (38.7)	32 (26.9)
My child has no appetite.	13 (10.9)	25 (21)	53 (44.5)	20 (16.8)	8 (6.7)
My child has difficulty concentrating.	4 (3.4)	26 (21.8)	32 (26.9)	45 (37.8)	12 (10.1)
My child is afraid of COVID-19 infection.	10 (8.4)	15 (12.6)	43 (36.1)	28 (23.5)	23 (19.3)
My child is very dependent on us.	7 (5.9)	20 (16.8)	17 (14.3)	46 (38.7)	29 (24.4)

Child symptoms	Much less n (%)	me what less n (%)	Same n (%)	me what more n (%)	Much more n (%)
My child has behavioral problems.	15 (12.6)	21 (17.6)	27 (22.7)	39 (32.8)	17 (14.3)
My child eats a lot.	12 (10.1)	33 (27.7)	41 (34.5)	25 (21)	8 (6.7)
My child worries when one of us leaves the house.	3 (2.5)	20 (16.8)	30 (25.2)	40 (33.6)	26 (21.8)

*Table (3)
Children's patterns of daily screen time, daily physical activity, and sleep hours*

	N (%)
Screen time (minutes)	
Less than 30	25 (21)
From 30 to 60	29 (24.4)
From 60 to 90	23 (19.3)
From 90 to 120	15 (12.6)
From 120 to 180	7 (5.9)
More than 180	20 (16.8)
Physical Activity (minutes)	
Less than 30	53 (44.5)
From 30 to 60	28 (23.5)
From 60 to 90	13 (10.9)
From 90 to 120	7 (5.9)
From 120 to 180	7 (5.9)
More than 180	11 (9.2)
Hours of sleep/day	
Less than 6 hours	17 (14.3)
7 hours	12 (10.1)
8 hours	32 (26.9)
9 hours	24 (20.2)
10 hours	18 (15.1)
11 hours	6 (5)
More than 12 hours	10 (8.3)

The independent sample t-test showed that there were no significant differences in children's mean score of psychological well-being and emotional state during COVID-19 compared to pre-COVID-19 between boys and girls $t(117) = 1.354$, $p = 0.178$ and between fathers and mothers $t(117) = 1.086$, $p = 0.280$. ANOVA showed that there was a significant difference in children's mean score of psychological well-being and emotional state during compared to before COVID-19 between the categories of parents' available outside spaces (garden, balcony, the roof of the building, basement) $F(3, 115) = 6.864$, $p = 0.000$. Post hoc analysis using LSD showed that children's mean score of psychological well-being and emotional state were lower among parents who have buildings' roof than balconies ($P = 0.000$), gardens ($P = 0.013$) and basements (0.001). ANOVA showed that there were no significant difference in children's mean score of psychological well-being and emotional state during compared to before COVID-19 between the categories of mothers' educational level $F(4, 114) = 1.347$, $p = 0.257$ and between the categories of fathers' educational level $F(4, 114) = 0.336$, $p = 0.853$. ANOVA showed that there were no significant difference in children's mean score of psychological well-being and emotional state during compared to before

COVID-19 between the categories of fathers' jobs $F(5, 113) = 1.223$, $p = 0.303$. Since 80 mothers

(67.2%) were unemployed, we did not perform ANOVA to assess children's mean score of psychological well-being and emotional state during compared to before COVID-19 between the categories of mothers' jobs. ANOVA showed that the type of disability (physical disability, hearing impairment, visual impairment, autism and cerebral palsy) did not affect children's mean score of psychological well-being and emotional state during compared to before COVID-19 $F(5, 113) = 1.183$, $p = 0.322$. ANOVA showed that the type of school (private school, public school, special education schools) did not affect children's mean score of psychological well-being and emotional state during compared to before COVID-19 $F(5, 113) = 1.183$, $p = 0.322$.

Discussion:

This study assessed the effect of COVID-19 on physical activity, screen time, psychological well-being among disabled children in the (5-11) years old age range in Jordan. Our results showed that irritability (65.6%), very dependent on us (63.1%), boredom (62.2%), nervousness (58.8%), reluctant (57.1%), worried when one of us leaves

