Psychological distress as a predictor of the burden of care in family caregivers of COVID-19 patients in Iran: A community-based cross-sectional study

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Abstract

Background and Aims: Coronavirus disease 2019 (COVID-19) has profoundly affected millions worldwide, including family caregivers of COVID-19 patients, in terms of caregiver burden and psychological distress. The present study aimed to evaluate the care burden and psychological distress among family caregivers, caring for a family member with COVID-19.

Methods: The present study was performed with a cross-sectional design in the Shahroud community, northeast Iran using the convenience sampling method. A total of 297 family caregivers of COVID-19 patients were assessed using self-report scales including the depression, anxiety, and stress scale-21 and the Zarit burden interview to assess the symptoms of psychological distress (depression, anxiety, and stress) and caregiver burden. Data were analyzed using descriptive and inferential statistics (multivariate regression analysis).

Results: Factors such as self-reported symptoms of depression ($\beta = 0.920, p < 0.001$) and anxiety ($\beta = 0.712, p < 0.02$) were significantly predicted care burden. Variables such as lower levels of education of the family member and caregivers and also the relationship between the caregiver and family member were additional predictive factors that aggravated the care burden.

Conclusion: Caregivers of a family member with COVID-19 suffer significant levels of care burden that also results from psychological distress such as depression and anxiety. Therefore, appropriate psychoeducational interventions are highly recommended.

Keywords
anxiety, caregiver burden, COVID-19, depression, psychological distress
INTRODUCTION

Millions of people worldwide have experienced a significantly negative, long-term, and profound impact because of the pandemic, affecting day-to-day life. Previous studies have shown that a high severity of stress has been experienced by a vast amount of the general population during the pandemic. These conditions can be related to factors such as unpredictability and uncertainty of the disease in various aspects of epidemiology, effective methods of treatment, and the existence of contradictory news during a pandemic. Patients with a positive diagnosis of coronavirus disease 2019 (COVID-19) experience a negative psychological impact, especially during the pandemic, such as anxiety and depression. Patients with mild to moderate symptoms were informed to be cared for by family members at home, whereas patients with severe symptoms had to stay in hospital. Moreover, many discharged patients from the hospital also needed home care who required receiving services from family caregivers. COVID-19 disrupts patients’ lives but also has a knock-on effect on the patients family who will be caring and supporting them, as well as negatively impacting the systemic relationship between the patient, family, and the social relationships outside of the household.

Family caregivers are defined as those responsible for the care of the patient at home who must adhere to guidelines provided by healthcare providers and have the greatest involvement in the care of the patient and managing the disease and implementing treatment. Many studies have shown that the period a caregiver is caring and supporting someone has a negative impact on quality of life. If a person has COVID-19, members of the family, friends, and colleagues at work are impacted negatively psychologically. When someone has a positive COVID-19 diagnosis, it fuels fear in those close to the person with COVID-19 (family, friends, and colleagues). A significant number of participants stated a high level of anxiety, which adds to the feelings of anger and helplessness, and that the future is not guaranteed (i.e., is the person with COVID-19 going to survive, or is it going to be fatal?). As well as this, the worry of losing income triggers anxiety and psychological stress. Therefore, there are many factors, both for the individual and socially, during the COVID-19 pandemic. On the other hand, when a patient is transferred from the hospital to community care within the patients’ home, it places the care burden on the family to care for the patient and the responsibility for their health and wellbeing which is a significant task. Family caregivers face many challenges in caring for a family member, such as lacking insight, training, clinical knowledge, and distressing physical, psychological, and social symptoms. In this regard, the results of the Jafari-Oorí et al. study showed that family caregivers of people with COVID-19, experience a high severity of depression, anxiety, and stress, in addition to the fear of catching COVID-19 themselves.

Another negative consequence for caregivers of people with COVID-19 is the negative impact of caring. A recent study in Iran has shown that after a family member has been discharged from the hospital, family caregivers experience a care burden. According to Zarit et al., the burden of care is defined as caregivers’ perceptions of between the relationship and themselves, the health and psychological well-being of the person they are caring for, including finances and social life. Care burden is a multidimensional notion that includes subjective and objective components. The objective components of care burden are related to the patient themselves; this includes the demographic characteristic profile, symptoms that they are experiencing and the impact that this has on physical health, socially, together with what the day-to-day routine is and how it is impacting on relationships (family, social, and work). Also, the subjective care burden is regarding the persons mental well-being and distress they are experiencing. Unfortunately, caregivers of people with COVID-19 face additional challenges compared to other caregivers, such as family caregivers of patients with chronic obstructive pulmonary disease. They have limited training opportunities and resources and low awareness of COVID-19 and how to provide the appropriate care for the COVID-19 patient.

