The Impact of COVID-19 on the Quality of Life of Employees in One of the Iranian Government Organizations

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Abstract

Background: The corona epidemic reduced physical activity in individuals, which is a determining factor in the physical and mental health of individuals, and is a part of the individual quality of life (QoL). This study had three aims. The first was comparing the Body Mass Index (BMI) and QoL of employees in a government organization before and after the COVID-19 pandemic, second evaluating how the BMI and QoL of the employees were affected by their PA levels (1.5, 3, or more than 4.5 h/w) and their occupation type (OT) (line, staff, or research), and third assess the BMI and QoL of the employees after two years of the COVID-19 pandemic based on their PA levels and OT.

Methods: This was a descriptive cross-sectional study, and the statistical population was the employees of a public organization. The data of this study were collected between 1398 and 1400, by using QoL Questionnaire were analyzed. Fifty active subjects (35.26 ±3.06 yr.) participated in this study. The t-test, Wilcoxon, F-test, ANCOVA Wilcoxon) as statistical analysis (P<0.05).

Results: In the first stage, significant differences were observed in weight, BMI, and environmental health, and a significant decrease in QoL. In the second stage, a significant increase in mental health was observed in people who had 3 or more than 4.5 h/w of exercise before beginning Corona (p <0.05). The third aim is the environmental health significantly increased (PA) < 4.5 h/w, based on OT in three groups, but a significant decrease in social relationships (OT) in Group S, a decrease in QoL (PA) < 4.5 h/w, and, based on OT in three groups (P<0.05).

Conclusion: The findings emphasize the importance of physical activity in maintaining QoL and suggest that individuals should pay attention to performing PA in accordance with environmental conditions.

Keywords: Quality of life, physical activity, Corona pandemic

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Introduction

The new Coronavirus (COVID-19) epidemic has spread around the world, causing widespread disturbances in various areas of life (1). Due to constraints on social communication, changes in Physical Activity (PA) resulting from home quarantine have affected the quality of life (QoL) (2, 3, 4). The QoL is assessed with two concepts: physical health, and mental health (5), and categories of Physical Health, Mental Health, Social Relationships, and Environment Health, that affect each other (6). Like many other countries, Iran is facing major challenges in managing the impact of the epidemic on public health and socio-economic well-being (2, 3, 4).

Physical activity plays an important role in maintaining health and overall QoL (5, 6, 7). One of the organization's main goals is to increase its employees' performance and achieve its goals (8). Also, occupation type (OT) (9) and age (10) are two important factors related to PA. Therefore, methods are used to increase the QoL by enhancing physical and mental health, which are part of organizations' solutions (11, 12). The work-from-home arrangements, closure of gyms, and limited outdoor movements have reduced exercise opportunities (2, 3, 4). Understanding the extent to which the pandemic has affected the level of PA among employees' agencies is essential for the development of targeted interventions to promote healthy behavior in this population (11, 12, 13, 14).

This study aimed to examine how the pandemic affected the QoL and PA of employees in one of the government agencies in Iran, considering their age and occupation type. We hypothesized that the pandemic would have negative effects on both QoL and PA and that these effects would vary by age and occupation type.

The category aimed to:

- Compare the BMI and QoL of employees in a government organization before and after the COVID-19 pandemic.

- Examine how the BMI and QoL of the employees were affected by their PA levels (1.5, 3, or more than 4.5 hour/week (h/w)) and their OT (line, staff, or research).

- Assess the BMI and QoL of the employees after two years of the COVID-19 pandemic based on their PA levels and OT.

Material and methods

This study is descriptive-cross-sectional for two years, and the statistical population was the employees of a government organization in Isfahan. The data of this study were collected two years ago between 2018 and 2021. The statistical population was 600 physically active subjects before starting the Corona pandemic.

The statistical sample comprised 50 male subjects who met the inclusion criteria. The inclusion criteria included male gender, aged 30-40 yrs., having more than five yrs. experience in the desired organization, providing complete pre-and post-test responses to the World Health Organization short-form Quality of Life Questionnaire (WHOQOL-BREF), having experienced moderate to severe coronavirus infection at least once during the two-year study period, and having been physically active for two-year except during the time they were suffering corona disease. The exclusion criteria included the incomplete responses of the WHOQOL-BREF questionnaire as pre-and post-test, and discontinuation of physical activity during the two-year study periodically.

