**FACTORS INFLUENCING BURDEN OF PALLIATIVE AND END OF LIFE CARE AMONG INFORMAL CAREGIVERS OF PEOPLE WITH CANCER IN A TERTIARY HOSPITAL, PORT HARCOURT, NIGERIA**

**Abstract**

**Background:** Informal caregivers provide the bulk of palliative and end‑of‑life (PEOL) support across settings, yet they face substantial psychological, financial, and physical burden, especially in Nigeria, where formal support is limited and family involvement is high

**Objective:** To assess factors influencing caregiver burden and the perceived effects of burden among informal caregivers of cancer patients at a tertiary hospital in Port Harcourt, Nigeria.

**Methods:** In this cross‑sectional study, 273 adult informal caregivers (aged ≥ 18 years) were recruited using convenience sampling. Data collection involved a standardized burden scale and a structured questionnaire measuring four domains, social support, care‑recipient dependency, financial constraints, and self‑efficacy. Descriptive statistics (mean, standard deviation, range) identified key burden factors and ranked perceived effects.

**Results:** Financial strain (mean 8.83 ± 2.21), care‑recipient dependency (mean 8.61 ± 1.46), and limited social support (mean 6.93 ± 1.23) emerged as major contributors to caregiver burden. Self‑efficacy scored below threshold and was not a significant burden factor. Among perceived effects, psychological strain was highest (mean 13.20 ± 4.0), followed by physical (mean 11.71 ± 3.3) and social effects (mean 9.90 ± 3.0), with an overall burden score of 34.81 ± 6.8.

**Conclusion:** In this tertiary‑care setting, caregiver burden is driven primarily by financial challenges, dependency demands, and inadequate support, with psychological and physical effects most pronounced. Healthcare professionals should routinely assess and support informal caregivers to mitigate these stressors and improve well‑being.

**Keywords:** informal caregivers, cancer caregiving burden, palliative care, end‑of‑life care, Nigeria

### Introduction

Cancer is a major contributor to the global death rate. It involves abnormal cell growth that often evades the immune system due to its unique characteristics. These cancerous cells can spread to other parts of the body through the bloodstream (metastasis), affecting various organs and potentially leading to death. Relatives play a vital role in the care of cancer patients, especially during the final stages of life. However, the contributions of informal caregivers are sometimes overlooked by healthcare professionals, resulting in insufficient attention to their well-being (Muliira & Kizza, 2019).

In 2020, cancer accounted for approximately 10.3 million deaths and 19.3 million new cases globally, making it the second leading cause of death worldwide (WHO, 2025). Projections suggest that new cancer cases will rise to about 27.5 million by 2040 (American Cancer Society, 2021). In Nigeria alone, there are approximately 124,818 existing cancer cases, with around 100,000 new cases annually and a reported 78,899 deaths (Omosun et al., 2022; Union for International Cancer Control, 2024). The growing cancer burden, combined with limited hospital resources, longer hospital stays, high treatment costs, and cultural expectations of family-based care, has increased the involvement of informal caregivers during palliative and end-of-life care. Informal carers provide about 70%–80% of both in-hospital and out-of-hospital care for individuals with cancer (Onyeneho & Elesanmi, 2021). In the European Union, informal carers deliver approximately 60% of all care, often at a higher cost than formal care.

Worldwide, informal carers, especially those supporting cancer patients, face alarming levels of burden. According to the PDQ Supportive and Palliative Care Editorial Board (2025) and Wang et al. (2024), informal carers experience up to 50% emotional stress and 25% financial stress. These stressors can lead to serious consequences such as physical illness, anxiety, depression, sleep disturbances, reduced concentration, loss of income and assets, difficulty paying household bills, and even bankruptcy. In sub-Saharan Africa, about 73.1% of family caregivers for advanced-stage cancer patients report experiencing severe to very severe pain due to caregiving duties (Akpan-Idiok et al., 2020).

Anxiety is reported in 35.2% of caregivers, with 20% experiencing it at severe levels, while 48.2% report symptoms of depression, 27.5% of whom face extreme depression (Muliira & Kizza, 2019). In India, Mishra et al. (2021) found that 70.22% of informal carers experienced low burden, whereas 21.38% reported a high burden. In West China, Zuo et al. (2020) observed a high mean burden score of 53.18 among informal carers. The highest burden scores were attributed to the duration of caregiving (mean = 14.28 ± SD), followed by developmental burden (13.65), physical health burden (10.52), social burden (7.61), and psychological burden (7.12). Patients in advanced stages of cancer require more complex care, which increases the strain on their informal caregivers. According to the PDQ Supportive and Palliative Care Editorial Board (2025) and Wang et al. (2024), caregiver burden is estimated at 55.6%, with a strong association to depression and religious coping mechanisms.

