

Quality of Life in Disabled Versus Able-Bodied Individuals during COVID-19 Pandemic

Harran Al-Rahamneh^{1*}, Asma AL Habees², Rahaf Baqleh¹, Roger Eston³

¹ School of Sport Sciences, The University of Jordan, Jordan.

² School of Science, The University of Jordan, Jordan.

³ Alliance for Research in Exercise, Nutrition and Activity, University of South Australia, Australia.

ABSTRACT

Background: COVID-19 pandemic emerged in China, Wuhan in December, 2019. This pandemic has affected most domains of quality of life (QoL) for all individuals.

Objective: The aim of this study was to assess the quality of life among disabled persons and healthy-normal individuals during COVID-19 pandemic to compare it with their QoL before COVID-19 pandemic, in Jordan.

Methods: Six hundred and thirty nine able-bodied participants (33.8 ± 11.3 years) and 143 disabled individuals (46.8 ± 16.4 years) completed the WHOQOL-BREF (a tool used to measure Quality of life) which is consisted of 24 items distributed in four domains (physical health, psychology, social relationships and environment) and 2 items on overall quality of life and general health. The survey was distributed to participants online through social media (WhatsApp, Facebook, emails) between 12th June and 18th July 2021.

Results: Quality of life values were higher in able-bodied participants for physical health (65.5 ± 16.3 vs. 56.2 ± 19.8), social relationships 63.2 ± 19.7 vs. 55.3 ± 21.1) and environment (53.6 ± 16.6 vs. 49.8 ± 17.9) domains. The quality of life correlated positively with individuals' income for both groups and higher in all domains for physically active compared to non-physically active participants. Screen time significantly increased during COVID-19 for both groups.

Conclusion: The authors recommended that more attention should be paid to all items of quality of life during COVID-19, particularly with regard to disabled persons, and to potential deleterious effects which may result from sedentary lifestyle behavior such as higher screen time usage during COVID-19.

Keywords: Quality of life; able-bodied; disabled; COVID-19 pandemic.

1. INTRODUCTION

Coronavirus Disease (COVID-19) is a global pandemic, which first appeared in December 2019 in Wuhan, China, when cases of pneumonia of unknown etiology were reported¹. On 11 March 2020 The World Health Organization (WHO) declared COVID-19 a pandemic. To date, there have been 261,435,768 people

infected by COVID-19 and 5,207,634 have died as a result of the infection worldwide^{2,3}. In Jordan, approximately 953,943 people have been reported to be infected by COVID-19, and 11,608 deaths⁴.

The World Health Organization (WHO) quality of life⁵ defined QoL as the Individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. QoL is affected by the persons' life goals, expectations, standards, and concerns^{6,7}. QoL assessment is increasingly used to

*Corresponding author: *Harran Al-Rahamneh*

h.rahamneh@ju.edu.jo

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describe subjective well-being in population studies as well as intervention outcomes in clinical trials⁸. WHOQoL-100 and its abbreviated version WHOQoL-BREF have been developed under the leadership of WHO over the past three decades^{6, 7}. The QoL-BREF is commonly used to assess QoL since it is relatively short (26 items), convenient to use and valid across cultures. The QoL-BREF measures four domains physical health, psychology, social relationships and environment. There are two questions of QoL-BREF assesses general health and overall quality of life.

Most countries worldwide have adopted many restrictive policy measures to contain the transmission and diminish the spread of COVID-19 such as closing schools, restricting populations to their homes with permission to leave only for necessary work, shopping, or medical reasons, using facial mask, social distancing and prevention of large gatherings^{9, 10, 11}. Such policy measures have affected most sectors. For example, in the USA, the unemployment rate rose from 3.8% in February 2020 to 14.7% in April 2020 with 23.1 million are unemployed¹². These implemented policy measures have also affected the quality of life. For example,¹³ observed a significant worsening of health-related quality of life in the entire sample of older adults (76.24 ± 6 years) in Spain. In addition,¹⁴ reported that COVID-19 has affected the QOL for both Saudi and non-Saudi between 18-65 years old and this effect was more severe among individuals with medical conditions and those who lost their jobs due to COVID-19.

To the best of our knowledge, no studies have assessed the relations between COVID-19 pandemic related restrictive measures and the quality of life among disabled individuals compared to their able-bodied peers, in Jordan. Therefore, the aim of this study was to assess the quality of life among disabled persons compared to healthy-normal individuals during COVID-19 pandemic vs. before COVID-19 pandemic. A secondary aim was to assess whether quality of life was modified by gender, physical

activity and educational level. We hypothesized that quality of life will be affected negatively during COVID-19 compared to before COVID-19 pandemic for both groups. It was also hypothesized that the negative effect of COVID-19 on quality of life would be higher for disabled individuals than able-bodied peers. Furthermore, it was hypothesized that quality of life would be affected positively by physical activity, income and educational level.

