Impact of demographic, clinical and psychological variables of patients and caregivers on the perception of burden among the family caregivers of patients with cancer

Badii Amamou1,2*, Soumaya Fathallah1, Dhekra Ammar1, Ahmed Mhalla1,2, Ferid Zaafra1,2 and Lotfi Gaha1,2
1University Hospital Fattouma Bourguiba, Monastir, Department of Psychiatry, Tunisia
2University of Monastir, Faculty of Medicine, Tunisia

Abstract
The study aims were to assess the level of burden among caregivers of patients diagnosed with cancer and to examine patient and caregiver variables associated with high levels of burden.

A descriptive cross sectional study was performed at the Psychiatric Department in the University Hospital of Monastir, Tunisia. The study included a total of 138 dyads of patients and their corresponding family caregivers. The dyads were convoked then examined. The data were assembled using questionnaires elaborated by the research team and caregiver burden was measured with the Zarit Burden Interview. Patients completed the Hospital Anxiety and Depression Scale and the KATZ Index of Activities of Daily Living.

About one third of the caregivers experienced high levels of burden. The scores at the Zarit Burden Interview ranged from 15 to 70 and mean score was 48.7 (SD =18.2). This negative outcome of caregiving was found to be related to both patients’ and caregivers’ variables. Statistically, the factors associated to high levels of burden among family caregivers that are linked to the patient’s profile were: male gender, age between 61 and 70 years old, having other medical morbidities, necessitating pre and post-operative chemotherapy, having intermediate to high levels of anxious or depressive symptoms and a severe functional impairment. Caregivers who helped their patients to accomplish many daily activities were found to be high-burdened. The caregiver variables that were found to be related to high levels of burden among caregivers were: male gender, age between 40 and 59 years old, employed full-time status, being the child of the patient, having another member of the family needing daily care, caregiving period more than one year, and not resorting to a professional healthcare at home.

The current study demonstrates the importance of a systematic assessment and early intervention procedures needed in order to detect vulnerable caregivers.

Highlights
• Family caregivers of patients with cancer experience high levels of burden as a consequence of care.
• Family caregivers of those patients may have to accomplish many additional personal, professional and household tasks that may major their distress.
• Healthcare providers need to asses burden of care and identify the most vulnerable caregivers.

Introduction
Cancer is a serious disease that needs a long period of treatment and a continuous care in order to help patients physically, psychologically and financially. So that, confronting a cancer diagnosis impacts deeply not only the patient but also his family members. Usually, alongside the professional assistance, cancer care is provided by family members who help the patient during medical and daily activities, from the first symptoms to recovery or death [1-3]. Major advances have been made in the treatment and have led to increase survival rates and cancer is more likely considered as a chronic disease requiring more care outside the hospital setting.

Although some studies focused on the benefits of caregiving experience, most researchers [4-6] suggest that caregivers constitute a vulnerable population described to be more exposed to fatigue, anxiety, burden psychological distress depression, psychological distress and low quality of life [7-12]. They seem to have a higher predisposition to medical illnesses and a greater risk for mortality [13-18]. Caregiver burden is considered to occur when the emotional or physical health of caregivers is threatened or when their available resources are overwhelmed by the care demands [19]. Burden seems to be common in family caregivers, with a lack of interventions targeted to support caregivers [20]. Recent researchs have been made aimed at evaluating the role of family caregivers in the field of oncology, but the impact of caregiving remains infrequently described because the available studies focus on the patient’s pain and suffering [21,22].

*Correspondence to: Badii Amamou, Department of Psychiatry, Fattouma Bourguiba University Hospital of Monastir. Avenue Farhat HACHEID, Zip Code: 5000, Monastir, Tunisia, Tel: +216 98475488/ +216 73461141, Fax: +21673460678, E-mail: amamoubadii@hotmail.fr / badii.amamou@rns.tn

Key words: caregiver, cancer, caregiver burden.

