



Original Article

Coping Strategies Associated with Depression and Anxiety in Older Adults During the COVID-19 Pandemic

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ABSTRACT

Background: How older adults cope with negative emotional states in the midst of the COVID-19 crisis needs further investigation because elderly individuals are more vulnerable to and more severely affected by COVID-19 health conditions. This study aims to explore the level of depression and anxiety, determining how they correlate to coping strategies, and the effect of some demographics on the main variables.

Method: This study gathered data between March and May of 2022 among adults aged 65 and above who lived in Sulaimaniya city during the data collection process. The first two subscales of the DASS-21 scale were used to measure geriatric depression and anxiety. Furthermore, determining coping ways depended on a scale developed by the second author of this study.

Results: the results demonstrated that participants showed a moderate anxiety level ($M=4.33$; $SD=3.62$) and depression ($M=6.39$; $SD=4.74$). Regarding the prevalence of their coping methods, spiritual engagement was the most widely practiced coping mechanism. Spearman's rho correlation indicated a positive association between anxiety and coping subscales of passivity and avoidance, $r(392)=[.308]$, $[P=.000]$; $r(392)=[.019]$, $[p=.703]$ respectively. An inverse significant correlation was found between depression and coping subscales of spiritual connection, $r(392)=[-.318]$, $[P=.000]$, seeking social support $r(392)=[-.150]$, $[P=.003]$, and positive attitude $r(392)=[-.224]$, $[P=.000]$. The mediation analysis reveals that social support didn't significantly mediate the relationship between anxiety and depression.

Conclusion: The psychological well-being of older adults is impacted by viral diseases. It is essential to understand how individuals can cope with the psychological consequences of a communicable pandemic. Their moderate levels of depression and anxiety may be decreased more through using spiritual engagement, positive attitude, and social support seeking, while passive coping ways, such as avoidance and passivity, are negatively correlated with them.

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Keywords: Geriatric, Depression, Anxiety, Coping, Kurdistan.

1 Introduction

Coping strategies of the geriatric population with their internalized emotional distress amid the COVID-19 pandemic are not yet sufficiently elucidated. Their declining immunity, pre-existing health conditions, and higher mortality risk make older adults disproportionately affected by the COVID-19 pandemic compared to other age groups ^[1-4]. Older adults' emotional responses to the stressful pandemic can be more concisely understood through the lens of the appraisal theory of stress and

coping. According to appraisal theory of stress, individuals assess demands passed through two main stages of appraisal in order to decide whether it becomes a stressful situation. Firstly, the individual assesses the size and threat level of the demand (primary appraisal). Secondly, s/he attempts to assess his/her coping resources (Secondary appraisal) ^[5]. During the primary appraisal, the threat may be related to health, finance, work...etc. while secondary appraisal considers evaluating the cognitive and behavioral efforts they can do to cope with the stressful situation. Turning to the COVID-19 pandemic, older adult's emotional distress may particularly stem from their worries related to health, social isolation, and daily routine impairment. To manage this concern, secondary appraisal guided people either to problem focused coping or to solution focused coping. Hereby, coping

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strategies play a critical role in managing the emotional consequences of stress (depression & anxiety). Viewing the pandemic through this theoretical framework provides a deeper insight to older adults about how and why they experience emotional distress and cope with the pandemic.

Evidence from previous studies indicated that older adults encountered the highest mortality risk due to the epidemic, which were 15.4 folds higher among those 50 years old and above compared to those younger than 50 years old [6-9]. In certain countries, where the risk attains approximately 80-90% [10, 3], older adults are more susceptible to experience emotional distress [11].

Although Andreas and friends showed conflicting findings about geriatric mental health problems [12], emerging pandemics and communicable diseases are associated with increased psychological distress [13]. In the context of pandemic, cross-national studies in the immediate aftermath examined the risk factors and psychological consequences of the pandemic. Across age groups, scholars found inconsistent level of distress and coping strategies [14-16].

