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Research article

# Relationship of stigmatization and social support with depression and anxiety among cognitively intact older adults

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ABSTRACT

*Aims and objectives:* This study aimed to assess depression and anxiety symptoms among older adult residents of long-term care facilities (LTCFs) in Jordan and to examine the relationships between stigmatization and social support with depression and anxiety.

*Methods:* Data was collected between December 2019 and March 2020 using a cross-sectional design. A total of 90 LTCF residents responded to measures of cognition, anxiety, depression, stigmatization, and social support. Descriptive statistics and multiple regression analyses were used in this study.

*Results:* The average scores of depression and anxiety were high among the participants, with 81.1% of the participants found to be at risk of developing clinical depression. Stigmatization was positively correlated with depression and anxiety, whereas social support was negatively correlated with depression. Stigmatization was a significant predictor of both anxiety and depression scores ($\beta = .19$, $p = .03$; $\beta = .32$, $p = .001$, respectively).

*Conclusions:* Older adults residing in LTCFs in Jordan suffer from many psychological distress symptoms, which place them at risk of serious mental problems. Reducing stigmatization would improve the psychological well-being of LTCF residents.

*Relevance to clinical practice:* Caregivers working at LTCFs should be aware that with the longer stay, older adult residents are expected to complain of psychological distress symptoms. Thus, frequent assessment of the residents is highly recommended. In addition, caregivers should provide the residents with appropriate social support to mitigate the negative impact of a lengthy stay.

## 1. Introduction

With the geriatric population worldwide growing rapidly, the prevalence of several health problems is expected to increase among this vulnerable group of people (World Health Organization [WHO], 2019). Psychiatric health problems can have significant negative impacts on the lives of older adults (Skoog, 2011), with depression, dementia, and anxiety being the most common psychiatric problems among older adults (Seitz et al., 2010; WHO, 2019). In the United States (US), it was found that 18.2% of older adults suffer from psychiatric health problems, with females being more affected than males by mood disorders (Reynolds et al., 2015). Further, several studies have reported anxiety and depression disorders as being the most prevalent psychiatric problems among older adults (Canuto et al., 2018; Reynolds et al., 2015; Schneider and Heuft, 2012).

Seitz et al. (2010) found that the prevalence of anxiety and depression is higher among older adults living in LTCFs, as compared to community-dwelling older adults. Among the other factors that contribute to the high prevalence of anxiety and depression in older adults is the presence of physical conditions (Moser et al., 2010). Loneliness, attachment anxiety, perceived isolation, and being a male also contributed to increased levels of depression and anxiety (Arunrasameesopa et al., 2021; Santini et al., 2020; Stivers, 2020). In addition, stigmatization is strongly related to depression and anxiety (Yilmaz and Dedeli, 2016). Stigma is defined as a negative attribute perceived by people (Tosangwarn et al., 2017) and can be classified into three types: self-stigma, courtesy stigma, and public stigma (Werner, 2008). The current study focuses on self-stigma, which refers to attributing negative perceptions or beliefs to oneself (Gaebel et al., 2017).

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Self-stigma is a very prevalent issue among older adults residing in LTCFs (Tosangwarn et al., 2017), and several studies have shown that institutionalization in LTCFs is associated with high levels of self-stigmatization (Gaebel et al., 2017; Tosangwarn et al., 2017; Werner, 2008). For example, according to Werner (2008), older adults perceive living in LTCFs (e.g., nursing homes) to be comparable to living in a prison. Self-stigma is associated with negative psychosocial outcomes, which include low self-esteem, social withdrawal, self-harm, suicidal ideations and attempts, anxiety, and depression (Gaebel et al., 2017; Tosangwarn et al., 2017). To our knowledge, in Jordan, no study has examined self-stigma among LTCF residents and how it relates to their psychosocial outcomes. Examining these relationships is crucial for the development of supportive and educational interventions and for improving the psychosocial well-being of LTCF residents (Tosangwarn et al., 2017).

In a society that is governed by norms of respecting the elderly, there are, nevertheless, people who reside in LTCFs. Jordanian LTCF residents have a unique situation of presumed lack of familial support which may be negatively related to their mental state. Older adults in Jordan have been admitted to the LTCFs for several reasons including their family's preference, disability, or absence of a caregiver (Al-Qudah, 2011). Even though Jordanian culture and familial structure endorse positive ageist attitudes and behaviors, negative ageism is still evident among younger groups of Jordanian society (Rababa et al., 2020).

