Influence of Caregiver Stressors on the Mental and Social Health of Family Caregivers of Cancer Patients at Kenyatta University Teaching, Referral and Research Hospital (KUTRRH) in Nairobi, Kenya

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DOI: https://dx.doi.org/10.47772/IJRISS.2026.100600324

Received: 01 June 2026; Accepted: 06 June 2026; Published: 23 June 2026

ABSTRACT

Caring for individuals with chronic illnesses such as cancer places significant mental, emotional, and physical demands on family members, particularly in resource-constrained settings. In Kenya, the rising burden of cancer highlights the importance of prioritising caregiver well-being as part of broader community health. This paper examined the influence of caregiver stressors on the mental and social health of family caregivers of cancer patients at Kenyatta University Teaching, Referral and Research Hospital (KUTRRH) in Nairobi, Kenya. A descriptive cross-sectional correlational design was adopted, guided by the Stress Process Model, Lazarus's Cognitive Appraisal Theory of Stress, and the caregiver Burden Model. Data were collected from 378 caregivers using self-administered questionnaires, the caregiver Burden Inventory (CBI) and the WHOQOL-BREF. Descriptive statistics and inferential analyses, including correlation and multiple regression, were used to examine associations between caregiving stressors and quality of life outcomes. The findings from descriptive analysis revealed high levels of time burden, emotional demands, financial strain, and social disruption among caregivers. Psychological distress indicators such as anxiety, overwhelm, and exhaustion were prevalent, while social outcomes showed marked isolation and weakened relationships.Correlation analysis showed that caregiving stressors exhibited a strong correlation with social isolation (r =0.664), restricted friendships (r = 0.452**), and diminished partnerships (r = 0.598**). Regression analysis confirmed a statistically significant relationship with caregiver stressors explaining 51.8% of variance in outcomes in ANOVA analysis ($(R^2=0.518)$. Exceeding 12 hours of caring daily was identified as the most significant predictor (B = 0.628, $p < 0.001$) The study concluded that caregiver-related stressors significantly and negatively impact the emotional and social well-being of family caregivers of cancer patients at KUTRRH.

Keywords: Cancer patients, Family caregivers, Mental health, Psychological well-being, Quality of Life; and Social health

INTRODUCTION

Cancer continues to be a huge worldwide health burden, accounting for millions of deaths each year, even with advances in early identification and treatment (Jamwal, 2024). Moreover, inequalities in healthcare access still present difficulties, especially in low-resource environments, even though contemporary treatment modalities such as surgery, chemotherapy, radiation therapy, targeted therapy, and immunotherapy have greatly increased survival rates (Brown et al., 2023). As a result, scientists are concentrating more on comprehending cancer at the molecular level, which has resulted in more individualised therapy strategies meant to enhance patient outcomes (Alsheikhly & Alsheikhly, 2025). According to Mehmood (2025), the causes of cancer are multiple and involve a complex interaction between lifestyle, environmental, and hereditary variables. Although inherited genetic alterations only make up a small portion of cancers, several conditions like BRCA1 and BRCA2 mutations are known risk factors for ovarian and breast cancer (Miklikova et al., 2021). But most cancers are the result of acquired mutations brought on by long-term exposure to exogenous carcinogens, such as radiation, tobacco smoke, industrial toxins, and oncogenic viruses (Agboola et al., 2024). Additionally,

lifestyle decisions play a major role in the development of cancer since poor diet, excessive alcohol use, obesity, and physical inactivity all lead to oxidative stress and chronic inflammation, which in turn increase tumour growth (Marino et al., 2024). Furthermore, exposures at work and in the environment pose a significant risk, especially for those who handle dangerous materials such as pesticides, benzene, and asbestos, which have been connected to blood and lung malignancies (Adil, 2025).

Caregiving obligations that limit social contact with relatives and close companions can lead to feeling socially isolated (Oikonomou et al., 2024). This dearth of interaction with others might lead to a decline in their interpersonal level of life and a worsening of their melancholy. In addition, the cost of providing care might be high, especially if caregivers have to reduce their hours or give up their jobs (Theng et al., 2023). This financial strain may lead to stress and anxiety, further affecting their overall Quality-of-Life (Chai et al., 2025). Due to possible decreases in work hours or income, financial difficulty may be experienced by many caregivers, which adds to their total burden (Choi et al., 2024). So, understanding these aspects is key to finding ways to reduce caregivers' workloads and improve their health (Tilahun, 2024).