Caregiver burden refers to the stress experienced by individuals who care for chronically ill, disabled, or elderly family members (Mishra et al., 2021). Zhu et al. (2020) define informal caregiver burden as the complex pressure faced by carers when caring for a loved one over an extended period. Gérain & Zech (2019) explain that this burden arises from a mix of multiple stressors, which may become overwhelming and lead to both physical and emotional symptoms.

Informal caregivers take on a wide range of tasks, including physical and emotional support, medication management, household duties, financial assistance, monitoring symptoms, and accompanying patients to medical appointments. Additional responsibilities may include advance care planning, responding to medical emergencies, managing symptoms, making critical decisions, and acting as a surrogate (Breen et al., 2020). These responsibilities can result in extreme stress known as caregiver burden, which may manifest as psychological or physical health problems, affecting both the caregiver and the patient. According to WHO (2025), one in four informal carers who provide long-term care to chronically ill patients experiences stress due to the increasing demands of caregiving and the difficulty of managing household responsibilities (Lindt et al., 2020). Data from Nigeria and other developing countries indicate that informal caregivers are at high risk of psychological and physical health issues such as burnout, higher mortality, weight loss, compromised immunity, and insomnia (Ogunyemi et al., 2021).

In Nigeria, Jite et al. (2021) found that 72% of informal carers reported feeling burdened, with 46.3% of carers for cancer patients in Lagos describing their experience as overwhelming, especially those without any form of support. A study conducted in 2014 revealed that informal caregivers of cancer patients in Nigeria experienced significant burden, with physical burden being the most common (46.7%), followed by financial burden (25.6%), social burden (17.5%), and psychological burden (10.2%) (Akpan-Idiok & Anarado, 2014). Comparing findings from 2014 and more recent studies from 2021 shows minimal progress, and gaps persist in understanding the challenges faced by unpaid caregivers in certain regions of Nigeria, such as Port Harcourt (Ogunyemi et al., 2021; Agbonjimi et al., 2022).

Given the increasing caregiving responsibilities and the lack of attention to the unmet needs of informal carers by healthcare professionals and institutions, further research is needed to explore the burden of care and its effects on the caregivers’ well-being. Early assessment and support from healthcare providers are essential to prevent complications (Bocharov & Shishkova, 2021).

The researcher observed that in the study area, informal caregivers are heavily involved in the care of their sick relatives. They can often be seen performing various tasks within and around the hospital, such as purchasing medications, paying hospital bills, and accompanying patients. Many have expressed feelings of being overwhelmed. Based on these observations, and the fact that cancer is a chronic condition that demands intensive caregiving, the researcher aimed to assess the factors influencing caregiver burden and the perceived effects of palliative and end-of-life (P&EOL) care among informal caregivers (ICGs) of people with cancer (PWC) in a tertiary hospital in Port Harcourt, Nigeria.

### The specific objectives were:

1. To identify factors influencing the burden of palliative and end-of-life care among informal caregivers of people with cancer in a tertiary hospital in Port Harcourt, Nigeria.
2. To determine the perceived effects of caregiver burden among informal caregivers during palliative and end-of-life care in the same setting.

## Literature Review

### Factors Influencing Informal Caregivers’ Burden

Choi et al. (2024) categorized the factors influencing informal caregiver burden into internal and external variables. Internal factors include socio-demographic characteristics such as gender, age, religion, culture, marital status, education, employment, income, relationship to the patient, and number of family members. External factors include the duration of care and perceived social support. Bursack (2021) identified three categories influencing caregiver burden: caregiver characteristics, care recipient characteristics, and situational factors. Caregiver characteristics include age, health status, daily caregiving hours, and duration of care. Care recipient factors involve age, functional status, level of dependency, and illness duration (e.g., stroke). Situational factors encompass the number of people involved in caregiving and the support system. When the care recipient's functionality is low and demands more hours of care, the burden increases due to time constraints and exhaustion. The physical and mental health of caregivers is often negatively affected. Family caregivers frequently lack sufficient rest, resulting in fatigue and burnout. Strong social support networks, however, improve caregivers’ ability to learn new skills and manage responsibilities. Onyeneho and Eilesanmi (2021) added that age plays a significant role in caregiver burden, with older caregivers facing greater difficulty due to physical and functional limitations compared to younger ones. Non-white caregivers, individuals with lower education and income levels, employed caregivers, spouses, those with additional dependents, and those engaged in caregiving for extended periods all experience elevated levels of burden.