2. Material and methods

2.1 Participants

Data were collected from 782 Jordanian individuals (able-bodied = 639 (81.7%); disabled = 143 (18.3%)) to assess the impact of COVID-19 on the quality of life. The type of disabilities included in this study were physical disabilities (spinal cord injury, spina bifida, amputation and poliomyelitis) $n = 112$, hearing impairment, $n = 16$ and visual impairment, $n = 15$. The mean age for able-bodied participants and disabled individuals was 33.8 ± 11.3 years vs. 46.8 ± 16.4 years, respectively. An information sheet was available on the first page of the questionnaire. The participants were free to withdraw at any time without giving explanations and no personal identification was requested to retain information confidentiality. No personal identification was requested to maintain privacy and anonymity, participants were also informed on their right to withdraw freely at any time without giving explanations. The inclusion criteria for the study were; 1) ≥ 18 years old, 2) Jordanian citizen; 3) provision of written consent after reading the aims of the study. 52.0% of able-bodied participants and 60.8% of disabled persons were married. Most able-bodied participants had completed a bachelor degree or postgraduate studies (532 (83.3%)) compared to (33(23.1%)) of disabled individuals.

2.2 Procedures

The WHOQOL-BREF survey was uploaded and shared on the Google online survey platform. A link to the electronic survey was distributed via social networks (e.g., Facebook, Instagram), e-mails, and messaging groups

(e.g., WhatsApp) during the period 12th June 2021–18th July 2021 using a snowball sampling strategy, since face-to-face contact was not possible for all individuals due to the COVID-19 pandemic. In order to avoid duplicate responses, each participant was allowed one response using Google form restrict options. The survey was distributed to Jordanian individuals who live in Jordan and were asked to fill in the survey. The information about the objectives of the study was provided and informed consent was requested. The participants were also informed that they would not be paid for participation in the study. The Institutional ethics approval was obtained by the school of Sport Sciences at the University of Jordan.

2.3 Instruments

The WHOQoL-BREF (26 items) was developed to provide a short form quality of life assessment ⁶. The total of 26 original items were divided into: two items on overall quality of life and general health. The remaining 24 items, were classified into four domains; physical health (7 items), psychological (6 items), social relationships (3 items) and environment (8 items). The Arabic version of this form was used in the current study to assess the quality of life for both groups ⁶. The translated version was checked by three of the academic staff members at the School of Sport Sciences at the University of Jordan and was translated back to the English language to ensure the accuracy and suitability of the form. The participants rated their quality of life based on a five-point scale (1, 2, 3, 4 and 5). The words corresponding to each number were (very poor, poor, average, good, and very good). The reliability values of the WHOQoL-BREF using

Cronbach’s alpha to assess internal consistency are shown in **Table 1**. The participants were asked to answer all questions. If one item of physical health, psychological and environmental domains was coded missing the means of each domain for each participant was substituted. Three items were reversed before scoring (i.e., B3, B4 and B26). Each raw score was transferred to 0-100 scale using this formula [(actual raw score – lowest possible raw score)/possible raw score range]*100. Possible raw score range is the difference between maximum and lowest possible raw score. For example, in physical health domain the lowest possible raw score is 7 and possible raw score range is 28 (maximum possible raw score (35) – lowest possible raw score (7) =28). Therefore, if the actual raw score of one participant was 12 in the physical health domain, this value transferred to be 28.6 [(15-7)/28]*100 = 28.6.

The social relationships domain consists of 3 items. However, item number B21(How satisfied are you with your sex life?) was answered by married individuals only, as related to Jordanian religious and cultural values this item is not applicable to unmarried individuals (i.e., single, divorced and widowed).

Therefore, this domain was analyzed in two ways. First, social relationships for all participants (able-bodied n=639 and disabled n=143) which consisted of two items (B20 and B22) and second, social relationship for married participants (able-bodied n=322 and disabled n=87) which consisted of 3 items (B20, B21 and B22).¹⁵ reported that 8.8% of 1052 participants did not answer item B21.

Table 1: Cronbach’s alpha values of reliability for each domain and all questions for both groups

	Physical health	Psychological	Social relationships	Environment	All items
Able-bodied	0.784	0.787	0.693 (332)	0.814	0.922
Disabled	0.863	0.814	0.736 (87)	0.864	0.954

2.4 Data Analysis

Statistical analysis was conducted using the IBM SPSS

(Statistical Package for the Social Sciences) software version 16.0. Mainly, means, standard deviation and

percentages were used. Spearman’s correlation coefficient was used to assess whether there was a significant association between monthly income and all domains of quality of life for able-bodied and disabled persons. A series of independent sample t-test were used to compare whether there was a significant difference in the mean scores of all domains of quality of life between able-bodied and disabled individuals, males and females, physically active and non-physically active and between single and married individuals. In addition, a series of analysis of variance (ANOVA) were used to compare whether there was a significant difference in the mean scores of all domains of quality of life during compared to before

COVID-19 between the levels of education. Levene’s test was used to check homogeneity of variance in t-test and ANOVA and if this assumption was violated, the degrees of freedom were adjusted. McNamara’s test was used to compare whether there was a significant difference in screen time usage during compared to before COVID-19 for able-bodied and disabled individuals.