In the USA, one of the biggest concerns is the stress of caring for friends and relatives of people with cancer (Ellis, 2022). The burden includes monetary, psychological, and physical demands, all of which may negatively impact Quality-of-Life (QoL). A study indicates that caregiver load significantly impairs the mental and social health of those who provides care, often leading to feelings of social exclusion, anxiety, and hopelessness (Society, 2024). In China, caregiver stress and Quality-of-Life (QoL) were significantly negatively correlated (Cui et al., 2024). Mental distress, especially anxiety and depression, greatly affects Quality-of-Life. Models of fear and emotional turmoil were assessed by the resilience of families and its sub-dimension. Following the assessment of the resilience levels of caregivers for cancer survivors

In Turkey, Üzar-ÖzçetiŇn and Dursun (2020) examined the connections among Quality-of-Life, adaptability, and caregiver load. Furthermore, caring for family members with cancer requires family Caregivers to take on a pivotal role as their main caregivers. According to Erbay and Bulut (2024), there was a significant correlation between the caregiver burden and the patient's age, type of treatment provided to the patient, caregiver's chronic disease and caregiver's Quality-of-Life. In India, financial limitations and restricted access to medical care provide formidable hurdles for caregivers of cancer patients (Saini et al., 2024).

The responsibilities of family members are substantial as well as greatly affect additionally their spiritual and social well-being, largely due to the prevalent difficulties of financial worries, depression, and psychological stress (Nwankwo, 2025). However, because the majority of the medical system prioritizes the treatment of patients, the requirements of caregivers are often overlooked (Hall et al., 2022). This situation aligns with the study's objective of assessing caregivers' Quality-of-Life (QoL) whilst exploring the need for treatments that bridge these disparities in the Kenyan context (Adebayo et al., 2025).

In Egypt, families of people with cancer experience significant stress and low Quality-of-Life due to the inadequate healthcare system and lack of assistance programs (El-Sherif et al., 2024). The Allam (2026) findings further indicated that caregivers' mental as well as social health is intimately linked to the responsibility of caring for others, and many Egyptian caregivers report feeling sad and isolated. In South Africa, caregivers must deal with two issues at once: controlling their health and giving care in a setting with limited resources (Van Heerden & Jenkins, 2022). According to Kebede et al. (2020), individuals who provide treatment for cancer patients in Ethiopia face substantial challenges due to limited financial resources and inadequate healthcare services.

The wellbeing of caregivers, particularly their health and overall happiness, is largely influenced by the degree of burden they experience (Sherwood et al., 2024). This burden often manifests as heightened levels of anxiety and despair (Walbaum et al., 2024), a trend that is also evident in Ghana, where caregivers' Quality-of-Life(QoL) is severely affected by financial constraints and social isolation (Agyemang-Duah et al., 2024). The situation is further exacerbated by the lack of structured support systems, which contributes to increased stress and depression among caregivers (Schulz et al., 2016).

