SLEEP QUALITY AND SOCIAL SUPPORT IN PEOPLE OVER 65 YEARS OLD WHO HAVE HAD A QUARANTINE PROCESS DUE TO COVID-19

Abstract

Background and Aim: We aimed to investigate the effects of anxiety or social support on sleep quality in patients with COVID-19 who were older than 65 years of age and undergoing quarantine process.

Material and Method: The study included the patients ≥65 years of age who had a quarantine process for 14 days during the COVID-19 outbreak. The sociodemographic features and comorbidities were recorded in all patients. Geriatric Anxiety Scale (GAS), Multidimensional Perceived Social Support Scale (SS), and Pittsburgh Sleep Quality Index (PSQI) questionnaires were applied.

Results: Totally 198 patients (123 male and 75 female) were included in the study. Among patients, 115 (58.1%) patients were living in a nursing home. All GAS scores and the total PSQI were significantly higher and all SS scores were significantly lower in PCR positive patients compared with the negative ones (p:0.001). Moreover, All GAS scores and the total PSQI were significantly higher and all SS scores were significantly lower in patients living in nursing homes compared with the others (p:0.001).

Conclusion: In elderly patients faced with the COVID-19, social support was negatively associated with the sleep disturbances. We suggest that, increasing social support is important in elderly patients in the clash against COVID-19.

INTRODUCTION

Unfortunately, the coronavirus disease 19 (COVID-19) pandemic affected all over the world within a short period. Even though COVID-19 infection may be severe in all age groups, older adults (65-year-old or older) may experience a higher mortality rate[1,2].

Exposure to chronic and daily stressors such as quarantine or life-threatening conditions can affect the emotional experience of the patients. With many unknowns and leading to long quarantine periods, COVID-19 may cause an emotional burden to the patients. With higher mortality rates, elderly patients constitute a special group in this pandemia period, requiring special attention[3,4].

Sleep disturbances are associated with anxiety and depression and should be defined and treated as soon as possible. At a time when individual isolation is required, such as the COVID-19 outbreak, social support can reduce anxiety and stress, improving sleep quality[5]. Improved sleep quality can also help to improve immunity to viral infections. Therefore, mental health and sleep quality are important factors in the population of self-isolated people due to increased risk of COVID-19 infection[6].

The aim of the study is to investigate the effects of anxiety or social support on sleep quality in patients with COVID-19 who were older than 65 years of age and undergoing quarantine process. To the best of our knowledge, this is the first study in the literature evaluating the effects of quarantine period due to COVID-19 on anxiety level and sleep quality in geriatric patients.

MATERIAL and METHOD

The study was conducted in 198 patients who applied to two different health centers in Izmir between 15 March 2020 and 30 May 2020 and had a quarantine process for 14 days during the COVID-19 outbreak. The study included patients ≥65 years of age who were treated at hospital due to COVID-19 disease and quarantine was recommended at home after discharge, or who were under quarantine at home for suspected infection or suspicious contact. All patients who agreed to participate in the study were included in the study. Local ethics committee approved the study.

The sociodemographic features and comorbidities were recorded in all patients. Geriatric Anxiety Scale, Multidimensional Perceived Social Support Scale, and Pittsburgh Sleep Quality Index questionnaire were applied in all patients face to-face or on the internet.

Geriatric Anxiety Scale includes 23 self-report items used for scoring and 5 additional items to define the common topical concerns of anxiety among older adults. The total score is calculated as well as the 3 subscale scores, measuring ***cognitive, affective, and somatic*** symptoms. The patients were asked for the symptoms of anxiety by indicating how often they have experienced each symptom during the past week on a Likert-type scale that ranges from 0 (not at all) to 3 (all the time). The total score ranges from 0 to 75, with higher scores representing the existence of more severe anxiety[7,8].

Multidimensional Perceived Social Support Scale is a 12-item scale designed to determine the perceived social support from three sources: Family, Friends, and a Significant Other (for example, dating, engaged, verbal, relative, neighbor, doctor ...)[9]. Higher scores represent better social support presence.

The *Pittsburgh Sleep Quality Index* (PSQI) is a 19-item survey that defines the global sleep quality in the past month. The Responses are calculated on a four-point, Likert-type scale ranging from 0 to 3. PSQI includes seven components (***sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, sleep medication use, daytime dysfunction***) and the component scores are summed to form a global score[10]. The total PSQI score ≥5 was defined as the presence of sleep disturbances.