Jordanian older adults residing in LTCFs are suffering from a wide range of physical and mental health problems (Almomani and Bani-Issa, 2017). These problems could be explained partially by a lack of proper care. Depression, in particular, is a widespread mental health problem among older adults in Jordan (Almomani and Bani-Issa, 2017; Hayajneh et al., 2020). Moreover, depression and anxiety have been linked with the deterioration of cognitive ability among older adults (Rodda et al., 2011; Skoog, 2011; Yazdkhasti, 2010). Additionally, anxiety has been found to increase the risk of ischemic heart disease and stroke (Skoog, 2011) and reduce the quality of life among older adults (Canuto et al., 2018). Moreover, depression and anxiety were found to be associated with an increased risk of disability and death (Rodda et al., 2011). Further, Kang et al. (2017) found the comorbidity of depression and anxiety to be associated with the occurrence of several physical illnesses, including heart diseases, visual impairment, respiratory disorders, and gastrointestinal problems, which consequently contribute to disability in older adults.

Several variables can act as protective measures against depression and anxiety in older adults. Fiske, Wetherell, and Gatz (2009) found that higher educational levels, higher socioeconomic status, engagement in valued activities, and spiritual and religious practices may prevent the occurrence of depression among older adults. Furthermore, performing physical exercise along with receiving pharmacological treatment has also been shown to help reduce depressive symptoms (Mura and Carta, 2013). Physical exercise has been associated with lower levels of depression and anxiety among older adults (Teixeira et al., 2013). Fiske et al. (2009) suggested that improving health literacy, behavioral activation, cognitive reconstruction, and group support were some of the interventions that could be implemented to prevent the occurrence of depression among older adults.

Social support has been found to buffer the effects of functional decline in older adults and hence lead to the reduction of depression and stress (Muramatsu et al., 2010). Moreover, high levels of social support among older adults were found to decrease depressive symptoms and discomfort related to the presence of multiple physical illnesses (Melchiorre et al., 2013). The evidence shows that females are more likely to seek emotional support, while males tend to seek tangible support (Grav et al., 2012). Low levels of social support have also been associated with psychological distress among older adults, and functional decline, such as hearing loss, may deprive older adults of receiving appropriate social support (Bøen et al., 2012).

Depression and anxiety are highly prevalent among older adults. However, few studies have examined how stigmatization relates to these psychological problems. In addition, there is a need to explore the relationship between depression and anxiety with social support among older adults residing in LTCFs. Furthermore, only one study has provided data on the prevalence of depression and anxiety among older adults in Jordan, with the results indicating a high prevalence among a cohort of Jordanian nursing home residents and a significant association between these psychological problems and poor quality of life (Al-Amer et al., 2019).

Thus, the purpose of the current study was to explore how stigmatization and social support are related to depression and anxiety among older adult LTCF residents in Jordan. The specific aims were:

1. To assess depression and anxiety symptoms among older adult LTCF residents in Jordan.
2. To examine the relationship between stigmatization and depression and anxiety among older adult LTCF residents in Jordan.
3. To examine the relationship between social support and depression and anxiety among older adult LTCF residents in Jordan.

### 1.1. Study hypotheses

It is hypothesized that depression and anxiety will be high among older adult LTCF residents in Jordan. Stigmatization is expected to be positively related to anxiety and depression, while social support is expected to have a negative association with anxiety and depression among older adult residents of LTCF in Jordan.

## 2. Methods

### 2.1. Design

A cross-sectional design was used to describe depression, anxiety, stigmatization, and social support among older adults residing in LTCFs in Jordan. Data collection started in December 2019 and ended in March 2020. Data was collected from 6 LTCFs in Amman, the capital city of Jordan.

