

Original Article

Factors Associated with Anxiety and Depression among Family Caregivers of Critically Ill Elderly Patients: A Systematic Review

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Correspondence: Watchara Tabootwong, 169, Department of Gerontological Nursing, Faculty of Nursing, Burapha University, Chonburi 20131, Thailand. E-mail: watchara.t2525@gmail.com**Abstract****Introduction:** Family caregivers always play various tasks to support their critically ill elderly patients (CIEPs) during hospitalization. Anxiety and depression may occur among family caregivers because of the caregiving burden and severity of illness in elderly patients.**Aims:** To identify factors associated with anxiety and depression among family caregivers of CIEPs.**Methods:** A systematic review approach was employed. Peer-reviewed journal articles published in English language between 2000 and 2019 were retrieved from CINAHL, PsycINFO, PubMed, Scopus, and Web of Science. The final analysis included eight articles, data were analyzed using thematic analysis.**Results:** Factors associated with anxiety and depression were grouped into patient-related factors (e.g., characteristic of patient, severity of disease, and anxiety) and family caregiver-related factors (e.g., characteristic of family caregiver, sleep disturbance, family need, caregiving burden, fatigue, health status, and the quality of communication).**Conclusion:** Factors associated with anxiety and depression consisted of patient-related factors and family caregiver-related factors. Age, gender, and family relationship are none modifiable. On the other hand, caregiving burden, health status, family needs are modifiable. Therefore, the results can guide healthcare professionals in assessment, prevention, and managing psychological discomfort among family caregivers by considering factors related.**Keywords:** Anxiety, caregivers, critically ill, depression, elderly**Introduction**

Critically ill elderly patients (CIEP) are clients with severe illness often associated with organ dysfunction (Marshall et al. 2017). CIEPs are often admitted to intensive care units (ICUs) due to one or multiple life-threatening conditions such as: age-related physiological changes, frailty (Acebedo-Urdiales et al. 2018), and severe comorbidities—e.g. chronic obstructive pulmonary disease, heart failure, chronic renal failure, and

cancer (Robert et al. 2017, Guidet et al. 2018). These conditions often cause other complications such as respiratory failure thus warranting the use of advanced treatment modalities and equipment e.g. mechanical ventilation (MV) (Lai et al. 2016, Le Borgne et al. 2018). Whilst there is advocacy for family involvement in care for critically ill patients, CIEPs need to be supervised by members of the medical care team (e.g., physician and critical care nurse) to manage health problems (Marshall et al. 2017). CIEPs often request their

family caregivers to be beside them (Minton et al. 2018).

Here, family caregivers may play different roles and responsibilities in assisting and supporting CIEPs during hospitalization (Frivold et al. 2016, Tabootwong 2020). For instance, they assist and manage changes associated with patients' health problems and needs, participation in routine care (Faronbi et al. 2019) as well as communication with nursing team (Nayeri et al. 2015). Involvement of the family caregivers in the care of CIEPs predisposes family caregivers to physical and psychological problems including worrying, dizziness, difficulty sleeping, malaise, and weight loss (Alfheim et al. 2018). Particularly, caregiver burden (del-Pino-Casado et al. 2015), severity of illness, and use of MV (Fumis et al. 2015b) increases the risk of anxiety and depression among family caregivers.

Notwithstanding the importance of family caregivers, consequences of caregiving may affect quality of care for CIEPs and health of the family caregivers. Continuity of elderly patient care usually requires a caregiver (Nayeri et al. 2015, Karaca et al. 2019), thus it is essential to highlight the extent of anxiety and depression and their associated factors among family caregivers of CIEPs. In addition, few studies have focused on psychological symptoms and factors related in family caregivers of CIEPs. This systematic review was conducted to highlight factors associated with anxiety and depression among family caregivers of CIEPs, and instrument used to measure symptoms of anxiety and depression in this caregiver subpopulation.

Methods

Design: This is a systematic review; this approach allows for synthesis of quantitative data from previous studies (Oh 2016). The process of conducting a systematic review of factors associated with anxiety and depression among family caregivers of CIEPs is as follows:

Search strategy: Research articles were retrieved from five electronic databases: CINAHL (n = 41), PsycINFO (n = 51), PubMed (n = 713), Scopus (n = 466), and Web of Science (n = 52). The search terms used consisted of anxiety, depression, family, caregivers, aged, elderly, older, critically ill, critical care, and patients. These terms were combined with Boolean operators. The search was performed with appropriate adjustments made to align the strategy to the requirements of each

database. The inclusion criteria comprised of the year of publication (2000 – 2019), publication as a research article in a peer-reviewed scientific journal, and publication in the English language.

The process of selecting articles: The PRISMA statement was used to select articles, including identification, screening, eligibility, and included (Moher et al. 2009). The process of selecting articles for inclusion in this systematic review is shown in Figure 1.

1) Identification; 1,323 articles were identified from five electronic databases using the search terms which were combined by AND/ OR operators. The aim was to identify articles reporting on factors associated with anxiety and depression among family caregivers of CIEPs. 1,274 articles based on the title were excluded because these mainly focused on critically ill patients, elderly patients with chronic illness, family caregivers of elderly patients at home without reporting anxiety and depression. In addition, 6 articles regarding psychological symptoms in family caregivers of critically ill patients were eliminated at this stage because they were found to be duplicates.