Molassiotis and Wang (2022) grouped influencing factors into four categories:

1. Caregiver-related – gender, age, and socioeconomic status;
2. Patient-related – age, health condition, and quality of life;
3. Caregiver–patient relationship – including emotional closeness and role expectations;
4. Caregiving context – perceived caregiving burden, caregiver-oncologist relationship, institutional support, and societal norms.

#### Intrapersonal Factors: The caregiver’s age is a significant predictor of caregiving outcomes. Younger caregivers often experience more psychological stress, while older caregivers tend to face more physical health issues. Other relevant factors include socioeconomic status, such as education, employment, and income. Basil et al. (2017) emphasized self-efficacy as a key factor: caregivers' confidence in handling behavioral issues, stress, symptom management, obtaining medical information, self-care, accessing community support, and assisting with daily activities strongly influences burden levels.

#### Interpersonal Factors: The relationship between the caregiver and the cancer patient critically affects caregiving success. Spousal caregivers with higher marital satisfaction typically report better mental health. Conversely, strained relationships may hinder effective coping strategies and reduce the quality of life for both parties. Poor communication regarding illness and care can predict symptoms of depression in caregivers, both during and after the patient’s illness.

#### Institutional Factors: Healthcare service accessibility plays a major role. Delays in receiving medical assistance and long waiting times at clinics can increase caregiver stress. Furthermore, caregivers often report that healthcare providers focus solely on the patient, neglecting the caregiver’s concerns. Lack of support and communication from healthcare teams adds to caregiver distress. Deenan et al. (2021) identified social support, self-efficacy, gender, and duration of caregiving as major influencing factors, both intrapersonal and interpersonal. A caregiver’s perception of themselves and the person being cared for significantly affects both parties’ wellbeing. Caregivers often feel overwhelmed when patients are demanding, especially in the absence of family or social support. La Johantgen et al. (2021), in their study on caregiver burden during end-stage cancer, highlighted financial constraints, poor caregiver–patient relationships, existing caregiver health issues, low self-esteem, and lack of family support as strong predictors of increased burden. Gemechu et al. (2021), in a study on the economic burden of cancer, identified financial stress due to medical expenses (β = 0.154, p = 0.010), care recipient dependency due to poor health and disability (β = 0.154, p = 0.010), and perceived social support (β = 0.333, p < 0.05) as significant predictors of caregiver burden. Ornstein et al. (2019) reviewed 43 studies and concluded that caregiver burden is largely influenced by physical and mental health, financial strain, social isolation, and lack of family support. Under-recognized contributors include low self-esteem, male gender, and the unpredictable nature of cancer treatment. Liu et al. (2020), in a review of 33 articles, identified three major influencing factors: multifaceted stress, extended caregiving duration, and caregivers’ personal perspective. Contributing issues included social isolation, role conflict, and insufficient financial resources. Negative outcomes included a decline in quality of life, reduced caregiving ability, and deteriorating physical and mental health. A Nigerian study by Jite et al. (2021) on caregivers of women with advanced breast cancer found that previous hospitalizations (p = 0.001) and impairment in activities of daily living (ADL) (OR = 2.57; 95% CI: 1.14–5.78) were significantly associated with caregiver burden. A greater number of respondents aged over 40 reported burden (75%), though the relationship between age and burden was not statistically significant (p > 0.05). Female caregivers appeared more burdened than males, but gender was not significantly associated with burden. However, educational level showed a significant relationship with caregiver burden (p = 0.009), with lower education levels linked to higher burden. No significant associations were found for marital status, employment, or monthly income.

**Perceived Effects of Burden Among Informal Caregivers**

Informal caregivers are often directly impacted by the illness of the patient they care for, frequently neglecting their own well-being in the process. This burden is particularly intense when caregivers are employed or responsible for other family members, yet lack opportunities for respite or support. As a result, they may experience physical illness, psychological stress, financial difficulties, and social isolation, all of which significantly diminish their quality of life. These challenges highlight the importance of recognizing and supporting informal caregivers within the healthcare system, especially during palliative and end-of-life care, to help ease their burden (Miyawaki et al., 2019).

