How to Cite:

Ibrahim, F. M., Fadila, D. E., & Saad, M. T. (2022). A pilot protocol for improving institutionalized older adults psychosocial health during COVID-19 pandemic. *International Journal of Health Sciences*, *6*(S4), 12521–12536. https://doi.org/10.53730/ijhs.v6nS4.12057

A pilot protocol for improving institutionalized older adults psychosocial health during COVID-19 pandemic

Fatma. M Ibrahim

PhD, Lecturer of Gerontological Nursing, Faculty of Nursing, Mansoura University, Egypt

Doaa. E Fadila

PhD, Assistant professor of Gerontological Nursing, Faculty of Nursing, Mansoura University, Egypt

Moustafa. T Saad*

PhD, Lecturer of Gerontological Nursing, Faculty of Nursing, Mansoura University, Egypt *Corresponding author

> Abstract --- The COVID-19 pandemic has globally threatened the psychosocial health life quality of older adults worldwide. Aim: Ascertain the effect of nursing protocol implementation on the psychosocial health of institutionalized older adults during the COVID-19 pandemic. Methods: A quasi-experimental design was used to assess 46 older adults of two governmental geriatric homes. Four tools were utilized: a structured interview questionnaire sheet, Patient Health Questionnaire-9 PHQ-9, Generalized Anxiety Disorder -7 GAD-7, and Positive and Negative Affect Scale. Results: The PHQ-9, GAD-7, Positive Affect Schedule, and Negative Affect Schedule total scores improved significantly immediately and two months after protocol implementation (P=0.005, 0.002, < 0.001, < 0.001, respectively). Conclusion: Implementation of the nursing protocol effectively improves the level of psychosocial status among geriatric home older adults. Recommendation: Both short- and long-term nursing interventions are critical to enhancing older adults' psychological and mental health in geriatric homes, particularly during this pandemic.

Keywords---psychosocial, older adults, intervention, COVID-19, pandemic.

International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X © 2022.

Manuscript submitted: 9 May 2022, Manuscript revised: 27 July 2022, Accepted for publication: 18 August 2022

Introduction

The COVID-19 pandemic, caused by the SARS-CoV-2 coronavirus, changed public and private healthcare systems worldwide. Given that older adults have a higher prevalence and incidence of chronic diseases than younger ones, the COVID-19 pandemic is likely to disproportionately affect the geriatric population *(Bandaranayake and Shaw,2016; WHO,2019; Belluz, 2020).* Emerging data suggest that it is associated with a greater mortality rate in the older adults, with rates ranging from 3.6% to 14.8 % for older adults *(BBC, 2020).* According to Egypt's Ministry of Health and Population Census, the death rate for COVID-19 patients over 60 years is 60%, while the infection rate for those over the age of 70 is 7% *(WHO, 2020; BBC, 2020).*

The COVID-19 pandemic has swept the globe, affecting physical and mental health on a global scale. The notion that older adults, especially those with comorbid conditions and institutionalized, are more vulnerable to COVID-19's negative effects can cause significant fear among the older adults. *(Li et al., 2020).* During the initial COVID-19 outbreak in China, a survey of older adults discovered that 53.8% of respondents classified the outbreak's psychological impact as moderate to severe, with 16.5%, 28.8%, and 8.1% reporting depression, anxiety, and stress symptoms, respectively. The fear of being sick, losing loved ones, and becoming socially isolated or quarantined is the source of the distress *(Ho et al., 2020; Wang et al., 2020).* Anxiety, irritability, and an excessive feeling of stress or anger are all other psychological effects. Older adults with cognitive impairment may experience significant increases in anxiety, agitation, and social withdrawal *(Liu et al., 2020; Doraiswamy et al., 2020; Lloyd et al., 2020; Nicol et al., 2020).*

In the absence of a COVID-19 vaccination, maintaining social and physical distance helps prevent this infectious disease's spread by interrupting the COVID-19 transmission chains. These measures might disrupt the social networks related to COVID-19. Further, it may result in the inability of many older adults to meet their considerable mental health and psychological support needs *(WHO,2019; Gerst and Jayawardhana, 2015; Qiu et al.,2020)*. The COVID-19 pandemic may cause the people to change their lifestyle. Public health policies require a special balance between the protection of physical and psychosocial health *(Xiang et al., 2019)*. Psychosocial interventions are defined as those that emphasize psychological or social factors than biological factors (Ruddy and House, 2005).

As part of designing an appropriate care plan, gerontological nurses are uniquely positioned to assume responsibility for enhancing mental health services during the COVID-19 pandemic, particularly given the shortage of mental health care staff in geriatric homes. They are responsible for conducting psychological state assessments on all older adults in their care, ensuring that other somatic conditions have been ruled out. Further, they can design ways to maximize function and independence, offering mental health education and psychological counseling, and refer elders who require specialized mental therapy to health care institutions (*Mauk, 2014*).

12522

Aim of the study

The current study aims to determine the impact of implementing the nursing protocol on the psychological status of institutionalized older adults during the COVID-19 pandemic. It was hypothesized that institutionalized older adults' psychosocial status would be improved following implementing nursing protocol.

Subject and Methods

Research design

The current study employed a quasi-experimental design (pre-test post-test one group).

Setting

The study was conducted in two governmental assisted living facilities (Geriatric homes) between May 1st and August 1st, 2020, in Dar El-Amal in Mansoura city and Dar El-Walaa in Meet Ghamr city, Dakahlia governorate, Egypt, with a total number of 27 and 24 residents, respectively.

