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Post-traumatic Stress Disorders and its impact on Health-Related Quality of Life among elderly during the post-COVID-19 era: Comparative study.

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ABSTRACT

Covid-19 has a negative influence on the social, psychological, physical, and mental health of patients such as, increasing the likelihood of nervousness, and post-traumatic stress disorder (PTSD) especially among elderly. The aim of this research was to identify the level of the post-traumatic stress disorder and its impact on quality of life among those who survived the COVID-19 epidemic and their control group, as well as their associated correlates. Comparative cross-sectional research was undertaken among elderly patients (112Covid-19 patients and 112 non Covid-19 patient), including males and females, aged 60 and up. attending outpatient clinics and admitted to geriatric hospital in Ain shams university hospitals. Data collected by using three- sections structured questionnaire including sociodemographic and clinical section, Posttraumatic Stress Disorder Checklist-5 and Older People's Quality of life Questionnaire. There was statistically significant difference ($p < 0.05$) between elderly suffering from Covid-19 and elderly not suffering from Covid-19 in all items of Quality of Life and in development of post-traumatic stress disorders. In covid-19 group the Post traumatic stress disorders was statistically negative correlate with Quality Of Life, and severity of Covid-19 was significant factor affect it. The research found that QOL and PTSD are critical aspects of older people's life following Covid-19 infection. So There is an urgent need to raise awareness regarding post- COVID PTSD in the elderly population, with better psychological support services, as well as crisis interventions, to help this group cope with anxiety and post-traumatic stress disorder.

1. INTRODUCTION

The new worldwide epidemic (The 2019 Coronavirus Disease COVID-19) has been classified as one of the deadliest pandemics of the century. As it has a negative influence on the social, psychological, physical, and

mental health of patients such as, increasing the likelihood of nervousness, and post- traumatic stress disorder (PTSD) [1].

COVID-19 infection, hospitalization, intensive care unit admission, and mortality are all more likely in the elderly [2]. As the mortality rate for individuals over 80 years old is 14.8 %, compared to 0.2% for those under 40 [3].

There are several risk factors that make older persons more susceptible to COVID-19 virus than the public. They're also less able to accept the prophylactic measures advised by the CDC. Such as masks use, hand washing, and social distancing due to cognitive impairments [4].

Furthermore, the physiological changes associated with aging, past underlying medical disorders linked to ageing, such as hypertension, cardiovascular disease, pulmonary illness, type 2 diabetes, dementia, and cancer, decreased nutritional status and swallowing difficulty, may predispose older persons to acquire severe COVID-19 consequences [5]. As a result, the elderly is thought to be more vulnerable to post- COVID-19 pandemic stress [6]. Also worries about their health or infecting their family members, distress, isolation, or even refusal from others; inaccurate information about the pandemic characters and riskiness, instructions and measures to take; and financial problems [7]. All of these factors could lead to post-traumatic stress disorder (PTSD), a psychological disorder that develops after having a traumatic event. Affecting People's mental and physical health all throughout the globe mental health of people around the world [8].

Elderly health-related Quality of Life (HRQOL) is multi-dimensional. It describes how the elders rated their mental, physical, emotional, and social facets of wellbeing [9].

Without doubt, through the COVID19 era, important changes in the daily routine life of the elderly occurred, Thus, investigating their effects on elderly's physical and mental Health-related Quality of Life are very important as COVID-19 has direct and indirect negative physical and psychosocial health consequences. It may aid in evolution of specific preventive interventions to mitigate their consequences [10]. As a result, the aim of this research was to identify the level of the post-traumatic stress disorder and its impact on quality of life among those who survived the COVID-19 epidemic and their control group, as well as their associated correlates.

2. Subjects and methods

2.1 Design and setting

During a three-month period, comparative cross-sectional research was undertaken among elderly patients, including males and females, aged 60 and up. Attending outpatient clinics and admitted to geriatric hospital in Ain shams university hospitals (from September2021 to December2021). The nonprobability convenience sampling approach was used to acquire the data for this research.

2.2 Study sample

Using open Epi, the sample size was estimated, based on the finding of previous study [11] conducted in Egypt among COVID-19 survivors, frequency of PTSD among COVID survivors was 72% and among non-COVID was 53% ,80% power, 95% confidence level the total sample will be 224,112 in each group.