Measurements

Body Composition

The participant's weight was measured with a Mechanical Scale (Seca Model Scale-320, Germany) while wearing minimal clothing, and their height was measured with a Stadiometer (SecaModel216, Germany) while standing barefoot. Body Mass Index (BMI) was calculated by dividing the weight (in kilograms (kg)) by the height square (in meters (m)) (15).

Quality of Life

To evaluate the QoL, we used the short-form questionnaire from the World Health Organization on Quality of Life (WHOQOL-BREF) (16, 17) and its Persian version (18). This questionnaire consists of 26 questions on a Likert scale (1-5). which assess four domains: physical health, mental health, social relationship health, and environmental health (16). The first question evaluates overall health status and QoL. The scores were converted to a scale of 0-100, with higher scores indicating better QoL (16, 19).

The physical health domain consists of seven questions related to daily activities, drug dependence and medical assistance, energy and fatigue, mobility, pain and discomfort, sleep and rest, and work capacity (scores range from 7 to 35). The mental health domain consists

of six questions related to body image, appearance, positive and negative emotions, self-esteem, spirituality, religion, personal beliefs and cognition, learning and concentration, memory, and health (scores range from 6 to 30). The social health domain consists of three questions related to personal relationships, social support, sexual activity, and health (scores range from 3 to 15). The environmental health domain consists of eight questions related to the physical environment, financial resources, health and social care, information access and quality, leisure activities, home environment, transport, and safety (scores range from 8 to 40). The first two questions assess the general health status and quality of life. Higher scores denote a higher standard of living. The scores were changed to a scale from 0 to 100 (6, 26).

In the relevant organization, the weight, height and of the subjects are routinely controlled and recorded and WHOQOL-BREF as by subjects annually.

Statistical analysis

We used SPPSS-19 software to analyze the data descriptively and inferentially. We set the significance level at P <0.05. We reported demographic and QoL sub-branches as mean and standard deviation as Descriptive analyses. We used the Kolmogorov-Smirnov Test to check the normality of the data distribution (p >0.05). We performed two types of statistical analysis. First, we compared the pre-test and post-test scores before and during the Corona pandemic using paired t-test (for normally distributed variables) and a Wilcoxon test (for non-normally distributed variables) (p < 0.05). Second, we grouped the variables based on PA (1.5, 3, and more than 4.5 h/w) and occupation type (OT) (Line, Staff, and Research) and compared them using one-way ANOVA (for parametric statistics) and Kruskal-Wallis H test (for non-parametric statistics) before and after the Corona pandemic. Third, we used ANCOVA (for parametric statistics) and Kruskal-Wallis H test (for non-parametric statistics) to compare the three groups (before and after Corona pandemic), and the LSD test as a post-hoc test (p < 0.05).

Results

This study involved 50 government employees aged 30-40 years with 5-16 years of work experience. The Shapiro-Wilk test confirmed that weight (statistic= 0.980, sig.= 0.551) and BMI (statistic= 0.943, sig.= 0.018) followed a normal distribution, while QoL variables did not (p >0.05). Table 1 shows the descriptive statistics of weight, BMI, and dependence T-

Test. The study's first aim was to compare weight and BMI before and after the pandemic by using the paired t-test, which revealed a significant increase in both measures (0.85% and 0.91%, respectively; $p<0.05$). The QoL dimensions before and after the pandemic using the Wilcoxon test, a non-parametric test, have been shown in Table 2 ($p<0.05$). The results indicated a significant increase in environmental health and a significant decrease in overall QoL after the pandemic ($P<0.05$).

Table 1. Descriptive data including mean and standard deviation and dependence T-Test

Variable	Mean ±SD (Pre-test)	Mean ±SD (Post-test)	Paired difference Mean ±SD	T	Sig. (2-tails)
Weight (Kg)	80.02 ± 6.12	80.70± 5.18	-.68 ± 2.19	-2.18	0.03*
BMI (Kg.m^{-2})	25.22 ± 1.33	25.45 ± 1.17	-.22 ± 0.70	-2.29	0.03*

n=50, df= 49, p≤ 0.05

Table 2. Descriptive data including mean and standard deviation and Wilcoxon Test