Care for COVID-19 is unique and individual and this is for both the caregiver and their family members. Care is individualized because of the different severities of COVID-19 and the importance of factors such as safety, limit distance between clinical staff and family near the patient within the hospitals for example. On the other hand, even though about a long time has passed since the COVID-19 pandemic started, a limited number of studies have been conducted to evaluate the psychological and dimensions of care of family caregivers of patients with COVID-19 and how to provide the appropriate care for the COVID-19 patient.

This quantitative study was conducted in cross-sectional design in 2021.
Internet and cyberspace, and the ability to use social media to complete questionnaires and exclusion criteria included being a member of the health care staff, history of addiction, psychological disorders, and taking neuroleptic drugs. Eligible individuals were selected using a convenience sampling method (only one primary caregiver per patient). Eight responses were excluded due to repeated entries (Figure 1).

2.4 | Variables

Data collection for this study was performed from October 24, 2021 to December 7, 2021. Data were measured using the demographic form, the Zarit burden interview (ZBI), and the depression, anxiety, and stress scale (DASS-21). Participants were informed of the terms and conditions of the study by receiving an invitation to participate in the study using WhatsApp and then completed the scales using an online questionnaire designed using the DigiSurvey web-based service (https://www.digisurvey.net/).

2.5 | Data sources/measurement

2.5.1 | Demographic form

Demographic information form included gender, marital status, age, employment status, the presence of an underlying disease, level of education, need for supporting from external organizations (patients and caregivers), residence status, relation with the patient, death of relatives by COVID-19, COVID-19 infection in relatives, daily follow-up on COVID-19 news (caregivers), health insurance, type of referral, and history of hospitalization in critical care units due to COVID-19 (patients), which was self-reported by participants.

2.5.2 | Zarit burden interview

The care burden questionnaire was designed by Zarit et al.\textsuperscript{16} to determine the level of caregiving burden, which includes 22 questions about the burden imposed by a patient’s care on the caregiver. The response scale is likert (never = 0, rarely = 1, sometimes = 2, often = 3, and always = 4). The sum of the points earned by each caregiver determines the care burden. A score of less than 30 is rated as mild, 31–60 as moderate, and 61–88 as severe burdens of care. The least and max scores by each person are between 0 and 88, and obtaining a higher score indicates a greater level of burden of care.\textsuperscript{16} The reliability was determined by Smith and Schwirian\textsuperscript{21} with a test-retest method (intraclass correlation coefficient [ICC] = 0.71). The reliability coefficient of this tool, using the test–retest as ICC = 0.94 has been reported by Navidian et al.\textsuperscript{22} In the present study, the reliability of ZBI was assessed using Cronbach’s α equal to 0.90. The qualitative validity of ZBI was confirmed by a panel of experts consisting of 10 faculty members in fields of psychiatric nursing, psychiatry, medicine, epidemiology, and infectious disease.

2.5.3 | Depression, anxiety, and stress scale-21

The DASS-21 is a standard scale whose options are scored from 0 to 3. In this tool, seven items related to stress symptoms (2, 6, 8, 11, 12, 14, 18), seven items related to anxiety symptoms (1, 4, 7, 7, 15, 19, 20), and seven items related to depression symptoms (3, 5, 10, 13, 16, 17, 21). Scores 0–4 are mild, 5–11 are moderate, and more than 12 indicate severe psychological symptoms. The scale was developed by Lovibond and confirmed reliability using Cronbach’s α coefficient (0.81 = stress, 0.73 = anxiety, and 0.81 = depression).\textsuperscript{23} Also, Antony et al.\textsuperscript{24} reported Cronbach’s α coefficient for the subscales of stress, depression, and anxiety of 0.95, 0.92, and 0.97, respectively. In Iran, Asghari et al.\textsuperscript{25} measured the reliability of the instrument in a study, and based on the internal consistency method, Cronbach’s α coefficients for stress, anxiety, and depression were reported as 0.87, 0.85, and 0.85. Also, in the current research, the reliability of DASS-21 was confirmed using internal consistency by determining Cronbach’s α (depression = 0.92, anxiety = 0.87, and stress = 0.86). Moreover, the face validity of DASS-21 was approved by the mentioned panel of experts.