the house (54.4%) and cried easily (54.4%) were the most significant changes in psychological well-being reported by parents of disabled children in Jordan. These results agree with previous research. For example: Jiao et al. (2020) reported that clinging (~37%), inattention (~32%), irritability (~31%), worrying (~29%) and obsessive request for updates (~28%) were the most severe psychological conditions reported by healthy-normal children between (6-18) years old in Shaanxi province, China. In addition, Orgilés et al. (2020) reported that having difficulties in concentrating (76.6%), boredom (52%), irritability (39%), restlessness (38.8%), nervousness (38%), feelings of loneliness (31.3%), uneasiness (30.4%) and worries (30.1%) were the most frequent symptoms reported by parents among healthy-normal children in Spain and Italy. Furthermore, Morgül et al. (2020) reported that boredom (73.8%), loneliness (64.5%) and frustration (61.4%) were the most reported psychological symptoms among (5-11) year old healthy-normal children in the UK. Irritability, restlessness, anger, anxiety, sadness, worrying and being likely to argue with the rest of the family was reported by more than 30% of the parents (Morgül et al., 2020). In Uganda and Saudi Arabia, parents of disabled children experienced a lot of emotional distress due to home schooling (Mbazzi et al., 2020; Khasawneh, 2021), as well as to the resulting financial difficulties from the measures implemented during the COVID-19 pandemic (Mbazzi et al., 2020). In addition, Mbazzi et al. (2020) showed that some of these parents reported that their children were distressed, and the children reported that they missed their friends and that they were unable to play at school and in the neighborhood compared to before COVID-19 which makes them unhappy. In a previous study by Al-Rahamneh et al. (2020) boredom (77.5%), irritability (66%), likely to argue with the rest of the family (60.7%), nervousness (54.8%), reluctance (54.2%) and lonely (52.4%) were the most frequently psychological symptoms reported during the pandemic compared to before the COVID-19 period among healthy-normal children between (5-11) years old in Jordan. It is worth mentioning that boredom and irritability were of the most affected psychological symptoms among able-bodied and disabled children between (5-11) years old in Jordan. However, very dependent on us (63.1%) was one of the most affected psychological symptoms among disabled children, but not among able-bodied children (44.2%). This is explained mainly by the need of disabled children for some help by their parents to do their daily needs and requirements, especially when considering that schools and special education centers were closed and replaced by homeschooling between March 2020 and August 2021. (16.8%) of the disabled children's screen time was 180 minutes or more per day. Al-Rahamneh et al. (2020) reported that (34.5%) of the able-bodied children in the same age group used the screens for 180 minutes or more per day. Similarly, Orgilés et al. (2020) showed that screen time of 180 minutes a day was reported by (29.9%) of the children in Spain and Italy. Furthermore, Morgül et al. (2020) showed that screen time of 180 minutes per day during the lockdown of COVID-19 was reported by

(33.8%) compared to (1.4%) before the COVID-19 pandemic among children between (5-11) years old in the UK. Compared to previous studies in Jordan, UK, Spain and Italy, the lower percentage of screen time usage of 180 minutes a day among children in the current study can be attributed to the fact that (33.6%) of the study sample suffered from mental disabilities and does not need to use screens for homeschooling. The world health organization's guidelines on physical activity, sedentary behavior and sleep recommend less than one hour of sedentary screen time usage for children between (1-5) years old (WHO, 2021). Governments in China have also imposed limits on digital device usage to prevent myopia (Wong et al., 2021). Colley et al. (2020) reported that Canadian adults spent most of their days engaged in sedentary behavior before COVID-19 pandemic. Common sedentary behaviors, such as using computers and electronic devices, have been increasing over the past few decades among Canadian adults (Prince et al. 2020). Excess sedentary behavior will increase anxiety, depression, and poorer mental and physical health (e.g., Biswas et al., 2015).

In the current study, (44.5%) of the disabled children performed less than thirty minutes a day of physical activity. In the UK, for the same age group, there were (16.2%) healthy-normal children who performed less than thirty minutes of physical activity per day during COVID-19 pandemic, compared to the period prior COVID-19 pandemic (Morgül et al., 2020). In Italy and Spain, there were (55.6%) of healthy-normal children performed less than thirty minutes of physical activity per day during quarantine, compared to the period prior COVID-19 pandemic (Orgilés et al., 2020). In Jordan, for the same age group, there were (42.0%) of healthy-normal children performed less than thirty minutes of physical activity per day during COVID-19 pandemic, compared to the period prior COVID-19 pandemic (Al-Rahamneh et al., 2020). It can be concluded that COVID-19 pandemic has affected physical activity level among children and adolescents worldwide. The world health organization's guidelines on physical activity, sedentary behaviour and sleep recommends spending 180 minutes in a variety of types of physical activities at any intensity, of which at least sixty minutes is moderate to vigorous intensity for children (WHO, 2020). Physical activity reduces cardiovascular risk factors, prevents, and manages chronic diseases (Chodzko-Zajko et al. 2009), also prevents functional limitations (Koster et al., 2009), lowers risk of falls (Gillespie et al., 2012) and lowers anxiety and depression (Barbour et al., 2005).