2) Screening; 43 articles based on their titles were screened, these focused on psychological symptoms among family caregivers of critically ill patients. At this stage, 13 articles were excluded based on abstract with the following reasons; (a) articles focused on family caregivers of children and adult patients in ICU, (b) they used qualitative methods, and (c) they did not focus specifically on anxiety and depression.

3) Eligibility; full texts articles (n = 30) were assessed for eligibility. Firstly, we searched for the mean age of patients, we considered studies with participants of 60 years or older. We also considered studies where results indicated factors associated with anxiety and depression among family caregivers of CIEPs. At this step, 22 articles were excluded because (a) participants were critically ill adult patients, (b) participants and outcomes other than family caregivers' anxiety and depression symptoms, and (c) those that did not report on the correlation other variables with anxiety and depression in family caregivers.

4) Included; after screening with inclusion criteria at the step of eligibility, 8 articles were included in the analysis. Two authors (WT and FK) evaluated the quality of studies. The Quality Assessment Tool for Quantitative Studies developed by the Effective Public Health Practice

Project (EPHPP) was used to appraise the quality of the included studies (Evans et al. 2015). The EPHPP tool has eight aspects, including (a) selection bias, (b) study design, (c) confounders, (d) blinding, (e) data collection methods, (f) withdrawals and drop-outs, (g) intervention integrity, and (h) analyses. Aspects (a) to (f) were assigned a rating of strong, moderate, and weak. Aspects (g) and (h) required the recording of descriptive information, in line with recommendations. The eight articles accepted for this review were considered to be of strong quality and related to the purpose of this systematic review.

Data analysis: Full text of the articles were analyzed using three steps of thematic analysis, including preparation, organizing, and reporting (Vaismoradi et al. 2013). At the step of preparation, results of full-text articles were read and reread several times to obtain the sense of whole data. After that, the manifesting content of each article about factors associated with anxiety and depression among family caregivers of CIEPs were labeled with a red pen for the second step of data analysis. While organizing the data, we organized the manifesting content by assigning codes, creating categories, and grouping codes under higher order headings. In the final step, we reported the results through narratives involving factors associated with anxiety and depression in family caregivers who participated in caregiving for CIEPs.

Results

Characteristics of included articles

The included articles in this review (n = 8) were published between 2005 and 2019. Two articles were from North America (Ohio and New York), other articles were from Brazil (n = 3), France (n = 1), Korea (n = 1), and Taiwan (n = 1). With regards to study designs; perspective study (n = 3), cohort study (1), experimental study (n = 1), cross-sectional study (n = 2), and longitudinal study (n = 1) were used across studies. All studies were conducted in ICU. Majority of the family caregivers were female—mainly spouses and children of the CIEPs. The articles included in the review covering factors associated with anxiety and depression in family caregivers of CIEPs are shown in Table 1.

Factors associated with anxiety in family caregivers of CIEPs

Factors associated with anxiety in family caregivers of CIEPs are presented in Figure 2. The factors associated with anxiety were divided into two elements as follows:

1) Patient-related factors

Patient-related factors consisted of characteristics of patient, the severity of the disease, and patient's anxiety. The details of each factor are as follow:

1.1) Characteristics of patient: Patient's age was associated with symptoms of anxiety (Fumis & Deheinzelin 2009, Fumis et al. 2015a). Patient who aged less than 63 years (younger age) were significantly associated with family's anxiety (Fumis & Deheinzelin 2009). Regard to age-related changes, elderly patients had multiple pathologies. Therefore, the number of diseases in the elderly patient also correlated to family's anxiety (Kao et al. 2016). Additionally, CIEPs who were inserted an endotracheal tube with mechanical ventilation, family caregivers usually felt anxious. In the other word, the use of mechanical ventilation in CIEPs was a factor associated with anxiety symptoms in family caregivers (Fumis & Deheinzelin 2009, Fumis et al. 2015a).

1.2) The severity of the disease: The severity of disease in CIEPs as assessed by the Simplified Acute Physiology Score II (SAPS-II) was significantly associated with anxiety (Pochard et al. 2005). For example, if CIEPs had hematological malignancies (Fumis & Deheinzelin 2009), family caregivers would be at increased risk of anxiety symptoms because of elderly patient's physical health problems or poor prognosis (Douglas et al. 2005, Fumis & Deheinzelin 2009, Fumis et al. 2015a).

1.3) Patient's anxiety: Symptoms of anxiety were correlated between patients and family caregivers in a positive direction. That is, if the elderly patient was anxious about his/her symptoms, a family caregiver always felt anxious as well (Fumis et al. 2015b). Therefore, symptoms of anxiety in the elderly patient and family caregiver were assessed using the Hospital Anxiety and Depression Scale (HADS) or the Center for Epidemiological Studies Depression (CES-D) questionnaire (Douglas et al. 2005).