Received: February 27, 2019; Accepted: March 16, 2019; Published: March 19, 2019
Purpose

The purpose of the current study was to investigate evaluate the caregivers’ burden among a population of adult family caregivers taking care of patients diagnosed with cancer and to investigate the effect of demographic, clinical and psychosocial characteristics of patients and caregivers on the burden of family members caring for patients with cancer.

Methods

Research design

The current study was performed using a cross-sectional, descriptive and correlational design for patients and their families after a recent diagnosis of cancer. The sampling procedure was done using the consecutive sampling approach.

Participants and setting

The first patients’ selection was made in the University Hospital Foutouma BOURGUIBA departments’ taking care of patients with cancer, and was based on medical diagnosis of a cancer. Those departments were respectively: surgery, gastroenterology, gynecology, urology and nephrology departments. Patients who accepted to continue the study were referred to the main investigator, who met them in the psychiatric department in University Hospital Foutouma BOURGUIBA, Monastir, Tunisia.

The study sample included Arabic speaking dyads of patients who have been diagnosed with cancer and their corresponding caregivers. All patients were adults (≥18 years old), Arabic language speaking, had a sufficient level of communication. They have perceived the diagnosis of the cancer since at least four weeks prior to the study. Patients were hospitalized during the study period actually or have been previously hospitalized. They were requested to participate to the study, then asked to design their primary family caregiver. The family caregiver was nominated by the patient, and judged to be the principal provider of non paid care to the patient. All caregivers were older than 18 years old, Arabic language speaking, had a sufficient level of communication.

Instruments

Demographic data about patients and caregivers were obtained during a first data collection review. This included gender, age, duration of caregiving, relationship between the patient and the caregiver, marital status, professional status, habitation status, the existence of other dependent persons particularly children in care and the need of a professional care at home. This included nurses’ visits, bathing assistance, having adaptive and orthopedic equipments and sessions of physical therapy. Medical data about patients were obtained from medical records. Concerning tumor classification, the researchers have been referred to the classification of the American Joint Committee for Cancer Classification [23]. Patients diagnosed at the stage I were been referred to the classification of the American Joint Committee for Cancer Classification [23]. Patients diagnosed at the stage I were been referred to the classification of the American Joint Committee for Cancer Classification [23].

Burden assessment: Caregivers completed the ZARIT Caregiver Burden Scale in order to evaluate the burden, in the validated and translated version in Arabic language [24].

Depression and anxiety assessment: Patients completed the Hospital Anxiety and Depression Scale (HAD Scale), in the translated and validated version in the Arabic language [25,26].

Dependence assessment: Patients completed the KATZ Index of Activities of Daily Living (ADL) in Arabic language [27].

Data analysis

Biostatics staff of the department conducted and provided statistical analysis. Categorical variables are assessed and classified to describe the study’s sample. Quantitative variables were calculated with averages and standard deviations (SD). Qualitative variables were expressed using percentages. Data was analyzed using Pearson correlations. Independent $t$ tests were used to assess the link between psychometric variables and socio demographic ones. Statistical analyses were conducted using SPSS version 20.

Results

Descriptive statistics

Sample Characteristics

Table 1 presents the socio demographic characteristics of the study sample.

Table 2 displays the characteristics of the caregiving relationship according to the caregiver. About 66% of patients lived with their caregivers at the same home, and only 14.5% of caregivers used to refer to a professional healthcare at home.

Clinical data about patients are presented in table 3. Breast cancer was the most frequent localization (45.7%).

Patient anxiety and depression symptoms

The results of the evaluation of anxiety and depression among patients were represented in the table 4. The total score for the two items ranged from 12 to 37 with a mean of 20.5±5.5. Scores of anxiety ranged from 6 to 17 and the mean score was 9.7±2. Scores of depression ranged from 6 to 20 and the mean score was 10.8±3.5. Table 5 displays the distribution of the patients according to anxiety and depression subscales.