Results

All demographic information of the study sample and mean score of all domains of quality of life are shown in **Table 2.**

Table 2: Participants’ sociodemographic characteristics and QoL score for each domain. Values are mean ± standard deviation.

		n	Physical health	Psychological	Social relationships	Environment	Social relationships for married
Gender							
Able-bodied	Male	255	68 ± 16	61 ± 16	65 ± 21	53 ± 17	64 ± 19 (139)
	Female	384	64 ± 17	58 ± 16	63 ± 22	54 ± 17	62 ± 21 (193)
Disabled	Male	118	56 ± 20	61 ± 18	60 ± 21	49 ± 18	55 ± 21 (80)
	Female	25	58 ± 21	59 ± 18	58 ± 25	53 ± 15	54 ± 25 (7)
Education level							
Able-bodied	Less than High School	15	55 ± 19	50 ± 16	53 ± 28	40 ± 18	46 ± 22 (13)
	High School	48	63 ± 17	56 ± 18	60 ± 25	48 ± 18	59 ± 24 (31)
	Diploma	44	63 ± 14	56 ± 18	62 ± 20	50 ± 17	65 ± 19 (34)
	Bachelor	372	66 ± 16	59 ± 16	65 ± 22	54 ± 16	65 ± 19 (160)
	Postgraduate	160	67 ± 16	62 ± 17	66 ± 21	56 ± 16	64 ± 20 (94)
Disabled	Less than High School	52	49 ± 18	54 ± 17	54 ± 19	46 ± 16	47 ± 18 (39)
	High School	48	62 ± 20	65 ± 16	65 ± 20	52 ± 17	63 ± 12 (31)
	Diploma	10	48 ± 23	57 ± 13	50 ± 26	48 ± 17	44 ± 31 (7)
	Bachelor	22	55 ± 18	61 ± 19	63 ± 25	50 ± 22	63 ± 37 (5)
	Postgraduate	11	73 ± 16	69 ± 19	65 ± 27	63 ± 18	75 ± 29 (5)

Living Place							
Able-bodied	City	541	66 ± 16	60 ± 16	65 ± 21	55 ± 16	64 ± 20 (279)
	Village	86	60 ± 17	55 ± 19	61 ± 25	48 ± 19	58 ± 22 (47)
	Camp	12	64 ± 20	61 ± 14	65 ± 25	41 ± 15	75 ± 0 (6)
Disabled N	City	64	62 ± 19	63 ± 18	62 ± 26	52 ± 19	59 ± 27 (28)
	Village	74	51 ± 20	59 ± 18	57 ± 18	48 ± 17	54 ± 18 (56)
	Camp	5	53 ± 14	53 ± 4	63 ± 20	51 ± 11	56 ± 13 (3)
Income							
Able-bodied	Less than 500 jd	302	63 ± 16	56 ± 17	61 ± 23	48 ± 17	58 ± 21 (106)
	From 500 -799 jd	163	67 ± 16	61 ± 16	66 ± 21	55 ± 15	66 ± 20 (102)
	From 800 -1000 jd	73	67 ± 17	64 ± 14	67 ± 18	62 ± 13	65 ± 16 (53)
	More than 1000 jd	101	70 ± 15	65 ± 15	66 ± 21	63 ± 15	66 ± 19 (71)
Disabled	Less than 500 jd	120	54 ± 20	59 ± 18	58 ± 21	48 ± 18	52 ± 19 (73)
	From 500 -799 jd	17	66 ± 16	67 ± 12.49	68 ± 20	57 ± 19	70 ± 16 (10)
	From 800 -1000 jd	3	74 ± 9	71 ± 11	75 ± 22	63 ± 3	88 ± 6 (2)
	More than 1000 jd	3	70 ± 25	68 ± 20	54 ± 44	60 ± 18	54 ± 65 (2)
Are you current ill							
Able-bodied	Yes	56	48 ± 17	53 ± 18	55 ± 25	49 ± 19	53 ± 22 (36)
	no	583	67 ± 15	60 ± 16	65 ± 21	54 ± 17	64 ± 19 (296)
Disabled	Yes	76	49 ± 18	58 ± 17	55 ± 17	47 ± 17	53 ± 16 (57)
	no	67	64 ± 19	64 ± 18	64 ± 25	53 ± 18	59 ± 26 (30)
Physically activity							
Able-bodied	Yes	391	68 ± 15	62 ± 16	66 ± 21	55 ± 17	66 ± 19 (182)
	no	248	61 ± 17	55 ± 17	61 ± 22	52 ± 16	60 ± 21 (150)
Disabled	Yes	84	65 ± 16	67 ± 15	67 ± 20	55 ± 16	62 ± 18 (49)
	no	59	44 ± 19	52 ± 17	50 ± 21	42 ± 18	47 ± 22 (38)

Gender

For able-bodied participants, independent samples t-test results showed that males have significantly better quality of life compared to females in physical health and psychological domains, $t^{(637)} = 2.887$, $P = 0.004$ and $t^{(637)} = 2.614$, $P = 0.009$, respectively. However, no significant differences between males and females in domain social relationships for married, environment and domain social relationships for all participants, $P > 0.05$. For disabled

participants, t-test results showed no significant differences were observed between males and females in all domains of quality of life ($P > 0.05$).