2) Family caregiver-related factors

Family caregiver-related factors associated with anxiety in family caregivers of CIEPs included the following three aspects:

2.1) Characteristic of family caregiver: Age, gender, education, income, relationship with an elderly patient, helper, learned resourcefulness (Kao et al. 2016), and experience of prescription medication for mood disorder (Jo et al. 2019) were family caregivers-related factors, which were associated with family caregiver's anxiety (Jo et al. 2019, Kao et al. 2016, Pochard et al. 2005, Fumis et al. 2015a). Anxiety in younger family caregivers was higher than older family caregivers (Kao et al. 2016). Women were a high risk of anxiety symptoms compared to men (Kao et al. 2016, Fumis et al. 2015a). Family caregivers who were illiterate and had insufficient income, were at risk of anxiety symptoms as well (Kao et al. 2016). Regarding relationship with patient, children were anxious as higher than spouses (Kao et al. 2016, Pochard et al. 2005). Moreover, family caregivers who had helpers in assisting them regarding elderly care, and they had experiences in caring for other patients before as learned resourcefulness, they had symptoms of anxiety less than family caregivers who did not have helpers and learned resourcefulness (Kao et al. 2016). Family caregivers with mood disorders, history of using antipsychotic medication, these increased the risk of anxiety symptoms compared to family caregivers without antipsychotic medication usage (Jo et al. 2019).

2.2) Sleep disturbances: Family caregivers suffered from sleep disturbances due to various tasks in caregiving for their loved ones. Sleep disturbances were measured by the Pittsburgh Sleep Quality Index (PSQI). Sleep disturbances were positively correlated with anxiety symptoms (Kao et al. 2016).

2.3) Family needs: Family caregivers needed to be supported by relatives and healthcare providers during hospitalization. To measure family needs, the Critical Care Family Needs Inventory (CCFNI) was used. Family caregivers who were dissatisfied with support often more felt anxious. There was a significant association between the family needs and the HADS- anxiety score (Fumis et al. 2015a).

Factors associated with depression in family caregivers of CIEPs

Factors associated with depression in family caregivers of CIEPs are presented in Figure 3. The factors associated with depression were divided into two groups as follows:

1) Patient-related factors

Patients-related factors included characteristics of patient, severity of disease, and patient's anxiety. Each factor is explained as follows:

1.1) Characteristics of the patient: Age, death of the patient, the use of mechanical ventilation, and palliative care are the patient characteristics associated with depression in family caregivers. The patient's age was related to depression in family caregivers. Older patient's age increased the likelihood of depression (Pochard et al. 2005). Elderly patients with multiple pathologies and those that died during are associated with depressive symptoms in family caregivers (Pochard et al. 2005). Additionally, the use of mechanical ventilation to assist the elderly patient with breathing and palliative care for the critically ill elderly patient were associated with symptoms of depression in family caregivers (Fumis et al. 2015a).

1.2 The severity of diseases: CIEPs admitted to the hospital with severe illnesses is associated with depression among family caregivers. The severity of disease was commonly measured using the Simplified Acute Physiology Score (SAPS II). Family caregivers of elderly patients who had a more severe disease had more symptoms of depression (Fumis et al. 2015a). The prognosis of an elderly patient made the family caregiver experience depression (Pochard et al. 2005, Fumis & Deheinzelin 2009).

1.3 Anxiety: Symptoms of anxiety and depression among elderly patients and family members were positively correlated. If elderly patients were anxious about their illness, family caregivers were also anxious related to elderly patient's symptoms and treatment as well (Fumis et al. 2015b). The Hospital Anxiety and Depression Scale (HADS) was used to evaluate symptoms of anxiety and depression in family caregivers and their elderly patients (Fumis & Deheinzelin 2009, Fumis et al. 2015a).

2) Family caregiver-related factors

Family caregiver-related factors consisted of characteristics of family caregivers, sleep disturbance, anxiety, fatigue, health status, family needs, caregiving burden, and the quality of communication. These factors are explained as follows:

2.1 Characteristics of family caregivers: Age, gender, education, resourcefulness, income, helper in caring for the elderly patient, and the caregiver's relationship with the elderly patient were significantly correlated to symptoms of depression in family caregivers of CIEPs. Symptoms of depression in younger family caregivers were higher than older family caregivers (Kao et al. 2016). Women were more likely to have symptoms of anxiety, this had a significant association with symptoms of depression (Fumis & Deheinzelin 2009). Regarding family caregiver's education, illiterate family caregivers had higher risk of depressive symptoms than literate family caregivers (Kao et al. 2016, Fumis et al. 2015a). Moreover, the relationship between education and depressive symptoms decreased when learned resourcefulness mediated the relationship. Learned resourcefulness referred to family caregiver's ability to deal with distressed situation through positive thinking. Family caregivers who were more resourceful had lower depressive symptoms (Kao et al. 2016).

Regarding the relationship of family caregiver's income and depression, family caregivers with low-income had more depression than family caregivers with higher income (Kao et al. 2016). The family caregiver-elderly patient relationship also influenced the experience of depression — spousal caregivers had more depressive symptoms than other caregivers (e.g., children, siblings, grandchildren, and friends). Additionally, depressive symptoms in family caregivers who had helpers (1 to 3 persons) in caring for CIEPs experienced lower depression compared to those with no helpers (Kao et al. 2016).

2.2 Sleep disturbance: Caring for CIEPs disturbs the family caregiver's sleeping pattern. Worries

about costs associated with care exacerbated sleep disturbance, this in turn was associated to symptoms of depression (Kao et al. 2016).