2.3 Inclusion criteria

Geriatric group of COVID-19 survivors aged 60 years and above of both sexes who had a perceptive ability

to complete questionnaires. The cases were formerly diagnosed as COVID-19 positive based on chest CT scan, or the nasopharyngeal swab. The COVID-19 survivors were interviewed if they had recovered from infection, and at least one month had been passed since home segregation completeness or discharged from the hospital with stable general medical condition. In addition, A similar number of non-COVID-19 control individuals had never been identified as positive COVID-19 patients were enlisted. They were matched by age, gender, and educational level, and were chosen to distinguish between the possible COVID impacts on mental health and quality of life.

2.4 Exclusion criteria

Individuals under the age of 60, as well as those who declined to participate,

2.5 Data collection

The researcher constructed a three-sectioned structured questionnaire:

2.5.1 Section I

Clinical and socio-demographic data: age, gender, marital status, residence, education, residence, occupation before pension, present occupation, economic status, and Covid-19 infection, Covid severity (hospital admission, intensive care admission, oxygen therapy during Covid-19, persistent Covid- 19 symptoms) and previous history of psychiatric and medical illnesses were all included in the survey

2.5.2 Section II: Posttraumatic Stress Disorder Checklist-5 (PCL-5)

PCL-5 is a self-report psychometric tool with 20 item designed to assess, measure PTSD symptoms. Over the previous month, respondents assessed how much an issue detailed in the item upset them. With reference to traumatic life events, it is scored on a 5-point Likert-type scale with responses classified as 0 (not at all), 1 (a little bit), 2 (moderately), 3 (quite a bit) and 4 (extremely), with regards to traumatic life experiences. In general, the PCL-5 may be used to make a preliminary diagnosis of PTSD by adding the scores for each of the 20 items (range 0-80) and selecting a cutoff point score (31-33) [12].

2.5.3 Tool III: Older People's Quality of life Questionnaire (OPQOL-35) Questionnaire

QOL 35 questionnaire assesses older people's quality of life in eight areas: general well-being, health, social relationships and participation, independence, control over one's life, and freedom; home and neighborhoods; psychological and emotional well-being; financial circumstances; leisure and activities. The thirty-five statements are allocated in groups of four to six addressing one of the 8 dimensions. Participants are asked to select a response ranging from: strongly agree (1) to strongly disagree (5) for every statement. After scoring the items using reverse coding for affirmative replies, the sum are estimated, range from thirty-five (lowest score) to one hundred seventy-five (highest score) [13].

Arabic translations of the research tools and re-translated by a bilingual specialist, the tool was validated by a team of public health experts who assessed tool components for applicability and suitability. The reliability test was carried out using the reliability coefficients, which were high and appropriate for scientific purposes (Cronbach's alpha varied from 0.78 to 0.90). Pilot study was carried out on ten persons who were later not included the study. Questionnaires were changed considering the pilot study's findings, and certain changes were made, mostly to simplify the language and shortening the sentences for better comprehension.

2.6 Statistical analysis

Data was presented and analyzed using SPSS (Statistical Package for the Social Sciences) version 19.0 and the appropriate tests including student t test, Pearson chi square correlation co- efficient tests were performed

were performed.

2.7 Administrative design and ethical aspects

- The Ethics Committee authorized the research protocol.
- Written administrative permission was obtained from faculty of medicine Ain Shams University.
- Every subject gave written agreement to participate in the study, and the purpose of the research was revealed to all of the participants. they were informed that they might decline to participate and withdraw at any moment without giving a reason or facing any penalty. Any supplied information was guaranteed to be kept completely secret.

3. Result

As regards the socio demographic and clinical characteristics of two groups of the study, the mean of age was (65.8±4.7 in Covid group, 67.0± 5.1 in non-Covid group). The majority of our study samples were females (53.6% in Covid-19 group, 51.8 in non-Covid- group), married (64% in Covid group ,65% in non-Covid-19 group), illiterate and primary education (45% in Covid- 19group, 40% in non-Covid-19 group), not working now (60.7% in Covid-19group, 78.6% in non-Covid-19 group), not enough income (47.3% in Covid-19 group. 62.5% in non-Covid-19 group), suffering from chronic disease (63,4 in Covid-19 group,75l9% in non Covid-19 group), and suffering from psychological disease (84.8% in Covid-19 group, 78.6% in non Covid-19 group) with no statistically difference.