Subjects

The study included all older adults of both sexes who resided in the settings mentioned above and met the following criteria: 60 years of age or older, capable of communicating and cooperating in the study, and free of any diagnosed psychiatric disorders. Residents with terminal diagnoses or disabling conditions such as stroke, cognitive impairment, or cancer were excluded from the program because these disorders might affect a person's prognosis or capacity to engage in the program. In geriatric homes, 51 residents were asked to participate in the study, but 3 of them (5.9%) expressed disinterest and 2 of them (3.9%) did not meet the inclusion criteria, leaving 46 residents (90.2%) to participate in the study.

Tools for data collection

Structured interview questionnaire sheet

Researchers created the questionnaire sheet after conducting a review of the relevant literature. It was divided into three parts: *Part 1:* Socio-demographic characteristics of the older adults, including their age, sex, educational level, income, and marital status, *Part 2:* Health-related data as a number of comorbidities, history of exposure to COVID-19, precaution measures taken by the older adults towards COVID-19, and exposure to educational or training session related to COVID-19, and *Part 3:* Fear of COVID 19 was assessed by eight closed-ended questions.

12524

Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9 is a 9-item self-report scale developed by Kroenke et al $^{(19)}$ to assess and monitor depression severity and serve as a diagnostic measure of major depressive disorder. It has been validated for use with older adults by Shrira et al., $^{(20)}$. The PHQ-9 asks how often respondents have been bothered by problems in the last two weeks. Each item is rated on a 4-point Likert-type scale, with response choices of "not at all = 0", "several days=1", "more than half the days= 2", and "nearly every day=3". Total score ranges from 0 to 27, where high scores mean higher possibility of depression. The total score can then be interpreted as suggesting no depression (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), or severe (20–27). A cut-off score of 10 is considered to indicate the possibility of depressive disorder.

Generalized Anxiety Disorder -7 (GAD-7)

Spitzer et al ⁽²¹⁾ designed the GAD-7, a seven-item self-report scale, to measure the severity of generalized anxiety disorders over the last two weeks based on DSM-IV criteria (the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition). Each item is scored on a 4-point Likert scale, showing symptom frequency, ranging from 0 (not at all) to 3 (nearly every day). The GAD-7 total score may range from 0 to 21, with a score equal to or greater than 10 indicating generalized anxiety disorder. A score of 5, 10, and 15 is considered mild, moderate, and severe anxiety, respectively.

Positive and Negative Affect Scale (PANAS)

The PANAS was developed by Waston, Clark, and Tellegen ⁽²²⁾ in 1988. It comprises two 10-item mood scales, one for positive effects and the other for negative effects. On a five-point scale ranging from 1 (not at all) to 5 (very much), the PANAS inquires about respondents' experiences with each emotion.

Procedure

- 1. The researchers developed structured interview questionnaire sheet following a literature review survey. Furthermore, PHQ-9, GAD-7, and PANAS were translated into simple Arabic language and revised by five panels of experts in the related fields of the study to test their content validity and feasibility, and the necessary modifications were made. They were then tested for reliability by using the method of test-retest. They were applied to the older adults selected from Dar Kebar Elsen in Ras Elbar city, then repeated later on the same residents. Pearson's correlation coefficients were 0.91, 89, and 93 for tools PHQ-9, GAD-7, and PANAS, respectively.
- 2. A pilot study was preceded on 10% (n= 7) of older adults selected from Dar Kebar Elsen in Ras Elbar city to ensure that the tools are clear and practical and estimate the time required for the interview.
- 3. The study excluded the older persons who participated in the pilot trial. According to the pilot study's findings, the necessary modifications were done, and the tools were then finalized.
- 4. For proper conduction of the study, three phases were utilized:

Assessment Phase

The researchers interviewed each older adult to collect baseline data using all the study's tools. The time taken for each interview ranged from 15-30 minutes.

Intervention phase

Nursing protocol

The researchers developed the proposed nursing protocol after reviewing the literature. It included educational and behavioral interventions. A booklet containing the components of the nursing protocol was designed and written in a simple Arabic language, enhanced with photographs and illustrations, and distributed to each older adult a reminder to support teaching and practicing. The researchers used simple audio-visual materials such as a PowerPoint presentation on a lab top, illustrated pictures, and videos to assist in transmitting ideas and maintaining the interest of the older adults during sessions. The developed nursing protocol was conducted in three 30-minute sessions per week for two weeks. The researchers met around two to four older adults individually each visit. Each older adult was subjected to theoretical and practical sessions:

- The theoretical part was carried out in 4 sessions, including information about the following:
 - A. COVID-19's nature, causes, and manifestations, as well as the negative psychosocial impact of quarantine.
 - B. Infection control measures (e.g., prevention of infection transmission, hand hygiene, the etiquette of sneezing and coughing follow up vaccine administration)
 - C. Behavior, lifestyle modification, effective coping related to a healthy diet, sleep, exercises, smoking cessation, fear and stress management, optimal access and follow to the media news, relaxation measures, and socialization.
- The practical sessions were carried out in 2 sessions. The older adults were taught to perform the relaxation exercises (e.g., meditative relaxation, pursed-lip breathing, and diaphragmatic breathing).

The researchers employed age-appropriate teaching tactics, such as using clear, concise, and simple language in the presentations, large, printed materials, and a summary of the session's main point at the end of each session. The researchers called the older adults once a week for one month following the end of the nursing protocol to ascertain their compliance with the protocol. Problems and concerns in performing the activities were discussed.

Evaluation phase

Reassessment of each older adults was done two times to evaluate the effect of the proposed nursing protocol. The first reassessment was conducted immediately after completing the protocol (2 weeks post 1), and the second was performed two months later (post 2) using PHQ-9, GAD-7, and PANAS.

12526

Ethical considerations

The report was approved by the Research Ethics Committee. Official approval was granted to the directors of the older adults homes involved in the study. After a detailed explanation of the study's intent and existence, older adults gave their verbal consent. Throughout the report, the older adults's safety was ensured. The older adults's anonymity and privacy and the confidentiality of the data collected were respected. The right to cancel at any time was guaranteed.