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Statistical Analyses

In statistical analysis, demographic definitions regarding the individuals participating in the survey were given in Frequency (n) and Percentage (%). The mean and Standard Deviation (SD) values related to the questions in the scales were given in the tables. Kolmogorov-Smirnov test was applied to determine the suitability of the data for normal distribution. The relationship between the questionnaire scales was analyzed with the Pearson Correlation Coefficient because the variables showed normal distribution. Two group comparisons were performed with the student's t-test. IBM SPSS Amos 21 Statistical Package Program was used for statistical analysis. For statistical significance, $p < 0.05$ was used.

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RESULTS

Totally 198 patients (123 male and 75 female) were included in the study. Polymerase chain reaction (PCR) test for Coronovirus-19 was obtained in 152 of the patients and it was positive in 123 of them. Among patients, 183 (92.4) were married and 15 (7.6%) were single. 115 (58.1%) patients were living in a nursing home. Clinically, fever, cough, and dyspnea were determined in 121 (61.1%) patients and the remaining 77 (38.9%) patients were asymptomatic. Thorax CT was obtained at admission in all patients and tomographical features of the COVID-19 was present in half of the patients (n:99). The demographic, educational, and social features of the patients are summarized in Table 1.

The results of Geriatric Anxiety Scale, Multidimensional Perceived Social Support Scale, and Pittsburgh Sleep Quality Index questionnaire are summarized in Tables 2, 3 and 4, respectively. Regarding the total PSQI score, 96.9% of the participants were having sleep disturbances.

The correlation analysis was performed between the total PSQI and the findings of other surveys performed (Table 5). Regarding these findings, there were significant positive correlations between total GAS, GAS-somatic, GAS-cognitive and GAS-affective and total PSQI (p:0.001), while there were significant negative correlations between SS-total, SS-family, SS- friend and SS- significant other and the total PSQI (p:0.001).

We compared the overall findings of the surveys between PCR positive and negative subjects to determine the effects of PCR positivity on these parameters (Table 6). Regarding these findings, total GAS, GAS-somatic, GAS-cognitive, GAS-affective and the total PSQI were significantly higher and SS-total, SS- family, SS- friend and SS- significant other were significantly lower in PCR positive patients compared with the negative ones (p:0.001).

134 We compared the overall findings of the surveys between the patients living in nursing homes
135 and the others to determine the effects of living in nursing homes on these parameters (Table
136 7). Regarding these findings, total GAS, GAS-somatic, GAS-cognitive, GAS-affective, and
137 total PSQI were significantly higher and SS-total, SS- family, SS- friend, and SS- significant
138 other were significantly lower in patients living in nursing homes compared with the others
139 (p:0.001).

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142 **DISCUSSION**

143 In this study, we determined that, in patients older than 65 years of age who faced with the
144 quarantine process due to COVID19 pandemic with some reasons; 1. Sleep quality was
145 disturbed in 96.9% of the participants; 2. Total and subscale anxiety scores were positively
146 correlated with the sleep disturbances, while increased social support was associated with a
147 decreased sleep disturbance; 3. PCR positivity increased the anxiety scores and sleep
148 disturbances with a decrease in social support; 4. Living in a nursing home increased the
149 anxiety scores and sleep disturbances with a decrease in social support.

150 In this study, we analyzed a special group of patients who were ≥65 years of age and who
151 were faced with a quarantine process of 14 days due to COVID-19. More than 60% of our
152 patients were male and about 40% of the patients were aged between 76-80 years. Most of our
153 patients were living an urban areas and about 25% of the participants were still smoking. The
154 most common comorbidity was hypertension.

155 In a retrospective case series of 1591 patients with laboratory-confirmed COVID-19 referred
156 for ICU admission, the median age was 63 (56-70) and 82% of the patients were male and
157 approximately half of the patients were hypertensive[11]. However, Wang et al reported that,
158 among 339 patients with COVID-19 with a mean age of 71±8 years; 51% were female and
159 hypertension was still the most common comorbidity[12].