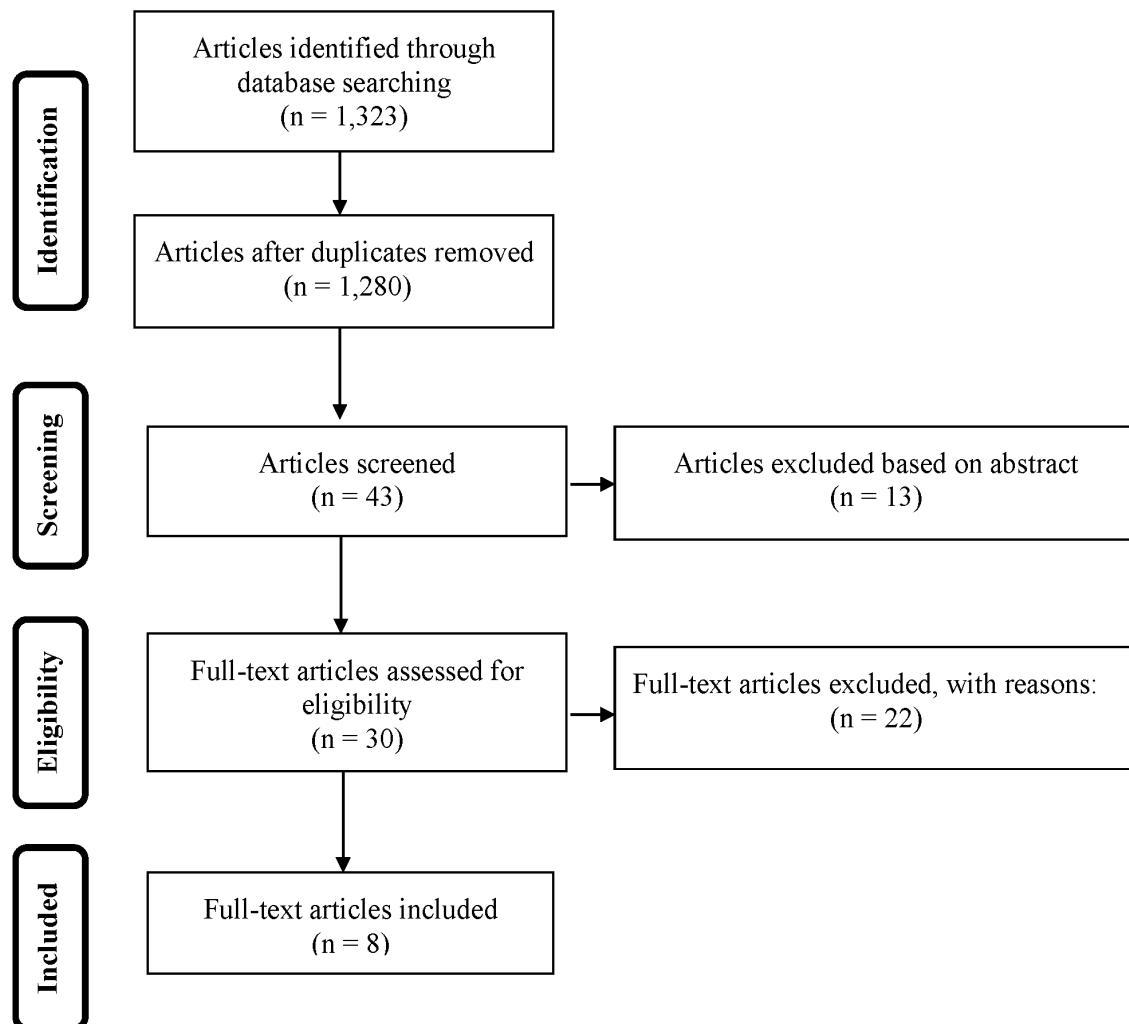
2.3 Fatigue: Physical fatigue was assessed using the Chalder Fatigue Scale (CFS). Fatigue scores were significantly associated with HADS. Depressed family caregivers explained more fatigue than non-depressed family caregivers (Rabkin et al. 2009).

2.4 Health status: The family caregiver's health status and health-related quality of life (HRQOL) was measured using the HRQOL Short Form-8 (SF-8), which was an instrument for measuring health problems in family caregivers had a significant correlation with depressive symptoms (Douglas et al. 2005).

2.5 Family needs: Patients' severity of disease had a trend toward family caregivers' dissatisfaction with support received from healthcare providers. The extent of satisfaction among family caregivers while providing care for CIEPs was measured by CCFNI. Family needs were associated with depression. Family caregivers who were dissatisfied with received support experience more depressive symptoms (Fumis et al. 2015a).

2.6 Caregiving burden: The Zarit Burden Interview (ZBI) was used to measure the caregiving burden. Caregiving burden had a statistically significant correlation with CES-D scores. Family caregivers who had high caregiving burden were at risk of depressive symptoms (Rabkin et al. 2009, Douglas et al. 2005).

2.7 The quality of communication: The communication between healthcare professionals and family caregivers is essential in giving accurate information to assist CIEPs. The quality of communication (QOC) questionnaire was used to assess the efficiency of communication. The QOC score with nurses was negatively associated with the HADS-depression scores. However, the QOC scores with physicians were not significantly correlated with the HADS-depression (Jo et al. 2019).