Statistical analysis of the data

The IBM SPSS software package version 20.0 was used to analyze the data obtained by the device (IBM Corporation, Armonk, NY). Qualitative results were quantified using numbers and percentages. The range, mean, and standard deviation were used to characterize quantitative data, and the significance of the obtained results was determined at the 5% stage. An ANOVA with repeated measures was used for normally distributed quantitative variables to compare between more than two intervals or points, and the Post Hoc test (Bonferroni adjusted) was used for pairwise comparisons. For quantitative variables with an abnormal distribution, the Friedman test was used to compare more than two periods or stages, and the Post Hoc Test (Dunn's) was employed for pairwise comparisons.

Results

According to table 1, 54.3% of the older adults investigated were between the ages of 60 and 75 (young-old), with a mean age of 72.93 \pm 6.73 years, 58.7 % were female, 80% were widowed, and 82.2% had just an elementary education. Pensions accounted for around 56.5 percent of monthly income, yet this was insufficient for 82.6 %. Moreover, more than half (56.5%) of the older adults residing in nursing homes shared rooms Comorbidity was prevalent in most older adults (91.3%), with 32.6% of participants having three or more chronic conditions.

Table 2 shows that none of the studied older adults were exposed to Corona Virus infection or contacted coronavirus patients. Further, a few of them took the following precautions to protect themselves from disease: approximately 26.1% wore masks, 67.4% properly washed their hands, 21.7% used hand sanitizer, 47.8% maintained social distance, 71.7% consumed vitamin C and zincfortified foods, and only 6.5% maintained quarantine. None of the older adults received any education about coronavirus protection. Thus, most of the older adults surveyed expressed fear of the virus, fear for their family, dread of death, dread of interaction with others, and fear of engaging in any activity (84.8 %, 100%, 82.6 %, 78.3 %, and 76.1%, respectively). Moreover, almost 87.0%, 39.1%, and 26.1% of the older adults reported sleep problems, eating issues, and weight loss.

Table 3 illustrates the effect of psychosocial care on the studied older adults before, immediately after, and two months after geriatric psychosocial protocol implementation. The table reveals that all the total scores of PHQ-9, GAD-7,

Positive Affect Schedule, and Negative Affect Schedule improved significantly immediately and two months after protocol implementation (P = 0.005, P = 0.002, P < 0.001, P < 0.001, respectively). Table 4 shows a significant increase in the total score of negative affect (P=0.048*) with education level two months after geriatric psychosocial protocol implementation on the older adults.

Discussion

COVID-19 is a recent and serious global health threat. COVID-19's associated human, societal, and global ramifications endanger not only the physical health of older adults, but also their psychological well-being (Wang et al., 2020). In comparison to community-based elders, nursing home residents face a greater risk of adverse disaster-related outcomes (Brown, Hyer, & Polivka-West, 2007; Brown, Rothman, & Norris, 2007; Dosa et al., 2012; Laditka et al., 2008). The existing biopsychosocial vulnerabilities of nursing home residents may significantly impact this population than others (Dosa et al., 2008). These vulnerabilities are mostly caused by the consequences of chronic diseases and the combination of biological, psychological, and social changes associated with aging. It is necessary to consider the requirements of this vulnerable population, particularly in light of the COVID-19 situation. Therefore, the current study set out to determine the impact of implementing the nursing protocol on the psychosocial status of institutionalized older adults during the COVID-19 pandemic.

According to the results, less than half of the surveyed respondents (43.5%) suffered from mild depression, more than half (54.3%) experienced mild anxiety, and the mean score for negative effect was 26.35 ± 2.24 . The present study's time coincides with the predictable peak month of Egypt's COVID-19 outbreak, which could provide plausible explanations.

In this respect, a cross-sectional analysis in China found that over half of those surveyed reported experiencing moderate-to-severe psychological distress due to the outbreak (Ho et al., 2020). The anxiety stems from the constant fear of catching the disease, losing loved ones, and being socially isolated or These factors may precipitate the emergence of a psychological quarantined. disorder in individuals who have never had a mental health problem or worsen symptoms in individuals who already have a mental illness. It has been reported that the outbreak of COVID-19 aggravated psychological issues such as anxiety, irritability, over-stress, and anger among the older adults (Li et al., 2020). Further, nursing homes that have lost face-to-face contact with family members, lack spouses, family, or friends, and rely on volunteering or social support, have increased psychosocial problems during the outbreak of COVID-19 (Armitage & Nellums 2020; Wang et al., 2020). In the same vein, Schneiderman et al., (2005) stated that because stress affects expectations of safety, predictability, power, agency, and competence-all of which are necessary components of well-being, positive mood, and the capacity to communicate with others-pandemics and disasters affect mental and psychological well-being. The quarantine period in Canada associated with SARS was related to posttraumatic stress symptoms, avoidance behavior, anger issues, fear of sickness and infection, frustration, and boredom (Bai et al., 2004; Hull, 2005; Reynolds et al., 2008).

12528

After the COVID-19 outbreak, Arab countries have taken several steps to boost mental health conditions during the pandemic. Patients can be monitored by videoconferences or phone calls. The majority generated educational content in the form of images, posters, or pamphlets and shared it on social media. In many countries, phone numbers for counseling and assistance have been created. These initiatives, which are mostly geared toward the general public, have fallen short of meeting the needs of the older adults. Only countries with adequate resources and sector experience have launched targeted initiatives. The General Secretariat for Mental Health and Addiction Treatment established a hotline for mental health consultations, organized mental health awareness campaigns during pandemics, and delivered online webinars on mental health (El Hayek et al., 2020). These innovative methods help to disseminate information on COVID-19 and mental health.

