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Original Article

Stress and Coping among Elderly During the COVID-19 Pandemic

Yousif Abdalla Qadr[a*], Azad Ali Ismail[a]

[a] Department of Clinical Psychology, Faculty of Science and Health, Koya University, Koya, Iraq.

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Corresponding Author:
yousif.abdulla@koyauniversity.or

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Abstract: This study aimed to find out the level of stress and coping methods among elderly in Sulaymaniyah city during the pandemic COVID-19. Through the snowballing sampling method, 394 elders were included to this study. After validation, two scales were used in this study: stress subscale from Depression, Anxiety and Stress Scale (DASS-21) and a culture-bound scale for determining coping methods. The results of this study showed that participants experienced a mild level of stress. Male participants, elders who live with their family, unvaccinated elders, physically passive elders have had higher stress level than female, elderly home, vaccinated, physical active elders. The findings also indicated that spiritual connection was the most common coping method used by the sample. Results of this study are the first and foremost way to share elder's unexpressed messages; it also can be a way for verbalizing their unspoken feelings. These results may also inform the elder's caregivers that elder's stress level and illness anxiety was not very high, strengthening their social support and spiritual connection may help them to reduce their distress into a lesser degree.

1. Introduction

After rapid spreading, on "January 30,2020" WHO declared the health challenge (COVID-19) as Public Health Emergency of International Concern [1], as a pandemic on March 11, 2020 [2]. A few months after emerging, it was found that the risk of serious illnesses from COVID-19 increases with age [3]; this may make elders feel more distress.

Psychological impact of the COVID-19 pandemic among elderly ages was noted early after spreading because the most affected age group by the virus was elders [4], they felt more anxious and worried about infecting by the virus because the mortality rate was estimated by 3.6-14.8% [5]. Although, the most affected aged by COVID-19 in Iraq is between 30-39 years, the highest death rates were recorded among those elders aged 60-69 years [6]. Hereby, elders may experience more stress during the current pandemic. Besides OCD, PTSD, Anxiety, Depression, stress is one of the most common reactions for COVID-19 [7]. Strut and colleagues found that %20 of Australian older adults (60-87 years old) recorded higher level of stress during the COVID-19 lockdowns compare to prior to lockdown [8].

The first confirmed case of COVID-19 in the Kurdistan Region of Iraq was identified on March 1, 2020 in the Sulaymaniyah city, an old patient who has visited Iran for taking Medical Services [9]. Among the three governorates in Kurdistan-Iraq, Sulaymaniyah province recorded the second highest rate for affected and the highest death number by the virus [10]. After recording the early cases in an

area, people experienced a different level of fear of getting the viral disease [11], among them, older adults were always advised to stay home and keep physical distance, because they are at a greater risk of the physical and psychological impacts and mortality from COVID-19 than younger adults [12]. Stress and chronic pain are common in late life and both are risk factors among elders for getting mental disorders [13]. Therefore, dealing or coping with stress is a preventive method for popping out and worsening stress to a psychiatric disease. In the previous pandemic of severe acute respiratory syndrome (SARS), older adults had a better coping than younger adults [14]. In another study, the most common coping ways among elders during the pandemic were acceptance, positive reframing, and active coping, while less endorsed coping ways included substance use, self-blame, behavioral disengagement for a moderate level of stress related to COVID-19 [15]. To researcher's knowledge, until now no researchers in this region studied stress, and coping among elderly in a single study.

The current study aims to find out the level of stress and the most common coping way used by the elderly during the COVID-19 pandemic among in the Sulaymanyia city in Kurdistan Region of Iraq. Checking the role of some demographic variables in stress, and coping ways is another study goal. This study also aims to answer the following question: Are there any significant differences between sample demographics (age group, sex, marital status, living place, literacy, chronic illness, economic status, affecting by COVID-19, vaccination, losing a relative by COVID-19, Job, life style, monthly family income) in stress.

2. Materials and Methods

For a known population number, the table developed by Krejcie & Morgan determines the size of the sample [16]. According to the unpublished data from Sulaymaniyah Statistics office's Survey that has been conducted in 2019 the number of people who lived in the Sulaymaniyah city with age 65 and above are included 44849 persons [17], herby the sample size was estimated by 380 subjects. The sample of this quantitative study which included 394 elders was selected through snowballing non-random sampling.

