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Research Article

Depression and Anxiety in Residents of a Retirement Community during the Covid-19 Pandemic

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Abstract

Background: During the COVID-19 pandemic, the State of Louisiana implemented a quarantine leading to a decrease in social interaction, a risk factor for anxiety and depression among the elderly population. The objective was to determine if quarantine would negatively affect the mental health of the elderly in a residential community.

Methods: This limited longitudinal assessment and analysis, uitilizing the Geriatric Depression Scale (GDS) and Geriatric Anxiety Inventory (GAI) to assess depression and anxiety during quarantine. Data was collected three times over 12 weeks during the quarantine from 46 of 57 residents stratified as nursing home, assisted living, and independent living of a Continuing Care Retirement Community (CCRC) in the New Orleans area. 37 (80%) of 46 patients were females, mean age 86.1 (SD 9.1) years old; 25 (54.3%) were nursing home residents, 13 (28.3%) were in assisted living, and 8 (17.4 %) were in an independent living community.

Results: 16 (34.8%) patients were diagnosed with depression before being surveyed. Five (10.9%) had previous diagnoses of anxiety. Anxiety scores decreased significantly from baseline (average 4.35 *vs*. 3.28, *p*-value = 0.045) at 6 weeks, but did not change from 0 to 12 weeks or 6 -12 weeks. Depression, scores did not change significantly between time periods. Our data indicate a trend toward an increase in depression and anxiety during periods of pandemic quarantine isolation.

Conclusion: Assessing these indicators may help mitigate economic burden and cognitive decline resulting from the complications of depression and anxiety in elderly populations.

Keywords: Depression; Anxiety; COVID-19; Elderly

Introduction

During the COVID-19 global pandemic, people worldwide were subjected to an unprecedented quarantine and ensuing social isolation to decrease the risks of infection and spread. Research indicates that social isolation and loneliness increase the risk of mental disorders, although we know less about the contributions of different aspects of isolation. In the general population of older adults, their social networks' structure and function are strongly intertwined with anxiety and depression symptoms [1]. To determine whether being quarantined while living in a residential community would negatively affect the mental health of the elderly, we assessed levels of anxiety and depression in a group of residents at a Continuing Care Retirement Community (CCRC) in the New Orleans metropolitan area at three times during the quarantine: baseline, 6 weeks, and 12 weeks.

Being quarantined during the COVID-19 pandemic led to increased levels of stress, depression, irritability, insomnia, fear, confusion, anger, frustration, and boredom in people of all ages [2]. Elderly individuals in continuing care facilities were identified early in the pandemic as most vulnerable to COVID-19 and may have experienced increased fear of exposure to sources of infection, including family members, friends, and facility staff. At the same time, the physical distancing measures, limitation of group activities, disruption of routine, and cessation of family visits imposed by most facilities increased the residents' social isolation and may have led to higher levels of depression, anxiety, psychosomatic preoccupations, insomnia, and increased vulnerability to preexisting physical or psychological conditions [3].

The feeling of loneliness is a significant public health concern among elders and can likely increase the risk of mental health disorders, including anxiety and depression [4], which are the most common mental disorders among the elderly but often go undiagnosed [5]. Disconnection from social networks itself places older adults at greater risk of depression and anxiety [6]. Furthermore, anxiety and depression have been linked to an increase in mortality among elderly populations [7], not explained by poor physical health [8].

To mitigate infection rates, social quarantine became the norm during the COVID-19 pandemic, placing older adults at increased risk for anxiety and depression. A better understanding of the mental health effects of this unprecedented social quarantine may improve diagnosis and treatment of anxiety and depression in the elderly population.

Methods

To measure anxiety and depression during the period of social

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quarantine, we developed a protocol to assess residents of a CCRC at baseline, 6 weeks, and 12 weeks during the quarantine period [9]. We selected a single CCRC site with three separate living arrangements and levels of care-nursing home, assisted living, and independent living-and excluded patients with a diagnosis of dementia. The sample consisted of 57 cognitively intact adults aged 65 and older. Care levels were stratified as follows; nursing home (n = 28), assisted living (n = 20), and independent living (n = 9).

To assess levels of anxiety, we used the Geriatric Anxiety Inventory (GAI) (The GAI was used with licensing from UniQuest eShop (#1528), University of Queensland, Australia) because of its validated accuracy and sensitivity as a screening tool with the geriatric population [10]. Previous studies showed that the GAI has good psychometric properties [11]. To assess the quarantine's effects on depression, we selected the 15-item Geriatric Depression Scale-Short Form [12] because of its validity in the geriatric population [13].

Following mandatory safety regulations per the State of Louisiana and acting as the intermediary between the research team and the subjects, the CCRC facility staff administered the questionnaires to avoid contact between the research team and the subjects. To comply with quarantine protocols and minimize COVID-19 exposure, completed questionnaires, which were anonymous and de-identified, were scanned by the CCRC staff and returned to the research team. We report the number and percentage who answered "yes" to each answer. Dependent one-sample *t*-tests were used to determine whether overall anxiety and depression scores changed significantly from 0-6 weeks, 6-12 weeks, or 0-12 weeks. These tests were used because the same set of patients who answered surveys at week 0 also answered these surveys at other time periods, which violates traditional assumptions of independence in ANOVA, two-sample *t*-tests, and similar measures. We do not report *p*-values for individual item comparisons.