However, there are no adequate studies, particularly on the effect of nursing protocols on the psychological status of older residents of geriatrics homes during the COVID-19 pandemic. The present results revealed that all the total scores of PHQ-9, GAD-7, positive affect schedule, and negative affect schedule improved significantly immediately and two months after protocol implementation. These findings suggested that the psychological health of the older adults has been enhanced in terms of depression, anxiety, positive and negative affect. It can be attributed to the ability of older adults to learn and acquire some skills as they age. Moreover, in light of the Corona pandemic's conditions and their existence in an geriatric home, in addition to the prohibition and residency processes, having someone to talk to has significantly benefited their health and social condition.

It is strongly recommended that cognitive-behavioral interventions be used to consider the biopsychosocial impacts and resource deficiencies associated with COVID-19-related stressors, as well as the public health perspective on how to handle them. There are effective methods for avoiding mental illnesses during pandemics, including psychological first aid, stress management, repeated ecological evaluation, writing about stressors, problem-solving, and behavioral activation interventions, which help people at risk of experiencing stress-related issues (Litz et al., 2021).

In this regard, Corley et al. (2020) conducted a study during COVID-19 lockdown in Scotland to determine whether home garden usage is associated with selfreported mental and physical well-being in older adults. It has been concluded that using the garden more frequently during lockdown was linked to improved self-reported physical, emotional, and mental health, sleep quality, and a composite health score. Boyd, Lanius, & McKinnon, (2018) reported that stress management interventions are linked to changes in the effect size of posttraumatic stress disorders ranging from medium to large during pandemic influenza preparedness. Moreover, behavioral activation teaches participants how to identify and engage in activities that are supportive and consistent with their values and goals to reduce prevention and isolation (Cuijpers et al., 2020). A meta-analysis of behavioral activation for PTSD symptoms found that symptoms were significantly decreased, with an average reduction of 25.8 % (Flint et al., 2020).

Conclusion

Implementation of nursing protocol that consisted of theoretical sessions about COVID 19- and its nature, infection control measures, behavioral and lifestyle modification were effective coping strategies. In addition, the practical sessions about relaxation exercises (e.g., meditative relaxation, pursed-lip breathing, and diaphragmatic breathing) proved to be effective in improving the level of psychological status among older adults residing in geriatric homes during the COVID-19 pandemic.

Recommendations

- 1. Comprehensive geriatric assessment with the use of appropriate mental and psychological health assessment tools. Close monitoring is necessary to understand better the patient's symptoms, treatment alternatives, and efficacy.
- 2. Short-term and long-term nursing interventions in geriatric homes to improve the psychological and mental health of the older adults are very necessary, particularly during this pandemic.
- 3. Use telenursing to diagnose and treat older patient's psychological and mental health concerns during quarantine. When telenursing is not practicable, service teams may provide emotional support and behavioral control via telephone hotlines.
- 4. During pandemics, public health must advocate for internet-based policies that encourage health and well-being while preventing illnesses and other negative health, social, and functional outcomes.

Limitations of the Study

Since the number of older adults residing in the geriatric home during the COVID-19 pandemic was few, the data results could not be generalized due to the limited sample size.

Table 1: Distribution of the studied older adults according to socio-demographic characteristics (n = 46)

		24
Part 1: Socio-demographic characteristics	No.	%
Sex		
Male	19	41.3
Female	27	58.7
Age (years)		
60 - 74	25	54.3
75 – 84	21	45.7
Min. – Max.		60.0 - 84.0
Mean ± SD.		72.93 ± 6.73
Marital status		
Widow	37	80.4
Divorced	9	19.6
Level of education		

12530

Illiterate	3	6.5
Read & write	13	28.3
Primary education	24	52.2
University education	6	13.0
Current Working		
Yes	0	0.0
No	46	100.0
Source of income		
Pension	26	56.5
Relatives	7	15.2
Social Affairs	13	28.3
Income		
Enough	8	17.4
Not enough	38	82.6
Living room		
Alone	20	43.5
With another resident	26	56.5
Chronic diseases		
Yes	42	91.3
No	4	8.7
Number of chronic diseases		
No	4	8.7
1	13	28.3
2	14	30.4
3 and more	15	32.6
If yes*		(n = 42)
Respiratory	3	7.1
Cardiovascular	13	31.0
Hypertension	31	73.8
Renal disease	0	0.0
Diabetes Mellitus	26	61.9
Orthopedic diseases	11	26.2
Psychiatric diseases	3	7.1
Liver disease	2	4.8

*more than answer

Table 2: Distribution of the studied older adults according to health-related data and fear of COVID-19 (n = 46)

Health related data and fear of COVID 10	Y	es	No		
Health-related data and lear of COVID-19	No.	%	No.	%	
History of exposure to COVID 19					
Previous COVID 19	0	0.0	46	100.0	
Resident older adults history of COVID 19	0	0.0	46	100.0	
Any Contact with COVID 19 patient	0	0.0	46	100.0	
Precaution measures are taken by the older					
adults towards COVID 19					
Wear mask	12	26.1	34	73.9	

Wash hands Sanitizing hands	31 10	67.4 21.7	15 36	32.6 78.3
Social distance	22	47.8	24	52.2
Food contains vitamin c, zinc	33	71.7	13	28.3
Get out of home in quarantine	3	6.5	43	93.5
Teaching sessions regarding corona	0	0.0	46	100.0
Fear of COVID 19				
Fear from the virus	39	84.8	7	15.2
Fear from coming in close contact with people	36	78.3	10	21.7
Fear from doing activity	35	76.1	11	23.9
Fear about family	46	100.0	0	0.0
Fear from death	38	82.6	8	17.4
Sleep problems	40	87.0	6	13.0
Eating problems	18	39.1	28	60.9
Weight loss	12	26.1	34	73.9