The perceived effects of caregiving are wide-ranging and include time constraints, limited opportunities for self-development, poor quality of life, depressive symptoms, and physical health problems such as metabolic syndrome. This syndrome is characterized by factors such as low high-density lipoprotein (HDL), elevated non-fasting glucose levels, abdominal obesity, high triglycerides, and hypertension. Other effects include financial strain, anxiety, social isolation, irritability, fatigue, poor sleep, emotional distress, increased consumption of alcohol, tobacco, or food, neglect of caregiving duties, reduced leisure time, recurrent illnesses, lack of self-care, and feelings of dissatisfaction, helplessness, and hopelessness.

Despite these challenges, caregiving may also bring some positive outcomes. These include a strengthened caregiver–patient relationship through mutual support, personal growth, and increased caregiver adherence to cancer screening due to heightened awareness and fear of cancer recurrence within the family (Molassiotis & Wang, 2022; Smith, 2025).

While death is often regarded as a natural part of life, the emotional separation it brings can contribute significantly to the burden experienced by informal caregivers. Many caregivers report frustration and helplessness as they watch their loved ones deteriorate and eventually pass away, unable to stop the process (Anterrioti et al., 2020). According to Breen et al. (2019), informal caregivers often struggle to find meaning in their caregiving experience and to emotionally prepare for the impending death of the person they care for. Between 6% and 8% of caregivers are at risk of developing complicated or prolonged grief disorder, marked by ongoing and intense grief-related distress. Although it can be difficult to fully understand the long-term impact of caregiving and bereavement, studies show that high levels of anticipatory grief (pre-loss grief) are strongly associated with post-loss outcomes such as depression, subjective distress, and prolonged grieving. Anterrioti et al. (2020) categorized the perceived effects of caregiving burden among informal caregivers of cancer patients into four domains: physical, psychological, social/behavioral, and financial.

Perceived Physical Effects: Common physical symptoms include fatigue, exhaustion, aches and pains in the head, legs, muscles, shoulders, and neck, reduced stamina, poor appetite, fluctuations in weight, sleep disturbances, increased susceptibility to illness, hunched posture, and excessive sweating. Sullivan and Miller (2015) noted that many caregivers receive no formal training in physically demanding caregiving tasks, such as lifting, assisting with mobility, or supporting the patient after a fall, which increases their risk of injury. Due to the constant demands of caregiving and lack of substitute support, caregivers often forgo medical attention and neglect their own physical health. As a result, they rarely participate in wellness activities that could benefit both themselves and their care recipients.

Perceived Emotional/Psychological Effects: Emotional strain among caregivers manifests as anger, sadness, irritability, crying spells, anxiety, discouragement, difficulty relaxing, a sense of emptiness or lack of direction, unrealistic expectations or hopes for miracles, difficulty concentrating, mood swings, and psychological conditions such as adjustment disorder, panic disorder, depression, or post-traumatic stress. Sullivan and Miller (2015) emphasized that caregiving can be emotionally rewarding when both the caregiver and care recipient work together to manage the illness. However, when this balance is lost and the caregiver feels overwhelmed and unsupported, negative emotions begin to dominate. While these emotions may be temporary and manageable with adequate internal and external coping resources, persistent burden and lack of support can make it harder for caregivers to recover their emotional balance and maintain their psychological well-being.

Perceived Behavioral Effects: Caregivers often exhibit changes in behavior due to prolonged stress and exhaustion. These may include increased use of drugs or alcohol, indecisiveness, reduced productivity, forgetfulness, boredom, overreaction to minor issues, impulsiveness, and frequent changes in employment.

Perceived Financial Effects: Many caregivers face severe financial strain. They may struggle to sustain their income, afford the patient’s medical needs, or meet other family obligations. Chronic illnesses, such as cancer, are costly to manage. In the United States, for example, annual care costs for chronic conditions total around $100 billion (Sullivan & Miller, 2015). However, these figures do not capture the personal financial impact on families, particularly when caregivers are the primary earners and must take flexible but low-paying jobs. These roles often lack health insurance benefits, further worsening financial stress. Chronic illness often forces families to prioritize medical expenses over other essential needs, such as children's education, home maintenance, or long-term savings.

Perceived Social Effects:Caregivers may reduce working hours or completely withdraw from their social lives. Common social effects include isolation, loneliness, decreased leisure time, difficulty maintaining relationships, marital problems, reduced intimacy, nagging, and resentment. As caregiving responsibilities grow, individuals often give up meaningful social connections. Many report the loss of their social lives, as they are unable to attend events or socialize due to the demands of caregiving (Sullivan & Miller, 2015).