Table (1) demonstrated statistically significant difference ($p < 0.05$) between elderly suffering from Covid-19 and elderly not suffering from Covid-19 in all items of Quality of Life and in development of post-traumatic stress disorders. Also, There is statistically significant difference ($p < 0.05$) between PTSDcovid-19elderly and non PTSD Covid-19 elderly as regards all items of quality of life while non covid-19 elderly either has PTSD or not have shown any statistically significant difference in QOL items. Also, PTSD among Covid-19 elderly show low score of all items of quality of life with statistically significant difference compared to PTSD in non Covid-19 elderly as shown in table (2).

Figure (1) scatter dot graph between PTSD and total quality of life among non Covid-19 elderly shows negative weak correlation (r = -o.12) with non statistically significant difference (p value 0.2) while in Covid-19 elderly as shown in figure (2) there is negative correlation (r =-0.21) with statistically significant difference (P value 0.023) between PTSD and total quality of life.

Among Covid-19 group no s significant difference between elderly develop PTSD and elderly non developing PTSD as regards socio demographics and clinical characteristic except in severity of Cocid-19 with increased risk to develop PTSD

Also there is increased risk of developing PTSD among elderly group whose age>64, secondary education, still working and suffering from chronic or psychological diseases as displaced in table (3).

4. Discussion

During the Covid pandemic, older individuals were identified as the group of the population most at danger [14]. And any psychological or emotional problems were considered to have a significant influence on their quality of life [15]. So, during this critical period, additional care should be paid to the older population. Thus, the aim of this research was to identify the level of the post-traumatic stress disorder and its impact on quality of life among those who survived the COVID-19 epidemic and their control group, as well as their associated correlates.

The main finding in the study is that most COVID-19 survivors suffered from PTSD (75.9 %) These findings were in line with those of prior epidemic studies. Research on Chinese older individuals 4 weeks following the COVID19 outbreak. Showed a high level of stress [16]. However, it is greater than a study investigated the COVID influence on mental health &social support among elderly Egyptians [17]. They discovered that 41.4 % of their sample suffered severe stress. after a one-month follow-up PTSD was found in 42% of COVID-19 survivors [18]. According to a meta-analysis, the rate of survivors suffering from PTSD after severe corona virus epidemics was 33% [19]. In contrast, numerous other studies revealed lower rates, 25% (20) 7% [21] among COVID-19 survivors, in addition, without early management, PTSD symptoms may worsen [22].

Several factors might account for these findings. The first is the ageing process, which is linked to impaired stress response and some cognitive decline. Furthermore, the COVID-19 virus is more infectious, there are no antiviral medications with certain effectiveness, and there is a deluge of incorrect information. Elderlymay is more concerned about this new epidemic and continues to follow the latest and most up-to-date news from many sources, including electronic and print media. Result in widespread worries, as well as an elevated risk of developing PTSD [23].

Second, the older adults experienced numerous stressful events during the quarantine, including the loss of social interaction, connection, and support from significant others, the closure of restaurants, community centers for the elderly, the cancellation of sporting events, and weddings, all of which may have contributed to feelings of loneliness and helplessness [24], also the COVID-19 epidemic's financial burden can exacerbate psychological distress [25].

The variability in PTSD prevalence across countries can be attributed to the nature of the health system, culture, medical staff, and their attitudes, which may be unique to these countries, country-specific PTSD diagnostic and therapeutic guidelines, and the availability of psychological support. Also, the differences in the PTSD diagnostic instruments and cut-off scores used in each research.

