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Original Article

Prevalence and Persistent Fatigue among Patients Post COVID-19 in Erbil City

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ABSTRACT

Background and objectives: Fatigue is one of the most common symptoms, affecting more than 75% of people. It is a subjective lack of physical or mental energy. The goal of the study was to assess persistent fatigue among patients Post-COVID-19 in Erbil city.

Methods: A quantitative, descriptive cross-sectional study was conducted at a private clinic and home for patients in Erbil city. A nonprobability-purposive sample was selected for 300 Post-covid patients. Data was collected through interviews using a questionnaire and a modified fatigue impact scale was used to assess patients' fatigue in post-COVID-19.

Results: The results show that one third (31.7%) of the study samples were older than 50 years, and more than half (52.3%) were males, less than one third (28.3%) graduated from an institute, and more than one third (32.3%) were housewives. The majority of the samples (84.7%) lived in areas, and almost all the samples (81.7%) were married. Most of the samples (73.0%) without comorbidity disease about 75.3 were overweight, and the samples (83.0%) were not hospitalized during COVID-19, about more than half (67.0%) were not received oxygen. Less than half (46.3%) of the samples have physical fatigue, and more than half (63.7%) have mild mental fatigue. There was a significant association between fatigue and gender, hospitalization, and receiving oxygen during COVID-19 at P-value ≤ 0.05.

Conclusion: The study concluded that the participants have physical and mental fatigue and physical and mental fatigues are decreasing by increasing the duration of illness from the first to the sixth month. A significant difference was found between fatigue and the female gender.

Keywords: Post Covid-19 Fatigue; COVID-19; Chronic Fatigue Syndrome.

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INTRODUCTION

The coronavirus disease (COVID-19) outbreak of 2019 was originally detected in Wuhan, China, and is now spreading domestically and worldwide. COVID-19 is a viral illness induced by SARS-CoV-2 that mostly affects the pulmonary system, according to Rothan and Byrareddy [1]. On March 12, 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. Since then, the virus has spread swiftly throughout China and around the world, affecting about 12,000,000 confirmed patients and 500,000 deaths in over 200 nations, areas, or territories with confirmed cases by July 2020, resulting in a catastrophic global health disaster [2].Long term Covid is used to describe illness in persons who have either healed from Covid-19 but still have long-term sequelae from the infection or who have experienced the regular symptoms for far longer than expected [3]. In spring 2020, when COVID-19 patients still had symptoms several weeks after their acute infection and soon after the first cases emerged, post-COVID syndrome, also known as long-COVID, was first described as a clinical entity; in particular, relevant information emerged from the first detailed patient survey of post-COVID syndrome [4]. Even after a very minor acute illness, post-COVID syndrome appears to be a multisystem disease [5].Chronic fatigue syndrome (CFS) is characterized by extreme mental and physical exhaustion, sleep disturbances, and persistent discomfort. Fatigue is one of the most prevalent symptoms in people infected with SARS-CoV-2, the virus that is causing the current COVID-19 pandemic [6]. Chronic fatigue syndrome (CF) affects 2.5 million Americans, according to the centres for Disease Control and Prevention (CDC) [7]. It is a multisystem condition that causes devastating symptoms such as extreme fatigue, post-exercise malaise, restless sleep, cognitive impairments, and orthostatic intolerance. In the United States alone, the Centers for Disease Control and Prevention and the National Academy of Medicine estimate that 836,000 to 2.5 million people have ME/CFS [8].According to recent findings, weariness has been noted in about one-third of COVID-19 patients, where it has been linked to a worse prognosis and can last for at least six months following infection. According to studies on the prevalence of fatigue following COVID-19, between 9 and 49% of patients exhibit fatigue 4 weeks after the onset of symptoms and between 30 and 16 weeks later. According to a recent study, at least one-third of COVID-19 patients may experience fatigue for up to a year after [9]. Coronavirus causes several complications or several of symptoms after the patient recovers from the virus. Fatigue is a more common symptom after recovery from the coronavirus and many people have been diagnosed with post-Covid fatigue, Limited studies in the kurdstan region assess fatigue among patients in post-COVID-19 in Erbil city. The aim of the study was to assess the prevalence persistent fatigue among patients post-COVID-19.