Results

Following the COVID-19 quarantine restrictions of the CCRC, 46 of the 57 patients in the original sample completed surveys at all three time points: baseline, 6, and 12 weeks. Reasons for incompletion included being discharged from the CCRC during the survey period (1), being away from the facility at the time of testing (3), refusal to take the testing (3), inability to complete the tests (1), and death (2). Thirty-seven (80%) of the 46 patients were females, with a mean age of 86.1 (SD 9.1) years old; 25 (54.3%) were nursing home residents, 13 (28.3%) were in assisted living, and 8 (17.4 %) were in an independent living community. Sixteen (34.8%) patients were diagnosed with depression before taking the survey, and five (10.9%) had previously diagnosed anxiety. Table 1 (depression) and Table 2 (anxiety) display the number and percentage of people who answered yes to each survey item over time.

Figure 1 displays the average depression and anxiety scores in each time period, along with *t*-test based 95% confidence intervals. Table 3 displays these raw numerical mean scores and the standard deviation of each score at each time point. The *p*-values shown in Table 3 are dependent one-sample *t*-tests that test whether patient scores changed, on average, over time. We see that the anxiety scores decreased significantly from baseline (average 4.35 *vs.* 3.28, *p*-value = .045) to week 6 but did not change from time 0 to time 12 or time 6 to time 12. For depression, scores did not change significantly between the time periods.

The significant decrease in anxiety scores at week 6 may be explained by the timing of the testing. The first set of data (baseline) was collected on June 4, 2020, the second (week 6) on July 20, 2020, and the third (week 12) on September 25, 2020. Apparent decreases in anxiety scores, but not depression, at week 6 may have been due to the growing hope that quarantine restrictions would be loosened further because the number of new COVID-19 cases in Louisiana was decreasing. In fact, the state had earlier relaxed restrictions, moving from Phase III to Phase II four days after our baseline measurement. The six-week period during which there were reduced restrictions may have raised hopes for a return to normal activities. However,

Table 1: Assessment of depression during 12 weeks of Quarantine for covid-19.

Depression	0 weeks	6 weeks	12 Weeks
Are you basically satisfied with your life?	15 (32.6)	13(28.3)	13 (28.3)
Have you dropped many of your activities and Interests?	24 (52.2)	25 (54.3)	26 (56.5)
Do you feel that your life is empty?	11(23.9)	15(32.6)	13 (28.3)
Do you often get bored?	21 (45.7)	19 (41.3)	21(45.7)
Are you in good spirits most of the time?	3(6.5)	4 (8.7)	6 (13)
Are you afraid that something bad is going to happen to you?	4 (8.7)	3 (6.5)	3 (6.5)
Do you feel happy most of the time?	7 (15.2)	5 (10.9)	10 (21.7)
Do you often feel helpless?	12 (26.1)	13 (28.3)	14(30.4)
Do you prefer to stay at home rather than going out and doing things?	16 (34.8)	15 (32.6)	13 (28.3)
Do you feel that you have more problems with memory than most?	10 (21.7)	6 (13)	11(23.9)
Do you think it is wonderful to be alive now?	9 (19.6)	9 (19.6)	14 (30.4)
Do you feel worthless the way you are now?	9 (19.6)	10 (21.7)	12 (26.1)
Do you feel full of energy?	26 (56.5)	25 (54.3)	35 (76.1)
Do you feel that your situation is hopeless?	4 (8.7)	3 (6.5)	3 (6.5)
Do you think that most people are better off than you are?	4 (8.7)	3 (6.5)	3 (6.5)

Note: n (%) of responses for each survey question along with chi-squared tests of independence.

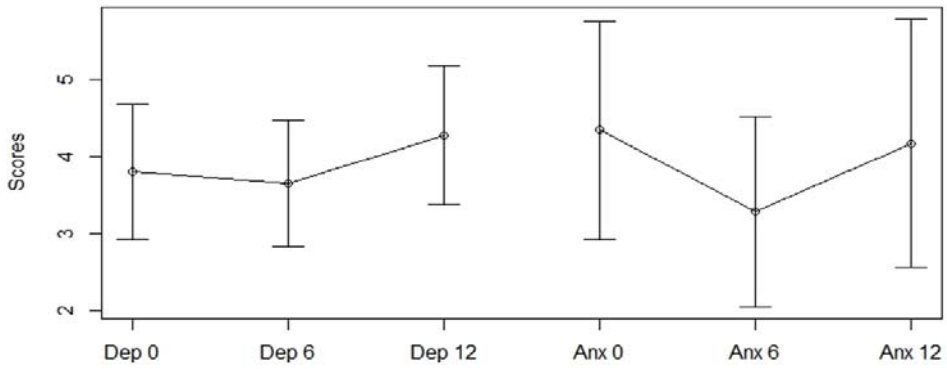

Figure 1: Average depression and anxiety Scores.