Physical activity

For able-bodied participants, independent samples t-test results showed that physically active participants reported significantly better quality of life compared to non-physically active participants, $t^{(637)} = 5.273$, $P = 0.000$; $t^{(637)} = 5.415$, $P = 0.000$; $t^{(330)} = 2.608$, $P = 0.010$; t

$t^{(637)} = 2.344$, $P = 0.019$; $t^{(637)} = 2.954$, $P = 0.003$ for the domains of physical health, psychology, social relationships for married, environment and social relationships for all participants domains, respectively. For disabled participants, independent samples t-test results showed that physically active participants reported significantly better quality of life compared to non-physically active participants, $t^{(141)} = 6.936$, $P = 0.000$; $t^{(141)} = 5.494$, $P = 0.000$; $t^{(85)} = 3.757$, $P = 0.000$; $t^{(141)} = 4.727$, $P = 0.000$; $t^{(141)} = 4.965$, $P = 0.000$ for physical health, psychology, social relationships for married, environment and social relationships for all participants domains of quality of life, respectively.

Monthly income

For able-bodied participants, there was a significant positive relationship between monthly income and physical health, psychological, social relationships for married, social relationships for all participants and environmental domains and for all items of quality of life, $r^{(637)} = 0.172$, $P = 0.000$; $r^{(637)} = 0.231$, $P = 0.000$; $r^{(330)} = 0.138$, $P = 0.012$; $r^{(637)} = 0.356$, $P = 0.000$; $r^{(637)} = 0.092$, $P = 0.020$ and $r^{(637)} = 0.277$, $P = 0.000$, respectively.

For disabled participants, there was a significant relationship between monthly income and physical health, psychological, social relationships for married and environmental domains and for all items of quality of life, $r^{(141)} = 0.284$, $P = 0.001$, $r^{(141)} = 0.184$, $P = 0.028$, $r^{(85)} = 0.336$, $P = 0.001$, $r^{(141)} = 0.232$, $P = 0.005$ and $r^{(141)} = 0.267$, $P = 0.001$, respectively. However, this relationship was not significant between monthly income and social relationship for all participants domain $r^{(141)} = 0.163$, $P = 0.052$.

Educational level

For able-bodied participants, a series of one way ANOVA revealed a significant difference between the categories of educational level in physical health domain $F^{(4, 634)} = 2.673$, $P = 0.031$, psychological domain $F^{(4, 634)} = 2.940$, $P = 0.020$, social relationship domain for married participants, $F^{(4, 327)} = 3.327$, $P = 0.011$ and environmental

domain $F^{(4, 634)} = 5.281$, $P = 0.000$. Post hoc analysis using LSD showed that individuals with postgraduate and bachelor level reported significantly higher scores for quality of life compared to those with less than high school level in physical health domain, $P = 0.007$ and $P = 0.014$, respectively and psychological domain, $P = 0.007$ and $P = 0.029$, respectively. Participants with postgraduate level also reported significantly higher scores for quality of life compared to those with high school level, $P = 0.038$ in psychological domain. LSD showed that individuals with postgraduate, bachelor, diploma qualifications and high school level education reported significantly higher scores for quality of life in social relationship domain for married compared to those with less than high school level, $P = 0.002$, $P = 0.001$, $P = 0.003$ and $P = 0.045$, respectively. LSD also showed that individuals with postgraduate, bachelor and diploma level education reported significantly higher scores for quality of life in environmental domain compared to those with less than high school level education, $P = 0.001$, $P = 0.001$ and $P = 0.046$, respectively. However, one way ANOVA revealed no significant difference between the categories of educational level in social relationship domain for all participants $F^{(4, 634)} = 1.832$, $P = 0.121$.

For disabled individuals, a series of one way ANOVA revealed a significant difference between the categories of educational level in physical health domain $F^{(4, 138)} = 5.580$, $P = 0.000$, psychological domain $F^{(4, 138)} = 3.424$, $P = 0.011$ and social relationships domain for married participants, $F^{(4, 82)} = 5.191$, $P = 0.001$. In physical health domain, LSD showed that individuals with postgraduate level reported significantly higher quality of life scores compared to those with less than high school, diploma and bachelor, $P = 0.000$, 0.003 and 0.011 , respectively and individuals with high school education reported higher quality of life than those with less than high school education and those with diploma $P = 0.001$ and 0.037 , respectively. In psychological domain, LSD showed that individuals with postgraduate and high school level

reported higher quality of life compared to those with less than high school education, $P = 0.011$ and $P = 0.002$, respectively. In social relationships domain for married participants, LSD showed that individuals with postgraduate and high school level reported higher quality of life compared to those with less than high school education, $P = 0.003$ and $P = 0.001$, respectively, and compared to those with diploma, $P = 0.008$ and 0.019 , respectively. However, one way ANOVA revealed no significant difference between the categories of educational level in social relationships domain for all participants $F^{(4, 138)} = 2.406$, $P = 0.052$ and domain 4 $F^{(4, 138)} = 2.265$, $P = 0.065$.

Able-bodied versus disabled

Independent sample t-test showed that able-bodied participants reported higher quality of life in overall quality of life and general health ($t^{(186.301)} = 3.623$, $P = 0.000$), physical health domain ($t^{(780)} = 5.868$, $P = 0.000$), social relationships domain for all participants ($t^{(780)} = 2.206$, $P = 0.028$), social relationships domain for married ($t^{(417)} = 3.236$, $P = 0.001$) and environment domain ($t^{(780)} = 2.390$, $P = 0.017$). However, no significant difference was observed in the psychology domain ($t^{(780)} = 0.683$, $P = 0.495$). The values of all domains of quality of life for both groups are presented in **table 3**.