Table 3: Comparison between the studied periods according to PHQ-9, GAD-7, Positive Affect Schedule, and Negative Affect Schedule pre, immediately after, and two months after implementing the protocol

	F	Pre		immediately		Post 2 month		р
	No.	%	No.	%	No.	%	01 S1g.	-
Patient Health Questionnaire-9 (PHQ-								
9)								
No depression	9	19.6	14	30.4	10	21.7		
Mild depression	20	43.5	21	45.7	22	47.8	Fr=	
Moderate depression	12	26.1	7	15.2	10	21.7	10.53	0.005*
Moderately severe depression	5	10.9	4	8.7	4	8.7	3*	
Severe anxiety disorders	0	0.0	0	0.0	0	0.0		
p_0			0.118		0.6	539		
GAD-7 Scale								
No anxiety disorders	4	8.7	10	21.7	6	13.0	D	
Mild anxiety disorders	25	54.3	24	52.2	25	54.3	FI = 10.40	0.000*
Moderate anxiety disorders	17	37.0	12	26.1	15	32.6	12.40	0.002
Severe anxiety disorders	0	0.0	0	0.0	0	0.0	0	
p ₀			0.0)85	0.532			
Positive Affect Schedule (PANAS-SF								
Total score								
Min. – Max.	12 2	.0 – 2.0	15.0 -	- 25.0	15.0 -	- 23.0		
Mean ± SD.	16.52 ± 1.66		18.96 ± 2.17		17.80 ± 1.80		F=	<0.00
% score							42.99 1*	1*
Min. – Max.	5.0 -	- 30.0	12.5 37	50 – .50	12.50 – 32.50		T	
Mean ± SD.	16.	30 ±	22.3	39 ±	19.5	51 ±		

12531

	4.14	5.43	4.49		
p0		< 0.001*	< 0.001*		
Negative Affect Schedule (PANAS-SF					
Total score					
Min. – Max.	22.0 - 36.0	20.0 - 33.0	23.0 - 31.0		
Moon + SD	26.35 ±	24.63 ±	25.61 ±		
$Mean \pm SD.$	2.24	2.12	1.93	F=	<0.00
% score				19.81	<0.00 1*
Min Moy	30.0 -	25.0 -	32.50 -	4*	1
MIII Max.	65.0	57.50	52.50		
Moon + SD	40.87 ±	36.58 ±	39.02 ±		
mean ± SD.	5.61	5.31	4.82		
p_0		< 0.001*	0.086		

Fr: Friedman test, Sig, Bet, Periods were done using Post Hoc Test (Dunn's)

F: F test (ANOVA) with repeated measures, Sig, Bet, Periods were done using Post Hoc Test Bonferroni

p: p-value for comparing the studied periods.

 p_0 : p-value for comparing between pre and each other periods.

*: Statistically significant at $p \le 0.05$

Table 4: Relation between socio-demographic characteristics of the study subjects and total score of PHQ-9, GAD-7 scale, positive affect and, Negative effect immediately and after two months of implementing the psychosocial protocol

	Patient Health Questionnaire-9 (PHQ-9)		GAD-7 Scale		Positive	Affect	Negative Affect	
	immediately	Post2month	immediately	Post2month	immediately	Post2month	immediately	Post2month
Sex								
Male	5.53 ± 3.86	6.26 ± 3.33	5.0 ± 3.74	6.21±3.10	18.84 ± 1.71	17.42 ± 1.54	24.37 ± 2.67	25.26 ± 2.05
Female	7.70 ± 4.68	6.96 ± 4.25	7.0 ± 3.36	7.11 ± 3.12	19.04 ± 2.47	18.07 ± 1.94	24.81 ± 1.66	25.85 ± 1.83
t (p)	1.666 (0.103)	0.599(0.552)	1.896(0.065)	0.967(0.339)	0.297(0.768)	1.220(0.229)	0.698(0.489)	1.021(0.313)
Age (years)								
60-74	7.08 ± 4.35	6.40 ± 3.91	6.20 ± 3.84	6.56 ± 3.11	19.0 ± 2.04	18.12 ± 1.59	24.40 ± 1.63	25.48 ± 1.71
75-84	6.48 ± 4.65	7.0 ± 3.90	6.14 ± 3.44	6.95 ± 3.17	18.90 ± 2.36	17.43 ± 1.99	24.90 ± 2.61	25.76 ± 2.19
t (p)	0.454(0.652)	0.519(0.606)	0.053(0.958)	0.423(0.675)	0.147(0.884)	1.311(0.197)	0.800(0.428)	0.490(0.626)
Marital status								
Widow	6.65 ± 4.57	6.43 ± 4.18	6.16 ± 3.59	6.89 ± 3.04	19.16 ± 2.27	17.97 ± 1.88	24.76 ± 2.18	25.57 ± 1.85
Divorced	7.44 ± 4.10	7.67 ± 2.06	6.22 ± 3.99	6.11 ± 3.48	18.11 ± 1.54	17.11 ± 1.27	24.11 ± 1.90	25.78 ± 2.33
t (p)	0.477(0.636)	0.855(0.397)	0.044(0.965)	0.672(0.505)	1.314(0.196)	1.301(0.200)	0.815(0.419)	0.291(0.773)
Level of education								
Illiterate	6.33 ± 4.51	8.0 ± 3.46	6.33 ± 5.51	7.67 ± 2.89	17.67 ± 1.53	16.33 ± 1.53	26.0 ± 1.0	26.33 ± 2.08
Read & write	6.77 ± 3.56	6.62 ± 2.99	5.77 ± 2.95	6.62 ± 2.84	18.77 ± 1.96	17.15 ± 1.34	25.31 ± 2.72	26.69 ± 2.21
Primary education	6.63 ± 5.11	6.04 ± 4.56	6.17 ± 3.86	6.79 ± 3.36	19.0 ± 2.06	18.33 ± 2.01	24.12 ± 1.68	24.92 ± 1.56
University education	7.83 ± 4.26	8.67 ± 2.25	7.0 ± 3.90	6.33 ± 3.39	19.83 ± 3.25	17.83 ± 1.17	24.50 ± 2.43	25.67 ± 1.75
F (p)	0.124(0.946)	0.854(0.473)	0.151(0.928)	0.125(0.945)	0.701(0.557)	2.071(0.119)	1.350(0.271)	2.864*(0.048*)
Source of income								
Pension	6.15 ± 3.75	6.12 ± 3.46	6.12 ± 3.44	6.58 ± 2.98	18.62 ± 2.25	17.81 ± 1.83	24.38 ± 1.96	25.31 ± 1.76
Relatives	7.57 ± 5.80	7.29 ± 5.79	7.0 ± 3.46	7.29 ± 3.732	19.43 ± 2.57	18.14 ± 2.19	25.71 ± 3.30	26.43 ± 2.88
Social Affairs	7.69 ± 5.11	7.46 ± 3.60	5.85 ± 4.24	6.77 ± 3.24	19.38 ± 1.80	17.62 ± 1.61	24.54 ± 1.61	25.77 ± 1.64
F (p)	0.630(0.537)	0.617(0.544)	0.230(0.795)	0.139(0.871)	0.731(0.487)	0.189(0.828)	1.104(0.341)	0.997(0.378)
Income								
Enough	7.13 ± 5.46	7.13 ± 3.23	5.88 ± 3.27	7.0 ± 3.30	19.50 ± 1.31	18.13 ± 1.25	24.13 ± 2.47	25.13 ± 2.10
Not enough	6.74 ± 4.29	6.58 ± 4.02	6.24 ± 3.73	6.68 ± 3.11	18.84 ± 2.31	17.74 ± 1.90	24.74 ± 2.06	25.71 ± 1.90
t (p)	0.222(0.825)	0.359(0.721)	0.254(0.801)	0.258(0.797)	0.776(0.442)	0.551(0.584)	0.737(0.465)	0.778(0.441)