Figure 1. The process of selecting articles for inclusion in a systematic review

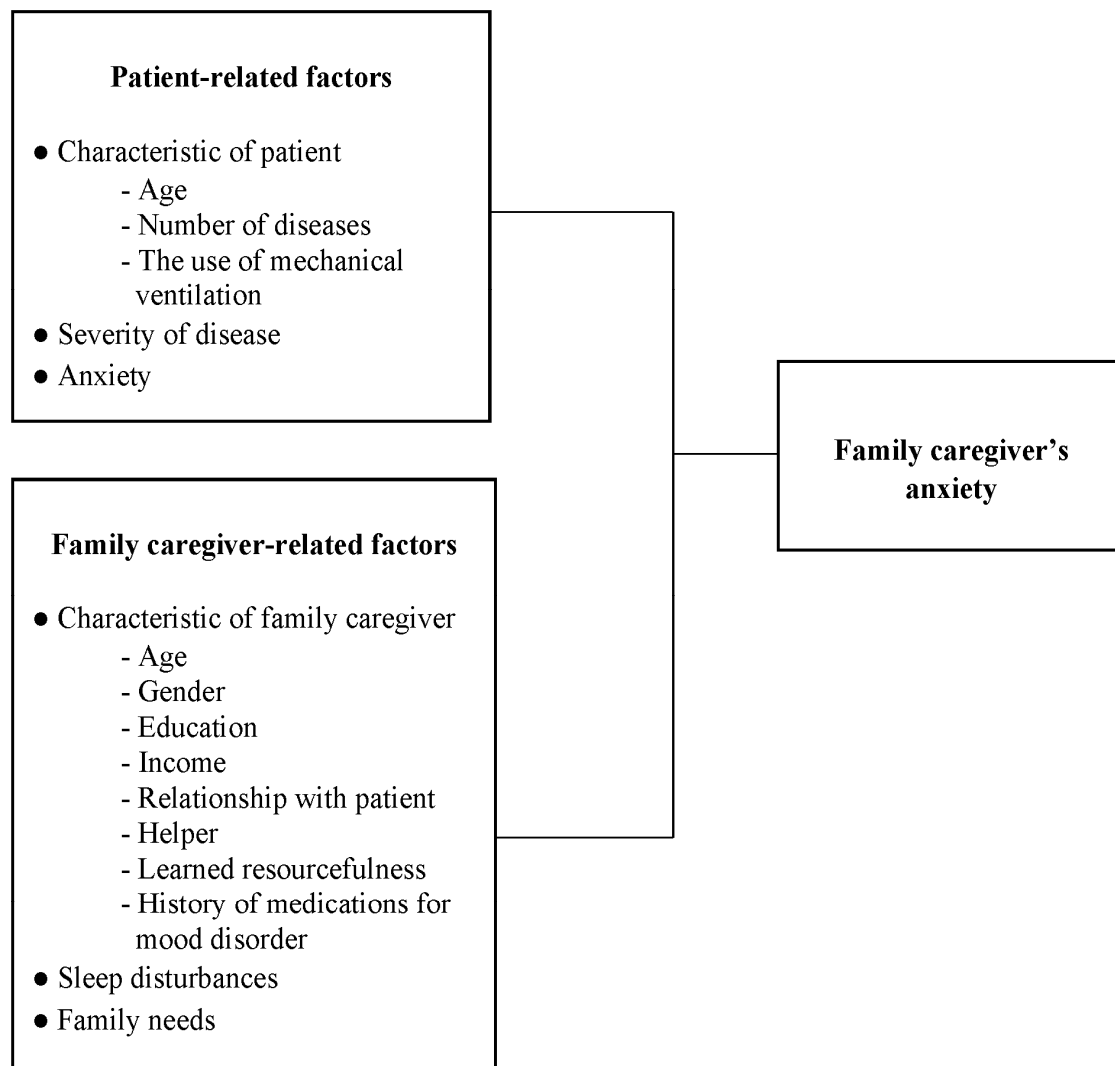


Figure 2. Factors associated with anxiety in family caregivers of critically ill elderly patients.