In addition, we measured the individuals' quality of life using the (OPQOL-35). As In the long run, most survivors of significant trauma continue to suffer from one or more persistent functional consequences. This has a negative influence on their quality of life [26]. Our findings show that COVID-19 survivors' QoL was significantly lower (111.6±8.1) than non-Covid, and those with PTSD had a far worse QoL (97.2± 5.7). Also, among covid survivors, a significant negative association between Qol and PTSD, with reductions in QoL across all dimensions in both the non-PTSD and PTSD groups. Several researches have looked at the quality of life of COVID-19 survivors. While the QoL evaluation instruments used in each study differed, all of them revealed a reduction in QoL [27], [28]. Also among community-dwelling Japanese older adults during the COVID-19 epidemic, a significant reduction in mean scores of quality of life [29]. This is in line with research conducted in China [30] during the COVID-19 Pandemic, which stated that perceived stress levels were negatively associated with different quality of life domains. The fact that the connection between PTSD and QoL is bidirectional might be a crucial explanation for this outcome. On the one hand, people with a low quality of life are more likely to acquire PTSD when confronted with stressful situations. PTSD symptoms generated by SARSCOV-2 infection, on the other hand, might activate or worsen pre-existing medical or mental health problems, resulting in a further reduction in QoL [31]. Additionally, remaining at home may be linked to harmful habits such as an imbalanced diet, overeating or undereating, and a lack of enough sunshine exposure. Such drastic changes in their regular routines may be harmful to their physical and mental health. As a result, it's possible that disruption of vital daily activities for older people, as well as physical activity limits, contributed to the observed impacts on their psychological well-being and health-related

quality of life. when looking at the association between the respondents' socio-demographic variables and the examined measures, the study discovered that being a female raised the chance of having a significant level of distress, with 52.9% of those suffering from PTSD among covid survivors being female. As they are more likely than men to suffer from loneliness, anxiety, and depression. According to prior research [32], [33]. A cross-sectional survey in China, on the other hand, revealed no connection between gender and psychological well-being [34]. Those with less than a secondary education more likely to suffer from PTSD.A similar finding was found in Egyptian research, which discovered that those with lesser levels of education had greater rates of distress.

As they lack adequate information about COVID-19, and the provision of COVID-19-related information to patients lessens the severity of PTSD symptoms [11]. However, in China, highly educated people were found to be more distressed [34].

Financial worries play an important part in a variety of daily actions; as a result, we observed that low income in our research sample was substantially related with high PTSD scores.as economic stability protects against COVID-19-related anxiety [35].

Being married was also linked to a higher PTSD.as when patients are concerned about infecting others, particularly family members, they are more likely to be distressed [36] in contrary with the findings of a study done in Norway which reported that being able to live together with a partner throughout the lockdown helped him feel less scared [37]. Workers also reported more PTSD, which is likely owing to the increased likelihood of becoming infected with COVID-19 due to their need to go out.

Chronic illness patients are more likely to develop PTSD because they are more vulnerable to severe complications and mortality. similarly previous studies conducted among patients with chronic diseases were more prone than the general population to experience discomfort, panic attacks, fear, and anxiety during the COVID-19 epidemic [38].

In terms of the relationship between the severity of covid and the development of PTSD, it was discovered that people with severe covid are three times more likely to get PTSD than those who do not have severe covid similarly. In Wuhan, where the COVID-19 epidemic originally surfaced, it was discovered that invasive and mechanical ventilation were linked to an elevated incidence of PTSD [39]. It was thought that severe medical difficulties posing forthright and sever risks to life, as well as hospital treatment linked with extensive medical or invasive procedures to preserve or retrieve essential functions, enhance the likelihood of developing PTSD symptoms [40].

Lastly, the prevalence of PTSD among control patients in the present research was surprisingly high (42.9%). The COVID-19 virus was never infected the control patients. This finding could be explained by the fact that those participants would face a variety of stressors such as social isolation, financial troubles as a result of the lockdown regulations, or even worry of becoming infected or their loved ones, all of which would negatively impact their psychological well-being and quality of life [41].

5. Conclusion & Recommendation

This study concluded that moreover three-quarters of the Egyptian elderly covid survivors experienced PTSD which had an impact on their quality of life as there was a negative statistically significant correlation between them. The research backs up the idea that QOL and PTSD are critical aspects of older people's life following Covid. Furthermore, the findings highlight the need for more population-based research to determine the

many neurological, immunological, and psychological mechanisms underlying the putative linkages between PTSD and COVID infection.as well as to examine potential long-term consequences among survivors in Egypt. Also, There is an urgent need to raise awareness regarding post-COVID PTSD in the elderly population, therefore more and better psychological support services, as well as crisis interventions, to help this group cope with anxiety and post-traumatic stress disorder.