Variable		N	Mean Rank	Sum of Ranks	Mean ± SD (Pre-test)	Mean ±SD (Post-test)	Z	Asymp. Sig. (2-tailed)
Physical health post - Physical health pre	Negative Ranks	17[a]	22.29	379.00	22.76± 2.42	22.96± 2.01	-.672[b]	.502
	Positive Ranks	24[b]	20.08	482.00				
	Ties	9[c]						
	Total	50						
Mental health post - Mental health pre	Negative Ranks	19[d]	21.95	417.00	20.76± 1.74	20.80± 1.91	-.176[b]	.860
	Positive Ranks	22[e]	20.18	444.00				
	Ties	9[f]						
	Total	50						
Social relationships post - Social relationships pre	Negative Ranks	25[g]	17.66	441.50	10.96± 1.66	10.72± 1.01	-1.056[c]	.291
	Positive Ranks	13[h]	23.04	299.50				
	Ties	12[i]						
	Total	50						
Environment health post - Environment health pre	Negative Ranks	6[j]	14.25	85.50	26.14± 6.95	29.64± 3.12	-5.163[b]	.000*
	Positive Ranks	42[k]	25.96	1090.50				
	Ties	2[l]						
	Total	50						
	Negative Ranks	32[m]	18.52	592.50	7.66± 0.62	6.62± 1.04	-4.680[c]	.000*

Quality of Life post - Quality of Life pre	Positive Ranks	3[n]	12.50	37.50				
	Ties	15[o]						
	Total	50						

A, Wilcoxon Signed Ranks Test; b, based on negative ranks; c. based on positive ranks. P<0.05.

The second part of the study aimed to examine the effects of PA and OT on weight and BMI before and after the pandemic. One-way ANOVA was used to compare the pre-test (Table 3) and post-test (Table 5) results based on PA and OT categories. There was no significant difference in Weight, and BMI based on PA and OT in the pre-test (Table 3) (p<0.05). However, there was a significant difference in BMI based on PA in the post-test (F= 4.289, df=2,47, sig= 0.019*) (Table 5), and the Bonferroni post hoc test indicated a significant difference between groups A and B (Mean Difference= -1.042, p=.016*) (p<0.05). The study also used the Kruskal-Wallis H Test to compare the QoL variables based on PA and OT before and after the pandemic. The results showed a significant difference in mental health based on PA in the pre-test (Table 4) (p<0.05), with higher scores for employees for group C (who had more than 4.5 h/w before the pandemic) ($\chi 2(2) = 9.867$, df=2, p= 0.007*, with rank PA 21.41 for group A, 22.75 for group B, and 37.32 for group C) (p<0.05). Whereas, no significant change reported in the QoL variable was s based on PA and OT in the pre-test (Table 6) (p<0.05).

Table 3. Pre-Test of value based on PA and OT, and One-way ANOVA

Pre-Test Variables	PA (hours/week)	N	Mean ± SD	F	df	Sig.	OT	N	Mean ± SD	F	df	Sig.
Weight (Kg)	A	17	80.70 ± 7.00	1.345	2 47 49	.270	L	14	78.14 ± 5.73	1.60	2 47 49	.212
	B	22	80.81 ± 5.06				S	15	82.13 ± 5.27			
	C	11	77.36 ± 6.54				R	21	79.76 ± 6.72			
	Total	50	80.02 ± 6.12				Total	50	80.02 ± 6.12			
BMI (Kg/m^2)	A	17	24.88 ± 1.78	1.529	2 47 49	.227	L	14	24.93 ± 1.16	.826	2 47 49	.444
	B	22	25.59 ± 0.78				S	15	25.59 ± 1.17			
	C	11	25.03 ± 1.22				R	21	25.17 ± 1.54			
	Total	50	25.22 ± 1.33				Total	50	25.22 ± 1.33			

PA, Physical activity (A, 1.5; B, 3; C >4.5 hours/week); OT, Occupation Type (L, Line; S, Staff; R, Research); p <0.05.

Table 4. Pre-Test of value based on PA and OT, and Kruskal-Wallis H Test

Pre-Test Variables	PA (hours/week)	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig.	OT	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig.
Physical Health	A	17	23.62	4.549	2	.103	L	14	27.82	.548	2	.760
	B	22	22.89				S	15	25.17			
	C	11	33.64				R	21	24.19			
	Total	50					Total	50				
Mental Health	A	17	21.41	9.867	2	.007*	L	14	27.79	1.740	2	.419
	B	22	22.75				S	15	21.50			
	C	11	37.32				R	21	26.83			
	Total	50					Total	50				
Social Relationships	A	17	23.68	.443	2	.801	L	14	22.89	3.387	2	.184
	B	22	26.36				S	15	31.03			
	C	11	26.59				R	21	23.29			
	Total	50					Total	50				
Environment Health	A	17	24.29	2.124	2	.346	L	14	22.36	1.107	2	.575
	B	22	23.73				S	15	27.70			
	C	11	30.91				R	21	26.02			
	Total	50					Total	50				
Quality of Life	A	17	22.53	1.899	2	.387	L	14	28.25	1.599	2	.449
	B	22	26.64				S	15	25.87			
	C	11	27.82				R	21	23.40			
	Total	50					Total	50				

PA, Physical activity (A, 1.5; B, 3; C >4.5 hours/week); OT, Occupation Type (L, Line; S, Staff; R, Research); $p < 0.05$.