Table 3: Mean score and SD of WHOQoL-BREF for both groups (Score range 0-100 for all domains except overall quality of life and general health).

	Overall quality of life and general health	Physical Health	Psychological	Social Relationships	Environment	Social Relationships Married
Able-bodied	3.76 ± 0.78	66 ± 16*	59 ± 16	64 ± 22*	54 ± 17*	63 ± 20*
Disabled	3.45 ± 0.96	56 ± 20	60 ± 18	60 ± 22	50 ± 18	55 ± 21
Total	3.70 ± 0.83	64 ± 18	60 ± 17	63 ± 22	53 ± 17	62 ± 20

* Significant difference between able-bodied and disabled participants

Screen time usage

For able-bodied participants, McNamara's test showed that participants spent significantly more time using screens including iPads, TVs, mobiles, or computers during the COVID-19 period compared to before the COVID-19 ($\chi^2 (15, n = 639) = 360.573$, $p < .001$). For example, the daily rate of screen time usage for more than 5 hours increased from 13.6% to 42.7% and use for less

than 1 hour decreased from 13.8% to 5.8%. Similar results were found for disabled participants ($\chi^2 (14, n = 143) = 61.80$, $p < .001$). For example, the daily rate of screen time usage for more than 5 hours increased from 10.5% to 21.0% and use for less than 1 hour decreased from 42.0% to 25.9%. Screen time usage during and before COVID-19 for able-bodied and disabled participants are shown in Table 4.

Table 4: Participant screen time usage before and during COVID-19. Values are mean (SD).

Screen time usage (hours)	Able-bodied		Disabled	
	Before covid-19 N (%)	During covid-19 N (%)	Before covid-19 N (%)	During covid-19 N (%)
Less than 1 h	88 (13.8)	37 (5.8)	60 (42.0)	37 (25.9)
From 1h to < 2h	155 (24.3)	54 (8.5)	37 (25.9)	33 (23.1)
From 2h to < 3h	152 (23.8)	68 (10.6)	15 (10.5)	16 (11.2)
From 3h to < 4h	103 (16.1)	100 (15.6)	13 (9.1)	18 (12.6)
From 4h to 5h	54 (8.5)	107 (16.7)	3 (2.1)	9 (6.3)
More than 5h	87 (13.6)	273 (42.7)	15 (10.5)	30 (21.0)

Discussion

Able-bodied participants reported higher mean values of quality of life than disabled individuals in physical health (65.5 ± 16.3 vs. 56.2 ± 19.8), social relationships 63.2 ± 19.7 vs. 55.3 ± 21.1) and environment (53.6 ± 16.6 vs. 49.8 ± 17.9) domains and no significant difference was observed between the two groups in the psychological domain. The mean values of all domains of quality of life for able-bodied participants in the current study are less than those values of quality of life reported in previous studies^{8,16}.⁸ reported that the mean values for physical health, psychological, social relationships and environment domains were 73.5, 70.6, 71.5 and 75.1, respectively among 866 Australian participants of 20 years and older.¹⁶ Reported that the mean values for physical health, psychological, social relationships and environment domains were 69.2, 66.7, 63.1 and 58.5, respectively among 1046 Indonesian participants of 17 years and above. These mean values of quality of life for able-bodied participants are less than the norms of physical health (78.8), psychology (75.9), social relationships (72.3) and environment (71.2) domains¹⁷. The lower mean values of quality of life in all domains during vs. before the COVID-19 compared to previous studies and international norms maybe explained by the negative effect of COVID 19 on psychological well-being e.g, Morgül et al.¹⁸, economics e.g., Bhosale,¹⁹ and social relations and emotional wellbeing in adults e.g., Brooks et al.²⁰.

The study results showed that this negative effect of COVID 19 on physical health, social relationships and environment domains of quality of life was more prevalent in

disabled individuals. These findings are in agreement with previous studies in normal circumstances. For example,¹⁵ reported that the mean values for physical health, psychological, social relationships and environment domains were 67.5, 61.0, 63.8 and 51.9, respectively among healthy individuals compared to those with chronic diseases 60.7, 58.9, 61.1 and 52.5, respectively.¹⁷ also reported that the mean values for physical health, psychological, social relationships and environment domains were 41.9, 52.3, 60.3 and 63.6, respectively among 100 participants with depressive symptoms. Furthermore,²¹ reported that the mean values of the four domains of quality of life among 50 Brazilian participants with major depression were 42.9, 38.5, 41.3 and 42.9, respectively. This can be attributed to the fact that the disabled person has a greater problem in achieving a satisfactory quality of life since he/she has lost or did not have the physical capacity for the necessary responses to start and maintain the relationships, interactions and participation that healthy persons have^{22,23}. Therefore, more attention and focus should be paid for individuals with disabilities and chronic diseases during the COVID 19 and in difficult times. For example, allowing disabled individuals to go for a walk or wheelchair propulsion as well as allowing food delivery, medication, and personal care for disabled persons during lockdown and similar situations.