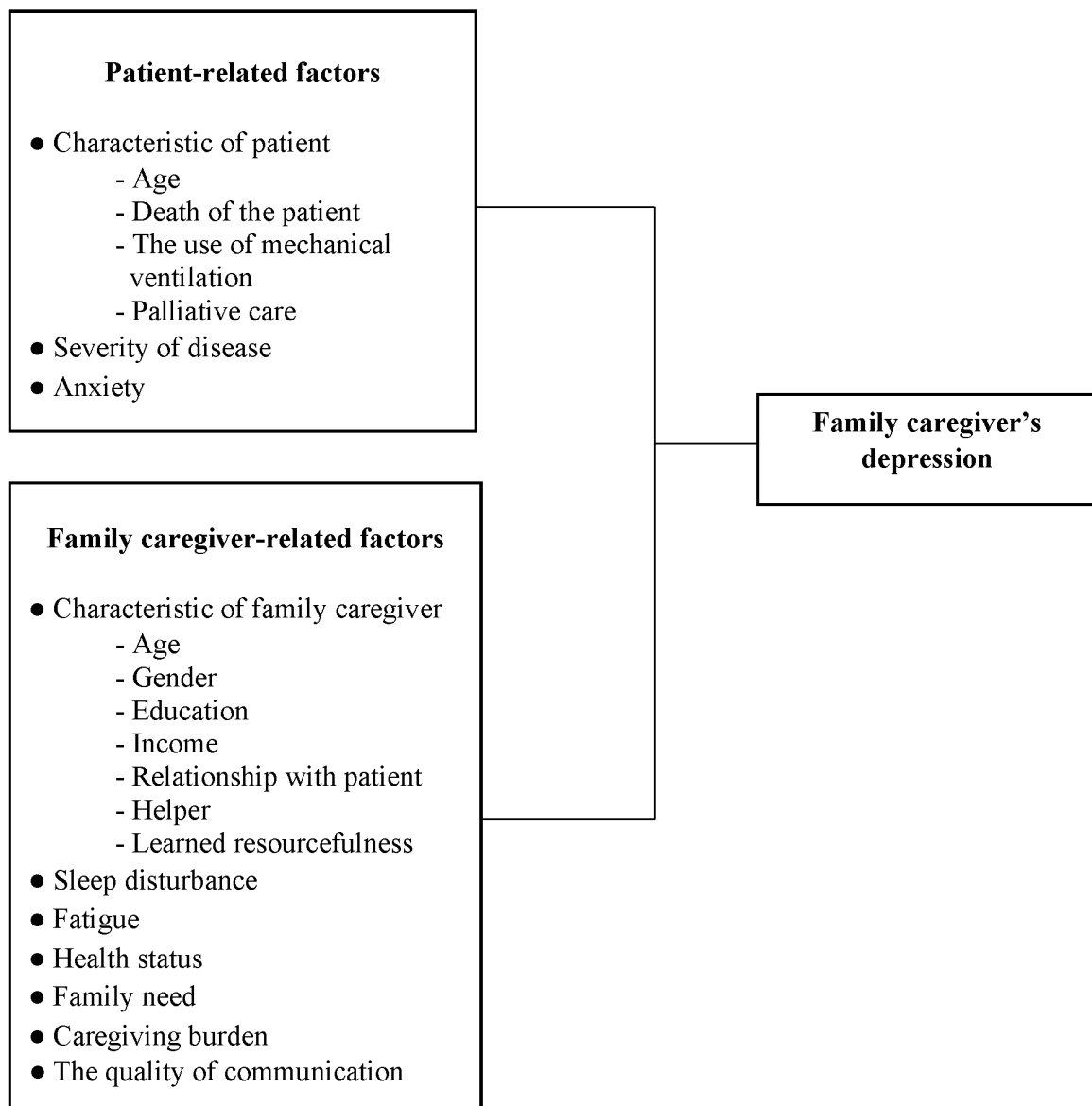


Figure 3. Factors associated with depression in family caregivers of critically ill elderly patients.

Table 1. Studies included in the review (N=8)

Author, Year / Country	Purpose	Sample	Design	Instruments	Main results	Quality of article
Jo et al., 2019 (Korea)	To examine the association between family-clinician (physicians or nurses) communication quality and symptoms of anxiety and depression among family members of chronically critically ill patients in ICUs.	71 family members of patients who required prolonged mechanical ventilation in ten ICUs	A cross-sectional study	- Characteristics of the patients and family members - The Quality of Communication (QOC) - The Hospital Anxiety and Depression Scale (HADS)	- The mean age of patients was 63.8 (SD = 15.9) years. - The mean age of family members was 49.6 (SD = 14.1) years. - Family caregivers were adult children (50.7%) and spouses (32.4%). - 64.8 % of family caregivers were female. - The QOC scores with nurses were negatively associated with the HADS-depression scores, but the QOC scores were not significantly correlated with the HADS-anxiety. - The QOC scores with physicians were not significantly correlated with the HADS-anxiety and HADS-depression. - Experience with prescription medication for mood disorder in family caregiver was associated with the HADS-anxiety.	Strong
Kao et al., 2016 (Taiwan)	To examine the relationships among family caregivers' demographic variables, patients' disease characteristics, learned resourcefulness, sleep disturbances, anxiety and depressive symptoms in family members of patients in ICUs.	200 family members of critically ill patients	A cross-sectional study	- Characteristics of the patients and family members - The Pittsburgh Sleep Quality Index (PQSI) - The State-Trait Anxiety Inventory - The Center for Epidemiological Studies Depression (CES-D)	- The mean age of patients was 66 (SD = 16.1) years. - The mean age of family members was 45 (SD = 12.6) years. - Family caregivers were adult children (68%) and spouses (18.5%). - 59 % of family caregivers were female. - Gender, education, income, family relationship, helpers, patient's number of diseases, caregiver's age, and learned resourcefulness were correlated with anxiety and depression symptoms. - Sleep disturbances were positively correlated with anxiety and depression symptoms.	Strong