Participation of patients in activities of daily living

Mean score of the KATZ Index of Activities of Daily Living participation was 4.6±1.4, and all the scores ranged from 2 to 6. Fourty

| Sample Characteristics | n | % |
|------------------------|---|---|
| **Patients** | | |
| Gender | | |
| Male | 46 | 33.3 |
| Female | 92 | 66.6 |
| Age Range (years) | | |
| 30 to 39 | 19 | 14 |
| 40 to 49 | 19 | 14 |
| 50 to 59 | 47 | 34 |
| 60 to 70 | 53 | 38 |
| Total | 138 | 100 |
| Gender | | |
| Male | 69 | 50 |
| Female | 69 | 50 |
| Age Range (years) | | |
| 20 to 39 | 33 | 24 |
| 40 to 59 | 88 | 64 |
| 60 to 70 | 17 | 12 |
| Total | 138 | 100 |
| Marital status | | |
| Married | 120 | 87 |
| Single or Separated | 18 | 13 |
| Employment Status | | |
| Employed part-time | 70 | 51 |
| Retired | 9 | 6 |
| Not employed | 59 | 43 |
| Educational attainment | | |
| Primary | 45 | 32.6 |
| High School | 29 | 21 |
| University | 21 | 15.3 |
| Total | 138 | 100 |

Abbreviations: n_number, %_percentage.
Amamou B (2019) Impact of demographic, clinical and psychological variables of patients and caregivers on the perception of burden among the family caregivers of patients with cancer

seven percent of the patients had a severe functional impairment. Fifty three percent had a moderate impairment to full functioning.

Caregiver burden

Using the ZARIT Caregiver Burden Scale to assess the caregiver burden, the scores ranged from 15 to 70 and mean score was 48.7±18.2. Table 6 shows the distribution of the levels of burden among caregivers. About one of every three caregivers perceived severe levels of burden.

Univariate analyses: Factors associated to high levels of caregiver burden

Factors statistically associated to high levels of caregiver burden are listed in table 7. Male gender for both patients and caregivers is associated to a higher level of burden. The age of patients above 61 years seems to be considerably burdensome. For the caregiver, being the child of the patient, aged between 40 and 59 years old, married, employed full-time, having an another member of the family needing daily care, are factors considered to be binding. It appears that a period of care giving more than one year and the failure to obtain a professional healthcare at home are associated to a high level of burden among caregivers.

Discussion

The study had various advantages. First, our sample was diverse in socio-demographic characteristics. Second, this study differed from previous research by assessing the variables of the dyad patient-caregiver related to high levels of burden. Third, it moved from assessment of the impact of social resources on caregiver outcomes to test the influence of taking into account the psychological patient distress and his functional abilities. However, the study is limited by its cross-sectional design. It was conducted at a single clinical site, among a sample of patients and their primary caregivers, so caution must be used when generalizing results from this sample to other patient populations.
caregiver populations. Although participants were from different communities, the study population was not ethnically and culturally heterogeneous. The data were measured at one point in time, giving only an actual illustration of the primary caregiver experience. Time since diagnosis may have had a consequence on the variables that was not captured. In addition preexisting psychological distress among caregivers such as anxiety and depression may have had an influence on the actual results.

As treating successfully cancer is difficult and complex, the experience of caregiving is also too hard and can lead to various repercussions on a caregiver’s life [28,29]. The current study provided an estimation of the caregiver burden and investigated the effects of both caregiver and patient variables on caregiving burden. It corroborates the existing literature and provides an advance in the field of oncology.

High levels of burden were found in one third of patients caregivers. Previous studies have concluded also that 20 to 32 % of caregivers perceived themselves as highly burdened [30-33]. Recent recommendations in medicine suggest focusing attention and providing care not only to patients but also to their families. Yet, challenges facing family members as caregivers seem to be neglected in some institutions. The family-centered care model, developed in the field of pediatrics [34], becomes gradually more emerging in oncology settings. Logan noted that although palliative care services aim to assist both patients and their families, family members are not receiving the needed psychosocial support [3].