2.6 | Study size

The sample size of the present study was based on a pilot study with the participation of 30 caregivers. Considering the mean and standard deviation of the scores obtained from ZBI and DASS-21 questionnaires and determining the correlation coefficient between the burden of care and the scores of stress, anxiety and depression, with an error of 5%, power 90%, the sample size was estimated at 305. The sample size was calculated by a standard formula.
\[ n = \left( \frac{Z_{1-\alpha} + Z_{1-\beta}}{\frac{1}{2} \log \frac{1+\rho}{1-\rho}} \right) + 3. \] \tag{1}

### 2.7 Data analysis

Quantitative variables (e.g., caregiver burden, stress, anxiety, depression, daily check-ups of COVID-19-related news, and age) were described using mean, standard deviation, and qualitative data (such as marital, educational, employment, and residence status, gender, underlying disease, need for supportive associations, the relationship between patient and caregiver, death of relatives by COVID-19, COVID-19 infection in relatives, health insurance, type of referral, and history of hospitalization in critical care units due to COVID-19) were described frequency and percentage. In the present study, the caregiver burden was considered a dependent variable, and other variables (such as depression, anxiety, stress, and other demographic variables) were assumed as independent variables. Then, the relationship between predictor variables and the caring burden was examined using multivariate regression analysis with a two-sided significance level of 0.05. Data were analyzed using the Statistical Package for the Social Sciences version 26.

### 3 RESULTS

The results showed that 82.5% (n = 245) of the caregivers have an urban residence and 41.8% (n = 124) of them had a parent–relative relationship with their patients. 17.2% (n = 51) of the patients were hospitalized and 8.8% were hospitalized in critical care units due to COVID-19. 69.0% and 20.2% of caregivers reported a history of having a positive diagnosis of COVID-19 and death in their family members. 70.7% of caregivers were covered by health insurance. The mean score of daily checkups of COVID-19-related news was reported by caregivers as 1.93 (0.18) (Table 1).

According to the results of the present study, the mean scores of depression, anxiety, and stress were 5.77 (5.50), 5.35 (4.83), and 7.39 (5.13), respectively (range between 0 and 21 for each subscale, with moderate score 5–11). And also, the mean score of care burden was 27.93 (14.11) (range between 0 and 88, mild score 0–30). Overall, the ZBI and DASS-21 scores were categorized as mild and moderate levels (Table 2).

In the present study, multivariable linear regression analysis was performed to identify predictors of caregiving burden in caregivers of COVID-19 patients (such as symptoms of anxiety, stress, depression, and demographic factors). In this method, all the variables were entered into the model as univariate at a significance level of 0.2. Next, the variables that had a significance level of less than 0.2 were entered into the multivariate model with a significance level of 0.05. Since the sampling tool was provided online to the participants, it was not possible to record missing data, and the results of the present study were analyzed without missing data. The multivariate linear regression model by the backward method showed that the variables explain 50.1% of the variance of the care burden score within the model; accordingly, for each increase in symptoms of anxiety and depression scores, 0.712 and 0.920 care burden scores increase.

The care burden in caregivers with high school education levels increased by 10.313 units compared to education in a postgraduate degree. Also, in patients with undergraduate and high school education compared to postgraduate degrees, the care burden increased by 7.520 and 9.113 units. Another factor predicting the care burden is the caregiver relation with the patient so caregivers who had a child, parent, or sibling relationship experienced 9.631, 8.283, and 6.516 units lower care burden, stress, anxiety, and depression scores, 0.712 and 0.920 care burden scores increase.