Author, Year / Country	Purpose	Sample	Design	Instruments	Main results	Quality of article
Fumis et al., 2015 (Brazil)	To compare the incidence of anxiety, depression and post-traumatic stress disorder symptoms in patients and family members, during stay at an open visit ICU.	471 family members and 289 patients	A prospective study	- Characteristics of the patients and family members - HADS - The Impact of Event Scale (IES)	- The mean age of patients was 60 (SD = 16) years. - The mean age of family members was 52 (SD = 13) years. - 64.1% of family caregivers were spouses, and 79.3 % of family caregivers were female. - HADS and its subscales scores significantly decreased over time for patients and family members. - Symptoms of anxiety and depression were correlated between patients and family members in a positive direction.	Strong
Fumis et al., 2015 (Brazil)	To evaluate the satisfaction and symptoms of anxiety and depression in family members in an open visiting intensive care unit.	1,125 patients and 471 family members	A prospective study	- Characteristics of the patients and family members - HADS - The Critical Care Family Needs Inventory (CCFNI)	- The median patient age was 69 (range = 56-80) years. - 47% of the family members were spouses. They were female (78%). Median age was 54 (Range = 45-62) years. - A significant association between the family needs and the HADS score. - Need some help in ICU, patient's age, and mechanical ventilation were factors associated with symptoms of anxiety. - Sex, education, need some help in ICU, anxiety symptoms, severity of illness, mechanical ventilation, and palliative care were factors associated with symptoms of depression.	Strong

Author, Year / Country	Purpose	Sample	Design	Instruments	Main results	Quality of article
Fumis and Deheinzeln, 2009 (Brazil)	To determine prevalence and factors associated with symptoms of anxiety and depression in family members of critically ill cancer patients.	443 patients and 300 family members	A cohort study	- Characteristics of the patients and family members - HADS - CCFNI	- The median age of patients was 63 (Range = 53–73) years. - 65% of family members were women, median age was 45 years (Range = 36–55), and 69% were married. - Factors associated with symptom of anxiety included patient-related factor (age, hematological malignancies, and prolonged mechanical ventilation) and family-related factors (gender). - Factors associated with symptoms of depression included patient-related factor (poor or severe prognosis and presence of metastasis) and one family-related factor (gender). - No correlation was found between the level of satisfaction with the symptoms of anxiety and depression.	Strong
Rabkin et al., 2009 (New York, USA)	To assess the impact of personal, situational and patient characteristics on mood, and changes over time, among ALS caregivers.	71 patient-caregiver pairs	A longitudinal study	- Characteristics of the patients and family members - Patient Health Questionnaire (PHQ-9) - Beck Depression Inventory Revised (BDI-II) - Manne scales of positive and negative dyad support - The ALS Functional Rating Scale-Revised - The Zarit Burden Scale - Caregiver Satisfaction Scale - Chalder Fatigue Scale - Folkman's Ways of Coping Scale	- The mean age of patient was 62 years (range 27–85 years). - The mean age of family caregiver was 57 years (SD=15). - 74% of family caregivers were women. 63% were spouses. - 13% of family caregivers had major depression and 10% had minor depression. - Correlates of caregiver depression included caregiving burden, and fatigue. - Caregiver and patient BDI scores were modestly correlated.	Strong

Author, Year / Country	Purpose	Sample	Design	Instruments	Main results	Quality of article
Douglas et al., 2005 (Ohio, USA)	To describe the incidence of caregiver depression, burden, and physical health in caregivers of chronically critically ill (CCI) patients and to examine the relationship of selected variables to caregiver depression and burden.	Caregivers of 290 patients who had received > 3 days of mechanical Ventilation while in the ICU of a university medical center.	An experimental study	- Characteristics of the patients and family members - The Center for Epidemiologic Studies Depression Scale (CES-D) - The Medical Outcomes Study Eight-Item Short Form (SF-8) - The caregiver reaction assessment - Activity of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs)	- The mean age of CCI patients was 60.7 (16.9) years in experimental group and 60.5 (17.2) years in control group. - The mean age of caregivers was 53.1 (14.5) years in experimental group and 52.6 (17.7) years in control group. - Majority of caregivers were spouses and children. They were female. - Caregiver burden, physical health problems had a statistically significant correlation with CES-D scores.	Strong
Pochard et al., 2005 (France)	To explore the prevalence and risk factors of symptoms of anxiety and depression in family members at the end of the ICU stay.	357 patients were included in the study, and 544 family members of ICU patients before discharge or death.	A prospective study	- Characteristics of the patients and family members - HADS	- The patients had a median age of 61 (42-74) years. - The median age of caregivers was 47 (35-60) years. - Majority of caregivers were spouses and children. - Patient-related factors, a worse SAPS II score and patient age were significantly associated with anxiety and depression, in opposite directions. Additionally, patient died in the ICU was significantly associated with depression. - Family-related factors, being the spouse of the patient was significantly associated with symptoms of anxiety but not of depression. - Caregiver-related factors, having the patient in a room with more than 1 bed was significantly associated with symptoms of depression.	Strong

Discussion

The findings indicated that family caregivers of CIEPs had symptoms of anxiety and depression during participation in caregiving for CIEPs. There were two main aspects of factors associated with anxiety and depression, including patient-related factors and family caregiver-related factors. Patient-related factors associated with anxiety in family caregivers of CIEPs consisted of the patient's age, number of diseases, the use of mechanical ventilation, disease severity, and patient's anxiety. At the same time, patient-related factors that were associated with a risk of having depressive symptoms in family caregivers, including patient's age, patient's death, the use of mechanical ventilation, palliative care, disease severity, and patient's anxiety.