Table 5. Post -Test of value based on PA and OT, and One-way ANOVA,

Post-Test Variables	PA (hours/week)	N	Mean ± SD	F	df	Sig.	OT	N	Mean ± SD	F	df	Sig.
Weight (Kg)	A	17	80.58 ± 5.70	1.169	2 47 49	.320	L	14	79.35 ± 4.93	1.05	2 47 49	.357
	B	22	80.72 ± 4.72				S	15	82.13 ± 4.83			
	C	11	78.81 ± 65.15				R	21	80.57 ± 5.54			
	Total	50	80.70 ± 5.18				Total	50	80.70 ± 5.18			
BMI (Kg/m²)	A	17	24.84 ± 1.32	4.289	2 47 49	.019*	L	14	25.34 ± 1.07	0.144	2 47 49	.866
	B	22	25.88 ± 0.93				S	15	25.57 ± 1.21			
	C	11	25.53 ± 1.05				R	21	25.44 ± 1.17			
	Total	50	25.45 ± 1.19				Total	50	25.45 ± 1.19			

PA, Physical activity (A, 1.5; B, 3; C >4.5 hours/week); OT, Occupation Type (L, Line; S, Staff; R, Research); $p < 0.05$.

Table 6. Post -Test of value based on PA and Occupation Type, and Kruskal-Wallis H Test

Post-Test Variables	PA (hours/week)	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig.	OT	N	Mean Rank	Kruskal-Wallis H	df	Asymp. Sig.
Physical Health	A	17	23.88	2.366	2	.306	L	14	25.11	.248	2	.883
	B	22	23.84				S	15	24.30			
	C	11	31.32				R	21	26.62			
	Total	50					Total	50				
Mental Health	A	17	20.74	3.674	2	.159	L	14	25.07	.031	2	.984
	B	22	26.68				S	15	25.97			
	C	11	30.50				R	21	25.45			
	Total	50					Total	50				
Social Relationships	A	17	26.94	3.375	2	.185	L	14	28.39	.919	2	.632
	B	22	21.89				S	15	24.33			
	C	11	30.50				R	21	24.40			
	Total	50					Total	50				
Environment Health	A	17	21.21	3.302	2	.192	L	14	27.82	.987	2	.610
	B	22	25.93				S	15	26.57			
	C	11	31.27				R	21	23.19			
	Total	50					Total	50				
QoL	A	17	23.47	4.124	2	.127	L	14	25.93	.156	2	.925
	B	22	23.36				S	15	24.33			
	C	11	32.91				R	21	26.05			
	Total	50					Total	50				

PA, Physical activity (A, 1.5; B, 3; C >4.5 hours/per week); OT, Occupation Type (L, Line; S, Staff; R, Research); N, Number; p <0.05.

The third part of the study aimed to examine to compare the pre-test and post-test results of variables. The Levene´s test was used to check the homogeneity of variances before comparing the pre-test and post-test results of variables based on PA and TO (p >0.05). ANCOVA was used to compare the pre-test and post-test values of BMI (25.59 ± 0.78, and 25.88 ± 0.93, respectively) for employees who had 3 h/w (Table 7). The descriptive statistics of QoL variables value based on PA and OT have been shown in Tables 8 and 9, respectively. The Wilcoxon test was used to compare the QoL dimensions with covariates pre-test based on PA and OT (p<0.05) (Table 10). The results indicated that PA had a significant positive effect on environmental health during two years pandemic, whereas a significant negative effect on QoL for employees who had 1.5 or 3 hours of PA per week. OT had a significant negative effect on social relationships for staff (20) and a significant positive effect on environmental health for (20) line, staff and research workers during two-year pandemic. However, OT had a significant negative effect on QoL for all three groups of workers.