### Table 1 Demographic characteristics of COVID-19 patients and their caregivers

| Variable          | Caregiver n (%) | Patient n (%) |
|-------------------|-----------------|---------------|
| Gender            |                 |               |
| Male              | 132 (44.4)      | 144 (48.5)    |
| Female            | 165 (55.6)      | 153 (51.5)    |
| Marital status    |                 |               |
| Married           | 133 (44.8)      | 91 (30.6)     |
| Single            | 164 (55.2)      | 206 (69.4)    |
| Educational level |                 |               |
| High school       | 109 (36.7)      | 182 (61.3)    |
| Undergraduate degree | 146 (49.2)   | 96 (32.3)     |
| Postgraduate degree | 42 (14.1)    | 19 (6.4)      |
| Employment status |                 |               |
| Unemployed        | 90 (30.3)       | 159 (53.3)    |
| Self-employed     | 51 (17.2)       | 44 (14.8)     |
| Employed          | 58 (19.5)       | 42 (14.1)     |
| Student           | 98 (33.0)       | 52 (17.5)     |
| Underlying disease|                 |               |
| Yes               | 268 (90.2)      | 228 (76.8)    |
| No                | 29 (9.8)        | 69 (23.2)     |
| Need for supporting associations |       |               |
| Yes               | 12 (4.0)        | 10 (3.4)      |
| No                | 285 (96.0)      | 287 (96.6)    |
| Age (years)       | 32.63 (12.45)   | 43.80 (19.23) |

Abbreviations: COVID-19, coronavirus disease 2019; N, frequency; SD, standard deviation; %, percent.

### Table 2 Mean and standard deviation (SD) scores of care burden, stress, anxiety, and depression in caregivers of COVID-19 patients

| Variable      | Mild n (%) | Moderate n (%) | Severe n (%) | Mean | SD |
|---------------|------------|----------------|-------------|------|----|
| Stress        | 91 (30.6)  | 123 (41.4)     | 83 (28.0)   | 7.39 | 5.13|
| Anxiety       | 136 (45.8) | 72 (24.3)      | 89 (29.9)   | 5.35 | 4.83|
| Depression    | 191 (64.3) | 64 (21.6)      | 42 (14.1)   | 5.77 | 5.50|
| Care burden   | 164 (55.2) | 129 (43.4)     | 4 (1.3)     | 27.93| 14.11|

Abbreviations: N, frequency; %, percent.
TABLE 3  The role of independent variables on care burden in caregivers based on multivariate regression method

| Variables                      | β   | SE  | t    | p Value |
|--------------------------------|-----|-----|------|---------|
| Constant value                 | 11.873 | 3.519 | 3.374 | <0.001 |
| Anxiety                        | 0.712 | 0.261 | 2.726 | <0.02  |
| Depression                     | 0.920 | 0.232 | 3.972 | <0.001 |
| Caregiver education level      |      |      |      |         |
| Postgraduate degree            | Reference |      |      |         |
| Undergraduate degree           | 3.516 | 1.845 | 1.905 | >0.05  |
| High school                    | 10.313 | 1.937 | 5.323 | <0.001 |
| Patient education level        |      |      |      |         |
| Postgraduate degree            | Reference |      |      |         |
| Undergraduate degree           | 7.520 | 2.618 | 2.872 | <0.005 |
| High school                    | 9.113 | 2.582 | 3.530 | <0.001 |
| Caregivers’ relationship with  |      |      |      |         |
| the patient                    |      |      |      |         |
| Grandparents                   | Reference |      |      |         |
| Parents                        | -8.283 | 2.293 | -3.612 | <0.001 |
| Children                       | -9.631 | 2.892 | -3.330 | <0.002 |
| Wife or husband                | -4.541 | 2.507 | -1.811 | >0.05  |
| Sibling                        | -6.516 | 2.558 | -2.548 | <0.02  |

Abbreviation: SE, standard error.

4  | DISCUSSION

Since the beginning of 2020, COVID-19 infections have increased exponentially, affecting health care services worldwide. Survivors of COVID-19 have significant disabilities due to weakness and dysfunction.27 The COVID-19 pandemic poses unique challenges for individuals working with patients, including providers of medical care and family caregivers. The importance of family caregivers during the pandemic is crucial because they normally take care of at home and now more than ever in the current pandemic the need for these people is urgent, especially family caregivers of patients with COVID-19.28 These people experience challenges that affect not only physical but also their mental health. Among these challenges, we can mention the care burden29 and psychological distress.9

In this regard, about half of the caregivers have endured a moderate and severe level of care burden in the present study. The results of previous research by Mirzaei et al.15 also showed that approximately 80% of caregivers of COVID-19 patients reported a severe level of care burden. A possible reason for the difference in outcomes is the increased awareness of those who care and support their family members who have COVID-19 because of online group support,20,30 community-wide information, and social media. Obtaining such a finding in the present study indicates the positive effect of these interventions; however, there is still a need to implement appropriate interventions to reduce the burden of caring for someone with COVID-19 within the community and network of caregivers.