Globally, the level of anxiety, depression, and coping strategies varied across regions. In Italy, for instance, 54% of old adults experienced different depression levels (37% mild, 12% moderate, 4% moderate-to-severe, 1% severe level of depression), while 61% had anxiety (45% mild, 11% moderate, 5% severe level). Both negative emotional states were negatively correlated with coping strategies [17]. Vannini and colleagues indicated that constructive coping strategies (reframing the challenge positively & non-judgmental acceptance) represented the most prevalent coping ways in the geriatric population [18], while other studies explored the role of physical exercises in mitigating the negative psychological impact of the viral pandemic [19].

Similarly, in Iraq, a study found that depression and anxiety prevalence among old adults in the capital city who live in Nursing homes was 35.4%, 32.6%, respectively, which is higher than those living with family [20]. In Kurdistan, the only study on old adults was found them to have a mild stress level, and spiritual connection was the most utilized coping way [21].

The first case afflicted by the viral disease in the Kurdistan Region was confirmed in the early days of March 2022 from Sulaimania city, which was an old man who visited a neighboring country to seek medical services [22]. Soon afterward, older adults were strongly advised to adhere to health guidelines because of their increased vulnerability. After the authors' comprehensive literature search about post COVID-19 prevalence of depression, anxiety, and coping strategies, no studies were found on geriatric participants in this context. Due to the nature of their work, most regional studies examined the psychological consequences of the pandemic among health-care providers [23, 24]. Consequently, these findings motivate national scholars to investigate the geriatric emotional responses and their

coping strategies amid the pandemic. This study's findings provide families with more specific and concise information about older adults' emotional reactions and recognizing the effective coping strategies. The results also help clinicians who work with older adults to attain a deeper and more knowledgeable insight about tailoring their treatment plans in alleviating their negative emotional reactions. In addition, the results assist adults to gain a higher awareness level about their emotional reactions and risk factors, and identify their own effective coping strategies. This study aims to assess depression, anxiety, coping levels, and to explore the association between negative emotional responses and different coping patterns among non-clinical sample. The study also seeks to find out the mediating role of social support coping subscale between anxiety and depression.

2 Methods and Materials

2.1 Population and subjects

The study's data were collected during conducting a larger study between March and May of 2022. Number of old age people (65 and above) who lived in Sulaimania city during data collection process according to Sulaimania Statistics Office, were estimated by 44849, therefore the sample size was calculating according to a table for a known population number [25]. Accordingly, 380 subjected were required to be a part of the study sample.

Few inclusion criteria were needed to fulfill in sample selection. These criteria were as follows:

- Not having insight-related disorder and communication difficulties,
- They should be 65 years or older
- Reside in Sulaimania city during the interview.

Finally, 394 elders who met inclusion criteria answered the questionnaires. Regarding Ethical consideration, ethic committee of the Faculty of Science and Health at Koya University allowed this study to be conducted after passing through ethical approval criteria. Elders who were at risk of self-harm and suicide were referred to the treatment centers in the city.

2.2 Measures

The first DASS-21 two subscales were used to measure depression and anxiety [26]. Each sub-scale contained seven items. Scores range were from "0= did not apply to me at all" to "3= most of the time". The final total score for both scales was calculated by the sum of the obtained scores. The level of these negative emotions ranges from normal to extremely sever based on the scores.

Determining coping ways depended on a 24-item scale which is divided into six subscales of (Spiritual Connection, passivity, and positive attitude (5 items for each), each subscale of avoidance, seeking social support, and mixed effort has just three items). Response options were varied from 0= never to 4= always. The

commonality of the coping ways determined by the score, which subscale recorded the highest score, it represents the most common coping way^[27].

After translating the first two scales, selected through convenience sampling method, 35 participants participated in the pilot study. The Cronbach's alpha of depression and anxiety scale were 0.82 and 0.71 respectively. The coping scale was originally developed in Kurdish language. Cronbach's alpha for coping subscales was: seeking social support = 0.87, passivity = 0.71, spiritual connection = 0.91, avoidance = 0.81, positive attitude = 0.62, and mixed efforts = 0.18. Because of low alpha level, the last subscale was dropped from the scale in this study.