The implemented measures by international governments and the Jordanian government, such as lockdowns, school closures and social distancing affected sleeping hours. In the current study, parents of the disabled children reported that (51.3%) of their children had eight hours of sleep per night or less, which is considered as a short sleeping duration (WHO, 2020; Paruthi et al., 2016). This percentage of eight hours of sleeping per night or less among disabled children was higher than that percentage reported among healthy-normal children of the same age in Jordan. Al-

Rahamneh et al. (2021) reported that (42.5%) of healthy-normal children had eight hours of sleep per night or less. This means that the impact of COVID-19 pandemic on sleeping hours is worse among disabled than able-bodied children. This point must be considered for disabled children during COVID-19 pandemic. In addition, Morgül et al. (2020) showed that children slept for half an hour more prior to the lockdown than while implemented. Furthermore, Abid et al. (2021) reported a change in the sleeping hours among Tunisian children. They observed a reduction in sleep hours among girls by 0.07 hours and an increase in sleeping hours among boys by 0.08 hours. These changes in sleeping hours may be attributed to less physical activity, more time of screen usage, changes in psychological behavior and emotional state during the lockdown compared to the period prior to the COVID-19 pandemic. The world health organization's guidelines on physical activity, sedentary behavior and sleep recommends 10-13 hours of sleep per night for children (WHO, 2020). It is worth mentioning that children's age, gender, and school's type did not affect children's psychological wellbeing. In addition, a parent's gender, parent's educational level and parent's job did affect children's psychological wellbeing. This can be explained by the fact that COVID-19 pandemic affected disabled children's psychological wellbeing regardless of these moderator factors.

Conclusions:

researchers recommend including disabled persons and their parents in all response plans and programs of the COVID-19

This study assessed the negative impacts of COVID-19 on pandemic (Armitage & Nellums, 2020). Disabled persons and physical activity, screen time and psychological well-being their parents should have access to all kinds of facilities, among disabled children in Jordan. Irritability, independence, services, and information related to COVID-19. Governments boredom, nervousness and reluctance were the most affected may provide free applications to parents of disabled children to psychological variables during COVID-19 compared to pre-get psychological support easily and conveniently during such COVID-19 among disabled children in Jordan. (44.5%) of the difficult times. Moreover, the parents of the disabled children disabled children performed less than thirty minutes a day of should be allowed for short walks and should have access to physical activity. (22.7%) of disabled children increased their national parks during lockdowns, to increase physical screen time for more than two hours per day. (51.3%) of the activity, decrease screen time and buffer such negative disabled children between (5-11) years old slept eight hours or psychological variables. less during the COVID-19. Based on these findings, the

References:

Arabic References:

1. **Abid, R., Ammar, A., Maaloul, R., Souissi, N., & Hammouda, O. (2021):** Effect of COVID-19-Related Home Confinement on Sleep Quality, Screen Time and Physical Activity in Tunisian Boys and Girls: A Survey. *International journal environmental research and public health*, 18(6), 3065
2. **WJ Chodzko-Zajko, DN Proctor, MAF Singh, CT Minson, CR Nigg, GJ Salem, JS Skinner (2009):** Exercise and physical activity for older adults *Medicine & science in sports & exercise*, 41(7), 1510-1530
3. **Al-Rahamneh, H., Arafa, L., Al Orani, A., & Baqleh, R (2021):** Long-Term Psychological Effects of COVID-19 Pandemic on Children in Jordan, *International Journal of Environmental Research and Public Health* 18(15):7795
4. **Colley, R. C., Bushnik, T., & Langlois, K. (2020):** Exercise and screen time during the COVID-19 pandemic. *Health Rep*, 31(6), 3-11.
5. **Guillaume Bronsard, Marine Alessandrini, Guillaume Fond, Anderson Loundou, Pascal Auquier, Sylvie Tordjman, Laurent Boyer (2016):** The Prevalence of Mental Disorders Among Children and Adolescents in the Child Welfare System: A Systematic Review and Meta-Analysis *American Academy of Orthopaedic Surgeons*, 95(7) e2622.
6. **Armitage, R., & Nellums, L. B. (2020):** The COVID-19 response must be disability inclusive, *Lancet Public Health*, 5(5), e257.
7. **Barbour, K. A., & Blumenthal, J. A. (2005).** Exercise training community. and depression in older adults. *Neurobiology of aging*, 26(1)119-123.
8. **Gillespie, L.D.,Robertson, M.C.,Gillespie, W. J.,Sherrington, C., Gates, S., Clemson, L., & Lamb, S. E. (2012):** Interventions for preventing falls in older people living in the community. *Cochrane database of systematic reviews*, 2012 Sep 12;2012(9):CD007146.
9. **Gupta, S., & Jawanda, M. K. (2020).** The impacts of COVID- 19 on children. *Acta Paediatr*, 109(11), 2181-2183.
10. **Biswas, A., Oh, P. I., Faulkner, G. E., Bajaj, R. R., Silver, M.A., Mitchell, M. S., & Alter, D. A. (2015).** Sedentary time and its association with risk for disease incidence, mortality, and hospitalization in adults: a systematic review and meta-analysis. *Annals of internal medicine*, 162(2), 123-132.
11. **Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y.,Pettoello-Mantovani, M., & Somekh, E. (2020).** Behavioral and emotional disorders in children during the COVID-19 epidemic. *The Journal of pediatrics*, 221, 264.