160 The data regarding the anxiety level of the patients due to COVID-19 is limited. In 1210
161 people from different cities of China, Wang et al reported that 53.8% of the respondents rated
162 the psychological impact of the outbreak as moderate or severe; and 28.8% reported moderate
163 to severe anxiety symptoms[13]. In a study performed on medical college students, Cao et al
164 reported that, among 7,143 responses, 0.9% were experiencing severe anxiety, 2.7% moderate
165 anxiety, and 21.3% mild anxiety and they also reported that social support was negatively
166 correlated with the level of anxiety[14]. Lei et al compared the prevalence and associated factors

167   of anxiety and depression among the public, people affected by quarantine and those
168   unaffected and reported that in the affected group, the prevalence of anxiety and depression
169   was significantly higher than that of the unaffected people and having no psychological
170   support was significantly associated with higher anxiety and depression scores[15]. In another
171   study from our country, 45.1% of the participants scored above the cut-off point for anxiety[16].
172   Similar with our results, Xiao et al investigated 170 individuals who were self-isolated at
173   home for 14 days with self-reported questionnaires and determined that low levels of social
174   relationships were associated with increased levels of anxiety and stress and decreased sleep
175   quality[17].

176 Sleep disturbances may affect the whole mental health. We defined that more than 96% of
177 patients older than 65 years of age who met with COVID-19, reported some level of sleep
178 disturbances. Using a web-based cross-sectional survey, Huang et al reported the rate of sleep
179 disturbances as 18.2% during COVID-19 outbreak[18]. However, our patients were
180 compromising the most risky group and all were met with the disease previously. Those
181 factors may be the reason of such high sleep disturbance rates.

182 Sleep disturbances showed a negative correlation with the social support. With an increase in
183 social support, increased sleep quality and decreased degree of anxiety and stress were
184 reported in medical staff during the COVID-19 pandemia[19]. Similarly, we also determined a
185 negative correlation between sleep disturbances and social support.

186 Viral nucleic acid test by RT-PCR assay plays an essential role in determining hospitalization
187 and isolation for individual patients. However, many factors may affect the results of RT-PCR
188 assay such as sampling operations and timing, and its positivity was defined as 30-60% at
189 initial presentation of patients with COVID-19 [20]. For the first time in literature we
190 determined that PCR positivity increased the anxiety scores and sleep disturbances with a
191 decrease in social support in elderly patients. Though it is not a highly sensitive test, we can
192 suggest that PCR positivity may be thought as the main factor proving the disease prevalence
193 and infectivity; and patients getting this test result reported higher anxiety levels with
194 decreased social support.

195 We also determined that living in a nursing home was associated with increased anxiety
196 scores and sleep disturbances with a decrease in social support. Recently, increased risk for
197 COVID−19 infections was reported for both community−dwelling older persons as well as
198 those residing in nursing homes[21]. The high prevalence of functional and cognitive
199 impairment and behavioral symptoms may also increase the risk posed to nursing home

200 residents. Moreover, high transmission rate for infectious diseases due to sharing some
201 common areas also increase the risk of infection[22,23].

202 There are some limitations of the study that should be mentioned. First are that this is a cross-
203 sectional study without any follow-ups. We do not analyze the effects of these factors on
204 outcomes, which may be the topic of another study. Secondly, this is a survey-based study,
205 carrying the bias of self-reported surveys.

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207 **CONCLUSION**

208 In conclusion, we determined sleep disturbances as high as 96% of elderly patients who met
209 with COVID-19. It should also be highlighted that social support was negatively associated
210 with the sleep disturbances. PCR positivity and living in nursing homes were associated with
211 increased sleep disturbances, anxiety level, and decreased social support. Since elderly
212 patients are compromising a special group with increased mortality rates, high rates of sleep
213 disturbances should be taken into account during management and the effects of these factors
214 on outcomes should be investigated in further studies. We suggest that increasing social
215 support is important in elderly patients in the clash against COVID-19, which may improve
216 the outcomes with improving sleep disturbances.

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REFERENCES:

1. Wang C. A novel coronavirus outbreak of global health concern. Lancet. 2020; 395:470–473. doi: 10.1016/S0140-6736(20)30185-9.

2. Epidemiology Working Group for NCIP Epidemic Response, Chinese Center for Disease Control and Prevention. The epidemiological characteristics of an outbreak of an outbreak of 2019 novel Coronavirus Diseases (COVID-19) in China. Zhonghua Liu Xin Bin 2020, 41, 145–151.