2.3 Statistical analysis

Various tests from Statistical Package for Social Sciences (SPSS version 20) were used for data analysis. Cronbach's alpha was used for determining scales' reliability. The levels of depression,

anxiety, coping, and analyzing demographics were tested through frequency. Normality tests for the scales were handled through Kolmogorov-Smirnova and Shapiro-Wilk test. The correlation between main variables was revealed through Spearman correlation test. Mann-Whitney U test and Kruskal-Wallis tests were implemented to calculating the effect of the demographics on the main variables. Finally, The PROCESS macro 5.0 for SPSS (www.afhayes.com) was used to test mediation by social support and spiritual coping between climate change anxiety and health anxiety.

3 Results and Discussion

3.1 Normality tests

Both Kolmogorov-Smirnova and Shapiro-Wilk tests showed that depression, anxiety and coping subscales was not normally distributed among the sample. Table 1 shows more details.

Table 1: Normality Tests.

Variables		Normality test					
		Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
	Depression	.107	394	.000	.946	394	.000
	Anxiety	.115	394	.000	.916	394	.000
Coping methods	Seeking Social Support	.091	394	.000	.962	394	.000
	Passivity	.163	394	.000	.852	394	.000
	Spiritual connection	.195	394	.000	.697	394	.000
	Avoidance	.094	394	.000	.971	394	.000
	Positive Attitude	.092	394	.000	.981	394	.000
a. Lilliefors Significance Correction							

3.2 Descriptive analysis

Participants from age range were from 65-92 years with their mean age was 73.7 (SD $\pm$ 7.08). Almost equal participation for both genders has been seen (193: 49%) of them were females. Concerning their marital status, (282: 71.6%) of them were married during the data collection process, the majority (184:

46.7%) of them were located into the illiterate literacy group. As regard to their health, most (178: 45.2% of them had at least a physical disease, while (13: 3.3%) had a psychological disorder. The large proportion (238: 60.4%) of them was lived with a middle economic state; only (15: 3.8%) of them were resident in elderly homes. Table 2 includes more details about their demographics.

Table 2: Demographic Analysis.

Demographics	Groups	Frequency	Percentages
Age	65-74: Young old	234	59.4
	75-84: 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	healthy	170	43.1
	Psychological disorders	13	3.3
	Physiological diseases	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

3.3 Depression, anxiety and coping

Participants reported a moderate level of both depression and anxiety ($M=6.29$: $SD \pm 4.74$), ($M= 4.33$: $SD \pm 3.62$) respectively.

Considering Coping strategies, Spiritual connection gets the highest mean, followed by Positive attitude, seeking social support, avoidance, and passivity ($M=17.09$: $SD \pm 3.42$, $M=10.51$: $SD \pm 3.79$, $M=6.49$: $SD \pm 3.34$) respectively. Table 3.

Table 3: Depression, Anxiety, and Coping level.

	Depression	Anxiety	Coping methods				
			Seeking Social support	Passivity	Spiritual connection	Avoidance	Positive Attitude
Mean	6.29	4.33	6.49	4.04	17.09	6.39	10.51
SD	4.74	3.62	3.34	3.32	3.42	3.00	3.79

N= 394

3.4 The correlation between anxiety and depression with coping methods

Using Spearman's rho correlation, a positive association were found between anxiety and passivity $r(392) = [.308]$, [$P=.000$], as well as between anxiety and avoidance $r(392) = [.019]$, [$p=.703$]. While there are negative correlations between anxiety and seeking social support, spiritual connection, and positive attitude $r(392) = [-.118]$, [$P=.019$]: $[-.130]$, [$P=.010$]: $[-.367]$, [$P=.000$] respectively.