**Expanded Perspectives on Caregiver Burden:**Ochoa et al. (2020) identified four core health dimensions for evaluating caregiver burden: physical, psychological, social, and spiritual. They noted that higher caregiving demands during palliative and end-of-life stages are associated with poorer health, emotional distress, and dissatisfaction with life, particularly when compared to non-caregivers. Burden is often exacerbated by the number of tasks and the duration of care, especially when caregivers are unprepared. Enhancing communication, providing education, and ensuring access to resources can help caregivers cope and improve their overall well-being. Smith (2025) emphasized that negative effects of caregiving can be mitigated through deliberate acceptance of the caregiving role, prioritizing self-care, and focusing on controllable aspects of the situation.

**Findings from Recent Studies:**Tülek et al. (2022) found that most informal caregivers were women, primarily spouses or children of the patients, with a mean age of 48.1 ± 13.4 years. These caregivers had a moderate quality of life (mean score: 70.4 ± 22.8), and their burden was significantly linked to social support, anxiety, and depression.

In another study by Mishra et al. (2021), 70.22% of caregivers reported mild-to-moderate burden, while 21.38% experienced moderate-to-severe burden. Among the different dimensions, physical health was least affected, while social well-being was most impacted. Although quality-of-life (QOL) scores were higher in caregivers with milder burden, the difference was not statistically significant.

Kolawole et al. (2021) found that 90.5% of caregivers experienced stress, with a moderate average burden score (mean = 2.86). About 51.1% reported severe psychological effects, and 58.1% experienced severe social effects. Factors such as age, education, and marital status were significantly associated with caregiver burden, while gender and occupation were not.

Bartoszek et al. (2019) showed that the quality of life of caregivers for patients with reduced mobility was negatively affected. However, the negative impact on caregiving itself was minimal, possibly due to support from family and friends. The overall burden score was 70.14, with lower scores on the negative burden subscale (11.80), compared to higher scores in perceived caregiver value (13.71) and supportive care quality (12.46).

A systematic review by Ochoa et al. (2020) revealed that caregiver burden has a significant negative impact on psychological well-being, physical and mental health, social support, and spirituality. Informal caregivers providing care during the acute phase of illness were found to have particularly poor quality of life (QoL), especially in terms of physical health. Contributing factors to this reduced QoL included low educational attainment, presence of comorbidities, female gender, a history of depressive symptoms, caring for a female patient, and supporting patients with poor social well-being. Conversely, factors such as routine predictability and employment (full- or part-time) were positively associated with higher overall QoL. Additionally, patient self-efficacy, their perceived ability to manage illness, was linked to better physical health outcomes for caregivers. Caregivers of older patients also tended to report better mental and social well-being. On the other hand, family conflict regarding transitions from active cancer treatment to hospice care was associated with increased caregiver depression, which negatively affected both functional status and QoL. The burden was particularly high among caregivers of cancer patients who lacked financial and familial support.

### Methodology

A cross-sectional descriptive design using a quantitative method was adopted for the study. The study was carried out in Rivers State, Nigeria, at a tertiary hospital. This hospital is one of the biggest tertiary institutions in the Niger Delta. It provides care for different health conditions on both inpatient and outpatient levels, making it a true representation of the entire population of Port Harcourt.

The target population were all informal caregivers of patients with cancer in Port Harcourt. The study population consisted of informal caregivers who provided care for stage 3 and 4 cancer patients either on admission or as out-patients in the hospital.

The **inclusion criteria** for participants in the study were informal caregivers providing care for stage 3 and 4 diagnosed cancer patients in the hospital or on an outpatient basis, who have been providing care for at least two weeks, are directly involved in the patient's care as indicated by the patient, and can understand the English language. The **exclusion criteria** included individuals under 18 years of age, paid or formal caregivers, and eligible participants who were disoriented at the time of the study.

A non-probability, convenience sampling technique was used to select participants. This technique was chosen for easy access to available respondents who expressed interest to participate in the study. The sample size was calculated using the Cochran formula (1953) which gave a sample of 283 participants.

A validated semi self-structured questionnaire and standardized instruments (Multidimensional Scale of Perceived Social Support by Zimet et al., 1988 and Revised Scale for Caregiving Self-Efficacy by Steffen et al., 2002) were adapted to suit the study. The questionnaire consisted of three (3) sections (A–C):

Section A: Collected socio-demographic data of respondents.