12. **Paruthi, S., Brooks, L. J., D'Ambrosio, C., Hall, W. A., Kotagal, S., Lloyd, R. M., ... & Wise, M. S. (2016).** Recommended amount of sleep for pediatric populations: a consensus statement of the American Academy of Sleep Medicine. *Journal of clinical sleep medicine*, 12(6), 785-786.
13. **Khasawneh, M. A. (2021):** The effect of the spread of the new COVID-19 on the psychological and social adaptation of families of persons with disabilities in the Kingdom of Saud Arabia. *Health Psychology Report*, 9(3), 264-275.
14. **Phelan, A. L., Katz, R., & Gostin, L. O. (2020).** The novel coronavirus originating in Wuhan, China: challenges for global health governance. *Jama*, 323(8), 709-710.
15. **Prince, S. A., Melvin, A., Roberts, K. C., Butler, G. P., & Thompson, W. (2020).** Sedentary behaviour surveillance in Canada: trends, challenges and lessons learned. *International Journal of Behavioral Nutrition and Physical Activity*, 17(1), 1-21
16. **Koster, A., Harris, T. B., Moore, S. C., Schatzkin, A., Hollenbeck, A. R., van Eijk, J. T. M., & Leitzmann, M. F. (2009):** Joint associations of adiposity and physical activity with mortality: the National Institutes of Health-AARP Diet and Health Study. *American journal of epidemiology*, 169(11)d, 1344-1351.
17. **UN News. Preventing discrimination against people with disabilities in COVID-19 response. UN News, March 19, 2020. <https://news.un.org/en/story/2020/03/1059762>.**
18. **Lancet, T. (2019).** Prioritising disability in universal health coverage. *Lancet*, 394, 187.
19. **Vallejo-Slocker, L., Fresneda, J., & Vallejo, M. A. (2020).** Psychological wellbeing of vulnerable children during the COVID-19 pandemic. *Psicothema*, 32(4), 501-507.
20. **Mbazzi, F. B., Nalugya, R., Kawesa, E., Nimusiima, C., King, R., Van Hove, G., & Seeley, J. (2020):** The impact of COVID-19 measures on children with disabilities and their families in Uganda *Disability & Society*, 1-24.
21. **Wong, C. W., Tsai, A., Jonas, J. B., Ohno-Matsui, K., Chen, J., i Ang, M., & Ting, D. S. W. (2021).** Digital screen time during the COVID-19 pandemic: risk for a further myopia boom? *American journal of ophthalmology*, 223, 333-337.
22. **Morgül, E., Kallitsoglou, A., & Essau, C. A. E. (2020).** Psychological effects of the COVID-19 lockdown on children and families in the UK, *Revista de Psicología Clínica con Niños y Adolescentes* Vol. 7 no. 3- September 2020 - pp 42-48
23. **World Health Organization website. WHO guidelines on physical activity, sedentary behavior and sleep for children under 5 years of age. Available at: <https://www.who.int/publications/i/item/9789241550536>. Accessed November 11, 2021.**
24. **Oluka, E. (2020).** How Are PWDs Coping with Lockdown? *Daily Monitor*, 9. World Health Organization. (2020). Coronavirus disease (COVID19) pandemic. Retrieved from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.
25. **Orgilés, M., Morales, A., Delvecchio, E., Mazzeschi, C., & Espada, J. P. (2020).** Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. *Frontiers in psychology*, 11, 2986.
26. **<https://app.powerbi.com/view?r=evJrIjoiZWZlOTAxOGItMmY3ZS00MzMxLWE3MmItZWU4ZGVlMTlkNTUwIiwidCI6IjM3MjI3YTljLWl1OGUtNGNiNi05NDNhLWI2ZjE5ZmJjZWFiMCI6ImMiOiI9>**
27. **https://www.who.int/emergencies/diseases/novelcoronavirus2019?gclid=Cj0KCQjw5uWGBhCTARIsAL70sL LfRTstJgDO3Y3rKRjTcFl5M9e_bjNlejPAYNgU6XBvBT5ILp2TxOAAAtParuthi, S., VCEALw_wcB**