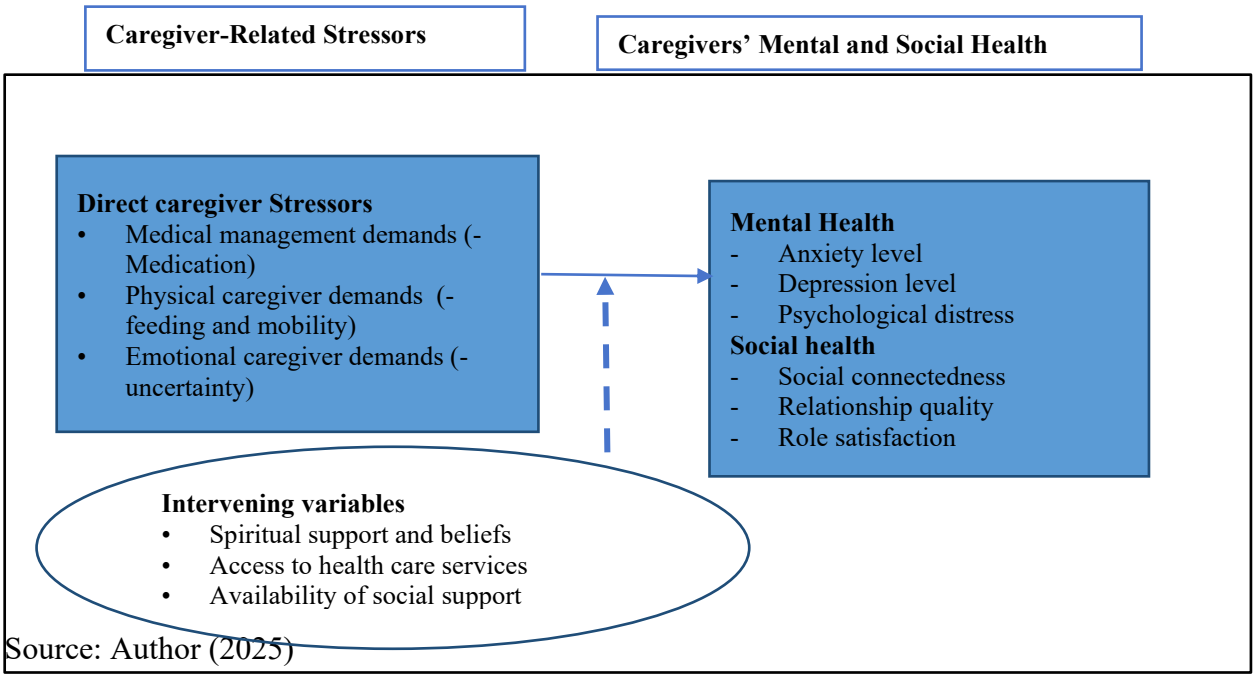
Statement of the Problem

The caregiver burden associated with patients with cancer significantly threatens the Quality-of-Life (QoL) of caregivers (Ochoa et al., 2020). Several factors, including poor physical health, inadequate social support, low patient functionality, and cognitive impairment, increase the risk of negative outcomes for caregivers (Badger et al., 2024). This burden becomes even more pronounced as the stress of caregiver intensifies over time, particularly in cases where the patient's health continues to deteriorate (Manivannam et al., 2023). Notably, subjective burden that is caregivers' personal perception of strain, is a primary contributor to disruptions in their Quality-of-Life (Tulek et al., 2020). In Kenya, caregivers of individuals with chronic illnesses encounter substantial challenges, largely due to the scarcity of formal support structures and healthcare facilities, especially in rural areas (Mwangi et al., 2022). The emotional and social toll of caregiver responsibilities further diminishes caregivers' overall well-being, leading to a lower QoL (Aoko, 2024; Muriuki, 2022).While existing research has confirmed that caregiver for cancer patients is associated with substantial burden and diminished Quality-of-Life, these studies often lack a comprehensive approach to understanding the interplay between caregiver burden and social and mental helth (Kebede et al., 2020). In the Kenyan context, the inadequacy of research is further amplified by the lack of systematic assessments using validated tools, such as the WHOQOL-BREF scale for Quality-of-Life and Caregiver Burden Index (CBI).

Study Purpose

The purpose of this study was to examine the influence of caregiver stressors on the mental and social health of family caregivers of cancer patients at Kenyatta University Teaching, Referral and Research Hospital (KUTRRH) in Nairobi, Kenya.

Figure 1 Conceptual Framework



Source: Author (2025)

EMPIRICAL STUDIES AND GROUNDED THEORIES

This section discusses the empirical research and theories upon which the study is anchored on

Caregiving Stressors and Caregivers' Well-Being

Caregiver stressor encompasses the physical, emotional, social, and financial strains faced by individuals caring for a chronically ill or disabled family member (Goto et al., 2023). Applebaum and Sannes (2025) identify that it includes both objective challenges, such as demands on time and resources, and the subjective perception of

stress resulting from extended caregiver. The burden is especially significant in cancer care, characterised by complex treatment regimens, severe side effects, and increased emotional distress for both patients and caregivers. Studies indicate that caregivers of cancer patients often encounter role overload, social life disruptions, and financial difficulties (Stanley, 2025). Over time, these pressures may undermine the caregiver's health and overall Quality-of-Life.