Patient-related factors associated with anxiety and depression in family caregivers, those factors involved with these include the elderly's advanced age, disease, and treatment for an elderly patient. As a result of older age and having multiple pathologies, elderly patients may suffer from severity of illness, and age is associated are associated with a greater mortality in patients who were receiving mechanical ventilation (Santa Cruz et al. 2019). Elderly patients with illness often authorize family members to make decisions on their behalf (Pusey et al. 2019), participate in care (Faronbi et al. 2019). This situation predisposes family caregivers to psychological problems and caregiving burden while assuming caregiving roles (Lavela & Ather 2010). del-Pino-Casado et al. (2015), family caregivers experience symptoms of anxiety and depression due to high caregiving burden. According to study of Beesley et al. (2018), symptoms of anxiety and depression in family caregivers of critically ill patients can persist up to 3 months.

Critically ill patients with higher age and treatment with mechanical ventilation exposes caregivers to higher levels of anxiety and depression. Surprising relatives of CIEPs experience higher psychological symptoms compared to patients (Myhren et al. 2009). Patient's death further worsens depressive symptoms in family caregivers compared to their status before the patient's admission (Matt et al. 2017). Similarly, Köse et al. (2016) reported that patient-related factors (e.g., age, gender, severity of diseases, premorbid lifestyle, and reasons for

admission of the patients) were associated with the psychological symptoms in family caregivers.

Another finding about family caregiver is related to the caregiver's demographic characteristics, resources, history of medications for mood disorder, sleep disturbance, family need, and the quality of communication. Family caregiver-related factors associated with symptoms of anxiety were similar with symptoms of depression in family caregivers of CIEPs, but family caregiver's anxiety, fatigue, health status, and caregiving burden were added to be family caregiver-related factors associated with depression. The family caregiver's extreme worries about the prognosis situation (Bahrami & Yousefi 2011), events involving the care for patients having endotracheal tube, pain, and the patient's compromised communication capacity could perpetuate anxiety and depression among caregivers (De Oliveira & Fumis 2018). Similarly, a study of Choi et al. (2011) reported that patients' negative mood and pain could result in family caregiver distress.

Noteworthy, female gender and younger age were associated with a higher risk of anxiety and depression (Haines et al. 2015). De Oliveira & Fumis (2018) indicated that female was associated with higher symptoms of anxiety and depression than male—women at times believe that worry is uncontrollable, this may lead to symptoms of anxiety and depression (Bahrami & Yousefi 2011). Besides, women often perceive that caregiving is a female duty, this leads to a burden thus higher experiences of symptoms of depression more than men (Friedemann & Buckwalter 2014). Additionally, the nature of the family relationship with the patient was associated with anxiety and depression. In particular, family caregivers who were patients' spouses, children, and siblings, had a higher risk of anxiety and depression (Köse et al. 2016). This finding is consistent with those of Johnson et al. (2019) who reported that the relationship between the family caregiver and the patient perpetuated depression. Moreover, the emotional bond influences experiences of depressive symptoms (Litwin et al. 2014).

Furthermore, fatigue, health status, and the need for support were related with symptoms of anxiety and depression. These factors may explain that family caregivers perform various tasks in supporting their CIEPs, such as feeding, bathing,

exercising, making decision about treatment for elderly patients, and communicating with nursing team. The new roles affect the caregivers' activities of daily living (Frivold et al. 2016). This leads to altered sleeping patterns, physical exhaustion, and back pain (Liu et al. 2017). This finding is consistent with those from a study of Litwin et al. (2014). The former authors explained that provision of informal care was stressful and resulted in an experience of depressive symptoms among family caregivers. Choi et al. (2016) described the impact of caregiving on the psychological and physical health in family caregivers of ICU patients. They also revealed that family caregivers experienced poor self-care, sleep disturbances, and fatigue. Such experiences were common physical health problems among family caregivers and were related to psychological symptoms. During the care of CIEPs, family caregivers also need updates concerning elderly patient's conditions (e.g., illness, treatment, and best care for the patient) through communication with the nursing team (Hashim & Hussin 2012, Jacob et al. 2016). When such informational needs are unmet, the extent of satisfaction with care reduced. In so doing, dissatisfaction perpetuates depressive symptoms among family caregivers (Hickman Jr et al. 2010).

Strengths and weaknesses of this review

This review has some limitations. Only eight articles are included in the review, these were published in English language. There might be other studies published in other languages that were not included in this study. Nonetheless, the findings of this review may be useful for other researchers who are interesting in generating further research or developing the concept of caregiving for older people with psychological symptoms. Additionally, the review followed the PRISMA statement and the data were analysed by two experts who have experience in conducting systematic reviews, this strengthened this review. The stepwise approach increased the rigor of the review.

Conclusion: Family caregiving has been studied plentifully, but family caregiving for CIEPs remains less studied. Likewise, studies highlighting factors associated with anxiety and depression in family caregivers for CIEPs are scanty. This review manifested that most previous articles on this topic were conducted in ICU. Factors associated with anxiety and depression

consisted of patient-related factors and family caregiver-related factors. Some factors often derived from experiences of family caregivers in providing care for CIEPs during hospitalization. The characteristics of the elderly patient and the family caregiver had an influence on symptoms of anxiety and depression among family caregivers of CIEPs. Other factors associated with anxiety and depression such as age, gender, and family relationship are none modifiable. However, experiences of younger family caregivers of CIEPs can be modified to reduce psychological symptoms by designing different interventions such as educational support. On the other hand, caregiving burden, health status, family needs such as physiological, psychological, social, and financial support are modifiable. That is, these can be prevented by supporting family caregivers so that their needs are met.

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