Table 2: Assessment of Anxiety during 12 weeks of Quarantine for covid-19.

Anxiety	0 weeks	6 Weeks	12 weeks
I worry a lot of time.	16(34.8)	12(26.1)	15(32.6)
I find it difficult to make a decision.	12(26.1)	9(19.6)	10(21.7)
I often feel jumpy.	7(15.2)	5(10.9)	7(15.2)
I find it hard to relax.	13(28.3)	12(26.1)	12(26.1)
I often cannot enjoy things because of my worries.	9(19.6)	6(13)	9(19.6)
Little things bother me a lot.	18(39.1)	17(37)	13(28.3)
I often feel like I have butterflies in my stomach.	6(13)	3(6.5)	5(10.9)
I think myself as a worrier.	16(34.8)	9(19.6)	13(28.3)
I cannot help worrying about even trivial things.	16(34.8)	11(23.9)	12(26.1)
I often feel nervous.	12(26.1)	11(23.9)	16(34.8)
My own thoughts often make me anxious.	13(28.3)	10(21.7)	14(30.4)
I get an upset stomach due to my worrying.	6(13)	2(4.3)	5(10.9)
I think myself as a nervous person.	10(21.7)	10(21.7)	6(13)
I always anticipate the worst to happen.	7(15.2)	5(10.9)	7(15.2)
I often feel shaky inside.	5(10.9)	5(10.9)	6(13)
I think that my worries interfere with my life.	10(21.7)	5(10.9)	10(21.7)
MY worries often overwhelm me.	5(10.9)	5(10.9)	10(21.7)
I sometime feel a great knot in my stomach.	5(10.9)	5(10.9)	6(13)
I miss out on things because I worry too much.	6(13)	4(8.7)	7(15.2)
I often feel upset.	8(17.4)	5(10.9)	9(19.6)

Note: n (%) of responses for each survey question.

during the latter half of the study period, quarantine restrictions were repeatedly extended longer than expected and, when combined with several tropical weather events affecting the geographic area, may have had an impact on levels of depression and anxiety of the subjects at the final data point.

Conclusions

Social interaction has a strong impact on levels of anxiety and depression in the elderly population. Multiple studies have shown that long periods of isolation lead to social disconnectedness, which in turn is predictive of higher depression and anxiety symptoms [14]. During the quarantine period, residents in our CCRC were not able to physically visit with their friends and family members; many were confined to their rooms and had to dine alone. However, most were able to communicate with others through phone and the internet. We hypothesized that periods of isolation and lack of physical presence would affect the mood and/or level of anxiety of the CCRC residents [15]. However, our study found only a significant difference in anxiety at one time point and no significant differences in depression among the study population (Figure 1 and Table 3).

That the findings did not support our hypothesis may be due to the study's small sample size and use of a sample of convenience. A 12-week duration of data collection during the period of isolation may not have been sufficient to reflect the changes brought about by a quarantine that lasted more than a year. In addition, the CCRC was a private institution with ample amenities, and the population may have had more educational and social capital than the general demographic profile of New Orleans residents. The ability of residents to remain in touch with their friends and families using virtual communication

Table 3: Average anxiety and depression scores at each measurement.

	0 weeks	6 weeks	12 weeks	P0-6	P0-12	P6-12
Depression Score	3.8(2.95)	3.65(2.75)	4.28(3.04)	0.667	0.278	0.278
Anxiety Score	4.35(4.78)	3.28(4.16)	4.17(5.45)	0.045	0.723	0.723

Note: *p*-values test difference in scores between each period (0-6 weeks, 0-12 weeks and 6-12 weeks) using a dependent one sample *t*-test.

methods, which mitigated social isolation, may have influenced the results of the study. This may explain why nursing home residents, who may make more limited use of the internet because of greater impairments, may not have experienced a significant decrease in anxiety at 6 weeks.

Another limiting factor was that we started the study almost four months into the quarantine because of the pandemic-related delay in obtaining IRB approval. Levels of anxiety and depression among the selected population may already have been increased at baseline, because for four months, worldwide, national, and local media had been broadcasting news daily saturated with uncertainty, fear, hopelessness, and despair affecting society as a whole. The sample's baseline levels of depression and anxiety may thus not have been their true baseline.

Despite the inconclusiveness of this study, our data indicate a trend toward an increase in depression and anxiety of this elderly population during periods of pandemic quarantine isolation. This suggests that our data were in agreement with previous literature and demonstrates the need to be more sensitive to the mental health of elderly patients, especially of those in CCRCs, when they are incapable of physically interacting with their friends and families. Future research with CCRC residents should include ongoing assessments of the indicators of depression and anxiety in order to provide timely interventions and better care. Doing this may help mitigate the economic burden and cognitive decline resulting from the complications of depression and anxiety.

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