Caregiver burden is frequently understood through both objective and subjective dimensions. Objective burden refers to the measurable disruptions experienced by caregivers, encompassing financial expenses, diminished work opportunities, and the physical demands associated with supporting daily activities (Muñoz-Cruz et al., 2024). Xu et al. (2021) conducted a series of longitudinal studies in the United States to investigate the factors influencing caregiver proficiency and stress as well as to assess the impact of educational achievement on rural-urban inequalities in caregiver consequences. The findings indicated that among 414 caregivers, 64 (15.5%) resided in remote regions, while 263 (63.5%) had graduated from at least an undergraduate degree.

Well-being is a multidimensional construct that encompasses an individual's overall physical, psychological, and social functioning (Oladele et al**.**, 2024). It is a condition in which an individual can recognise their capabilities, manage typical life stressors, engage in productive work, and contribute meaningfully to their community (Dougall et al., 2024). In the context of caregiver, well-being denotes the balance between the requirements of care delivery and the caregiver's ability to sustain their mental and physical health. The mental well-being of caregivers is crucial, as chronic stress can trigger or worsen anxiety, depression, and other mental health disorders (Bhandari & Gupta, 2024). Anxiety frequently occurs among caregivers of cancer patients, typically arising from uncertainties regarding the patient's prognosis, fears of disease progression, and the demands associated with managing complex care routines (Abdelhalim et al, 2024). Caregivers' anxiety levels may reach intensities comparable to those of the patients themselves, particularly during advanced stages of illness (Karimi et al., 2023).

Benyo et al. (2023) conducted a systematic evaluation encompassing 21 suitable research studies with a total of 1,745 care providers from diverse global settings (including the US, Germany, China and Canada) to investigate the medical requirements of caregivers for oncologic individuals. This comprehension could profoundly impact the quality of assistance and health services provided to individuals with cancer throughout their process of recovery and medical care. The review revealed high levels of depressive symptoms and reduced physical well-being among caregivers of patients with head and neck cancers. Although the review highlights critical mental health needs among caregivers, it does not explore how caregivers' physical well-being interacts with their engagement with healthcare systems, which represents an important gap in understanding support needs.

Caregiver stressor significantly impacts the social well-being of caregivers, in addition to their mental health. According to Ahmad et al**.** (2023), social well-being is "the degree to which people feel connected, supported, and able to maintain meaningful relationships and participate in social activities." The high demands of caregiver, especially for cancer patients, can strain interpersonal relationships, limit involvement in community life, and disrupt social networks (Brown et al., 2023). These interruptions may further lower general Quality-of-Life and frequently exacerbate the burden of providing care. Caregivers of cancer patients frequently have mental health problems as a result of ongoing physical and emotional stress. These problems could be burnout, chronic stress, depression, or anxiety (Cham et al., 2022).

Irshad et al. (2024) looked into how mediation affected the connection between the caring load and happiness among Pakistani caregivers of cancer patients. The correlational analysis employed a carefully selected sample of 311 caregivers. In a local study, Aoko (2024) conducted a local study in Kakamega County Referral Hospital contains in Kakamega County with the goal of determining the factors linked to the health-related Quality-of-Life of primary caregivers for cancer patients. Basing on A QoL questionnaire, such as WHOQoL-BREF, was developed to measure both objective and subjective aspects. was used as the data collection tool. HRQoL was substantially correlated with socioeconomic characteristics, including income (P=0.027), occupation (P=0.011), housing (P=0.005), and married status (P=0.043). HRQoL was substantially correlated with patient-related characteristics such as the type of test performed (P=0.033) and the style of treatment (P=0.022).

Onyango et al. (2025) performed a study to evaluate the prevalence of anxiety and depression in informal caregivers of patients with mental disorders receiving treatment at Mathari Teaching and Referral Hospital. A purposive sample resulted in 92 caregivers, with 80 completed surveys used for analysis. Data collection involved the DASS-21 scales for anxiety and depression, a sociodemographic questionnaire, the Zarit Burden Interview, and the Brief COPE Scale. Data analysis, employing descriptive and inferential statistics, was performed using SPSS Version 25. The prevalence of depression was 32.4% mild and 18.8% moderate, whereas anxiety was reported as 38.8% mild, 12.4% moderate, and 3.8% severe. Depression is a prevalent mental health condition strongly associated with heightened caregiver burden (Sargolzaei et al., 2024). This condition is characterised by persistent sadness, reduced interest in formerly pleasurable activities, and diminished energy levels (Yuting et al., 2024). Caregivers of cancer patients may experience depression due to prolonged emotional strain, social isolation, and feelings of helplessness regarding the patient's condition. .