### 2.2. Sample and setting

The participants were recruited conveniently from four public and two private LTCFs in Amman, Jordan. The city of Amman was selected by convenience as it is where most of the LTCFs in the country are located. The average bed capacity of these LTCFs is 250 beds, with 55% of the total residents being female and 68% being aged 60 years or over. All six LTCFs are regulated by the same administrative director, who is appointed by the Jordanian Minister of Social Development. The LTCFs are located in ethnically and culturally homogenous areas of Amman. Drawing from the same ethnic and cultural population limits generalizability but controls for some potential confounding effects. The inclusion criteria were being an LTCF resident aged 60 years or older, cognitively intact (as indicated by the cognitive assessment measure used in this study), Arabic-speaking, free of hearing impairments, and able to give consent. Those who were cognitively impaired were excluded from the study. After obtaining consent from the participants, one of the research assistants distributed the study questionnaires to collect the study data. The original questionnaires were initially translated from English into Arabic by a panel of bilingual experts, and the Arabic versions were then translated back into English by another bilingual expert. Then, the original English versions were compared to the back-translated versions to check for consistency, coherence, and comprehensibility, and they were found to be compatible. Using G*Power (Erdfelder et al., 1996) with a significance level of .05, a power level of .80, and a small to medium effect size set a priori, the proposed total number of participants was 155, after the addition of a 15% drop-out rate.

## 3. Measurements

### 3.1. Cognitive ability

The cognitive ability of the participants was measured using the Mini-Cog test (Borson et al., 2000), which comprises three items that measure two main cognitive tasks: an item recall task (0–3), and a clock drawing task (CDT). If the subject can recall all three items, he/she is classified as non-demented, but if the subject is unable to recall any of the three items, then he/she is classified as demented. If the score for the first task is between 1-2, the classification will depend on the CDT as follows: an abnormal drawing indicates dementia, and a normal drawing indicates no dementia. The Mini-Cog is a powerful measure of cognitive ability, with a sensitivity of 99% and a specificity of 93% (Borson et al., 2000).

### 3.2. Demographic and medical characteristics

Data on age, sex, marital status, level of education, length of stay (LOS) at the nursing home, religion, visitors, and chronic physical illnesses were collected by a research assistant through face-to-face interviews using a questionnaire developed by the researchers.

### 3.3. Depression

The Center for Epidemiological Studies–Depression Scale (CES–D), developed by Radloff (1977), was used to assess the participants' experiences of depressive symptoms during the preceding week. The CES-D comprises 20 items which are scored on a 4-point Likert scale ranging from *"Rarely or none of the time"* (0) to *"Most or all of the time"* (3). The total possible score ranges from 0 to 60, with a higher score indicating a greater level of depression. The cutoff score of 16 is indicates significant depression. The CES-D has demonstrated very good validity and reliability in different studies, and Cronbach's α ranged from .85 to .90 in the original study (Radloff, 1977). In this study, Cronbach's α for the Arabic version of the CES-D scale was .68.

### 3.4. Anxiety

The Geriatric Anxiety Scale (GAS), developed by Segal et al. (2010), was used to assess the participants' anxiety during the preceding week. The GAS is a self-reported 30-item questionnaire, and items are scored on a 4-point Likert scale ranging from *"Not at all"* (0) to *"All the time"* (3). The total score is based on the first 25 items, which are classified into three subscales (cognitive, somatic, and affective). The last five items assess the respondents' financial status, general health, concern about their children, fear of death, and fear of being a burden to others. The total possible score ranges from 0 to 75. The GAS has shown very good convergent and construct validity among a group of older adults, with Cronbach's alpha values of .93 for the total scale and .90, .80, and .82 for the cognitive, somatic, and affective subscales, respectively (Segal et al., 2010). In this study, Cronbach's α for the Arabic version of the total scale was .91.

### 3.5. Stigmatization

The Arabic version of the Internalized Stigma of Living in a Care Home (AIS-LCH) scale was used to measure the participants' levels of self-stigmatization. The AIS-LCH was adapted from the Arabic version of the Internalized Stigma of Mental Illness (ISMI) scale (Kira et al., 2015), which was used to measure self-stigma among Arab refugees living in the US. The original ISMI scale has 29 items, with four possible responses (1 = "strongly disagree" to 4 = " "strongly agree") for each item. The total possible score of the ISMI scale ranges from 29 to 116, with higher scores indicating greater levels of self-stigma. A Cronbach's α of .94 was reported for the ISMI scale (Kira et al., 2015). Multiple versions of the ISMI scale have been developed in several languages to measure self-stigma among people with a wide variety of mental illnesses, including depression, schizophrenia, and anxiety disorders, and the different versions have shown satisfactory reliability and validity (Wei et al., 2018). In the present study, the adapted version of the ISMI scale comprised 26 items, with the items 22 to 26 being reverse-coded. The total possible score for the adapted version ranges from 26 to 104. The authors obtained the required permission to adapt the Arabic ISMI (AISMI) scale into the AIS-LCH. The AISMI was adapted into the AIS-LCH by swapping the phrase "mental health illness" with "residing in a nursing home". In this study, Cronbach's α for the AIS-LCH was .85.