Section B: Contained 26 yes/no questions designed to assess the factors influencing caregiver burden. Items 1 to 6 focused on social support factors, items 7 to 13 on care recipient dependency, items 14 to 20 on financial factors, and items 21 to 26 on self-efficacy. These were partly adapted from the Multidimensional Scale of Perceived Social Support and the Revised Scale for Caregiving Self-Efficacy. For the purpose of this study, only four key influencing factors were covered: social support, dependency, self-efficacy, and financial burden.
Section C: Measured the perceived effects of burden experienced by caregivers using 18 items on a four-point Likert scale (Agree, Strongly Agree, Disagree, Strongly Disagree). Items 1 to 7 measured physical effects, items 8 to 12 measured psychological effects, and items 13 to 18 measured social effects.

Face and content validity of the instrument were ensured by reviewing related literature and subjecting the instrument to expert review in test and evaluation. Necessary corrections were made to ensure the instrument covered all aspects of the study objectives.

The reliability of the instrument was established using the test-retest method. The questionnaire was administered to 10% of the population size in a similar tertiary hospital. After two weeks, the same instrument was re-administered, and the correlation coefficient obtained was 0.7, confirming its reliability.

Following ethical approval, three trained research assistants were engaged and educated on the aims of the study, data collection process, and how to explain the instrument to respondents. They administered the questionnaires to caregivers of admitted patients in various wards as well as caregivers accompanying patients to outpatient clinics. Each questionnaire took about 20 minutes to complete. The data collection lasted for four weeks.

Data was analyzed using SPSS version 25.0. Descriptive statistical techniques such as percentages, means, and standard deviations were used. Multiple regression models were also used to test for relationships and differences between variables. Results were presented in tables and figures.

 **Objective 1** To identify the factors influencing the burden of palliative and end-of-life care among informal caregivers of people with cancer in a tertiary hospital in Port Harcourt. Data was collected using a 26-item questionnaire with yes/no responses. Each item was scored as No = 1 and Yes = 2. The analysis was done using descriptive statistics such as mean, range, and standard deviation. A mean score that falls within the expected range (i.e., between the minimum and maximum possible scores) was accepted as an influencing factor, while a mean score below the minimum score was considered not influential.

**Objective 2** To determine the perceived effects of the burden of palliative and end-of-life care among informal caregivers of people with cancer in a tertiary hospital in Port Harcourt. The questionnaire included 18 items measured on a 4-point Likert scale. Data obtained was analyzed using the mean, range (minimum and maximum scores), and standard deviation. Perceived effects were accepted if the mean score fell within the specified range. Mean scores below the minimum value were not accepted as perceived effects. Additionally, to determine which domain was more strongly perceived by caregivers, the mean score of each domain (physical, psychological, and social) was compared.

**Results**

**Socio-Demographics Characteristics Of Respondents**

**Table 1** The table presents the socio-demographic characteristics of 278 informal caregivers of cancer patients in a tertiary hospital in Port Harcourt.

Sex: The majority of the respondents were female (63.3%), while male caregivers accounted for 36.7%, indicating that caregiving roles were more commonly performed by women.
Age: Most respondents were between 18–28 years (39.6%), followed by those aged 29–39 years (30.6%), and 40 years and above (29.9%). This suggests that younger adults made up a significant portion of the caregiving population.
Marital Status: The caregivers were almost evenly split between married (50.4%) and unmarried (49.6%), showing a fairly balanced distribution in terms of marital status.
Level of Education: Half of the respondents had tertiary education (50.4%), followed by secondary education (30.6%), primary education (14.7%), and a small proportion with no formal education (4.3%). This implies a relatively high level of educational attainment among caregivers.
Occupation: Among the respondents, 36.3% were employed, 20.5% were traders, 20.1% fell into the ‘others’ category, 12.2% were unemployed, and 10.8% were farmers. This reflects a mix of formal and informal employment sectors among caregivers.
Relationship to Patient: The majority of caregivers were the children of the patients (43.2%), followed by distant relatives (33.1%), spouses (17.6%), and friends (6.1%). This highlights that caregiving responsibilities were mainly taken up by close family members.
Household Size: Over half of the respondents (56.1%) lived in households with 1–5 members, 36.3% lived in households with 6–10 members, and 7.6% in households with 11 or more members. This suggests that many caregivers lived in smaller family units.