The care burden concept is noteworthy within nursing science and clinical practice. Pearl and Skaff21 believe that the care burden is similar to experiencing severe stress, so unfamiliarity with the care burden can have many consequences for the global healthcare system. Since COVID-19 has spread by human-to-human transmission by respiratory droplets, social distancing is an essential preventive action across the globe during the pandemic. However, implementing this has significantly disrupted social and family relationships for the person with COVID-19 and their caregivers. This has contributed to the increase of isolation from a social perspective, loneliness and this together contributes and maintains psychological distress, in addition to physical health conditions.10,32

Furthermore, the present study shows that about one-third of the participants reported severe symptoms of stress and anxiety and moderate to severe symptoms of depression, which is similar to the findings from Jafari-Oori et al.9 who are also based in Iran. In Italy, a study conducted that caregivers who had children with a positive COVID-19 infection were more likely to develop posttraumatic stress symptoms, anxiety, and depression.33 As stated by the caring stress model, achieving care needs is a stressful factor for caregivers that is linked with symptoms of depression in caregivers.34 The results of studies conducted during the pandemic of COVID-19 showed that the decline of formal and informal support combined with the measures that were put in place to maintain social distancing led to more anxiety, stress, and social isolation, together with symptoms of depression within the family caregivers of other people in need of care (older adults and other patients with chronic diseases with disabilities).35-37

The present study shows that anxiety symptoms have a direct and significant relationship with the burden of caregivers who support and are responsible for family members who have COVID-19. Caregivers need support when facing psychological distress while accepting responsibility, which often leads to a care burden and poor patient outcomes, exacerbating anxiety, and contributing to poor quality of life.38 The care burden and anxiety have a mutual relationship, and subjective care burden is a risk factor. It is important to acknowledge that it triggers, maintains, and increases anxiety in caregivers39 supporting existing theoretical frameworks.34

Moreover, the findings from this study have demonstrated that levels of depressive symptoms have a direct and significant relationship with care burden. In this regard, Ahmad Zubaidi et al.40 showed that caregivers with depression and anxiety symptoms are up to three times more likely to experience the negative impact of care burden when supporting and caring for someone. Similarly, Adelman et al.17 demonstrated that depressive symptoms were recognized that it is a crucial risk factor, in starting and increasing care burden. Theoretical models that explain the negative emotional consequences of care are mainly based on the model of Lazarus and Folkman’s41 transactional stress and coping model. According to this model, the determinants of stress are intermediated through caregivers’ perception, appraisal, and management of the care...
It should be noted that caregivers of patients with COVID-19 can reduce vulnerability by taking informed care measures to reduce sudden and long-term levels of psychological distress. To reduce the psychological distress of patients, as well as their families, it is necessary to establish an early relationship with a multidisciplinary treatment team and benefit from psychological interventions. Evaluate and perform interventions, including stress management for caregivers should be appropriate to the specific circumstances of the caregiver and the unique contexts where the origin of the burden of care occurs.

The present study showed that care burden had a significant and inverse relationship with caregivers' level of education and their patients. In connection with this finding, previous studies showed that a lower level of education level in patients was linked to a high burden of care in caregivers. A possible reason for this finding could be that patients with higher literacy levels have a greater ability to self-care, and this factor has alleviated the care burden. Regarding the level of caregiver education, the results of the study by Rafati et al. showed that caregivers with a lower level of education than a diploma reported a higher caregiving burden than caregivers with a diploma or higher. Also, the findings of the Li et al. study showed that higher education levels are associated with a lower care burden. The results of the above two studies were in line with the findings of the present study. A possible reason for this finding could be that a low level of education makes a person economically vulnerable during the COVID-19 epidemic. Thus, highly educated caregivers may have stronger support systems. Another possible explanation is that highly educated caregivers better understand the process of diagnosing and treating COVID-19, which may reduce the care burden.

The results of the present study indicate that the relationship between patient and caregiver is also a predictor of care burden. Caregivers with a child, parent, and sibling relationship with their patient were less likely to impose a care burden than caregivers with a grandparent relationship. One possible reason for this finding could be that young people were more flexible and effective than older adults in caring for COVID-19 patients. Older adults are more vulnerable to physical and mental problems and also have less resilience to problems, especially during the COVID-19 pandemic.

Therefore, they are more likely to suffer from higher levels of care burden while caring for their patients than others.