### 3.6. Social support

The Medical Outcomes Study – Social Support Survey (MOS-SSS; Sherbourne and Stewart, 1991) was used to assess the perceived availability of support among the participating LTCF residents. The MOS-SSS was designed as a brief measure (19 Likert-type items) to assess for informational/emotional, tangible, affectionate, and positive social interaction support. Respondents are asked to indicate their perception of the available support by choosing one of five responses which range from *none of the time* (1) to *all of the time* (5). The total possible score ranges from 0 to 100, with a higher score indicating a higher level of perceived support. The MOS-SSS is a psychometrically sound measure of perceived social support and has shown very good validity and reliability, with a Cronbach's α of .97 reported in the original study (Sherbourne and Stewart, 1991). In this study, Cronbach's α for the Arabic version of the MOS-SSS was .95.

### 3.7. Data analysis

The Statistical Package for the Social Sciences (SPSS) version 23 (Armonk, NY) was used to analyze the study data. Descriptive analyses were used to describe the participants' demographic and medical characteristics, scores on the instruments, and scores on the subscales of these instruments. Pearson's correlation coefficient was used to examine the associations between the study variables. Independent samples t-tests and one-way ANOVAs were conducted to examine the differences in the study variables between the participants based on their demographic and medical characteristics. Post-hoc analysis with the Bonferroni correction was used to identify significant pairwise comparisons of the ANOVAs. Multiple regression analyses were used to examine if the study variables (demographic and medical characteristics, stigmatization, and social support) predicted the participants' depression and anxiety scores. *P*-level of less than .05 and a power of .80 with a small (Cohen's d of .2) to moderate (Cohen's d of .5) effect size (Cohen, 2013)) were set for the analysis process.

### 3.8. Ethical considerations

Before data collection, Institutional Review Board approval was obtained (738/2019). Further, informed consent was obtained from the participants after explaining the study purpose and procedures and the participants' rights and after assuring the participants that all collected data would be kept private and confidential. Data was kept confidential and coded on a password-protected computer in the principal investigator's office.

## 4. Results

Older adult residents of the LTCFs who failed the cognitive assessment were not included in the study. Table 1 presents a description of the participants' demographic and medical characteristics and their scores for the different variables (depression, anxiety, stigmatization, and social support). The total number of participants was 90, with a response rate of 58%. The low response rate may be due to the health restrictions imposed by the Jordanian government due to the COVID-19 pandemic. Most of

**Table 1.** Descriptive statistics of the demographic characteristics and study variables (N = 90).

| | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| Age | 55 | 92 | 70.07 | 9.36 |
| Number of Children | 0 | 12 | 2.20 | 2.55 |
| Length of Stay (Years) | 0 | 12 | 3.61 | 2.58 |
| Anxiety | 4 | 54 | 30.08 | 12.97 |
| Somatic | 0 | 23 | 10.94 | 5.217 |
| Cognitive | 0 | 19 | 9.24 | 4.84 |
| Affective | 1 | 19 | 9.89 | 4.76 |
| Depression | 1 | 45 | 25.90 | 10.02 |
| Internalized Stigma | 34.06 | 104 | 66. | 11.96 |
| Alienation | 6 | 46.2 | 15.66 | 4.92 |
| Stereotype Endorsement | 6 | 19.98 | 14.50 | 3.06 |
| Discrimination Experience | 4 | 15 | 10.96 | 2.24 |
| Social Withdrawal | 6 | 19 | 13.3 | 3 |
| Stigma Resistance | 7.0 | 20 | 11.85 | 2.6 |
| Social Support | 18.42 | 92.11 | 53.95 | 20.69 |
| Emotional/Informational | 0 | 100 | 47.71 | 23.80 |
| Tangible | 25 | 100 | 75.21 | 19.77 |
| Affectionate | 0 | 100 | 51.48 | 30.81 |
| Positive social interaction | 0 | 100 | 49.17 | 26.20 |

the participants were female (61.1%), 45.6% had not completed their high school education, and 82.2% had a history of chronic diseases. Only 16 participants (17.2%) were married. The average age of the participants was 70.07 years (standard deviation [SD] = 9.36), and the average LTCF length of stay was 3.61 (SD = 2.58) years. The average anxiety and depression scores were 30.08 (SD12.97) and 25.90 (SD = 10.02), respectively. The mean internalized stigma score was 41.12 (SD = 11.96). The average total social support score was 53.95 (SD = 20.69), with the tangible support subscale having the highest score (M = 75.21, SD = 19.77) and the emotional/informational support subscale having the lowest score (M = 47.71, SD = 23.80).