This study revealed interesting associations, and caregiving burden was elucidated by the variables of the dyad patient-caregiver. As such, burden levels were found to be higher among male patients, aged between 61 and 70 years old, having other medical morbidities, necessitating pre and post-operative chemotherapy, having intermediate to high levels of anxious or depressive symptoms and those with a severe functional impairment. In the literature, similar results concerning gender differences among patients were found [19,35]. Hagedoorn et al. [36] reported that men often report distress and consequently seem to be attentive to their emotions, particularly when they are ill.

In the literature, gender differences concerning patients was explained by a lower attention given to emotions by men, they seem to express their psychological distress less than women [37,38] Lutzky and Knight [37] supported partially this explanation. However, different evidence exists in other studies, taking care of a female patient with cancer was linked to more advantageous outcomes [29]. A lower attention is given to emotions by men, they seems to express the psychological distress less than women [37,38] Few studies focused on the examination of burden among caregivers of older cancer patients [4]. Older adults with cancer seem to be rapidly exposed to functional deterioration, which leads to inescapable greater responsibilities devoted to caregivers. Furthermore, older people have often other morbidities and need an increased care and support that may top up caregiver burden [33]. Our results were not consistent with those of Hsu et al. [39] which reported that 15% of caregivers of older patients with cancer experienced high levels of burden. Given the growth of the aging population, a better comprehension of the particular challenges facing those caregivers is required [40,41].

Caregivers of patients having other medical morbidities and of those necessitating pre and post-operative chemotherapy were found to have higher levels of burden. In fact, comorbidities may predispose to physical frailty [40], and combined symptoms. The number of symptoms with a consequent increase in patient’s demands is associated with caregiver distress [42,43]. At the same time as patients’ symptom distress increases, and causes deteriorations in his quality of life [44,45] functional limitations increase and caregiver responsibilities increase too. Patients necessitating pre and post-operative chemotherapy are those necessitating more support and management. If the disease is advanced, patients need heavier treatments and family assistance increases as the patient’s disease advances and the patient’s physical status worsens. Caregivers have different psychological reactions to patient symptoms, which can cause distress as the failure of the patient’s health [46]. Objective burden, as compared to subjective one, is more associated with patient disease and treatment-related conditions [47].

Caregivers who perceived patients as being more dependent with their ADL were more likely to encounter higher levels of burden. These results are consistent with prior studies which noticed that caregivers of cancer patients who need more daily help had higher levels of burden [48,49].

Other studies have demonstrated that a patient’s level of dependence increases the mischance for caregiving burden [29,50-52]. In fact, decline in the patient’s functional status greatens the amount of tasks with which the patient requires aid. Caregivers who must assist with many tasks which may be difficult or demanding may have higher levels of distress [2,43,53-55]. In addition, caregiving obligations may restrain the caregiver’s capacity to engage in different activities in the society [56]. Williams [57] reported that the burden experienced by family caregivers who assist patients only in instrumental tasks is different than that experienced by family caregivers who provide the patients physical and psychological assistance. Obviously, it was demonstrated in several studies that the patient’s physical limitations is linked to the decline in cancer family caregiver physical health and can lead to the negative perception of the caregiving experience including the sense of burden [7,58-66].