For both groups, able-bodied and disabled, physically active participants reported higher values in all domains of quality of life compared to their non-physically active peers ($P < 0.05$). These findings are in agreement with

previous studies which reported that physical activity improves health-related quality of life ^{24, 25}. ²⁵ Reported that greater leisure-time physical activity and less leisure-time sedentary behavior are correlated with better long term health related quality of life among 70 years old individuals in Spain. Similarly, ²⁴ reported that physically active individuals of 60 years and older reported higher quality of life in all domains than those who were less physically active in the USA. ²⁶ also reported that physically active older Australian women have better mental health compared to their sedentary peers. This improved quality of life related to physical activity can be attributed to the fact that physical activity reduces cardiovascular risk factors and prevents and manages chronic diseases ²⁷, prevents functional limitation ²⁸, lowers risk of falls ²⁹ and lowers anxiety and depression ³⁰. Physical activity also improves self-efficacy which directly improves the quality of life ³¹.

For both groups, able-bodied and disabled, the least mean values of all domains of quality of life level were observed among individuals with less than high school level education. These findings are in agreements with previous studies ^{32,33,34}. For example, ³³ reported that Indian educated housewives reported higher quality of life for general health, physical health, psychological and social relationships domains than non-educated peers. Similarly, ¹⁵ indicated that there was a strong relationship between education level and the four domains of quality of life. These findings are expected as education is regarded as an essential determinant of quality of life ^{32, 33}. ³² indicated that at the individual level, increasing education level increases worker productivity and therefore results in better employment and income for the individuals. ¹⁵ also suggested that education plays a greater role in maintaining health and higher quality of life among mainland Chinese than wealth. However, ³⁵ showed that education did not affect quality of life among disabled individuals.

For both groups, able-bodied and disabled persons, there was a significant relationship between individuals'

income and quality of life. These findings are in agreement with ^{36,16,37}. These authors reported that Indonesian individuals with monthly income of 5000 Rupiah or more have better quality of life in all domains than their peers with less monthly income. ³⁷ Reported that exercises and monthly income were factors that affect health related quality of life positively. These authors reported that newly diagnosed angina patients with a monthly income ≥ 5000 Yuan showed higher health related quality of life scores than those of patients with a monthly income < 5000 Yuan. The poor health related quality of life among patients with low income can be attributed to the fact that patients with lower income may have a limited ability to obtain effective treatments, which may worsen their clinical outcomes.

Screen time usage increased considerably for both groups during compared to before the COVID-19 pandemic. For example, the percentage of able-bodied and disabled participants' screen time usage of 5 hours or more increased from 13.6% to 42.7% and from 10.5% to 21% respectively. These findings are in agreement with previous studies which indicated that screen time usage increased during compared to before COVID-19 pandemic among children in Jordan ³⁸, UK ¹⁸ and Spain and Italy ³⁹. This might be attributed to the fact that people tend to use smart phones, tablets and TV more during the lockdown and social distance measures implemented by Jordanian government to control the spread of COVID-19. In Canada, 60% of men and 66% of women reported an increase in their TV time and 63% of men and 69% of women reported an increase in their internet usage ⁴⁰.

Conclusion

It was recommended that the Jordan government should pay more attention and concern to disabled individuals by allowing them to go for a walk or wheelchair propulsion during lockdown and similar situations. The Jordanian government should adopt long term strategies to lessen the side effects which may increase from the sedentary lifestyle behavior such as increase of screen time usage and performing less of physical activity.