The outbreak of serious life challenges and diseases affects families and, in turn, the functioning of the family, including their structure and growth, affects the physical health and psychological well-being of all the family. This is true within the context of COVID-19, which is causing unique problems and suffering to large numbers of patients and their families around the world. Families experiencing psychosocial problems associated with acute or chronic diseases should rely on nurses to help them manage a crisis such as the sudden outbreak of COVID-19. The nature of the outbreak has compromised the provision of a family-centered care plan during the pandemic. Therefore, supporting families, especially members of the family with a positive diagnosis of COVID-19, is crucial. Having an illness within a family member, in most cases, causes the severance of the relationship with how the family members’ life was before the diagnosis of the illness. Often, this requires adaptation to the new social and spiritual reality, which includes a process of reorganization in the structures, roles and emotional relationships of the family. In some countries across the world (especially in Asian and developing countries), the care of someone unwell and sick is the responsibility of the family, as a collective culture, and receives limited support, so the care, therefore, is often informal within the family unit. Most countries within the Middle East, for example, including Iran, are Muslim. This means that the social structures are heavily influenced and based on the family’s cohesion. Intercultural studies have shown differences between caregivers in Western and Eastern countries (this is because of a limited amount of formal facilities and social services that are needed in countries across Asia), family caregivers rely mainly on family resources and support. In Iran, family members help each other in high levels of care based on cultural teachings, beliefs that originate from religion, as well as strong family connections and due to social structures, involving family members within the care of the patient, is therefore strengthened as a result of this.

4.1 Limitations and strengths

The present study was performed with a cross-sectional design and limited sample size, so it is recommended that more caregivers be examined longitudinally in the future. Due to the use of the questionnaire as a self-report, the results of the present study are subject to response bias. Due to the online nature of the questionnaires, it was not possible to measure other variables related to mental health and psychological distress (such as quality of life, suicidal ideation, spiritual well-being, etc.) to increase the response rate. Also, people who did not have access to or familiarity with social network systems and cyberspace were not recruited. Therefore, a qualitative exploration is advised, to explore further the specific findings and impact of those caring for someone with COVID-19 and to make the study accessible to participants such as older adults and others that were not able to be recruited for this quantitative investigation. In the present study, caregivers did not evaluate some of the variables, such as a history of COVID-19, history of vaccination, level of knowledge about COVID-19, and economic status. Also, the quantitate validity of study instruments were not assessed.

Despite these limitations, the present study, considering the importance of COVID-19 and its effects on caregivers of patients with this disease, after about a long time of its outbreak and limited studies in this field, showed new evidence of the psychological status of family caregivers of COVID-19 patients.
5 | CONCLUSION

The findings of the present study showed that the levels of care burden in caregivers of patients with COVID-19 are significant. Due to its negative impact on caring for those within the family who have COVID-19 at home, it is recommended that supportive measures are not limited to patients and that family caregivers, as a significant and valuable group in patient care, receive appropriate support. Therefore, strengthening comprehensive support such as providing psychoeducational interventions with multidimensional support groups consisting of psychiatrists, psychiatric nurses, psychologists, infectious disease specialists, and social workers is strongly advised and recommended.

AUTHOR CONTRIBUTIONS

Seyedmohammad Mirhosseini: Conceptualization; investigation; methodology; project administration; writing – original draft; and writing – review and editing. Samuel Grimwood: Conceptualization; writing – original draft; and writing – review and editing. Mohammad Hasan Basirinezhad: Formal analysis; investigation; and writing – original draft. Rasoul Montazeri: Data curation; investigation; and writing – original draft. Hossein Ebrahimi: Conceptualization; investigation; methodology; supervision; writing – original draft; and writing – review and editing. All authors have read and approved the final version of the manuscript.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request. Hossein Ebrahimi had full access to all of the data in this study and takes complete responsibility for the integrity of the data and the accuracy of the data analysis.

ETHICS STATEMENT

The online questionnaire provided potential participants with information about the study regarding the research objectives, confidentiality, potential risks, and benefits of participating. All participants that took part in the survey provided online informed consent. The researcher’s contact details were stated within the documentation online if participants would like to ask questions or withdraw at a later date. The present study was approved by the Ethics Committee of Shahroud University of Medical Sciences (ethical approval code: IR.SHMU.REC.1399.140).