The questionnaires used in this study included four main parts: informed-consent, demographics, stresses scale, coping methods. For measuring stress, the third part of the DASS-21 scale which has been developed by Lovibond and Lovibond [18], was included to this study. Items numbers (1, 6, 8, 11, 12, 14, and 18) from DASS-21 are specified for measuring stress levels. Respondents were asked to answer the question according to their last week by selecting a score from 0 to 4. The alpha level in the original study for the stress sub-scale was 0.89. Among the Kurdish population, the alpha was 0.83[19]. Determining coping methods in the current study depends on a scale that developed in the researcher's community. The scale of coping ways developed by Ismail [20], consisted of 24 items and 6 main sub-scales (spiritual connection: 5 items, passivity: 5 items, positive attitude: 5 items, avoidance: 3 items, seeking Social Support: 3 items, Mixed Effort: 3 items). The response options for the items were 4=Always, 3= often, and 2= sometimes,1= occasionally, 0= never. The alpha of the scale during development the scale was 0.74 among University Students in the Kurdistan community. Among Kurdish women, the alpha level of the scale was 0.68 [21]. Because of the low internal consistency, the mixed effort subscale was excluded in the current study. Internal consistency of the scales was tested through a pilot study involving 35 participants, who were selected by convenience non-random sampling from 4th to 25th of February 2022. Linguistic validity for the second scale was passed the steps determined by World Health Organization [22]. The Cronbach's alpha for the stress subscale was (0.83) in the study have been conducted by Kamal and Othman [19]. Cronbach's alpha of the stress scale in this pilot study was 0.85 which is valued as a good internal consistency.

The Cronbach's alpha for the coping scale was 0.57, and for the subscales of seeking social support, passivity, spiritual connection, avoidance, positive attitude, and mixed efforts were (0.87, 0.71, 0.91, 0.81, 0.62, 0.18), respectively, the values indicate that all subscales have an acceptable internal consistency except mixed efforts. Depending on these values, all items of the mixed effort sub-scale (items number 15, 22, and 24) were removed from the scale of the coping ways for this study.

This study data was collected between March-May of 2022. Ethical approval for this study was obtained from Koya University, Faculty of Science and Health because this study is a part of a larger

study as a requirement for obtaining master's degree. For considering their safety, Participants were verbally and non-verbally informed that their participation is voluntary. They also informed about availability of mental health centers inside the city. Those who verbalized any risk (for example: Suicide) are received a phone number or address of the Sulaymaniyah mental health center, Ali Kamal Hospital or private centers for taking a psychiatric consultancy and professional helping.

For selecting the sample, some eligibility criteria were set to control who can participate in the study, in terms of inclusion criteria the subjects with age 65 or older who resident in the Sulaymaniyah city during the data collection process could be included except those who have an insight-related disorder, communication difficulties such as inability of hearing and speaking clearly.

The researcher used different tests from the Statistical Package for Social Sciences (SPSS version 20) for analysis the data for different aims. The reliability of the scales during the pilot study was assessed through Cronbach's alpha. The frequency analysis was used to calculate level of stress and determining the commonality of the coping subscales, and to analyze demographics to analyze demographics Shapiro-wilk and outlier tests in descriptive statistics (Explore) with showing Q_Q plot were handled to determine the normality distribution test of the scales. To determine the effect of independent variables with two groups on a dependent variable, Mann-Whitney U test was conducted, and Kruskal-Wallis test was used for independent variables with three or more groups.

Selecting statistical tests to analyze data depended of the normality tests. Shapiro-Wilk test was used to test the normal distribution of the data amongst the sample. The results of Shapiro-Wilk test showed that P-value for each scale and subscales was (0.001) which indicated that the whole data of the study were not-normally distributed.