6. Declaration

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Author statement: The study was carried out by all the authors. All of them participated to the study's idea, design, and data collection. Three authors performed material preparation. [Ghada M. Salem] performed data handling. [Marwa B. Awad Allah] performed the discussion. All researchers contributed to the initial draught of the text. The final manuscript was reviewed and approved by them.

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Table (1): quality of life and post-traumatic stress disorders among elderly covid-19 survivors and their control

Item	Covid-19 elderly	Non Covid-19 elderly	T test	P value
Quality of life at all	3.5±1.1	4.1±0.81	5.1	<0.001*
Life over all	13.3± 3.2	14.5± 2.5	3.08	0.002*
Health	10.9± 2.7	12.6± 2.9	4.33	<0.00*
Social relationship	17.6± 2.9	18.8± 3.2	2.94	0.004*
	12.5± 2.3	14.2± 3.0	4.61	
Independence,	13.7± 2.4	13.1± 2.2	2.18	<0.001 *
control over life ,	13.4±1.5	14.5±2.6	3.86	
freedom	12.8± 2.9	14.6±2.6	4.71	
Home and	19.1± 2.9	20.7± 3.2	3.86	0.03*

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neighboring	111.6±8.1	116.2±10.2	3.58	<0.001
Psychological and emotional wellbeing				<0.001
Financial circumstance				<0.001
Leisure and activities				0.001*
Total quality of life				
PTSD symptoms			Chi square =25.3	
<33	27(24.1)	64(57.1)	P value <0.0001	
>33	85(75.9)	48(42.9)		

*statistically significant

Table (2) relation between quality of life and Posttraumatic stress disorders among elderly COVID survivors and their control group

	Covid-19 elderly		Non covid-19 elderly		
Items of quality of life	**Posttraumatic disorders**	**Non Posttraumatic disorders**	**Posttraumatic disorders**	**Non Posttraumatic disorders**	**T test(p value)****
Quality of life at all	3.1± 1.1	3.5±1.1	3.8±1.1	4.2± 0.8	3.5(<0.001)*
T test (p value)	3.3	(0.003)*	0.34	(0.72)	
Life over all	11.0±3.2	14.1±2.8	14.4±3.6	15.2± 1.7	5.5(<0.001)*
T test (p value)	4.5	(<0.001)*	1.5	(0.11)	
Health	8.5± 1.6	9.6± 2.3	10.8±2.2	11.1± 1.5	6.9(<0.001)*
T test (p value)	2.2	(0.02)*	0.43	(0.66)	
Social relationship	16.6±3.5	17.9± 2.7	18.8± 3.3	19.1± 2.6	3.5(<0.005)*
T test (p value)	2.04	(0.04)*	0.23	(0.81)	
Independence, control over life , freedom	12.3± 2.2	13.4± 2.3	14.7± 2.8	15.3±2.8	5.4(<0.001)*
T test (p value)	2.1	(0.03)*	1.2	(0.23)	
Home and neighboring	14.1±2.6	12.8± 1.4	12.9± 2.2	13.6± 2.1	2.7(<0.001)*

T test (p value)	2.36	(0.02)*	1.1	(0.26)	
Psychological and emotional wellbeing	12.8 ±2.8	15.2± 2.3	16.2± 2.5	16.5±1.8	6.9(<0.001)*
T test (p value)	4.2	(<0.001)*	0.75	(0.45)	
Financial circumstance	9.5± 2.3	11.2± 3.3	12.1± 1.9	13.2± 3.1	6.6(<0.001)*
T test (p value)	2.3	(0.002)*	1.6	(0.09)	
Leisure and activities	15.7± 5.2	18.3± 4.2	18.8± 2.8	20.1± 3.2	3.8(<0.001)*
T test (p value)	2.6	(0.009)*	1.7	(0.08)	
Total quality of life	90.2±10.2	101.3±11.8	116.5±9.7	118.2±9.8	9.3(<0.001)*
T test (p value)	7.5	(0.<001)*	1.3	(0.19)	