TRANSPARENCY STATEMENT

The lead author Hossein Ebrahimi affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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REFERENCES

1. Atalan A. Is the lockdown important to prevent the COVID-19 pandemic? Effects on psychology, environment and economy-perspective. Ann Med Surg. 2020;56:38-42.
2. Stuart K, Faghy MA, Bidmead E, et al. A biopsychosocial framework for recovery from COVID-19. Int J Social Soc Policy. 2020;40:1021-1039.
3. Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: a systematic review. J Affect Disord. 2020;277:55-64.
4. Das R, Hasan MR, Daria S, Islam MR. Impact of COVID-19 pandemic on mental health among general Bangladeshi population: a cross-sectional study. BMJ Open. 2021;11(4):e045727.
5. Repon MAU, Pakhe SA, Qualiyum S, Das R, Daria S, Islam MR. Effect of COVID-19 pandemic on mental health among Bangladeshi healthcare professionals: a cross-sectional study. Sci Prog. Forthcoming 2021:104(2).
6. Zandifar A, Badrfam R. Iranian mental health during the COVID-19 epidemic. Asian J Psychiatr. 2020;51:101990.
7. Mazza MG, De Lorenzo R, Conte C, et al. Anxiety and depression in COVID-19 survivors: role of inflammatory and clinical predictors. Brain Behav Immum. 2020;89:594-600.
8. Wu YH, Sun FK, Lee PY. Family caregivers’ lived experiences of caring for epidermolysis bullosa patients: a phenomenological study. J Clin Nurs. 2020;29(9-10):1552-1560.
9. Jafari-Oori M, Ebadi A, Moradian ST, Jafari M, Dehi M, Fard FG. Psychiatric distress in family caregivers of patients with COVID-19. Arch Psychiatr Nurs. 2021;37:69-75.
10. Boshra AA, Al-Dabbagh ZS, Al Eid NA, et al. The effects of coronavirus virus (COVID-19) outbreak on the individuals’ mental health and on the decision makers: a comparative epidemiological study. Int J Med Res Health Sci. 2020;9(3):26-47.
11. Gérain P, Zech E. Informal caregiver burnout? Development of a theoretical framework to understand the impact of caregiving. Front Psychol. 2019;10:1748.
12. Cubukcu M. Evaluation of quality of life in caregivers who are providing home care to cancer patients. Supportive Care Cancer. 2018;26(5):1457-1463.
13. Franchini L, Ercolani G, Ostan R, et al. Caregivers in home palliative care: gender, psychological aspects, and patient’s functional status as main predictors for their quality of life. Supp Care Cancer. 2020;28(7):3227-3235.
14. World Health Organization. Home care for patients with suspected novel coronavirus (nCoV) infection presenting with mild symptoms and management of contacts: interim guidance. 2020.
15. Mirzaei A, Raesi R, Saghari S, Raeli M. Evaluation of family caregiver burden among covid-19 patients. Open Public Health J. 2020;13:808-814.
16. Zarit SH, Reever KE, Bach-Peterson J. Relatives of the impaired elderly: correlates of feelings of burden. Gerontologist. 1980;20(6):649-655.
17. Adelman RD, Tmanova LL, Delgado D, Dion S, Lachs MS. Caregiver burden: a clinical review. JAMA. 2014;311(10):1052-1060.

18. Mirhosseini S, Vaghee S, Nabavi F, Vashani H. Effect of online psychoeducational support on caring burden in family caregivers of COVID-19 patients: a parallel randomized controlled trial. Family Med Primary Care Rev. 2021;23(3):323-329.

19. Shariati E, Dadgari A, Talebi SS, Mahmoodi Shan GR, Ebrahim H. The effect of the Web-Based communication between a nurse and a family member on the perceived stress of the family member of patients with suspected or confirmed COVID-19: a parallel randomized clinical trial. Clin Nurs Res. 2021;30:1098-1106.

20. Nia MN, Mohajer S, Bagheri N, Sarboozzi-Hoseinabadi T. The effects of family-centered empowerment model on depression, anxiety, and stress of the family caregivers of patients with COVID-19: a randomized clinical trial. BMC Primary Care. 2022;23(1):185.

21. Smith AM, Schwirian PM. The relationship between caregiver burden and TBI survivors’ cognition and functional ability after discharge. Rehabil Nurs. 1998;23(5):252-257.

22. Navidian A, Kermansaravi F, Rigi SN. The effectiveness of a group psycho-educational program on family caregiver burden of patients with mental disorders. BMC Res Notes. 2012;5:399.

23. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. Behav Res Ther. 1995;33(3):335-343.