As shown in Table 2, females had significantly higher anxiety ($t$ (88) = 2.85, $p < .01$) and depression ($t$ (88) = 2.38, $p < .05$)) scores than males (M = 25.5, M = 22.8, respectively). In addition, females perceived themselves to have higher levels of social support than males ($t$ (88) = 2.37, $p < .05$). The participants' anxiety scores were significantly ($F$ (2,87) = 8.02, $p < .01$) different based on their level of education. Post-hoc analysis with Bonferroni correction showed that participants with undergraduate or postgraduate degrees had lower anxiety scores (M = 21.9) than participants who had not completed high school education (M = 34.6).

Table 3 describes the correlations between the study variables. Internalized stigma was found to have significant positive correlations with anxiety ($r = .31$, $p < .05$) and depression ($r = .43$, $p < .01$). A negative correlation was identified between social support ($r = -.21$, $p < .05$) and depression. Further, the social support subscales (tangible support, affectionate support, and positive social interaction) were negatively correlated with anxiety ($r = -.35$, $p < .01$; $r = -.23$, $p < .05$; $r = -.24$, $p < .05$, respectively). Seventy-three participants (81.1%) were found to be at risk of clinical depression.

Table 4 shows that participants who were at risk of clinical depression had significantly ($p < .001$) higher anxiety and internalized stigma scores (M = 33.6, M = 67.6, respectively) than participants who were not at risk (M = 15.1, M = 57.2, respectively).

The multiple regression analyses (Table 5) using simultaneous regression showed that demographic characteristics (i.e., sex and education), internalized stigma, and social support explained a significant amount of the variance in anxiety $F$ (8, 81) = 6.79, $p < .001$, Adjusted $R^2$ = .34 and depression $F$ (8, 81) = 7.23, $p < .001$, Adjusted $R^2$ = .36. The study variables explained 36% of the variance in the depression scores and 34% of the variance in the anxiety scores. The identified predictors of anxiety were sex (B = -5.49, $p = .03$), level of education (B = -4.55, $p$ = .002), and internalized stigma (B = 5.38, $p = .03$), whilst the identified predictors of depression were sex (B = -4.41, $p = .02$) and internalized stigma (B = 7.06, $p = .001$). The effect size of regression model predicting anxiety was .51 and for model predicting depression was .56. The actual power of both models was found to be .99 based on the sample size of 90, 8 predictors, and the significance level of .05.

## 5. Discussion

The majority of the participants had symptoms of depression at the time of the study. As older adults' LTCF length of stay increases, the risk of developing mental health problems also increases (Shah et al., 2010). This may explain why most of the LTCF residents in our study were found to suffer from depression and to be at risk of developing clinical depression. The participants' anxiety scores were high and indicated severe anxiety (Segal et al., 2010), and their depression scores were also high and indicated a risk of developing clinical depression (cutoff of ≥16; Lewinsohn et al., 1997). Moreover, female participants had higher anxiety and depression scores than male participants. Consistent with this

**Table 2.** Differences in the outcome variables among the participants based on their demographic characteristics (N = 90).