Odeny et al. (2024) carried out an empirical study in Kenya using a longitudinal analytical research methodology to determine the mental and macroeconomic characteristics that affect health-related aspects of life among 422 caregivers who look after cancer survivors at Kakamega County Referral Hospital. The results demonstrated that the study's quality lifestyle determinants included both psychological and economic factors. Perceived Quality-of-Life is highly correlated with socioeconomic characteristics, including gender ($p=0.007$), type of residential area ($p=0.004$), income in KSh ($p=0.01$), and number of rooms ($p=0.0005$). There is a substantial correlation between psychological characteristics such as anxiety ($p=0.002$) and depression ($p=0.001$) and subjective Quality-of-Life. However, the connection between Quality-of-Life and caregiver load is not fully investigated. In another study, Machaki et al. (2024) examined the difficulties faced by parents of children with cancer undergoing treatment at a national referral hospital in Kenya. The difficulties encountered gave rise to four themes: social/family, treatment-related, financial, and psychological problems. subthemes.

Grounded Theories

This research was grounded in three theoretical frameworks: the stress-Process Model (SPM), Lazarus's Cognitive Appraisal Theory of Stress (LCATS) and Caregiver Stress and Burden Model (CSBD).

Stress Process Model. This model is built around the premise that stress is a process involving multiple components including stressors, mediators, and outcomes. Primary Stressors perceive that those who provide care often face challenges related to managing medical appointments, administering medications, and addressing the patient's emotional needs. The weight of these duties may culminate in chronic stress, thereby impacting both the physical wellness and mental stability of caregivers. Secondary stressors encompass the wider repercussions of caregiver, such as financial burdens, social seclusion, and the disruption of personal interpersonal interactions. Individuals in caregiver roles frequently encounter a deterioration in their social engagements and recreational pursuits, resulting in sentiments of isolation and despondency. Caregivers often encounter challenges in sustaining friendships, largely attributable to the considerable time and energy required by their caregiver responsibilities (Pearlin et al., 1990; Vitaliano et al., 2003). The model indicates that the interplay between primary and secondary stressors leads to various outcomes. Understanding these results is critical for developing effective assistance measures.

Lazarus Cognitive Appraisal Theory of Stress. The importance of mental mechanisms in influencing how people react to stressors is highlighted by Lazarus's Cognitive Appraisal Theory of Stress (Biggs et al., 2017). The theory holds that stress is shaped by how an individual interprets and evaluates external events, rather than being solely a direct reaction to them (Lazarus, 1974). The three main tenets of the theory involve handling strategies, intermediate assessment, and the initial assessment. Determining whether a scenario is viewed as a threat, hurt, or challenge is the main assessment process. The evaluation procedure for caregivers may involve assessing the patient's sickness severity, potential consequences, and individual ability to handle the duties of a caregiver. A caregiver who perceives the situation as a significant threat may experience heightened anxiety, while viewing it as a manageable challenge might lead to proactive coping strategies. The Lazarus Cognitive Appraisal Theory of Stress is essential for comprehending the ways in which caregivers in their families evaluate the stressors they face and the resulting effects on their overall Quality-of-Life. This study examines the assessment procedure to uncover the relationship between differing opinions on caregiver difficulties and their

effects on psychological and social health (Biggs et al., 2017; Folkman, 2008). Moreover, identifying effective coping strategies can improve the establishment of support systems for caregivers. The Lazarus Cognitive Appraisal Theory of Stress asserts that stress is not solely a result of external demands but is contingent upon the caregiver's evaluation of those demands. Primary appraisal assesses the nature of a situation as threatening, challenging, or benign, whereas secondary appraisal evaluates the resources available for coping.

Caregiver Stress and Burden Model (CSBD). The CSBD represents a recognised integrative framework that explains caregiver burden and its resultant effects (Pinquart & Sörensen, 2006). The caregiver process can be deconstructed into several interrelated and distinct characteristics, including age, psychological status, interpersonal support systems, and coping strategies, all of which significantly affect the caregiver experience. The following are the key tenets of the Caregiver Stress and Burden Model (CSBD):

Caregiver Tasks. The nature and complexity of caregiver duties can vary widely, affecting the stress experienced by caregivers (Li et al., 2024). Tasks may include physical care, emotional support, and managing healthcare logistics, all of which can contribute to physical and emotional strain.