REFERENCES

1. WHO. Coronavirus Disease (COVID-19) Technical Guidance: Infection Prevention and Control/WASH. Available online: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control> (accessed on 1 October 2021).
2. https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=Cj0KCOjw5uWGBhCTARIsAL70sLLfRTstJgDO3Y3rKRjTCfL5M9e_bjNlejPAYNgU6XBvBT5ILp2TxOAAAtVCEALw_wcB. (Accessed on 10th October 2021)
3. Rajagopal K., Byran G., Swaminathan G. & Ramachandran V. Activity of Isoxazole substituted 9-aminoacridines against SARS CoV-2 main protease for COVID19: A computational approach. *Jordan J. Pharm. Sci.* 2021; 14: 403-416.
4. <https://app.powerbi.com/view?r=eyJrIjojZWZlOTAxOGItMmY3ZS00MzIxLWE3MmItZWU4ZGVlMTlkNTUwliwidCI6IjM3MjI3YTljLWVlOGUtNGNiNi05NDNhLWVlZjE5ZmJjZWZlMCI6ImMiOjI9>. (Accessed on 10th October 2021)
5. WHOQoL Group. The development of the World Health Organization quality of life assessment instrument (the WHOQOL). In: *Quality of life assessment: International perspectives*. Springer, Berlin, Heidelberg. 1994; pp. 41-57.
6. WHOQOL Group. Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychol. Med.* 1998; 28: 551-558.
7. Group T. W. The World Health Organization quality of life assessment (WHOQOL): development and general psychometric properties. *Soc. Sci. Med.* 1998; 46: 1569-1585.
8. Hawthorne G., Helen H. and Barbara M. "Interpreting the WHOQOL-BREF: Preliminary population norms and effect sizes. *Soc. Indic. Res.* 2006; 77: 37-59.
9. Bedford J., Enria D., Giesecke J., Heymann D. L., Ihekweazu C., Kobinger G., and Wieler L. H. COVID-19: towards controlling of a pandemic. *The lancet.* 2020; 395: 1015-1018.
10. Hsiang S., Allen D., Annan-Phan S., Bell K., Bolliger I., Chong, T. and Wu T. The effect of large-scale anti-contagion policies on the COVID-19 pandemic. *Nature.* 2020; 584: 262-267.
11. AlQutob R., Ajlouni M., AbuFarraj M. and Moonesar I. Jordan's public and surveillance health policies: during and after COVID-19. *Jordan Journal of Pharmaceutical Sciences*, 2020; 13: 1-12.
12. Bianchi F., Bianchi G. and Song D. *The Long-Term Impact of the COVID-19 Unemployment Shock on Life Expectancy and Mortality Rates* (No. w28304). National Bureau of Economic Research. 2021.
13. Esain I., Gil S. M., Duñabeitia I., Rodríguez-Larrad A. and Bidaurazaga-Letona I. Effects of COVID-19 lockdown on physical activity and health-related quality of life in older adults WHO regularly exercise. *Sustainability.* 2021; 13: 3771.
14. Algahtani F. D., Hassan S. U. N., Alsaif B. and Zrieq R. Assessment of the quality of life during COVID-19 pandemic: A cross-sectional survey from the kingdom of Saudi Arabia *Int. J. Environ. Res. Public Health.* 2021; 18: 847.
15. Xia P., Li N., Hau K. T., Liu C. and Lu Y. Quality of life of Chinese urban community residents: a psychometric study of the mainland Chinese version of the WHOQOL-BREF. *BMC Med. Res. Methodol.* 2012; 12: 1-11.
16. Purba F. D., Hunfeld J. A., Iskandarsyah A., Fitriana T. S., Sadarjoen S. S., Passchier J. and Busschbach J. J. Quality of life of the Indonesian general population: Test-retest reliability and population norms of the EQ-5D-5L and WHOQOL-BREF. *PLoS One.* 2011; 13: e0197098.
17. Aigner M., Förster-Streffleur S., Prause W., Freidl M., Weiss M. and Bach M. What does the WHOQOL-Bref measure? *Social Psychiatry and Psychiatric Epidemiology* 2006; 41: 81-86.
18. Murgul E., Kallitsoglou A. and Essau C.A.E. Psychological effects of the COVID-19 lockdown on children and families in the UK. *Rev. Psicol. Clínica Con Niños Adolesc.* 2020; 7: 42-48.
19. Bhosale J. Prices of agricultural commodities drop 20% post COVID-19 outbreak. *The Economic Times.* 2020.
20. Brooks S. K., Webster R. K., Smith L. E., Woodland L., Wessely S., Greenberg N., and Rubin G. J. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The lancet.* 2020; 395: 10227: 912-920.

21. Berlim M. T., Pavanello D. P., Caldieraro M. A. and Fleck M. P. Reliability and validity of the WHOQOL BREF in a sample of Brazilian outpatients with major depression. *Qual. Life Res.* 2005; 14: 561-564.
22. Kottke F. J. Philosophic considerations of quality of life for the disabled. *Arch. Phys. Med. Rehabil.* 1982; 63: 60-62.
23. Al-Rahamneh H. Anaerobic Power among Able-bodied Individuals versus Disabled Persons during arm cranking and Its Relationship to Hand-Grip Strength. *Jordan Journal of Pharmaceutical Sciences.* 2020; 13: 457-465.
24. Acree L. S., Longfors J., Fjeldstad A. S., Fjeldstad C., Schank B., Nickel, K. J. and Gardner A. W. Physical activity is related to quality of life in older adults. *Health Qual. Life Outcome.* 2006; 4: 1-6.
25. Balboa-Castillo T., León-Muñoz L. M. Graciani A. Rodríguez-Artalejo F. and Guallar-Castillón P. Longitudinal association of physical activity and sedentary behavior during leisure time with health-related quality of life in community-dwelling older adults. *Health Qual. Life Outcome.* 2011; 9: 1-10.
26. Lee C., and Russell A. Effects of physical activity on emotional well-being among older Australian women: cross-sectional and longitudinal analyses. *Journal of psychosomatic research*, 2003; 54: 155-160.
27. Chodzko-Zajko W. J., Proctor D. N., Singh M. A. F., Minson C. T., Nigg C. R., Salem G. J. and Skinner J. S. Exercise and physical activity for older adults. *Med Sci Sports Exerc.* 2009; 41: 1510-1530.
28. Koster A., Harris T. B., Moore S. C., Schatzkin A., Hollenbeck A. R., van Eijk, J. T. M., and Leitzmann M. F. Joint associations of adiposity and physical activity with mortality: the National Institutes of Health-AARP Diet and Health Study. *Am. J. Epidemiol.* 2009; 169: 1344-1351.
29. Gillespie L. D., Robertson M. C., Gillespie W. J., Sherrington C., Gates S., Clemson L. and Lamb S. E. Interventions for preventing falls in older people living in the community. *Cochrane Database Syst. Rev.* 2012; 9.
30. Barbour K. A., and Blumenthal J. A. Exercise training and depression in older adults. *Neurobiol. Aging.* 2005; 26: 119-123.
31. White S. M., Wójcicki T. R. and McAuley E. Physical activity and quality of life in community dwelling older adults. *Health Qual. Life Outcomes.* 2009; 7: 1-7.
32. Edgerton J. D., Roberts L. W. and Von Below S. Education and quality of life. *Handbook of social indicators and quality of life research.* 2012; 265-296.
33. Javed S., Javed S. and Khan A. Effect of education on quality of life and well-being. *Int J Indian Psychol.* 2016; 3: 119-128.
34. Mahesh P. K. B., Gunathunga M. W., Jayasinghe S., Arnold S. M. and Liyanage, S. N. Factors influencing pre-stroke and post-stroke quality of life among stroke survivors in a lower middle-income country. *Neurol. Sci.* 2018; 39: 287-295.
35. Vankova D., and Mancheva P. Quality of life of individuals with disabilities-concepts and concerns. *Scripta Scientifica Salutis Publicae.* 2015; 1: 21-28.
36. Huguet N., Kaplan M. S. and Feeny D. Socioeconomic status and health-related quality of life among elderly people: results from the Joint Canada/United States Survey of Health. *Soc. Sci. Med.* 2008; 66: 803-810.
37. Wang Y., Huang L. and Zhou L.X. Correlation between exercise, personal income level and health-related quality of life in patients with newly diagnosed stable angina. *Mil. Med. Res.* 2019; 6: 1-8.
38. Al-Rahamneh H., Arafa L., Al Orani A. and Baqleh R. Long-Term Psychological Effects of COVID-19 Pandemic on Children in Jordan. *Int. J. Environ. Res. Public Health.* 2021; 18: 7795.
39. Orgiles M., Morales A., Delvecchio E., Mazzeschi C. and Espada J.P. Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. *Front. Psychol.* 2020; 11: 2986.
40. Colley R.C., Bushnik T., and Langlois K. Exercise and screen time during the COVID-19 pandemic. *Health Rep.* 2020; 31: 3-11.