The same correlation test also indicated a positive correlation between depression with both passivity $r(392) = [.316]$, [$P=.000$] and avoidance $r(392) = [.084]$, [$P=.095$], and a negative correlation between depression and all other coping subscales of

spiritual connection $r(392) = [-.318]$, [$P=.000$], seeking social support $r(392) = [-.150]$, [$P=.003$], and positive attitude $r(392) = [-.224]$, [$P=.000$].

3.5 The effect of demographics on anxiety and depression

Mann-Whitney U test results explored a statistically significant difference between groups of gender, vaccination, life style with anxiety. Females reported higher anxiety ($Mdn=4$) than males ($Mdn=3$). Non-vaccinated elders showed more anxiety level ($Mdn=5$), while Median level of anxiety among vaccinated group ($Mdn=4$). Anxiety among elders with passive lifestyles was higher ($Mdn=6$) than active lifestyle followers ($Mdn=3$). (Table 4) embraces U test value, Z-score, and P-value. Not statistically significant differences were found between demographic variables with depression.

Table 4: Mann-Whitney U test results.

Demographics	Sample size		Median	U-test	Z-score	P value
Gender	Female	193	4	17039.500	-2.097	0.036
	Male	201	3			
Vaccination	Yes	213	4	16863.000	-2.154	0.031
	No	181	5			
Life style	Active	280	3	9600.500	-6.239	0.000
	Passive	114	6			

3.6 The effect of demographics on depression and anxiety

Results from Kruskal Wallis test proved a statistically significant difference between groups of literacy, chronic

illness, economic state, and job with depression. Groups of illiterates, having physiological and psychological illness, low economic state, unemployment reported the highest depression level. Table 5.

Table 5: Kruskal Wallis Test Results.

demographics	Df	Chi-square	p-value	Groups	Mean Rank
Literacy	5	31.433	0.000	Illiterate	230.77
				Elementary	171.86
				Secondary	161.91
				Institute	131.46

				BSc	173.43
				Other	192.42
Chronic illness	3	66.332	0.000	Not have any illness	152.21
				Physical illness	215.80
				Psychological illness	262.15
				Both	306.67
Economic state	2	10.741	0.005	Low	220.23
				Middle	204.19
				High	165.56
Job	3	14.658	0.002	Self-employee	166.78
				Retired	185.02
				Government servant	219.18
				unemployed/housewife	224.78

A statistically significant difference was also found between groups of marital status, literacy, chronic illness, economic state, and job with anxiety. Groups of widow/widower, illiterate, both

physiological and psychological illness, low economic state, unemployment/ house wife reported the highest level of anxiety. Table 6.

Table 6: The effect of demographics with three or more groups on anxiety.

Demographics	Df	Chi-square	p-value	Groups	Mean Rank
Marital State	3	10.494	0.15	Married	188.16
				Widow/widower	227.56
				Divorced	214.10
				Not married	142.21
Literacy	5	22.963	0.000	Illiterate	225.24
				Elementary	177.22
				Secondary	164.38
				Institute	153.75
				Bachelor	137.07
				Other	213.75
Chronic illness	3	62.609	0.000	Not have any illness	152.47
				Physical illness	221.75
				Psychological illness	191.73
				Both	300.95
Economic state	2	8.664	0.014	Low	227.90
				Middle	198.98
				High	173.69
Job	3	17.939	0.000	Self-employee	155.24
				Retired	188.93
				Government servant	184.95

				unemployed/housewife	226.63
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3.7 The mediating role of social support between anxiety and depression

The mediation analysis reveals that social support didn't significantly mediate the relationship between anxiety and depression. Whereas anxiety has a significant negative association with lower social support, the mediating variable "social support" was not statistically related to depression ($p = 0.128$). Correspondingly, the indirect effect of anxiety on depression through social support accounts for only 1.56% of the total variance, whereas the direct relationship between anxiety and depression remains strong and statistically significant ($p < .001$). These results suggest that the association between anxiety and depression is essentially direct instead of transmitting the relationship via social support. Figure 1.