Table 7. Comparing pre-test and post-test of values of some variables in subjects based on PA and OT by using the Variance Comparison Test

Variable	PA (hours/week)	Obs	F	Sig.	OT	Obs	F	Sig.
Weight	A	17	1.568	0.489	L	14	1.348	0.597
	B	22	1.151	0.749	S	15	1.189	0.750
	C	11	1.510	0.418	R	21	1.472	0.394
BMI	A	17	1.813	0.237	L	13	1.165	0.786
	B	22	0.882	0.023 *	S	15	0.943	0.915
	C	11	1.346	0.647	R	21	1.449	0.372

PA, Physical activity (A, 1.5; B, 3; C >4.5 hours/per week); OT, Occupation Type (L, Line; S, Staff; R, Research); Obs, Observations; df=49; p <0.05.

Table 8. Pre-Test and Post-Test of QoL variables value based on PA

PA (hours/week)	A (n=17)	B (n=22)	C (n=11)
QoL	Mean± Std. Deviation	Mean± Std. Deviation	Mean± Std. Deviation
Physical Health pre	22.52 ±2.32	22.22± 2.52	24.18 ±1.99
Physical Health - Post	22.82±1.87	22.59±2.38	23.90±1.04
Mental Health- pre	20.35±1.53	20.36±1.94	22.18±0.6
Mental Health post	20.05±2.01	20.95±1.83	21.63±1.62
Social Relationship - pre	11.17±1.28	10.81±1.99	10.90±1.57
Social Relationship – post	10.88±0.92	10.45±1.01	11.00±1.09
Environment Health -pre	25.05±3.21	24.95±2.23	30.18±13.66
Environment Health -post	29.17±3.14	29.4±3.6	30.81±1.66
QoL- pre	7.58±0.5	7.63±0.78	7.81±0.4
QoL-post	6.47±0.94	6.45±1.14	7.18±0.87

PA, Physical activity (A, 1.5; B, 3; C >4.5 h/w).

Table 9. Table 8. Pre-Test and Post -Test of QoL variables value based on OT

OT	L (n=14)	S (n=15)	R (n=21)
QoL	Mean± Std. Deviation	Mean± Std. Deviation	Mean± Std. Deviation
Physical Health pre	23.14±2.62	22.93±2.016	22.38±2.61
Physical Health - Post	22.78±2.39	22.86±1.88	23.14±1.93
Mental Health- pre	21.00±1.88	20.40±1.35	20.85±1.93
Mental Health post	20.85±1.83	20.8±1.85	20.76±2.09
Social Relationship - pre	10.64±1.98	11.73±1.09	10.61±1.65
Social Relationship – post	10.85±1.16	10.73±0.79	10.61±1.07
Environment Health -pre	24.64±2.76	25.6±3.08	27.52±10.14
Environment Health -post	29.78±3.7	30.4±2.44	29.0±3.16
QoL- pre	7.78±0.57	7.73±0.45	7.52±0.74
QoL-post	6.64±1.15	6.53±1.06	6.66±1.01

OT, Occupation Type (L, Line; S, Staff; R, Research)

Table 10. Comparing pre-test and post-test of values of QoL in subjects based on PA and OT by using Wilcoxon signed-rank Test

Variable	PA	Obs	Z	Asymp. Sig. (2-tailed)	OT	Obs	Z	Asymp. Sig. (2-tailed)
Physical Health	A	17	-0.525	0.599	L	14	0.063	0.949
	B	22	-0.901	0.367	S	15	0.201	0.841
	C	11	0.090	0.928	R	21	-1.324	0.185
Mental Health	A	17	0.479	0.631	L	14	0.095	0.924
	B	22	-1.258	0.208	S	15	0.452	0.478
	C	11	0.953	0.340	R	21	0.229	0.819
Social relationship	A	17	0.823	0.410	L	14	-0.413	0.679
	B	22	1.238	0.215	S	15	2.603	0.009*

	C	11	0.715	0.365	R	21	0.464	0.642
Environment Health	A	17	-3.321	0.001*	L	14	-3.113	0.001*
	B	22	-3.818	0.001*	S	15	-3.390	0.001*
	C	11	-1.834	0.0667	R	21	-2.508	0.012*
QoL	A	17	3.345	0.001*	L	14	2.425	0.015*
	B	22	3.204	0.001*	S	15	3.076	0.002*
	C	11	1.750	0.080	R	21	2.993	0.002*

PA, Physical activity (A, 1.5; B, 3; C >4.5 h/w); OT, Occupation Type (L, Line; S, Staff; R, Research); p <0.05.