METHODS

Adescriptive cross- sectional study was conducted in Erbil city, Kurdistan region. Non-probability (Purposive sample) of 300 post-COVID-19 patients in six months at a private clinic and home visit from 1st September 2021 to 1st September 2022, data were collected through direct interviews (face to face). Info software program version 8 was used for sample size estimation. The expected frequency (26.5) based on the proportion COVID-19 patients in Erbil city because the number of patients infected with COVID-19 about

95%. The population size is 57000 number of recovered covid19 patients in Erbil city from June 2021 to December 2021[10]. Accordingly, 300 samples were estimated for the study. They were chosen according to the criteria of the study, more than 18 years old, female and male 6 months of recovery after infected COVID-19 and all hospitalization and non-hospitalization patients. The instruments used for data collection consist of three parts based on the objectives of the study. Part one socio-demographic about patients such as (age, gender, level of education, occupation status, residence and marital status). Part two medical data consisted of different items about patients such as (body mass index 'BMI', chronic disease, hospitalization during COVID-19, and receiving oxygen during COVID-19). Part three was fatigue impact. Fatigue prevalence items include 21 (11 ''Physical'' items and 10 ''mental'' items); the total score of the MFIS ranges from 0 to 84. The MFIS-5 scores each item on a five-point Likert scale from 0 to 4. It means never (0), rarely (1), sometimes (2), often (3), always (4). Fatigue level was split into three categories: 'mild fatigue,' moderate fatigue,' severe fatigue'. The score for mild fatigue ranged from (0 to 1), moderate fatigue ranged from (2), severe fatigue ranged from (3 to 4) [11].The study protocol was approved by the ethical committee of the College of Nursing at Hawler Medical University code number is 97 on 7th October 2021 and the official permission was obtained from the Ministry of Health in Erbil, Director of health to take the number of recovery patients in Erbil city. The permission was obtained from each participant; they were informed and explained the purpose of the study and the confidentiality of the information. Data were analysed using the statistical package for social sciences (SPSS, version 28) to calculate descriptive statistical analysis (frequency and percentage). AN independent sample t-test is used to compare two independent variables; one-way ANOVA analysis of variance is used to test the claim that there are three or more variables, Correlation and Simple Regression analysis was used to determine the relationship between independent variables and dependent variables. A P-value statistically significant level of ≤ 0.05.

RESULT

The results show that (31.7%) of the patient were older 50 years, males (52.3%) were higher than females; high percentage of them graduated from institute (28.3) and housewife (32.3), the majority of the patients lived in urban(84.7), and married (81.7), as shown in the table 1.

Table 1: Socio Demographic data of 300 Covid19 Patients

Variables		N.	(%)
Age	20 - 29	51	(17)
	30 - 39	93	(31)
	40 - 49	61	(20.3)
	≥50	95	(31.7)
Gender	Male	157	(52.3)
	Female	143	(47.7)
Level education	Illiterate	32	(10.7)
	Primary school	70	(23.3)
	Secondary school	52	(17.3)
	Institute	85	(28.3)
	University and above	61	(20.3)
Occupation	Employee	91	(30.3)
	Unemployed	88	(29.3)
	Retired	12	(4)
	House wife	97	(32.3)
	Student	12	(4)
Residence	Urban	254	(84.7)
	Suburban	46	(15.3)
Marital status	Married	245	(81.7)
	Unmarried	55	(18.3)

(75.3%) of patient were overweight, a high percentage of them did not have any comorbidity disease (73%), since most of them (60.5%) have diabetic disease, the majority of the patients have not been admitted at hospital during their COVID-19 (83%)since the range of their remained to the hospital was 4-6 days and more than half of the samples (67%) did not receive oxygen while the range of using oxygen was 6-10 days, as shown in the table 2.

Table 2: Medical data of 300 post covid 19 patients

Variables		N.	(%)
Body Mass Index	Normal	37	(12.3)
	Overweight	226	(75.3)
	Obese	37	(12.3)
Do you have any chronic disease?	Yes	81	(27)
	No	219	(73)
What is it?	Asthma	1	(1.2)
	diabetic	49	(60.5)
	hypertension	28	(34.6)
	thalassemia	3	(3.7)
Did you hospitalize during Covid-19	Yes	51	(17)
	No	249	(83)
How many days	1-3	11	(21.6)
	4-6	21	(41.2)
	≥7	19	(37.3)
Did you receive oxygen therapy	Yes	99	(33)
	No	201	(67)
Received oxygen/ days	1-5	46	(46.5)
	6-10	22	(22.2)
	11-15	15	(15.2)
	≥15	16	(16.2)

The prevalence of fatigue post-Covid-19 of the study samples was less than half (46.3%) of the study samples had severe physical fatigue and more than half (63.7%) of the study samples had mild mental fatigue. The mean of physical fatigue in general (26.657) is higher than the mean of mental fatigue (11.667), which means the patients post COVID-19 had a physical fatigue compared with mental fatigue. As shown in the figure 1.