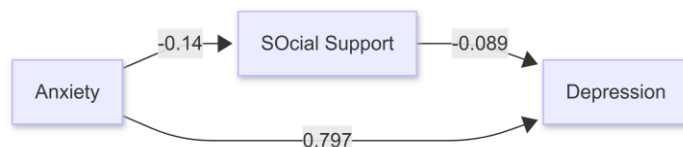


Figure 1: the mediating role of social support between anxiety and depression.

4 Discussion

This study aimed to examine the levels of depression, anxiety, and coping among older adults during the Covid-19 pandemic in Sulaimanyia city in Kurdistan Region of Iraq. Participants experienced moderate level of both depression and anxiety. This is inconsistent with the previous results found in different countries. Das et al., (2021) [14] found that elderly showed lower levels of anxiety and depression, while another study reported high levels of anxiety and depression among elderly [28]. Other studies found that since lockdown, some of the elderly negative feelings are getting worse [29]. These diverse results might be explained though considering various factors, including; the efficiency of medical care services in the city, the level of the pandemic when the studies were conducted, and other cultural factors related to old adults' circumstances. Similarly, their appraisal, interpretation, and coping response to the pandemic may be associated with their distress level.

Females reported higher anxiety level than their counterparts. Though discrepancies may be seen with other populations in the same area [30], this result is aligned with what found in the previous studies which reported higher anxiety level among women during the pandemic [31, 32]. Potential interpretation explaining why women have higher anxiety level include cultural expectation about emotional expression, gender-based caregiving and health related sensitivity. Other studies did not find gender to be a factor in depression and anxiety levels of old adults during covid-19 pandemic [33]. This suggests that cultural beliefs and

expectations shape gender emotional expression, appraisal to the threat, and coping ways which influence how each gender reacts to the pandemic in the result.

As expected, non-vaccinated group was more anxious compared to the vaccinated group in the current study. This finding is aligned with the previous study by Chen, Aruldass, and Cardinal [34] who reported similar results in US adult population. Studies show that older groups psychologically feel more relieved after vaccination, compared to other groups [35-38]. Apparently, vaccination offers a level of feeling protected from being affected by this virus. Hereby, vaccination is not only protecting older adults from the physical consequences of the pandemic, but also helps reducing their anxiety level due to the pandemic. According to the appraisal theory, vaccination may be seen as a source of coping during their second appraisal that leads to alleviating their emotional distress.

Consistent with the previous findings [38], this study showed that elders with a passive lifestyle reported higher anxiety levels than those engaging in an active lifestyle. This is a thought-provoking alignment, supporting the belief that physical activities may assist even elderly people to manage their emotional distress when facing a stressor, especially when perceiving the active lifestyle as a managing resource.

With respect to coping styles prevalence, spiritual connection was the most frequently used strategy among the sample, followed by positive attitude, social support seeking, avoidance, and passivity, respectively. Thomas and Barbato [39] found that positive religious coping among Muslims was reported at a high level. Similarly, other researchers emphasized the role of religious activities as an effective coping strategy in older adults' daily life [40]. Other studies mentioned that religious practice may have different roles in the elderly's lives, like a protection factor and a coping factor, during the COVID-19 pandemic [41]. Using spiritual connection as a means of coping in the elderly might be an extension of using these coping strategies in Kurdish Muslim adolescents and young adults [42, 43]. Previous studies indicated that certain ways of coping (such as non-judgmental acceptance and positive cognitive) were the most widely used during the COVID-19 pandemic by older age group [18]. These cross-cultural consistencies support the Kurdish traditional notion that religious practice and spiritual connection play a great role in emotion regulation, especially during stressful situations. Correspondingly, Kurdish Elders, like their peers in the diverse cultures and countries, may seek a deep sense of meaning, resiliency, and purpose in their religious practice and spiritual bond that alleviates their reaction to their life crisis. Finding meaning and purpose in their spiritual connection could affect older adults' evaluation of their own coping resources and lead them to seek the positive or neutral side of the stressful events. Thus, spiritual connection affects how they appraise the pandemic (primary appraisals) and how they manage the negative emotional consequences of the pandemic (secondary appraisals).