Living room								
Alone	7.80 ± 4.79	7.65 ± 3.84	6.85 ± 3.50	7.20 ± 2.82	19.20 ± 2.12	17.70 ± 1.95	24.65 ± 2.87	25.45 ± 2.31
With other guest	6.04 ± 4.10	5.92 ± 3.79	5.65 ± 3.70	6.38 ± 3.32	18.77 ± 2.23	17.88 ± 1.70	24.62 ± 1.36	25.73 ± 1.61
t (p)	1.343 (0.185)	1.522(0.135)	1.113(0.272)	0.880(0.384)	0.663(0.511)	0.342(0.734)	0.050(0.961)	0.486(0.629)
Chronic diseases								
Yes	6.74 ± 4.59	6.45 ± 3.93	6.14 ± 3.74	6.62 ± 3.08	18.76 ± 2.14	17.74 ± 1.80	24.64 ± 2.20	25.64 ± 1.96
No	7.50 ± 3.0	9.0 ± 2.31	6.50 ± 2.38	8.0 ± 3.56	21.0 ± 1.41	18.50 ± 1.91	24.50 ± 1.29	25.25 ± 1.71
t (p)	0.324(0.748)	1.266(0.212)	0.186(0.853)	0.846(0.402)	2.039*(0.047 *)	0.807(0.424)	0.127(0.899)	0.386(0.701
Number of chronic diseases								
No	7.50 ± 3.0	9.0 ± 2.31	6.50 ± 2.38	8.0 ± 3.56	21.0 ± 1.41	18.50 ± 1.91	24.50 ± 1.29	25.25 ± 1.71
1	6.92 ± 4.91	6.31 ± 3.52	5.92 ± 4.70	5.54 ± 4.14	19.31 ± 1.97	18.23 ± 2.01	24.23 ± 1.59	25.38 ± 1.33
2	5.43 ± 4.26	4.93 ± 3.32	5.43 ± 3.50	6.71 ± 2.55	18.36 ± 1.55	17.64 ± 1.69	24.29 ± 1.44	25.36 ± 1.82
3 and more	7.80 ± 4.60	8.0 ± 4.42	7.0 ± 3.05	7.47 ± 2.29	18.67 ± 2.72	17.40 ± 1.72	25.33 ± 3.04	26.13 ± 2.50
F (p)	0.718(0.547)	2.224(0.099)	0.472(0.704)	1.151(0.340)	1.838(0.155)	0.721(0.545)	0.820(0.490)	0.538(0.659)
If yes*								
Respiratory	8.33 ± 2.31	7.33 ± 2.31	6.0 ± 5.0	5.33 ± 4.51	19.0 ± 1.0	16.67 ± 1.15	24.0 ± 3.61	25.0 ± 2.0
t (p)	0.611(0.544)	0.302(0.764)	0.085(0.933)	0.807(0.424)	0.035(0.972)	1.138(0.261)	0.528(0.600)	0.562(0.577)
Cardio vascular	8.23 ± 4.04	7.62 ± 3.04	7.62 ± 2.72	7.54 ± 2.40	18.54 ± 2.60	17.15 ± 1.57	25.69 ± 2.93	26.77 ± 2.71
t (p)	1.378(0.175)	1.036(0.306)	1.731(0.090)	1.097(0.279)	0.817(0.418)	1.566(0.125)	1.728(0.105)	2.059(0.058