The current study revealed that higher levels of caregiver burden were associated to caregiver’s characteristics which are: male gender, age between 40 and 59 years old, employed full-time status, being the child of the patient, having an another member of the family needing daily care, caregiving period more than one year, and not resorting to a professional healthcare at home. The gender difference in burden may mirror the gender difference nearly found in the normal population [61-64]. In this study, the negative effect of caregiving was shown to be higher in men, which is in conformity with previous evidence, stating that husbands were more burdened than wives [49]. Opposing evidence exists also reporting that female caregivers perceive more distress than male ones [29], [65] and supporting the ‘identity-relevant stress’ hypothesis. Female partners of patients with cancer were feeling insecurity and incompetence. As earlier described in literature [49], older caregivers experienced higher levels of burden. Older caregivers have frequently co-morbid conditions, resulting in frailty and decreased physical aptitude [30], particularly those who are previously vulnerable [66]. Limitation of family resources and social relationships can lead to problems for older caregivers; they take distance gradually from familial and social interactions to become totally focused on providing care. However, other studies have shown that older caregivers experience less psychological distress resulting from caregiving [15,59]. The explanation is that older caregivers perceive caregiving roles to be less demanding and their activities restricted comparatively to younger caregivers [12]. According to the results of the current study, caregivers who were employed full-time were more likely to have high levels of burden. This is concordant with studies that have concluded that demands from both caregiving
and work become overwhelming [52,53,67-70]. The reprioritization of responsibilities related to caregiving tasks, home-care demands and work obligations may increase the caregiver distress [52,68,70]. A recent study carried by Leonidou and Giannoussi [71] focused on the experiences of caregivers of patients with metastatic cancer showed that work life burden interested 29% of the participants. Different work difficulties were described and have led caregivers to search solutions that permit them to be nearer to the patient and to have more time for caregiving. Family caregivers reported that they use to switch from full-time to part-time work in order to accomplish their caregiving responsibilities [7].

On the other hand, other researchers [31,72] suggested that employment can be protective for caregivers [73-75] because it can be an important source of financial earnings and social assistance [75]. While two studies showed no distinction in caregivers’ issues between workers and non-workers, other studies [29,73,74] found that not employed family members experienced more caregiving burden than employed caregivers. The familial relationship to the patient was determinant in caregiving outcomes. It was mentioned in literature that the impression of being abandoned, which is a part of caregiver burden was more widespread among adult children caregivers [76]. Renegotiating factors related to intergenerational relationships may increase the distress levels [52,68,70]. Whereas, other studies reported that spouses were more distressed than other caregivers [53,54,77], because they use to serve the most extensive help, preserve their role longer, and endure greater amount of tasks. Having another member of the family needing daily care, and notably children was found to be associated to greater levels of caregiver burden. In fact, burden may be linked to the relinquishment of responsibilities and obligations. Duties related to childcare and the rearrangement of home-care demands increase the caregiver strain [52,68,70].

A critical requirement exists to develop appropriate interventions to support the caregiving role for family caregivers of patients with cancer. Most crucially, oncology nurses need to guarantee that caregivers obtain the proper and pertinent resources and advocate assistance for their parents. Oncology nurses may use these helpful and precious recommendations on conducting a comprehensive caregiver assessment that serve to improve support for caregivers in cancer [78].

**Conclusion**

In the present study, caregivers reported high levels of care burden. Several variables should be considered while evaluating the care roles, serving to accompany closely patients diagnosed with advanced cancer. Precipitating or hurtful and protective factors should be checked out actively in order to co-predict caregiver burden, which needs to be more actively and systematically investigated. Particular attention should be given to the changes of these variables as changes happen in a patient’s condition or as caregiver become distressed.

**Conflict of interest statement**

All the authors certify that they have NO affiliations with / or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers’ bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-fi nancial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

**Authorship statement**

All authors have made substantial contributions to all of the following: (1) conception and design of the study; (2) drafting and/or revising the article critically for important intellectual content; (3) final approval of the submitted version.

**Sources of support**

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

**Acknowledgements**

The authors would like to thank the patients and their corresponding caregivers for their interesting contribution to the study.

The authors would also like to thank all their colleagues working in the surgery, gastroenterology, gynecology, urology and nephrology departments that helped them to select the study population.