**Table 1: Frequency distribution of respondent’s socio-demographic characteristics**

|  |  |  |
| --- | --- | --- |
| Variables  | **N** | % |
| **SEX:** Female | 176 | 63.3 |
|  Male | 102 | 36.7 |
| **Age (years):** 18-28 | 110 | 39.6 |
|  29-39 | 85 | 30.6 |
|  ≥40 | 83 | 29.9 |
| **Marital status** : Married | 140 | 50.4 |
|  Unmarried | 138 | 49.6 |
| **Level of Education** |  |
| Not educated | 12 | 4.3 |
| Primary | 41 | 14.7 |
| Secondary | 85 | 30.6 |
| Tertiary | 140 | 50.4 |
| **Occupation** |  |
| Employed | 101 | 36.3 |
| Unemployed | 34 | 12.2 |
| Trader | 57 | 20.5 |
| Farming | 30 | 10.8 |
| Others | 56 | 20.1 |
| **Relationship to patient**  |
| Spouse | 49 | 17.6 |
| Child | 120 | 43.2 |
| Distant relative | 92 | 33.1 |
| Friends | 17 | 6.1 |
| **Household size** |  |
| 1-5 | 156 | 56.1 |
| 6-10 | 101 | 36.3 |
| ≥11 | 21 | 7.6 |

**Objective 1: Factors influencing caregiving burden among respondent**

Table 2 presents the descriptive statistics of factors influencing caregiving burden among informal caregivers. Among the four identified factors, the financial factor had the widest range (9.00) and the highest mean burden score (Mean = 8.83 ± 2.21), indicating that financial challenges were the most prominent burden experienced by caregivers. This was followed by care recipient dependency (Mean = 8.61 ± 1.46), suggesting that the level of dependence of the cancer patient contributed significantly to caregiver strain. The social support factor had a mean score of 6.93 ± 1.23, which, though lower than financial and dependency factors, still fell within the accepted range, implying a moderate influence on caregiver burden. The self-efficacy factor had the lowest mean score (Mean = 4.07 ± 1.04), indicating that caregivers generally felt less confident in their ability to manage caregiving responsibilities, which may contribute to increased burden. These findings suggest that financial strain, high dependency of care recipients, limited social support, and low self-efficacy are key contributors to caregiving burden among informal caregivers of cancer patients during palliative and end-of-life care.

|  |
| --- |
| **Table 2: Descriptive Statistics of Factors influencing caregiving burden among respondents Descriptive Statistics** |
|  | N | Range | Minimum | Maximum | Mean/Std |  |
| Social Support Factor | 278 | 5.00 | 6.00 | 11.00 | 6.93±1.23 |
| Care Recipient Dependency Factor | 278 | 7.00 | 6.00 | 13.00 | 8.61±1.46 |  |
| Self-Efficacy Factor | 278 | 3.00 | 5.00 | 8.00 | 4.07±1.04  |
| Financial Factor | 278 | 9.00 | 5.00 | 14.00 | 8.83±2.21 |  |
| Valid N (list wise) | 278 |  |  |  |  |

**Objective 2: Respondents’ Perceived Effect of Caregiving Burdens**

Table 3 presents the descriptive statistics of the perceived effects of caregiving burden among informal caregivers. The overall perceived effect had a wide range of 32.00, with a mean score of 34.81 ± 6.8, indicating that caregivers generally experienced a moderate to high level of burden across the measured domains. Among the three domains, the psychological effect of caregiving was the most reported, with the highest mean score of 13.20 ± 4.0, suggesting that many caregivers experienced emotional and mental strain such as anxiety, stress, or depression. This was followed by the physical effect (Mean = 11.71 ± 3.3), indicating a moderate level of physical exhaustion, fatigue, or health issues due to caregiving responsibilities. The social effect had the lowest mean score of 9.90 ± 3.0, suggesting that although caregivers experienced social limitations (such as reduced social interaction or isolation), it was perceived as relatively less burdensome compared to psychological and physical effects. These findings suggest that the caregiving burden is multidimensional, with the most significant impact observed in the psychological domain, highlighting the need for emotional and mental health support for informal caregivers of cancer patients during palliative and end-of-life care.