3. Results

The mean age of the sample was 73.7 ± 7.5 years old with an age range between 65-92 years. More than half of them (59.3%) were located in the first age group of elderly (65-74) Young-Old: according to the classifications of [23]. Both genders were almost equally participated (201; 51%) of them were male. Their marital status was categorized into four different statuses; a large proportion of them (282; 71.6%) of them were currently married, (95; 24.1%) were widows or widowers, the divorced and not-married number and percentage were (10; 2.5% & 7; 1.8%) respectively. The majority of participants (184; 46.7%) were illiterate, and the minority of (13; 3.3%) of them had either a BSc or higher degree. (43%) of them don't have any disease, (45.2%) of them have at least a physical disease and (3.3%) of them have psychological disorders. The majority of them (60.4%) are located in the middle-economic state. A few of them (3.8%) lived in Elderly homes, and almost three-quarters of them (74.4%) have infected with COVID-19. Among all, only (54.1%) of them were vaccinated, while (51.3%have) they have lost a relative through the pandemic. Less than half (48.2%) of participants were retired. (39.3%) of them had a monthly family income between 500000-750000 IQD. A larger part (71.1%) of the sample has an active lifestyle table 1.

Table 1: Demographics of the participants (n= 394).

Demographics	Groups	Frequency (n)	Percentages (%)
Age	65-74 years old/ Young-old	234	59.4
	75-84 years old/ Old-old	120	30.5
	85 or over/ Oldest-old	40	10.2
Gender	Male	201	51
	Female	193	49
Marital status	Married	282	71.6
	Widow/widower	95	24.1
	Never married	7	1.8
	Divorced	10	2.5
Literacy	Illiterate	184	46.7
	Elementary	146	37.1

	Secondary	39	9.9
	Institute	12	3
	Bachelor	7	1.8
	Other	6	1.5
Chronic illness	Not have any disease	170	43.1
	Psychological	13	3.3
	Physiological	178	45.2
	Both	33	8.4
Economic status	Low	62	15.7
	Middle	238	60.4
	High	94	23.9
Living place	Elderly home	15	3.8
	With family	379	96.2
Afflicted by COVID-19	Yes	293	74.4
	No	101	25.6
Vaccination	Yes	213	54.1
	No	181	45.9
Losing a relative by COVID-19	Yes	203	51.5
	No	191	48.5
Job	Self-employee	54	13.7
	Retired	190	48.2
	Government servant	11	2.8
	Unemployed/housewife	139	35.3
Monthly income	1-250000 IQD	26	6.6
	250000-500000 IQD	73	18.5
	500000-750000 IQD	155	39.3
	750000 + IQD	140	35.5
Life style	Active	280	71.1
	Passive	114	28.9

Participants reported a mild level of stress (8.54±5.03).The distribution of stress among elderly shows that most of them 161/394 (42.6%) have normal stress reaction, 51 of them (12.9%) have a mild, 79 participants (20.1%) have moderate, 75/394 (19%) have severe, and 21 of them (5.3%) have extremely severe stress level table 2.

Table 2: Stress levels among participants.

	Stress		
Stress levels	**Frequency (n)**	**Percent (%)**	**Cumulative Percent**
Normal	168	42.6	42.6
Mild	51	12.9	55.6
Moderate	79	20.1	75.6
Severe	75	19.0	94.7
Extremely severe	21	5.3	100.0
Total	394	100.0	

The results of the study showed that spiritual-connection is the most common coping way among elders (17.09 ± 3.42) followed by positive attitude (10.50 ± 3.79), seeking social support (6.48 ± 3.34), avoidance (6.38 ± 3.00), and passivity (4.04 ± 3.32).

Mann-Whitney U test was used to analyze the effect of demographics with two groups on stress. The results indicated there was a statistically significant difference between groups of gender, living

place, vaccination, lifestyle and stress. In cases of gender, the median of stress among males reported higher level of stress (9) compared to females (8). Those who living in elderly hoe reports lower level of stress (3) compared to those who live with family (9). As expected, vaccination leads to reduce stress, among vaccinated group (7) and non-vaccinated (10). Those who have an active lifestyle has a lower level of stress (7.5) and (11) for passive elders. There was not a statistical difference between groups with and without COVID-19 history, losing a relative by COVID-19 in terms of stress (Table 3).

Table 3: The effect of demographics with two groups on stress.