**References**

1. Ferrell BR, Grant M, Chan J, Ahn C, Ferrell BA (1995) The impact of cancer pain education on family caregivers of elderly patients. *Oncol Nurs Forum* 22: 1211-1218. [Crossref]
2. Given CW, Given BA, Stommel M (1994) The impact of age, treatment, and symptoms on the physical and mental health of cancer patients. A longitudinal perspective. *Cancer* 74: 2126-2138. [Crossref]
3. Miaskowski C, Kraglins L, Dibble S, Wallhagen M. (1997) Differences in mood states, health status, and caregiver strain between family caregivers of oncology outpatients with and without cancer-related pain. *J Pain Symptom Manage* 13: 138-147. [Crossref]
4. Gaugler JE, Hanna N, Linder J, Given CW, Tolbert V, et al. (2005) Cancer caregiving and subjective stress: a multi-site, multi-dimensional analysis. *Psychooncology* 14: 771-785. [Crossref]
5. Hudson P (2004) Positive aspects and challenges associated with caring for a dying relative at home. *Int J Palliat. Nurs* 10: 58-65. [Crossref]
6. Salmon JR, Kwak J, Acquaviva KD, Brandt K, Egan KA (2005) Transformative aspects of caregiving at life's end. *J Pain Symptom Manage* 29: 121-129. [Crossref]
7. Bayen E, Laigle-Donadey F, Prouté M, Hoang-Xuan K, Joël ME, et al. (2017) The multidimensional burden of informal caregivers in primary malignant brain tumor. *Support Care Cancer* 25: 245-253. [Crossref]
8. Cotrim H, Pereira G (2008) Impact of colorectal cancer on patient and family: implications for care. *Eur J Oncol Nurs* 12: 217-226. [Crossref]
9. Leroy T, Fournier E, Penel N, Christophe V (2016) Crossed views of burden and emotional distress of cancer patients and family caregivers during palliative care: Crossed views of burden and emotional distress in palliative care. *Psychooncology* 25: 1278-1285. [Crossref]
10. Saria MG, Courchesne NS, Evangelista L, Carter JL, MacManus DA, et al. (2017) Anxiety and Depression Associated With Burden in Caregivers of Patients With Brain Metastases. *Oncol Nurs Forum* 44: 306-315. [Crossref]
11. T. Rumpold et al. (2016) Informal caregivers of advanced-stage cancer patients: Every second is at risk for psychiatric morbidity. *Support Care Cancer* 24: 1975-1982. [Crossref]
12. G. M. Williamson, D. R. Shaffer, et R. Schulz, (1998) Activity restriction and prior relationship history as contributors to mental health outcomes among middle-aged and older spousal caregivers. *Health Psychol* 17: 152-162. [Crossref]
13. Hasson-Ohayon I, Goldzweig G, Braun M, Galinsky D (2010) Women with advanced breast cancer and their spouses: diversity of support and psychological distress. *Psychooncology* 19: 1195-1204. [Crossref]
14. Carney S, Koetters T, Cho M, West C, Paul SM, et al. (2011) Differences in Sleep Disturbance Parameters Between Oncology Outpatients and Their Family Caregivers. *J Clin Oncol* 29: 1001-1006. [Crossref]
15. Kim Y, Spillers RL (2010) Quality of life of family caregivers at 2 years after a relative’s cancer diagnosis. *Psychooncology* 19: 431-440. [Crossref]
16. Pellegrino RI, Formica Y, Portarena I, Mariotti S, Grena I, et al. (2010) Caregiver distress in the early phases of cancer. Anticancer Res 30: 4673-4676. [Crossref]

17. Schubart JR1, Kinzie MB, Farace E (2008) Caring for the brain tumor patient: Family caregiver burden and unmet needs. Neuro-Oncol 10: 61-72. [Crossref]

18. Vanderwerker LC, Laff RE, Kadon-Lottick NS, McColl S, Prigerson HG (2005) Psychiatric Disorders and Mental Health Service Use Among Caregivers of Advanced Cancer Patients. J Clin Oncol 23: 6899-6907. [Crossref]

19. Givon CW, Givon B, Azuzour F, Kozachik S, Stemmel M, et al. (2001) Predictors of pain and fatigue in the year following diagnosis among elderly cancer patients. J Pain Symptom Manage 21: 456-466. [Crossref]