| Variable | Characteristics | N (%) | Anxiety | | Depression | | Internalized Stigma | | Social Support | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | M (SE) | $F/t$ | M (SE) | $F/t$ | M (SE) | $F/t$ | M (SE) | $F/t$ |
| Sex | Female | 55 (61.1) | 33.0 (1.60) | 2.85** | 27.9 (1.3) | 2.38* | 67.6 (1.56) | .31 | 58.3(2.8) | 2.57* |
| | Male | 35 (38.9) | 25.4 (2.2) | | 22.8 (1.7) | | 65 (1.82) | | 47.1(3.1) | |
| Marital Status | Married | 16 (17.8) | 29.2(2.7) | .17 | 23.9(2.1) | .30 | 65 (3.38) | .36 | 60.7(5.9) | 1.4 |
| | Widowed | 32 (35.6) | 30.6(2.4) | | 26.5(1.9) | | 67.6(1.82) | | 52.7(3.4) | |
| | Divorced | 21 (23.3) | 31.3(3.0) | | 25.7(2.3) | | 67.6(2.86) | | 47.7(3.8) | |
| | Single/unmarried | 21 (23.3) | 28.7(2.8) | | 26.7(2.2) | | 65(1.3) | | 57.0(4.8) | |
| Education | Below high school | 41 (45.6) | 34.6 (1.9) | 8.02** | 28.0 (1.5) | 2.07 | 65 (1.82) | 1.5 | 53.8 (3.2) | .28 |
| | High school | 27 (30.0) | 29.7 (2.1) | | 25.0 (1.8) | | 67.6(2.08) | | 51.9 (4.0) | |
| | Bachelor's degree or higher | 22 (24.4) | 21.9 (2.6) | | 22.9 (2.2) | | 67.6 (2.6) | | 56.4 (4.5) | |
| History of Chronic Diseases | No | 16 (17.8) | 31.4 (3.0) | .44 | 27.7 (2.2) | .79 | 70.2 (3.64) | 1.7 | 56.5 (6.2) | .54 |
| | Yes | 74 (82.2) | 29.8 (1.5) | | 25.5 (1.2) | | 65 (1.3) | | 53.4 (2.3) | |
| Religion | Muslim | 75 (83.3) | 29.7 (1.5) | .12 | 25.7 (1.2) | .25 | 65(2.86) | .76 | 53.7 (2.4) | .72 |
| | Christian | 15 (16.7) | 32.1 (2.8) | | 27.1 (2.2) | | 70.2(1.82) | | 53,2 (5.7) | |
| Visitors | No visitors | 35 (43.8) | 32.8(2.07) | 1.98 | 28.2 (1.5) | 1.81 | 65 (1.82) | -.82 | 52.9 (3.6) | -.07 |
| | Relatives and friends | 45 (56.3) | 26.9(2.08) | | 24.1 (1.6) | | 67.6 (2.08) | | 52.9 (3.0) | |

*Note*: N: number, M: mean, SE: standard error of the mean, F: One- Way ANOVA test value, t: t-test value *$p < .05$, **$p < .01$.

**Table 3.** Correlations between the study variables.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) Age | 1 | -.003 | .27** | -.01 | -.07 | -.11 | .10 | .12 | .06 | .07 | .03 |
| (2) Number of Children | | 1 | -.20 | .08 | .04 | .02 | .02 | .09 | -.001 | -.04 | -.07 |
| (3) Length of Stay | | | 1 | .06 | -.06 | -.16 | -.03 | .001 | -.09 | .06 | -.06 |
| (4) Anxiety | | | | 1 | .76** | .31** | -.13 | .10 | -.35** | -.23* | -.24* |
| (5) Depression | | | | | 1 | .43** | -.21* | .05 | -.39** | -.29** | -.35** |
| (6) Internalized Stigma | | | | | | 1 | -.20 | -.10 | -.24* | -.24* | -.19 |
| (7) Total Social Support | | | | | | | 1 | .86** | .72** | .87** | .82** |
| (8) Emotional/Informational Support | | | | | | | | 1 | .41** | .59** | .51** |
| (9) Tangible Support | | | | | | | | | 1 | .63** | .62** |
| (10) Affectionate Support | | | | | | | | | | 1 | .80** |
| (11) Positive Social Interaction | | | | | | | | | | | 1 |

**Table 4.** Differences in the participants' anxiety, internalized stigma, and social support scores based on their risk of clinical depression.

| | At Risk for Clinical Depression | Mean (SE) | Welch's t-test | *P* |
|---|---|---|---|---|
| Anxiety | No | 15.1(1.8) | -8.13 | <.001 |
| | Yes | 33.6 (1.3) | | |
| Internalized Stigma | No | 57.2 (2.9) | -3.74 | <.001 |
| | Yes | 67.6 (1.3) | | |
| Social Support | No | 56.3 (5.0) | .53 | .60 |
| | Yes | 53.4 (2.4) | | |

*Note:* Participants at risk of clinical depression who scored ≥16 on the CESD (N = 73, Percentage = 81.1%).
SE: Standard error of the mean.

finding, Byers et al. (2010) analyzed US national data that included both institutionalized and community-dwelling older adults and found that anxiety and depression were more prevalent in females than in males in both settings. Therefore, there is a need for phenomenological qualitative studies that explore in-depth the psychological experiences of women living in LTCFs and which assess the variables that may contribute to the increased prevalence of anxiety and depression symptoms among female LTCF residents.