Demographics	Sample size		Median	U test	Z-score	P value
Gender	M	201	9	17072.500	-2.061	0.03
	F	193	8			
Living place	Elderly home	15	3	1901.00	-2.181	0.029
	With family	379	9			
Vaccination	Yes	213	7	15105.00	-3.710	0.000
	No	181	10			
Lifestyle	Passive	114	11	10485.500	-5.351	0.000
	Active	280	7.5			

Results from Kruskal-Wallis test showed that age groups, marital status, literacy, family income, chronic illness, and job significantly affected how stressed they are. For age groups, there were statistical differences between all pair groups H (2) = 45.771, p=0.000. Oldest-old age group have higher median level of stress (4) than Old-old group (3) and young-old group (1). For marital status, the same test results indicated that there was a statistically significant difference between the married group with widow/widower group of marital status in terms of stress, H (3) = 8.810, p=0.032, widow/widower group reported higher median level of stress (21) than married group (17.50). The kruskal-Wallis test also pointed out that literacy significantly affected stress, H(5)= 30.686, P= 0.000, the statistical differences were between illiterate group with each secondary and elementary groups, those participants were illiterate have higher median level of stress(3) than both elementary (2) and secondary groups(1). Chronic illness also significantly affects the level of stress among elderly, H (3) =38.549, p=0.000. The differences were between the groups who have not any illness with those who have just physical illness and both (physical and psychological), those who haven't any illness have lower median stress level (1) than both groups who have just a physical illness (3) and have both physical and psychological illness (3). Economic states significantly affect stress level among elderly, H (2) =16.257, P= 0.000, the statistical differences were exist between those who located into the high economic status with both middle and low economic state groups. For high economic status have lower median level of stress (1) than both middle economic status (2) and low economic status (2.5). Monthly family income also statistically affects stress level among the participants H (3) =16592, P=0.001. The differences were between two paired groups: 1-250000 IQD with 500000-750000IQD, 750000+ IQD with 500000-750000 IQD. Those who have 1-250000 IQD showed a lower median level of stress (1) than groups with 500000-750000IQD family income group (3). Those with monthly income more than 750000 IQD (1.50) reported lower median level of stress (1.5) than the group with income of 500000-750000 IQD (3) (Table 4).

Table 4: The effect of demographics with three or more groups on stress.

Independent Variables	Df	Chi-square	p-value	Groups	Median
Age groups	2	45.771	0.000	Young-old	1
				Old-old	3
				Oldest-old	4
Marital status	3	8.810	0.032	Married	17.50
				Widow/widowed	21
				Divorced	13
				Never married	12
Literacy	5	30.686	0.000	Illiterate	3
				Elementary	2
				Secondary	1
				Institute	1
				BSc	1
				Other	1.50
Chronic illness	3	38.549	0.000	Not have any illness	1
				Physical	3
				Psychological	3
				Both	3
Economic status	2	16.257	0.000	Low E. S.	2.5
				Middle E.S.	2
				High E.S.	1
Monthly family income	3	16.592	0.001	1-250000IQD	1
				250000-500000 IQD	2
				500000-750000 IQD	3
				750000+ IQD	1.50

4. Discussion

This study found that the whole participants have a mild stress level, most of them have normal stress reaction, one fifth have moderate, near of one fifth have severe, and least of them have extremely severe stress level. Four years ago, another study used the same scale found the level of stress among retired individuals, the study showed different results in comparison to the current study when most of the participants (40%) have moderate level, (35%) had normal stress reaction, 18% had mild,(03%) had severe, and (04%) had extremely severe stress level [24]. Some factors may have role in producing these differences; among them, emerging the global pandemic after 2018, cultural differences in defining stress and in expressing emotional reaction.

The effect of demographics on stress revealed that, males have higher stress than females which is inconsistence with the results of other studies that showed a reverse result [15]. The current study found that stress level among participants who live with family where higher than those who live in elderly home, this study inconsistence with the results of the previous study [25] which showed that there was not statistical difference among in stress level between elders who lived with their family and who are in old age home. Vaccinated participant's stress level was statistically different with unvaccinated others in the interest of vaccinated elders, the same result has been found by Zheng *et al.* [26].