Discussion

The first aim showed a 0.85% significant increase in weight and a 0.91% significant increase in BMI while a 13.5% significant decrease in QoL, and a 13.38% significant increase in environmental health reported following two-year pandemic Corona in employees ($P < 0.05$). Decreased PA and increased sedentary time among young, and active individuals has been reported in many researches in different population during Corona Pandemic (21, 22). Dicken et al. reported similar findings of increased weight and BMI during May-June and November-December 2020 (21). Dietary patterns (22) and physical activity (23) affect health behaviors during the coronavirus pandemic. The positive correlation Between PA and QoL has been extensively studied. Several research studies have reported this association, including studies conducted by Siliva et al. (23), Żurek et al. (20), and Puciato et al. (24). These studies have consistently shown that higher levels of PA are associated with improved QoL. The decline of PA during Corona Pandemic is concerning, as it may have negative implications for individuals QoL. According to our results, increase in environmental health among employees following the two-year pandemic caused by the coronavirus. This positive trend can be attributed to a number of factors, including increased awareness about the importance of maintaining a clean and healthy workplace, as well as the implementation of new protocols and guidelines aimed at preventing the spread of infectious disease. From a different perspective, alternation in the dietary habits and PA of employees who are spending less time at work and more time at home could potentially lead to an improvement in environmental health. This could be due to a decrease in the amount of waste generated by the workplace. Additionally, individuals may be more inclined to adopt sustainable practices in their home environment, such as compositing and recycling, which could have a positive impact on the environment.

Due to the Corona pandemic, many people adjusted to quarantine and remote work, which affected their lifestyle and health. The second part of the study recommended less than 4.5

h/w is insufficient to keep weight and BMI stable. This study suggested that at least 4.5 h/w is necessary to prevent weight gain. The study also revealed a significant difference in mental health depending on PA before the pandemic, with higher scores seen in employees who did more than 4.5 h/w before the pandemic. This may be due to several reason: a) reduced stress from working hours and commuting during the pandemic; b) having a habit of exercising as a part of their lifestyle; c) increased mental health from physical activity (25). This may be due to several reasons: a) reduced stress from working hours and commuting during the pandemic; b) having a habit of exercising as part of their lifestyle; c) increased mental health from physical activity (33, 34). Previous research studies have also reported the effect of PA on mental health and reduce stress and anxiety such as Silva et al. (26, 27), Wassenaar et al. (28), Shrestha et al.(29), van der Zwan et al. (30).

The third aim of our study revealed that groups A (1.5 hours per week) and B (3 hours per week) had a significant increase in environmental health (+4.12 equal +%20.86 and +4.12 equal +%17.83, respectively), but also a significant decrease in QoL less than 4.5 h/w (-1.11 equal -14.64% and 1.18 equal -15.46%, respectively) after two years of Corona pandemic among employees (P<0.05). These results suggested a clear relationship between exercise and QoL, as supported by Marquez (31), and Husk (32) in their review articles. Overall, our study underscores the importance of regular physical activity for both environmental health and QoL, particularly during times of stress and uncertainty such as the ongoing pandemic. Also, environmental health significantly changed based on OT in three groups. Groups L, S, and R had significant increases in environmental health (+٥.1٤ equal +%20.86, +4.80 equal +%18.75, and +1.48 equal +%5.37, respectively), but also, a significant decrease in social relationship based on OT in Groups S (-1.00 equal -%8.52), and a significantly changed in QoL based on OT in three groups. Groups L, S, and R had significant decreases in QoL (-1.1٤ equal -%14.65, -1.20 equal -%18.37, and -0.86 equal -%12.91, respectively) after two years of Corona pandemic among employees (P<0.05). One possible explanation for the improved environmental health is that the employees adopted healthier habits during the pandemic. They ate more balanced meals and exercised more regularly, as they worked from home and had more flexibility. The improved environmental health may be due to less stress from getting be on time, commuting, driving, and saving time and money from working at home. The environment, as a factor of QoL could strongly the effect on another category of QoL (30, 33).

Conclusion

The findings indicate that the reduction of physical activity due to the corona period, reduced environmental health and QoL, and increased mental health in active people. The limitation of this study was the number and the sex of subjects. Although, the Corona pandemic is finished, but it is better to considering the role of QoL in reducing stress in personal and occupational performance, and its relationship with physical and mental health in future studies. It is recommended to pay attention to performing physical activity by environmental conditions.

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