**Table 3: Descriptive Statistics of Respondents’ Perceived effect of caregiving burdens**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | N | Range | Minimum | Maximum | Mean±SD |
| Perceived Physical Effect | 278 | 15.00 | 4.00 | 19.00 | 11.71±3.3 |
| Perceived Psychological Effect | 278 | 16.00 | 6.00 | 22.00 | 13.20±4.0 |
| Perceived Social Effect | 278 | 10.00 | 6.00 | 16.00 | 9.90±3.0 |
| Overall Perceived Effect | 278 | 32.00 | 18.00 | 50.00 | 34.81±6.8 |
| Valid N (list wise) | 278 |  |  |  |  |

**Discussion of Findings**

The findings of this study revealed that the major factors influencing caregiving burden among informal caregivers were financial factors (Mean = 8.83), care recipient dependency (Mean = 8.61), and social support factors (Mean = 6.93). In contrast, self-efficacy was less perceived as a contributing factor to burden. These results are consistent with previous studies by Gemechu et al. (2021) and La Johantgen et al. (2021), which identified financial strain, the dependency level of care recipients, and limited social support as key contributors to caregiver burden. Informal caregivers (ICGs) often experience social isolation, especially when they are the sole caregivers and lack access to sufficient information or respite care. Moreover, those assisting with daily activities such as feeding, bathing, dressing, and mobility face higher levels of physical and emotional exhaustion. The burden is compounded when caregivers must juggle employment with caregiving responsibilities, often leading to reduced work hours and financial hardship, particularly due to the high cost of medical care. In terms of perceived effects, this study found that the psychological impact of caregiving was the most significant (Mean ± SD = 13.2 ± 4.0), followed by physical effects (Mean ± SD = 11.7 ± 3.3), while social effects were the least perceived (Mean ± SD = 9.9 ± 3.0). This suggests that caregivers are more mentally and physically affected by their roles than socially. These findings align with those of Liua et al. (2020) and Ochoa et al. (2020), who reported a greater decline in mental and physical health among unpaid caregivers compared to social wellbeing. However, this differs from the results of Kolawole et al. (2021), who found social effects to be the most severe. This discrepancy may stem from differences in social support networks available to caregivers across various settings. Similarly, Kocak et al. (2022) identified the physical burden as having the greatest impact on caregiver wellbeing. This contrast could be attributed to variations in caregiving duration, intensity of care required, and the level of dependency of the patients involved.

To sum up, the findings underscore the need for targeted interventions to support informal caregivers, particularly addressing financial challenges, information access, and mental health support, in order to improve their quality of life during palliative and end-of-life caregiving.

### Conclusion

This study highlights the significant influence of financial challenges, care recipient dependency, and social support deficits on the caregiving burden experienced by informal caregivers of patients with cancer. Notably, self-efficacy was perceived to have a lesser impact compared to other factors. Caregivers who provide intensive support to their ill relatives often encounter social isolation and income reduction due to difficulty balancing caregiving responsibilities with employment. The high cost of medical care further compounds this financial burden.

In terms of perceived effects, caregivers reported the greatest psychological impact, followed by physical strain, with social effects being the least recognized. These findings suggest that caregiving is more mentally and physically demanding than socially, aligning with previous literature, although some discrepancies may arise due to differences in caregiving duration, intensity, and patient dependency levels.

### Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. Health education and ongoing support should be provided to informal caregivers during the active treatment and end-of-life phases by healthcare professionals to better equip them for the caregiving role.
2. Nurses and other healthcare providers should advocate for rotational caregiving among family members to distribute caregiving responsibilities and reduce the burden on a single caregiver.
3. Routine assessment of caregiver burden should be integrated into clinical care for patients with advanced cancer, ensuring early identification of affected caregivers and timely intervention to address psychological, physical, and financial impacts.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

No generative AI (ChatGPT, COPILOT, etc) was used to write or analyse the text, tables, or results. Only standard tools (e.g. Word spelling/grammar check) were used. All content is the authors’ own work and responsibility.

**CONSENT**

Written informed consent was obtained from every participant aged ≥18 years. Participants were given an information sheet in English, and they were told that participation was voluntary, data would be kept confidential, and they could withdraw at any time.

**ETHICAL APPROVAL**

This study received ethical approval from the Research Ethics Committee of [University of Port Harcourt Teaching Hospital] Port Harcourt (Approval No. UPTH/ADM/90/S.II/VOL.XI/1480/ Date: 03 January 2023). The procedures complied with the Nigerian National Code for Health Research Ethics (NHREC) and the Declaration of Helsinki.

**COMPETING INTERESTS**

The author (s) declare no competing interests, no funding, honoraria, patents, consultancies, or relationships influenced this study or its interpretation.

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