3. Sher L. COVID-19, anxiety, sleep disturbances and suicide. Sleep Med. 2020 Apr 25; 70:124.

4. Cullen W, Gulati G, Kelly BD. Mental health in the COVID-19 pandemic. QJM. 2020 May 1;113(5):311-312.

5. Peteet JR. COVID-19 Anxiety. J Relig Health. 2020 May 15:1-2.

6. Mazza M, Marano G, Antonazzo B, Cavarretta E, Di Nicola M, Janiri L, Sani G, Frati G, Romagnoli E. What about heart and mind in the covid-19 era? Minerva Cardioangiol. 2020 May 12.

7. Segal DL, June A, Payne M, Coolidge FL & Yochim B. Development and initial validation of a self-report assessment tool for anxiety among older adults: The Geriatric Anxiety Scale. Journal of Anxiety Disorders. 2010; 24: 709-714.

8. Yochim BP, Mueller AE, June A & Segal DL. Psychometric properties of the Geriatric Anxiety Scale: Comparison to the Beck Anxiety Inventory and Geriatric Anxiety Inventory. Clinical Gerontologist. 2011; 34: 21-33.

9. Gregory D. Zimet, Nancy W. Dahlem, Sara G. Zimet & Gordon K. Farley. The Multidimensional Scale of Perceived Social Support, Journal of Personality Assessment, 1988; 52:1, 30-41.

10. Buysse DJ, Hall ML, Strollo PJ, et al. Relationships between the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), and clinical/polysomnographic measures in a community sample. J Clin Sleep Med 2008; 4:563-71.

11. Grasselli G, Zangrillo A, Zanella A, Antonelli M, Cabrini L, Castelli A, et al. Baseline Characteristics and Outcomes of 1591 Patients Infected With SARS-CoV-2 Admitted to ICUs of the Lombardy Region, Italy. JAMA. 2020 Apr 6;323(16):1574-81.

12. Wang L, He W, Yu X, Hu D, Bao M, Liu H, Zhou J, Jiang H. Coronavirus disease 2019 in elderly patients: Characteristics and prognostic factors based on 4-week follow-up. J Infect. 2020 Jun;80(6):639-64.

13. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. Int J Environ Res Public Health. 2020 Mar 6;17(5):1729.

14. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, Zheng J. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res. 2020 May; 287:112934

15. Lei L, Huang X, Zhang S, Yang J, Yang L, Xu M. Comparison of Prevalence and Associated Factors of Anxiety and Depression Among People Affected by versus People Unaffected by Quarantine During the COVID-19 Epidemic in Southwestern China. Med Sci Monit. 2020 Apr 26;26: e924609.

16. Özdin S, Bayrak Özdin Ş. Levels and predictors of anxiety, depression and health anxiety during COVID-19 pandemic in Turkish society: The importance of gender. Int J Soc Psychiatry. 2020 May 8:20764020927051.

17. Han Xiao, Yan Zhang, Desheng Kong, Shiyue Li, Ningxi Yang. Social Capital and Sleep Quality in Individuals Who Self-Isolated for 14 Days During the Coronavirus Disease 2019 (COVID-19) Outbreak in January 2020 in China. Med Sci Monit. 2020; 26: e923921-1–e923921-8.

18. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. Psychiatry Res. 2020 Jun; 288:112954.

19. Xiao H, Zhang Y, Kong D, Li S, Yang N. The Effects of Social Support on Sleep Quality of Medical Staff Treating Patients with Coronavirus Disease 2019 (COVID-19) in January and February 2020 in China. Med Sci Monit. 2020 Mar 5;26: e923549.

20. Yang Y, Yang M, Shen C, et al. . Evaluating the accuracy of different respiratory specimens in the laboratory diagnosis and monitoring the viral shedding of 2019-nCoV infections. 2020. 10.1101/2020.02.11.20021493.

21. Applegate WB, Ouslander JG. COVID-19 Presents High Risk to Older Persons. J Am Geriatr Soc. 2020 Apr;68(4):681.

22. Fallon A, Dukelow T, Kennelly SP, O'Neill D. COVID-19 in Nursing Homes. QJM. 2020 Apr 20: hcaa136.

23. Davidson PM, Szanton SL. Nursing homes and COVID-19: We can and should do better. J Clin Nurs. 2020 Apr 12:10.1111/jocn.15297.