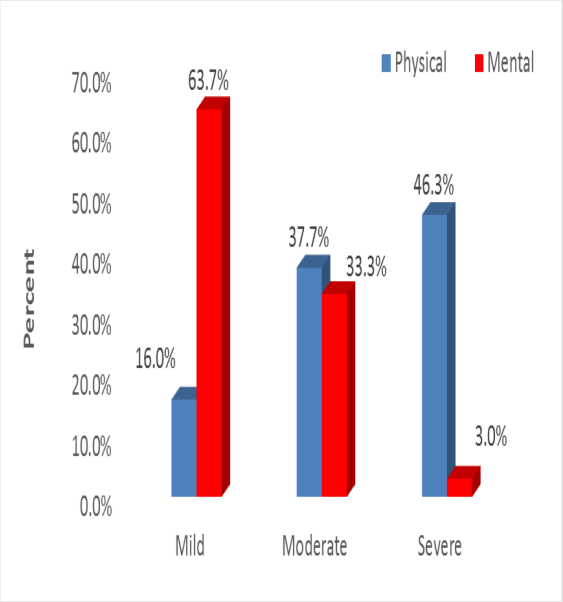

Figure1: prevalence and incidence Percentage for Physical and Mental

The results show a very strong negative correlation between the independent variable (duration of illness) and the dependent variable (physical problem) (-0.75) while there is a strong negative correlation between the independent variable (duration of illness) and the dependent variable (mental problem) (-0.66).

Simple Regression Coefficient (B) for duration of illness is -0.144, which means, that increasing one unit for duration of illness will decrease the physical problem by 0.144. Regression Coefficient (B) for duration of illness is -0.084, which means, that increasing one unit for duration of illness will decrease the mental problem by 0.084. As shown in table 3.

Table 3: prediction of the duration of COVID-19 recovery on physical and Mental Fatigue

Model		B	t	P-value	Corr.	R^2	F	P-value
Physical	(Constant)	41.704	48.077	0.001	-0.75	0.556	372.6	0.001
	How long your illness recovered completely	-0.144	-19.313	0.001				
Mental	(Constant)	20.450	31.644	0.001	-0.66	0.434	228.3	0.001
	How long your illness recovered completely	-0.084	-15.131	0.001				

Female patients perceived significantly more physical and mental fatigue than male patients with comorbidity disease, hospitalization and received oxygen during COVID-19, perceived significantly more physical and mental fatigue than non-comorbidity disease, non-hospitalization and received oxygen because their p-values were less than the significant level of α=0.05. Patients who lived in areas and married perceived non-significant with physical and mental fatigue compared to those who lived in suburban and single patients because their p-values were higher than the significant level of α=0.05, as shown in able 4.

Table 4: Comparison between characteristic and Physical and Mental fatigue

variables			N	Mean	Std. Deviation	t	P-value
Gender	Physical	Male	157	25.013	9.778	3.058	0.002
		Female	143	28.462	9.735		
	Mental	Male	157	10.924	6.598	2.078	0.039
		Female	143	12.483	6.381		
Residence	Physical	Urban	254	26.524	9.737	0.547	0.585
		Suburban	46	27.391	10.796		
	Mental	Urban	254	11.752	6.689	0.531	0.596
		Suburban	46	11.196	5.620		
Marital status	Physical	Married	245	27.069	9.679	1.529	0.127
		Unmarried	55	24.818	10.695		
	Mental	Married	245	11.604	6.191	0.35	0.727
		Unmarried	55	11.945	7.931		
Chronic disease	Physical	Yes	81	29.481	9.022	3.049	0.002
		No	219	25.612	10.015		
	Mental	Yes	81	13.222	6.582	2.531	0.012
		No	219	11.091	6.432		
Hospitalize during covid	Physical	Yes	51	33.059	8.177	5.298	0.001
		No	249	25.345	9.714		
	Mental	Yes	51	15.137	6.561	4.285	0.001
		No	249	10956	6.306		
Receiving oxygen during covid 19	Physical	Yes	99	30.061	9.658	4.303	0.001
		No	201	24.980	9.594		
	Mental	Yes	99	13.455	6.484	3.385	0.001
		No	201	10.786	6.388		
Infected with covid 19	Physical	One time	274	26.974	9.990	2.128	0.041
		Two times	26	23.308	8.240		
	Mental	One tie	274	11.927	6.577	2.257	0.025
		Two times	26	8.923	5.411		