20. Goode KT, Haley WE, Roth DL, Ford GR (1998) Predicting longitudinal changes in caregiver physical and mental health: A stress process model. Health Psychol 17: 190-198. [Crossref]

21. Cleeeland CS, Mendoza TR, Wang XS, Chou C, Harle MT, et al. (2000) Assessing symptom distress in cancer patients: the M.D. Anderson Symptom Inventory. Cancer 89: 1634-1646. [Crossref]

22. Coyle N (2001) Facilitating cancer pain control in the home: opioid-related issues. Curr Pain Headache Rep 5: 217-226. [Crossref]

23. Amin MB, Greene FL, Edge SB, Compton CC, Gershenwald JE, et al. (2017) The Eighth Edition AJCC Cancer Staging Manual: Continuing to build a bridge from a population-based to a more “personalized” approach to cancer staging: The Eighth Edition AJCC Cancer Staging Manual. CA Cancer J Clin 67: 93-99. [Crossref]

24. Bachner YG (2013) Preliminary assessment of the psychometric properties of the abridged Arabic version of the Zarit Burden Interview among caregivers of cancer patients. Eur J Oncol Nurs 17: 657-660. [Crossref]

25. Alami Y (2017) The Arabic Hospital Anxiety and Depression Scale: Time for a modification? Chron Respir Dis 14: 100-101. [Crossref]

26. Malasi TH, Mirza IA, el-Islam MF (1991) Validation of the Hospital Anxiety and Depression Scale in Arab patients. Psychiatry Q 64: 323-326. [Crossref]

27. Nasser R, Doumi J (2009) Validity and reliability of the Arabic version of activities of daily living (ADL). BMC Geriatr 9: 1. [Crossref]

28. Deeken JF, Taylor KL, Mangan P, Yabroff KR, Ingham JM (2003) Care for the caregiver: a review of self-report instruments developed to measure the burden, needs, and quality of life of informal caregivers. J Pain Symptom Manage 26: 922-953. [Crossref]

29. O. Gilbar (1999) Gender as a predictor of burden and psychological distress of elderly caregivers: Implications for caregiver: Impairments From Cancer Caregiving. Soc Sci Med 49: 521-535. [Crossref]

30. Given B, Wyatt G, Gift A, et al. (2004) Burden and depression among caregivers of patients with advanced cancer in Greece. Eur J Oncol Nurs 19: 81-88. [Crossref]

31. Given B, Wyatt G, Given C, Sherwood P, Gift A, et al. (2004) Burden and depression among caregivers of patients with cancer at the end of life. Oncol Nurs Forum 31: 1185-1187. [Crossref]

32. Grov EK, Dahl AA, Fosså SD, Wahl AK, Moun M (2006) Global quality of life in primary caregivers of patients with cancer in palliative phase staying at home. Support Care Cancer 9: 943-951. [Crossref]

33. Grunfeld E (2004) Family caregiver burden: results of a longitudinal study of breast cancer patients and their principal caregivers. CMAJ 170: 1795-1801. [Crossref]

34. Kossowski J, Charalambous A, Tsangari H (2012) How do informal caregivers of patients with cancer cope: A descriptive study of the coping strategies employed. Eur J Oncol Nurs 16: 258-263, juillet. 2012. [Crossref]

35. Kovacs PJ, Bellin MH, Fauri DP (2006) Family-centered care: a resource for social work in end-of-life and palliative care. J Soc Work End Life Palliative Care 2: 13-27. [Crossref]

36. Brouwer WB1, van Exel NJ, van Gorp B, Redekop WK (2006) The CarerQol instrument: A new instrument to measure care-related quality of life of informal caregivers for use in economic evaluations. Qual Life Res 15: 1085-1091. [Crossref]

37. MHageood M, Buunk BP, Kuijer RG, Wobbes T, Sanderman R (2000) Couples dealing with cancer: role and gender differences regarding psychological distress and quality of life. Psychooncology 9: 232-242. [Crossref]