This study is the first study in Jordan to address the associations of social support and internalized stigma with depression and anxiety among LTCF residents. The average age among the participating LTCF residents was 70.7 years, which is lower than the average age of 83.5 years reported by studies in Western countries (Onder et al., 2012; Moore et al., 2012). In addition, the age range among our sample was 55–93 years. In some Arab countries, older adulthood is considered to commence between the age of 50 and 55 (Sibai et al., 2014). The average LTCF length of stay up until the date of data collection among the participants was 3.61 years (43 months), which is considered lengthy and may be attributed to the relatively young age of the participants. In the study of Kelly et al. (2010), the average LTCF length of stay was 13.7 months, which is significantly shorter than the length of stay in our study.

As older adults' LTCF length of stay increases, the risk of developing mental health problems also increases (Shah et al., 2010). This may explain why most of the LTCF residents in our study were found to suffer from depression and to be at risk of developing clinical depression. The participants' anxiety scores were high and indicated severe anxiety (Segal et al., 2010), and their depression scores were also high and indicated a risk of developing clinical depression (cutoff of ≥16; Lewinsohn et al., 1997). Moreover, female participants had higher anxiety and depression scores than male participants. Consistent with this finding, Byers et al. (2010) analyzed US national data that included both institutionalized and community-dwelling older adults and found that anxiety and depression were more prevalent in females than in males in both settings. Therefore, there is a need for phenomenological qualitative studies that explore in-depth the psychological experiences of women living in LTCFs and which assess the variables that may contribute to the increased prevalence of anxiety and depression symptoms among female LTCF residents.

The study results also showed that participants who had completed higher education had less anxiety and stress than participants who had not completed high school education, which is congruent with previous studies (Azadi et al., 2015; Moser et al., 2010). Along with income and wealth, education is an indicator of socioeconomic status (SES), and higher SES has consistently been associated with experiencing fewer symptoms of depression (Back and Lee, 2011) and anxiety (Zhang et al., 2012).

**Table 5.** Multiple regression predicting anxiety and depression among the study participants (N = 90).

| | Anxiety | | | | | Depression | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | B | SE | *β* | *t* | *p* | B | SE | *β* | *t* | *p* |
| (Constant) | 18.03 | 29.29 | | .61 | .54 | 24.87 | 22.34 | | 1.11 | .26 |
| Sex | -5.49 | 2.50 | -.20 | -2.19 | .03 | -4.41 | 1.91 | -.21 | -2.30 | .02 |
| Education | -4.55 | 1.43 | -.28 | -3.18 | .002 | -.93 | 1.09 | -.07 | -.85 | .39 |
| Internalized Stigma | 5.38 | 2.51 | .19 | 2.14 | .03 | 7.06 | 1.91 | .32 | 3.68 | .001 |
| Total Social Support | 19.01 | 30.39 | 1.21 | .62 | .53 | -5.31 | 23.18 | -.43 | -.22 | .81 |
| Emotional Informational Support | -.18 | .53 | -.33 | -.33 | .73 | .21 | .41 | .50 | .51 | .60 |
| Tangible Support | -.31 | .28 | -.48 | -1.10 | .27 | -.05 | .21 | -.11 | -.27 | .78 |
| Affectionate Support | -.21 | .21 | -.50 | -.98 | .32 | .01 | .16 | .02 | .04 | .96 |
| Positive Social Interaction | -.16 | .22 | -.33 | -.72 | .47 | -.05 | .17 | -.15 | -.33 | .73 |
| **Model Summary** | $F$ (8, 81) = 6.79, $p$ < .001, Adjusted $R^2$ = .34 | | | | | $F$ (8, 81) = 7.23, $p$ < .001, Adjusted $R^2$ = .36 | | | | |

B: unstandardized coefficient, SE: standard error, *β*: standardized coefficient.

No statistical differences in internalized stigma were found between the participants based on sex, whereby female and male participants reported similar levels of internalized stigma. Stigmatization and anxiety are among the factors that may increase susceptibility to clinical depression (Yilmaz and Dedeli, 2016), and the results of our study indicated a positive correlation between the risk of clinical depression and higher anxiety and internalized stigma scores among the participants. Furthermore, depression had strong positive correlations with both anxiety and internalized stigma, which may indicate that their relationship is bidirectional. This is consistent with the findings of Conner et al. (2010), which indicated a positive correlation between internalized stigma and depressive symptoms.