24. Antony MM, Bieling PJ, Cox BJ, Enns MW, Swinson RP. Psychometric properties of the 42-item and 21-item versions of the depression anxiety stress scales in clinical groups and a community sample. Psychol Assess. 1998;10(2):176-181.

25. Ashghar A, Saeed F, Dibajnia P. Psychometric properties of the depression anxiety stress scales-21 (DASS-21) in a non-clinical Iranian sample. Int J Psychol. 2008;2(2):82-102.

26. Kholmatova KK, Gorbatova MA, Kharkova OA, Grjibovski AM. Patient and caregiver burden and TBI survivors’ cognition and functional ability after discharge. Clin Nurs Res. 1998;23(5):252-257.

27. Ambrose A, Bartels M, Verghese T, Verghese J. Patient and caregiver burden: a clinical review. Int J Nurs Stud. 2018;88:79-84.

28. Kent EE, Ornstein KA, Dionne JN. The family caregiving crisis meets an actual pandemic. J Pain Symptom Manage. 2020;59(6):3084-3096.

29. Lightfoot E, Moone R, Suleiman K, et al. Concerns of family caregivers during COVID-19: the concerns of caregivers and the surprising silver linings. J Gerontol Soc Work. 2021;64:655-675.

30. Delalibera M, Presa J, Barabosa A, Leal I. Sobrecarga no cuidar e suas repercussões nos cuidadores de pacientes em fim de vida: revisão sistemática da literatura. Cien Saude Colet. 2015;20(9):2731-2747.

31. del-Pino-Casado R, Prieo-Cubero E, López-Martínez C, Ortega V. Subjective caregiver burden and anxiety in informal caregivers: a systematic review and meta-analysis. PLoS One. 2021;16(3):e0247143.

32. Ahmad Zabaidzi ZS, Arifin F, Oun CTC, Katiman D. Caregiver burden among informal caregivers in the largest specialized palliative care unit in Malaysia: a cross sectional study. BMC Palliat Care. 2020;19(1):186.

33. Orsini A, Corsi M, Pedrinelli V, et al. Post discharge. J Pain Symptom Manage. 2019;58(4):840-846.

34. Brown C, Peck S, Humphreys J, et al. COVID-19 lessons: the alignment of palliative medicine and trauma-informed care. J Pain Symptom Manage. 2020;60(2):e26-e30.

35. Laudenslager ML, Simoneau TL, Mikulich-Gibertson SK, et al. A randomized control trial of stress management for caregivers of stem cell transplant patients: effect on patient quality of life and caregiver distress. Psycho-Oncology. 2019;28(8):1614-1623.

36. Mollaefi B, Borhani F, Abbaszadeh A, Khabazkooch M. Correlation between spiritual well-being and burden of care in family caregivers of cancer patients. J HAYAT. 2019;24(4):296-309.

37. Rafati F, Mashayekhi F, Dastvyr N. Caregiver burden and spiritual well-being in caregivers of hemodialysis patients. J Relig Health. 2020;59(6):3084-3096.

38. Li Y, Wang K, Yin Y, Li Y, Li S. Relationships between family resilience, breast cancer survivors’ individual resilience, and caregiver burden: a cross-sectional study. Int J Nurs Stud. 2018;88:79-84.

39. Arnault L, Justo R, Renaud T. Economic vulnerability and unmet healthcare needs among the population aged 50+ years during the COVID-19 pandemic in Europe. Eur J Ageing. 2021:1-15.

40. Benkisim A, Addi RA, Cherkaoüli M. Vulnerability and fragility expose older adults to the potential dangers of COVID-19 pandemic. Iran J Public Health. 2020;49(suppl 1):122.

41. Luttik MLA, Maher-Ihmof R, Garcia-Vivar C, et al. The COVID-19 pandemic: a family affair. J Fam Nurs. 2020;26(2):87-89.

42. Hart JL, Turnbull AE, Oppenheim IM, Courtright KR. Family-centered care during the COVID-19 era. J Pain Symptom Manage. 2020;60(2):e93-e97.

43. Hebert LE, Wayne J, Schert PA, Evans DA. Alzheimer disease in the United States (2010–2050) estimated using the 2010 census. Neurology. 2013;80(19):1778-1783.

44. Mobasher M, Nakhaei N, Tahmasebi M, Zahedi F, Larijani B. Ethical issues in the end of life care for cancer patients in Iran. Iran J Publ Health. 2013;42(2):188-196.

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