38. Lucktzy SM, Knight BG (1994) Explaining gender differences in caregiver distress: The roles of emotional attentiveness and coping styles. Psychol Aging 9: 513-519. [Crossref]

39. Rose-Rego SK, Strauss ME, Smyth KA (1998) Differences in the perceived well-being of wives and husbands caring for persons with Alzheimer's disease. Gerontologist 38: 224-230. [Crossref]
Amamou B (2019) Impact of demographic, clinical and psychological variables of patients and caregivers on the perception of burden among the family caregivers of patients with cancer

63. Nolen-Hoeksema S (2001) Gender Differences in Depression. *Curr Dir Psychol Sci* 10: 173-176.
64. Davis MC, Matthews KA, Twamley EW (1999) Is life more difficult on Mars or Venus? A meta-analytic review of sex differences in major and minor life events. *Ann Behav Med* 21: 83-97. [Crossref]
65. Hagedoorn M, Sanderman R, Buunk BP, Wobbes T (2002) Failing in spousal caregiving: The 'identity-relevant stress' hypothesis to explain sex differences in caregiver distress. *Br J Health Psychol* 7: 481-494. [Crossref]
66. Connell CM, Janevic MR, Gallant MP (2001) The Costs of Caring: Impact of Dementia on Family Caregivers. *J Geriatr Psychiatry Neurol* 14: 179-187. [Crossref]
67. Kim Y, Spillers RL, Hall DL (2012) Quality of life of family caregivers 5 years after a relative’s cancer diagnosis: follow-up of the national quality of life survey for caregivers. *Psychooncology* 21: 273-281. [Crossref]
68. Lyons KS, Zarit SH, Sayer AG, Whitlatch CJ (2002) Caregiving as a dyadic process: perspectives from caregiver and receiver. *J Gerontol B Psychol Sci Soc Sci* 57: P195-204. [Crossref]
69. Mazanec SR, Daly BJ, Douglas SL, Lipson AR (2011) Work productivity and health of informal caregivers of persons with advanced cancer. *Res Nurs Health* 34: 483-495. [Crossref]
70. Sales E (1992) Psychosocial Impact of the Phase of Cancer on the Family: An Updated Review. *J Psychoonc Oncol* 9: 1-18.
71. Leonidou C, Giannousi Z (2018) Experiences of caregivers of patients with metastatic cancer: What can we learn from them to better support them? *Eur J Oncol Nurs* 32: 25-32. [Crossref]
72. Mellor S, Northouse LL, Weiss LK (2006) A population-based study of the quality of life of cancer survivors and their family caregivers. *Cancer Nurs* 29: 120-131. [Crossref]
73. Borg C, Hallberg IR (2006) Life satisfaction among informal caregivers in comparison with non-caregivers. *Scand J Caring Sci* 20: 427-438. [Crossref]
74. Edwards AB, Zarit SH, Stephens MA, Townsend A (2002) Employed family caregivers of cognitively impaired elderly: An examination of role strain and depressive symptoms. *Aging Ment Health* 6: 55-61. [Crossref]
75. Scharlach AE (1994) Caregiving and employment: competing or complementary roles? *Gerontologist* 34: 378-385. [Crossref]
76. Given B, Wyatt G, Given C, Sherwood P, Gift A, et al. (2004) Burden and depression among caregivers of patients with cancer at the end of life. *Oncol Nurs Forum* 31: 1105-1117. [Crossref]
77. Given B, Sherwood PR (2006) Family care for the older person with cancer. *Semin Oncol Nurs* 22: 43-50. [Crossref]
78. Belgacem B, Auclair C, Fedor MC, Brugnon D, Blanquet M, et al. (2013) A caregiver educational program improves quality of life and burden for cancer patients and their caregivers: A randomised clinical trial. *Eur J Oncol Nurs* 17: 870-876. [Crossref]

Copyright: ©2019 Amamou B. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.