)
HTN	5.84 ± 4.27	6.13 ± 4.03	5.52 ± 3.64	6.39 ± 3.12	18.58 ± 2.20	17.48 ± 1.69	24.90 ± 2.21	25.94 ± 2.0
t (p)	2.204*(0.033 *)	1.387(0.173)	1.815(0.076)	1.107(0.274)	1.726(0.091)	1.781(0.082)	1.261(0.214)	1.688(0.099)
Renal	-	-	-	-	-	-	-	-
DM	7.58 ± 5.16	6.69 ± 4.45	6.69 ± 3.51	7.12 ± 2.58	18.81 ± 2.58	17.92 ± 2.0	24.92 ± 2.46	25.62 ± 2.12
t (p)	1.440(0.157)	0.036(0.971)	1.109(0.273)	0.935(0.355)	0.561(0.578)	0.507(0.615)	1.068(0.291)	0.027(0.979)
Orthopedic	6.55 ± 5.05	6.64 ± 5.07	5.55 ± 2.66	7.0 ± 1.73	19.36 ± 2.42	18.0 ± 1.61	24.09 ± 2.34	25.27 ± 1.95
t (p)	0.219(0.828)	0.036(0.971)	0.655(0.516)	0.438(0.664)	0.709(0.482)	0.410(0.684)	0.966(0.339)	0.659(0.513)
Psychiatric	6.0 ± 0.0	7.67 ± 2.08	5.67 ± 0.58	6.33 ± 0.58	18.0 ± 3.0	17.33 ± 2.08	24.33 ± 0.58	26.0 ± 3.0
t (p)	0.321(0.750)	0.455(0.651)	0.821(0.421)	0.732(0.474)	0.786(0.436)	0.466(0.644)	0.248(0.805)	0.360(0.720)
Liver	8.50 ± 3.54	11.50 ± 0.71	11.50 ± 0.71	10.0 ± 0.0	17.50 ± 0.71	17.50 ± 0.71	24.50 ± 3.54	25.50 ± 0.71
t (p)	0.547(0.587)	1.851(0.071)	2.216*(0.032 *)	1.540(0.131)	0.970(0.337)	0.242(0.810)	0.054(0.965)	0.081(0.936)

t: Student t-test F: F for ANOVA test *: Statistically significant at p ≤ 0.05

References

- 1. Armitage R, Nellums LB: COVID-19 and the consequences of isolating the older adults. Lancet Public Health, 2020 68.
- Bai, Y., Lin, C. C., Lin, C. Y., Chen, J. Y., Chue, C. M., & Chou, P. (2004). Survey of stress reactions among health care workers involved with the SARS outbreak. Psychiatric Services, 55, 1055–1057. https://doi.org/10.1176/appi.ps.55.9.1055

- 3. Bandaranayake T, Shaw AC: Host resistance and immune aging. Clin Geriatr Med 2016; 32(3):415–432.
- BBC . 2020. Coronavirus: Isolation for over-70s 'Within Weeks' March 15th, 2020. https://www.bbc.co.uk/news/uk-51895873 (Accessed March 16th 2020).
- 5. Belluz J: China's Cases of Covid-19 are Finally Declining. A WHO expert explains why, 2020. Vox. https://www.vox.com/2020/3/ 2/21161067/coronavirus covid19-china? fbclid=IwAR0qEmxPzXh-RUGIStSye7DC PRY7gTvywXH8MCZPVqPweZtd-FSggiNDgKY. Published 2020. Updated March. Accessed April 4th 2020.
- 6. Boyd, J. E., Lanius, R. A., & McKinnon, M. C. (2018). Mindfulnessbased treatments for posttraumatic stress disorder: A review of the treatment literature and neurobiological evidence. Journal of Psychiatry and Neuroscience, 7–25. https://doi.org/10.1503/jpn.170021.
- Brown, L. M., Hyer, K., & Polivka-West, L. (2007). A comparative study of federal and state laws, rules, codes and other influences on nursing homes' disaster preparedness in the gulf coast states. Behavioral Sciences & the Law, 25, 655-675.
- 8. Brown, L. M., Rothman, M., & Norris, F. (2007). Issue in mental health care for older adults during disasters. Generations, 31(4), 25–30.
- 9. Corley J, Okely J A, Taylor AM., Page D, Welstead M, Skarabela B, Redmond P, Cox SR, Russ TC. Home garden use during COVID-19: Associations with physical and mental well-being in older adults. Journal of Environmental Psychology 73 (2021).
- Cuijpers, P., Karyotaki, E., de Wit, L., & Ebert, D. D. (2020). The effects of fifteen evidence-supported therapies for adult depression: A meta-analytic review. Psychotherapy Research, 30, 279–293. https://doi.org/10.1080/10503307.2019.1649732
- 11. Doraiswamy S, Cheema S, Mamtani R. Older people and epidemics: a call for empathy. Age Ageing 2020. afaa060.
- Dosa, D. M., Hyer, K., Brown, L. M., Artenstein, A. W., Polivka-West, L., & Mor, V. (2008). The controversy inherent in managing frail nursing home residents during complex hurricane emergencies. Journal of the American Medical Directors Association, 9(8), 599-604
- Dosa, D., Hyer, K., Thomas, K., Swaminathan, S., Feng, Z., Brown, L., et al. (2012). To evacuate or shelter in place: Implications of universal hurricane evacuation policies on nursing home residents. Journal of the American Medical Directors Association, 13(2), 190.e1–190.e7.
- 14. El Hayek S, Cheaito MA, Nofal M, Abdelrahman D, Adra A, Al Shamli S, AlHarthi M, et al. Geriatric Mental Health and COVID19: An Eye-Opener to the Situation of the Arab Countries in the Middle East and North Africa Region. Am J Geriatr Psychiatry 2020, 28:10, 1058-69. https://doi.org/10.1016/j.jagp.2020.05.009
- Flint, D. D., Ferrell, E. L., & Engelman, J. (2020). Clinical research on behavioral activation as treatment for posttraumatic stress disorder: A brief review and meta-analysis. Behavioral Interventions, 35, 325–335. https://doi.org/10.1002/bin.1712
- 16. Gerst-Emerson, K., Jayawardhana, J., 2015. Loneliness as a public health issue: the impact of loneliness on health care utilization among older adults. Am. J. Publ. Health 105, 1013–1019.