The findings of the present study showed a negative correlation between social support and depression among the participating LTCF residents, which is consistent with previous studies (Grav et al., 2012; Melchiorre et al., 2013; Muramatsu et al., 2010). The analysis of the correlations between the social support subscales and depression revealed that the tangible, affectionate, and positive social interaction subscales were negatively correlated with depression and anxiety. Meanwhile, the emotional/informational support subscale was correlated neither with depression nor anxiety. Although the women in our study reported higher levels of social support than men, they also reported higher levels of depression and anxiety. Girgus et al. (2017) also found that female LTCF residents consistently reported higher depression scores than men. However, further studies which explore the associations of sex with social support, depression, and anxiety and the association of social support with both depression and anxiety among LTCF residents are recommended.

Although no significant association was identified between total social support scores and internalized stigma, the tangible and affectionate support subscales were found to be negatively correlated with internalized stigma. A possible explanation for the latter finding is that individuals with personal stigma may be hesitant to seek help from others. On the other hand, internalized stigma was found to be positively correlated with both anxiety and depression. The results of the multiple regression models showed internalized stigma, sex, and education to be significant predictors of anxiety, whilst sex and internalized stigma were found to be predictors of depression among the sample. Internalized stigma predicted both anxiety and depression, whereby an increase in the internalized stigma score by one unit led to an increase of 5.38 units in the anxiety score and 7.06 units in the depression score. The relationships of internalized stigma with depression and anxiety have previously been studied among people with mental disorders across the lifespan. For example, both Conner et al. (2010) and Drapalski et al. (2013) found that internalized stigma led to increased levels of anxiety and depression among people with mental disorders, which may affect their attitudes and help-seeking behaviors. Within the Jordanian culture, stigmatization of depression and anxiety was prevalent (Hasan and Musleh, 2017). In their study, Hasan and Musleh (2017) recommended that interventions to reduce the stigmatization of depression and anxiety will improve the treatment of these disorders and increase Jordanian public awareness. Compared to other cultures, Jordanian culture resembles others; the stigmatization of older adults is common across cultures (Conner et al., 2010; Wilińska et al., 2018), especially among minorities (Conner et al., 2010).

Our finding regarding the positive association between internalized stigma and psychological distress symptoms among LTCF residents may help in the development of interventions that address self-stigma and consequently alleviate levels of anxiety and depression among this population. To improve the generalizability of our findings, further investigation with larger samples and different settings is required.

The generalizability of our findings may be limited due to the small sample size and the specific setting where the study was conducted (i.e., LTCFs). It is recommended that further studies are conducted to explore the identified relationships among community-dwelling older adults in Jordan. Another possible limitation was the lack of formal diagnostic interviews for identifying participants with mental illnesses, since our results showed that the participants were suffering from severe symptoms of anxiety and depression.

## 6. Conclusion

Older adults living in LTCFs in Jordan suffer from many psychological distress symptoms that place them at risk of developing serious mental illnesses. In the present study, older adult LTCF residents were found to suffer from severe symptoms of anxiety and depression. Social support was found to be negatively correlated with depression, whereas internalized stigma was found to be positively correlated with both anxiety and depression. Internalized stigma and sex were found to predict anxiety and depression among the participating LTCF residents.

### 6.1. Relevance to clinical practice

Further investigation of the identified relationships is required for the development of appropriate interventions aimed at helping LTCF residents overcome their distress. These interventions should be aimed at reducing the stigma associated with LTCFs and improving social support among LTCF residents. This may include encouraging local community members to meet and interact with LTCF residents, especially on special occasions. In addition, the Jordanian Ministry of Social Development is encouraged to place more focus on assessing and fulfilling the needs of LTCF residents. Nurses are encouraged to support this vulnerable population by informing the community and local government bodies of the psychological problems experienced by LTCF residents and exploiting all available resources to alleviate these problems.

## Declarations

### Author contribution statement

Tariq N Al-Dwaikat, PhD, RN, CHPE: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Mohammad Rababa, PhD, CNS, CPT, RN: Conceived and designed the experiments; Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Fawwaz Alaloul, PhD, MPH, RN: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

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### Data availability statement

Data will be made available on request.

### Declaration of interest's statement

The authors declare no conflict of interest.

### Additional information

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