*statistically significant

** Relation between posttraumatic stress disorders among Covid-19 elderly and non Covid-19 elderly.

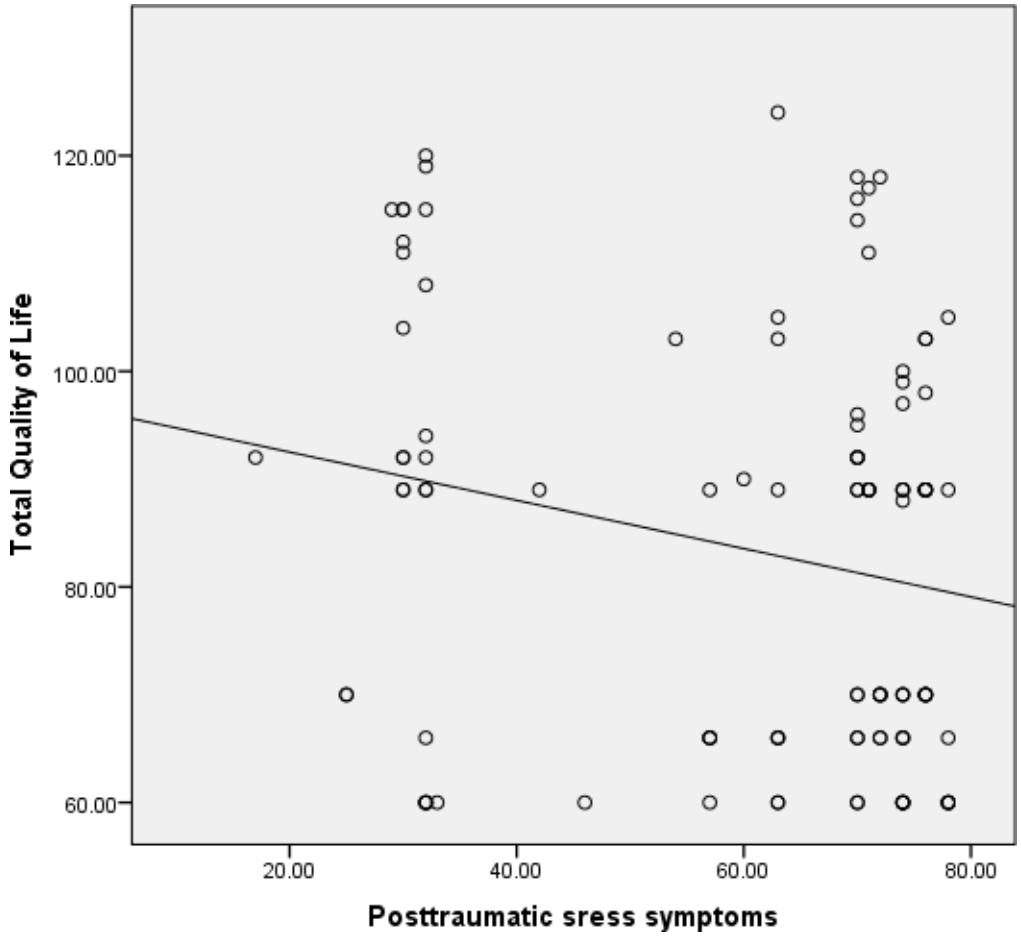

Figure (1) Scatter dot graph showing non-statistically correlation between the posttraumatic stress syndrome and the total quality of life non Covid-19 elderly