This current study showed that elders with active lifestyle had lower level of stress than passive elders. A 4-year longitudinal study indicted the same result which showed that activity among elders can predicts a 2 year reduction of stress and 4 year reduction of physical symptoms [27]. Illiterate group reported higher stress level than both elementary and secondary literacy groups, this result is inconsistent with what Malhotra *et al.* [28] found in their study, who showed that the elderly with higher education level (literacy) have higher stress level during the viral pandemic.This inconsistency between these studies may attribute to the differences between the role of media and scientific sources in dealing with the pandemic; the only source of illiterate people for getting information about COVID-

19 was the broadcast media or internet videos instead of print media, like magazines and newspapers. The current study also found that elders without any chronic illness show lower level of stress; this result is exactly congruent what have been found in another previous study [29]. Oldest-old age group (85 year or older) in the current study, showed the highest level of stress than other age groups. Although elderly age groups was not categorized like the current study and the samples were selected purposively, a reverse result were found in a study which showed that elders with persistent pain aged over 81 showed lowest stress level than other age groups(61-70, 71-80) [30].Widow/widower participants in the current study reported the higher stress level than other participants, it may because they lose their support: in contrast, a previous study showed that married elders have more stress than widow participants[31]. In this study, the Participants with high economic state showed lowest stress level, the cause may be attributed to their economic ability for meting their healthy needs during the pandemic. Depends on the researcher's searching, no studies in the past explained the effect of economic states on stress level among elderly.

This study also indicated that the most common coping ways among participants were spiritual connection followed by positive attitude, similar to previous study [32] with nearly the same result; the majority of elderly (86.7%) used the positive ways of coping to manage the impact of the current pandemic.

The differences between this study and previous studies may attributed to some factors, like cultural background, health system in the study area, environment, social support, the role of media, Hawthorne effect, religious background, and respondent's attention at the time of the interview.

The times of the study can make a difference itself, because during the previous studies there was not a special crisis event, while emerging COVID-19 and knowing them as a pandemic by WHO is a global stressful event that created many differences in the world and affects human activities and their sensitivity toward their health. Culturally, the majority of Kurdish people have a great respect toward their parents and grandparents. Hereby, a family support will produce in result. This view may came from the Islamic perspective that showed in Quran verses and Sunna, like what the Lord said in Sura AL-ISRA, verse 23" Your Lord has ordered you to worship none except him, and to be good to your parents. If either or both of them attain old age with you, do not say "Fie on you", nor rebuke them, but speak to them with words of respect", and in the same Sura next verse (24) the Lord advices us how to pray for them" and lower to them wing of humbles out of mercy and say: "My Lord, be merciful to them, as they raised me since I was little." [33]

Having different economic status and health system among different countries may produce different results compare to the previous studies, especially lack of medical services in public hospitals during the pandemic in Kurdistan Region of Iraq.

Different crises in the last decade in Kurdistan may affect elder's quality of life and their psychological hardiness. Haven't regular monthly salary and enough medical services for them may have role as well, the most recent example for their quality of life is justifies by freezing to death two elders in a cold night in the winter of 2022 while they were staying out to taking their salary soon.

5. Conclusions

Results of this study are the first and foremost way to share elder's unexpressed messages; it also can be a way for verbalizing their unspoken feelings. These results may also inform the elder's caregivers that elder's stress level and illness anxiety was not very high, strengthening their social support and spiritual connection may help them to reduce their distress into a lesser degree. This study results may also send a message to all elders in the area and their caregivers that getting active, got vaccination may help elders to reduce their level stress and illness anxiety.

This study is limited in the generalizability of its results because of the sampling method, as well as has some other limitations: First; haven't official places for conducting the interview to overcome the interrupting sounds. Second; some participants paid more attention to their surrounding during data collection process, and some of them verbalized the social stigma effect. Hereby, some elders were looking like reluctant about choosing their most appropriate answers to some questions, especially

among illustrated ones. Third: the time of the interview. Because some participants were interviewed during taking their retirement salary or in mosque, their business may create a lumper to giving enough time and attention to full understanding the questions and their meanings. Fourth: Some variables (like: economic status, life style) were measured by a simple dichotomous question because elders may be bothered by bombard with questioning. A scale could be used to measure them as a main variable. Fifth: small geographical area may affect elder's responds because of having different health services and social interactions among different cities in KRI. Other researchers recommended to expanding the research area.

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