DISCUSSION

The highest percent age of the present study is 31.7 which is similar to the result of observational Study at King Abdulaziz Medical City, Jeddah, Saudi Arabia and prospective study was conducted in Ankara City the percent of age was (41.3, 39.9), the age ≥ 50 years [12,13]. More than half of the participants in this study were a male which agrees with the results of some studies [12-18]. The current study findings illustrate that the highest percentage (28.3) of participants graduated from the institute this result disagrees with some study results [19-21]. In this study one-third of the study samples were housewives as consent by a cross-sectional study conducted in Istanbul, Turkey [22]. Most of the participants were lived in urban areas this result corroborates some studies [20, 23, 24]. Current study shows that most of the participants were married, as supported by the results of the studies [19, 23, 24]. Results illustrate that a high percentage of the study samples were overweigh which agrees with the results of more than the studies [16, 25]. The majority of this study's samples don't have any chronic disease which is similar to the results of many studies [23, 25, 26]. The present study results show that more than half of the participants have diabetes which agrees with the results of the studies [15, 27-29]. Most of the study samples this study were not hospitalized during COVID-19 this result is supported by some studies [12, 30, 31]. Current study results show that 67 percent of the participants did not receive oxygen during COVID 19 which agrees with the results of the previous study [25]. In this study, all the participants were fatigued 46.3 % had severe physical fatigue and 63.7 % had mild mental fatigue; which means participants had physical fatigue more than mental fatigue. The results of this study show that the mean of physical fatigue (26.65) higher than the mean of mental fatigue (11.66). This result is supported by the study done at Dublin, Ireland, St James's Hospital (SJH) about 128 post-recovery patients by using the Chalder Fatigue Scale (CFQ-11), that results illustrate that mean physical (11.38) higher than the mean mental (4.72) [32]. Moreover; it was agreed with the study conducted in El Minya / Egypt about 81 patents. By using MFIS (21 items), this study shows that the mean physical (24.62) is higher than the mean mental (17.68) [31].On other hand the results of the current study disagree with the finding of the other two studies. A cross-sectional survey was conducted in China about 2614 post recovery patients using Fatigue Self-Assessment Scale (FSAS) 23 items, the results of this study show that the mean of physical (20.1) is less than the mean of mental (23.6) [23]. Another study was done in Barcelona (Spain) about 136 patients using MFIS (21 items). The study found that the mean of physical (52.5) less than the mean of mental (57.9) [33].The current study illustrates the prevalence of fatigue in the first month post-COVID higher than other months and decreasing physical and mental fatigue month by month until complete recovery. This result consistent with many of the results of the study. Some studies done by Tenforde MW et al (2020), Townsend L et al (2020), Tomar BS et al (2021), Tosato M et al (2021), Ganesh R et al (2021), Diem L et al (2022) display that most of the study samples had fatigue at the first month after recovery [26, 34-38]. However other studies conducted in the United Kingdom, China, and Egypt show that the majority of the study participants had fatigue in the second month [16, 23, 25]. A cross-sectional survey in Egypt, cohort study in Mexico, and a cross-sectional in Denmark

illustrate that more than half of the survivors had fatigue at the third month [20, 27, 39]. According to a couple of the studies in the 4th months half of the samples had fatigue. The studies were conducted in France and Norway [29, 40]. Augustin M et al (2021) conducted a cohort study in Norway and Khatib S et al (2022) did a cross-sectional study in Missouri. Both studies show that less than half of the samples had fatigue in the 5th month [30, 41]. About 6th month in Mexico the study was conducted by González-Hermosillo JA et al (2021), and in Saudi Arabia, the study was done by Garout MA et al (2022) both studies indicate that one-third of the study survivors had fatigue [27, 42].The present study findings illustrate that female gender is significantly associated with fatigue, which agrees with the results of some studies [15, 30, 40,], but it disagrees with other studies [41]. In this study, fatigue was perceived significantly in patients with comorbidity disease; this result is supported by some studies [12, 25, 39, 41]. The current study shows that fatigue difference is significant with hospitalized during the disease or COVID-19 which agrees with the results of the three studies [12, 16, 17]. The study finding display that there is a significant difference between fatigue and receiving oxygen during COVID-19 which is similar to the results of the study [36]. The present study shows no difference between fatigue with residence and marital status; this result is corroborated by two studies [20].

CONCLUSION

The study concluded that less than half of the participants had severe physical fatigue and more than half had mild mental fatigue. Statistical difference is significant between fatigue in females, patients with comorbidity diseases, hospitalization, and receiving oxygen during COVID- 19.

CONFLICT OF INTEREST

There are no conflicts of interest or sources of financial support for any of the authors.

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