جودة الحياة لدى الأشخاص ذوي الإعاقة مقارنة بالأفراد الأصحاء خلال جائحة كورونا (COVID-19)

حزان الرحامنة^{1*}، أسماء الحبيس²، رفيف بقله¹، روجر أستن³

¹ كلية علوم الرياضة، الجامعة الأردنية، الأردن.

² كلية العلوم، الجامعة الأردنية، الأردن.

³ مركز أبحاث النشاط البدني والتغذية والرياضة، جامعة جنوب استراليا، استراليا.

ملخص

ظهرت جائحة كورونا (COVID-19) في ووهان في الصين، في ديسمبر 2019. وقد أثر هذا الوباء على معظم مجالات جودة الحياة (Quality of Life) لجميع الأفراد. هدفت هذه الدراسة الى تقييم جودة الحياة لدى الأشخاص ذوي الإعاقة والأفراد الأصحاء خلال جائحة كورونا (COVID-19) مقارنة مع قبل جائحة (COVID-19) في الأردن. أكمل ستمائة وتسعة وثلاثون مشاركاً من الأصحاء (11.3 ± 33.8 عاماً) و 143 مشاركاً من ذوي الإعاقة (16.4 ± 46.8 عاماً) مقياس جودة الحياة النسخة المختصر (WHOQOL-BREF) والذي يتكون من 24 فقرة موزعة في أربعة مجالات (الصحة البدنية، الجانب النفسي، والعلاقات الاجتماعية، والبيئة) وفقرتين عن الجودة الشاملة للحياة والصحة العامة. تم توزيع المقياس على المشاركين إلكترونياً من خلال وسائل التواصل الاجتماعي (Facebook، WhatsApp، رسائل البريد الإلكتروني) في الفترة ما بين 12 حزيران و 18 تموز 2021. أشارت النتائج أن قيم جودة الحياة كانت أعلى لدى المشاركين الأصحاء مقارنة بالأفراد الإعاقة فيما يتعلق بالصحة البدنية (16.3 ± 65.5 مقابل 19.8 ± 56.2) والعلاقات الاجتماعية (63.2 ± 19.7 مقابل 55.3 ± 21.1) ومجال البيئة (16.6 ± 53.6 مقابل 17.9 ± 49.8). وارتبطت جودة الحياة طردياً بدخل الأفراد لكلتا المجموعتين وأعلى في جميع المجالات بالنسبة للمشاركين النشطين بدنياً مقارنة بالمشاركين غير النشطين بدنياً. وأشارت النتائج أن استخدام الشاشات زاد بشكل ملحوظ خلال COVID-19 لكلا المجموعتين. أوصى المؤلفون بإيلاء المزيد من الاهتمام لجميع عناصر جودة الحياة خلال COVID-19، لا سيما لدى الأشخاص ذوي الإعاقة، والآثار الضارة المحتملة التي قد تنجم عن الخمول البدني وزيادة استخدام الشاشات أثناء COVID-19.

الكلمات الدالة: جودة الحياة؛ الأشخاص الاصحاء؛ الأشخاص ذوي الإعاقة؛ جائحة كورونا.

* المؤلف المراسل: حزان الرحامنة

h.rahamneh@ju.edu.jo

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