- 17. Ho CS, Chee CY, Ho RC: Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. Ann Acad Med Singapore 2020; 49(1):1–3.
- Ho CS, Chee CY, Ho RC: Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. Ann Acad Med Singapore 2020; 49(1):1–3
- 19. Hull, H. F. (2005). SARS control and psychological effects of quarantine, Toronto, Canada. Emerging Infectious Diseases, 11, 354–355. https://doi.org/10.3201/eid1102.04076.
- Intriago, C. Z., & Posligua, T. I. Q. (2020). Telecommunications and virtualization in times of pandemic: impact on the electrical engineering career. *International Journal of Physical Sciences and Engineering*, 4(3), 38– 44. https://doi.org/10.29332/ijpse.v4n3.630
- 21. Kroenke K, Spitzer RL, Williams JB: The PHQ9: validity of a brief depression severity measure. J Gen Intern Med 2001; 16:606–613.
- Laditka, S. B., Laditka, J. N., Xirasagar, S., Cornman, C. B., Davis, C. B., & Richter, J. V. E. (2008). Providing shelter to nursing home evacuees in disasters: Lessons from Hurricane Katrina. American Journal of Public Health, 98, 1288–1293.
- 23. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med 2020;382:1199e207.
- 24. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med 2020;382:1199e207.
- 25. Litz BT, Mackenzie H, McLean CL. A Public Health Framework for Preventing Mental Disorders in the Context of Pandemics. Cognitive and Behavioral Practice 2021. https://doi.org/10.1016/j.cbpra.2020.11.004
- 26. Liu, S., Yang, L., Zhang, C., Xiang, Y.T., Liu, Z., Hu, S., Zhang, B., 2020. Online mental health services in China during the COVID-19 outbreak. Lancet Psychiatry 7 (4), e17–18.
- 27. Lloyd-Sherlock PG, Kalache A, McKee M, Derbyshire J, Geffen L, Casas FG, et al. WHO must prioritise the needs of older people in its response to the covid-19 pandemic. BMJ 2020;368:m1164.
- 28. Mauk K L. Gerontological Nursing Competencies of the Care. 3rd edition, Jones & Bartlett Learning, LLC Company; 2014. Unit IV, 392-95.
- 29. Nicol GE, Piccirillo JF, Mulsant BH, Lenze EJ. Action at a distance: geriatric research during a pandemic. J Am Geriatr Soc 2020. https://doi.org/10.1111/jgs.16443.
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., Xu, Y., 2020. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. Gen. Psych. e100213. https://doi.org/10.1136/j.gpsych.2020.e100213.
- Reynolds, D. L., Garay, J. R., Deamond, S. L., Moran, M. K., Gold, W., & Styra, R. (2008). Understanding, compliance and psychological impact of the SARS quarantine experience. Epidemiology & Infection, 136, 997–1007. https://doi.org/ 10.1017/S0950268807009156
- Ruddy, Rachel & House, AAO. (2005). Psychosocial interventions for conversion disorder. Cochrane database of systematic reviews (Online). 19. CD005331. 10.1002/14651858.CD005331.pub2.

- 33. Saragih, I. D., Suarilah, I., & Saragih, I. S. (2022). Prognosis of survival among older adults with COVID-19: A systematic review and metaanalysis. *International Journal of Health Sciences*, 6(S5), 4429–4444. https://doi.org/10.53730/ijhs.v6nS5.9576
- 34. Schneiderman, N., Ironson, G., & Siegel, S. D. (2005). Stress and health: Psychological, behavioral, and biological determinants. Annual Review of Clinical Psychology, 1, 607–628. https://doi.org/ 10.1146/annurev.clinpsy.1.102803.144141.
- 35. Shrira A, Hoffman Y, Bodner E , & Palgi Y. COVID-19-Related Loneliness and Psychiatric Symptoms Among Older Adults: The Buffering Role of Subjective Age. Am J of Geriatric Psychiatry 28:11 (2020) 1200-1204. https://doi.org/10.1016/j.jagp.2020.05.018
- 36. Spitzer RL, Kroenke K, Williams JB, et al: A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med 2006; 166:1092–1097.
- 37. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). The COVID-19 pandemic. *International Journal of Health Sciences*, 5(2), vi-ix. https://doi.org/10.53730/ijhs.v5n2.2937
- 38. Wang C, Pan R, Wan X, et al: Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus Disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health 2020; 17(5).
- 39. Wang C, Pan R, Wan X, et al: Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus Disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health 2020; 17(5)
- 40. Wang H, Li T, Barbarino P, et al: Dementia care during COVID19. Lancet, 2020
- 41. Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. Journal of personality and social psychology, 54(6), 1063.
- 42. WHO. Novel Coronavirus (2019-nCoV) Situation Report-20. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200209-sitrep-20-ncov.pdf?sfvrsn=6f80d1b9_4. (Retrieved October 9, 2020)
- 43. WHO. Novel Coronavirus (2019-nCoV) Situation Report-20. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200209-sitrep-20-ncov.pdf?sfvrsn=6f80d1b9_4. (Retrieved October 9, 2020).
- 44. World Health Organization. Report Coronavirus Disease 2019 (COVID-19): Situation Report, 72.
- 45. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, Ng CH: Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry. 2020, 7:228-229. 10.1016/S2215-0366(20)30046-8.