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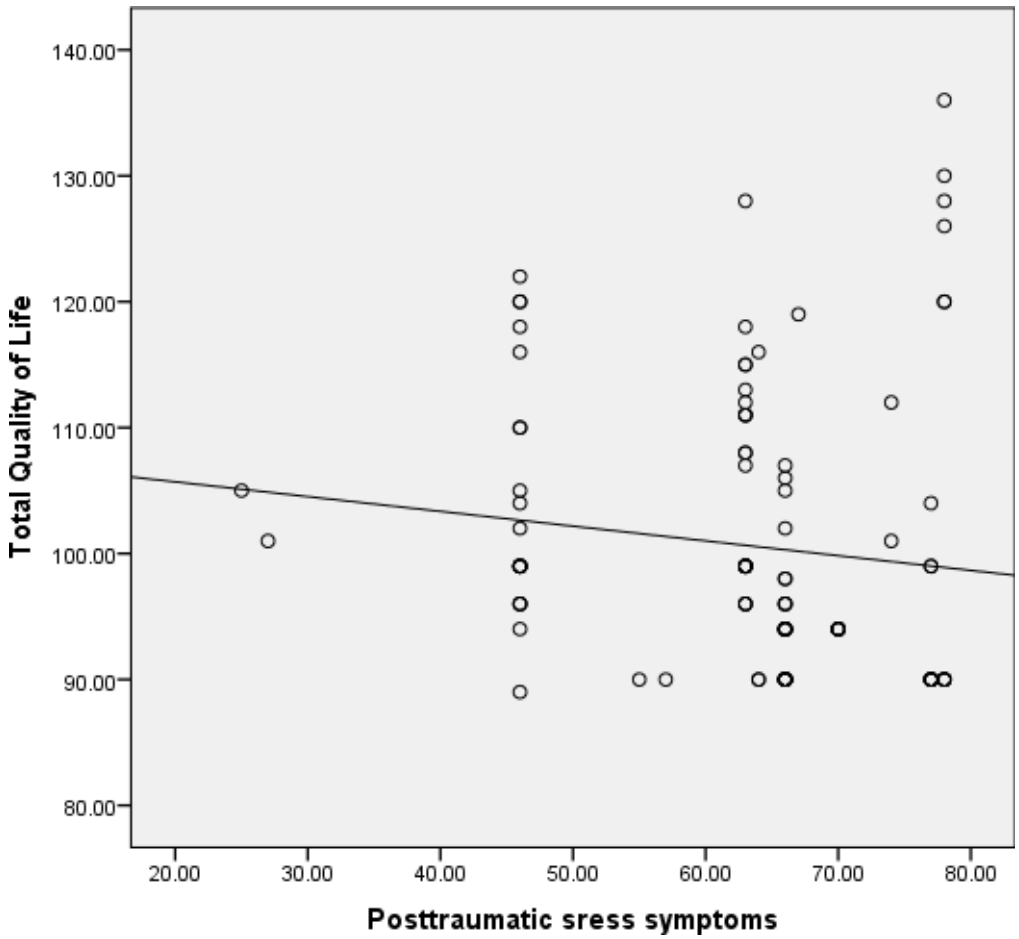

Figure (2) Scatter dot graph showing statistically significant correlation between the posttraumatic stress disorders and the total quality of life among Covid -19elderly

Table (3) the relation between socio demographics and clinical characteristic of the Covid-19 group and the development of post traumatic stress disorders.

Socio demographic and clinical characters	Post traumatic patient n=85(%)	Non post traumatic N=27(%)	Chi square P value	OR(95% CI)
Age				
> 62 years	72 (85.7)	19(70.4)	3.2	2.5(0.9-7.05)
< 62years	12 (14.3)	8 (29.6)	(0.07)	
gender:				
Male	40(47.1)	12(44.4)	0.56	1.1(0.46-2.65)
Female	45 (52.9)	15(55.6)	(0.81)	
Social status				
Married	49(57.6)	15(55.6)	0.03	1.1(0.46-2.61)
Not married	36(42.4)	12(44.4)	(0.84)	
Education				
Illiterate&read write	38(44.7)	7(25.9)	4.9	Ref
Secondary education	20(23.5)	12(44.4)	(0.08)	3.25(1.11-9.57)
University education	27(31.8)	8 (29.6)		1.61(0.52-4.97)
Working now				
Yes	36 (42.4)	8(29.6)	1.3	1.7(0.68-4.42)
No	49(57.6)	19(70.4)	(0.23)	
Income				
Not enough	38(44.7)	15(55.6)	1.1	Ref

Enough	20(23.5)	6(22.2)	(0.56)	0.76(0.26-2.26)
Enough and more	27(31.8)	6(22.2)		0.56(0.19-1.63)
Suffering from chronic disease				
Yes	57(67. 1)	14(51.9)	2.0	1.9(0.78-4.5)
No	28(32.9)	13(48.1)	(0.15)	
Suffering from psychological disease				
Yes	11(12.9)	6 (22.2)	1.3	1.9(0.636-5.81)
No	74(87.1)	21(77.8)	(0.24)	
Severity of covid-19				
Sever	55(64.3)	10(37.0)	6.4	3.1(1.2-7.6)
Not sever	30(35.7)	17 (63.0)	(0.01)*	

*statistically significant