The present study indicated a positive correlation between anxiety and passivity and avoidance coping patterns. Previous studies also found anxiety in elderly to be positively related to avoidance [44-46]. Both passivity and avoidance as a maladaptive coping method are short-term relievers, with continuous crisis it leads to amplify and cumulating the negative emotions.

A negative association was found between anxiety and seeking social support, spiritual connection, and positive attitude coping ways. It has been known that social support is an effective source for both preventing and regulating anxiety feelings among older adults [47]. Studies also showed that spirituality is negatively associated with anxiety in Muslim older adults [48]. The current study also found that depression positively correlated with both passivity and avoidance, and inversely correlated with all other coping subscales. Previous studies found spirituality to be related to depression [49]. Similar results were found among Muslims [39, 50]. Seeking social support and a positive attitude were inversely related to elders' depression. Although social dysfunction was common among people during the COVID-19 pandemic [51], other studies found social support to be negatively associated with depression [52, 53]. Thus, correlation is found in this study between anxiety and depression, and various coping ways were supported by previous studies on a similar population. Culture, religion, socializing, and positive attitude across different countries may show the same effects in reducing anxiety. Adaptive coping strategies are not easy to implement at first, but it is helpful later in managing negative emotions. In contrast to the maladaptive coping strategies, which are just focused on temporarily relieving, these coping strategies provide both emotional and cognitive resources for regulating their negative emotions.

Older adults who were illiterate, having physiological and psychological illnesses, low economic state, and unemployment reported the highest depression level compared to their counterparts. Previous study indicated that illiterate older adults experience higher depression level [54]. Similarly, since the 1990s, studies found depression to be related to physical illness [55, 56], low economic status [57], and unemployment [58, 59]. These similarities between the current study results and previous results could support the notion that both material and personal factors may play a significant role in reducing depression among older adults when facing a challenge. Illiteracy may limit older adults' ability to access scientific COVID-19-related information. In this case, the only way to reach information is from the media, which negatively affected their mood and health [60]. Having a physical and psychological illness increases one's vulnerability to depression, because their health-related interpretations may influence the pandemic as a current health threat. Unemployment, economically and mentally, increases the risk of being worried about the challenge, hence, disturbing their mood as a result.

Although some studies found widowhood to be related to anxiety and depression [61], our study found it to be related to anxiety only. This result is consistent with some of the previous studies that

found widowhood and marital status to be related to anxiety [62, 63]. The discrepancy might be due to the timing of widowhood. Some studies were conducted after few months of widowhood but this study did not address the timing of widowhood.

The study results also demonstrated that social support didn't significantly mediate the relationship between anxiety and depression. Although no published study could be found that examined the mediating role of social support between depression and anxiety among the elderly, the mediating role of coping mechanisms was tested between adolescents' depression and anxiety. The results found that coping mechanisms play a critical mediator between depression and anxiety among adolescence [64]. The nature of the support may vary across different age groups. The strong bond and comorbidity between anxiety and depressive symptoms may not be affected by one coping pattern alone.

Conclusion

Historically, Pandemics have a psychological impact on the older adult's well-being. It's important to detect how they can cope with the psychological consequences of a communicable pandemic. This study addressed how older adults could cope with depression and anxiety during the crisis of COVID-19. Their moderate levels of depression and anxiety may be decreased more through using spiritual connection, positive attitude, and seeking social support coping strategies, while Passive coping ways, such as avoidance and passivity, negatively correlated with both depression and anxiety. This study has some limitations, such as: including adults from just one city in the region; the majority of the participants were Muslims. Future researchers may expand the geographical area of the study by including different religions.

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Conflict of interests

The corresponding author declares no conflicts of interest.

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