Social Context. The load on caregivers can be lessened or increased depending on how many sources of interpersonal encouragement, such as friends, family, and local resources (Gibbs, 2023). The standard of life is frequently higher for caregivers with robust support systems than for those without.

Psychological Outcomes. This model associates various psychological outcomes, including anxiety, depressive disorders, and overall well-being, with caregiver stress. Increased caregiver load has consistently been linked to poorer mental wellness (Jalil et al., 2024). Tension can be alleviated by positive treatment outcomes, while negative outcomes may exacerbate it. Given that it offers a thorough understanding of the complex nature of helping others, the Model of Caregiver Stress and Burden is very pertinent (Pinquart & Sörensen, 2006).

METODOLOGY

Research Design

For the purpose of this study, a descriptive cross-sectional correlation research design was used, as it is suitable for investigating the relationships among variables without manipulation (Putri et al., 2025). The study utilised a descriptive method to deliver a comprehensive analysis of the social background of family caregivers, the specifics of their caregiver experiences, and the related caregiver burden (Siedlecki, 2020). This knowledge is critical for comprehending the situations in which caregivers' function and contributes to an in-depth comprehension of their circumstances (Creswell & Inoue, 2025).

Study Population

The target population for this study consisted of family caregivers providing care to individuals with Stage IV cancer at Kenyatta University Teaching, Referral and Research Hospital (KUTRRH) in Nairobi, Kenya. Being a leading referral hospital in Kenya, KUTRRH receives an estimated 1,000–1,500 new cancer patients annually (Ministry of Health, 2025). Of these, approximately 30–40% present with Stage IV cancer, which includes both common solid tumours such as breast, cervical, and colorectal cancers, as well as haematological malignancies such as leukaemia and lymphoma (KUTRRH Cancer Registry, 2022). This statistic underscores the significant burden faced by family caregivers providing care to patients in advanced stages of cancer.

Sampling Techniques and Sample Size

This study employed a purposive sampling technique to recruit participants who met the inclusion criteria. The

target sample size was 384 caregivers. Patients were asked to designate their primary caregiver for inclusion in the study. This number was determined based on Cochran's formula for sample size determination for large populations, adjusted to account for non-responses, dropout rates, and the specificity of the study population (Qing & Valliant, 2025).

Cochran's formula:

$$n=\frac{Z^2P[1-P]}{e^2}$$

Where: Z = 1.96 (corresponding to a 95% confidence level); p = 0.5 [The estimated fraction of the population that displays the attribute]; e = 0.05 (desired margin of error)

Substituting the values:

$n = (1.96 \times 1.96 \times 0.5 \times 0.5) / (0.05 \times 0.05)$

$n = (3.8416 \times 0.25) / 0.0025$

$n = 0.9604 / 0.0025$

$n_0 = 384.16$, rounded to 384

Data Collection Tools

Data collection employed several verified research instruments, including the Self-Reported Questionnaire, Caregiver Burden Inventory, and the use of questionnaire. as it aligned with the descriptive aspect of descriptive correlational design. The Self-Reported Questionnaire for Caregivers was a researcher-developed instrument adapted from socio-demographic caregiver surveys utilised in previous studies, notably those created by Lopez et al. (2021). The Caregiver Burden Inventory (CBI), developed by Novak and Guest in 1989, offers a multidimensional assessment of the burdens experienced by caregivers. The scale comprised 24 items organised into five domains: time-dependent burden, developmental burden, physical burden, social burden, and emotional burden. The tool was created to address the need for a comprehensive instrument that captures both the subjective and objective dimensions of caregiver strain. Developed in 1996 by the World Health Organisation Quality-of-Life (WHOQOL) Group, the WHOQOL-BREF tool was designed as a valid, cross-cultural measure of an individual's perceived Quality-of-Life.

Data Collection Methods and Procedures

Research assistants were trained to ensure they effectively assisted participants who needed help in completing the questionnaires. Before data collection, all research assistants received comprehensive training to ensure they possessed the necessary skills for accurate, ethical, and sensitive administration of the questionnaires. The training addressed the study objectives, research ethics (including informed consent, confidentiality, and non-coercion), proper administration of each instrument, and procedures for clarifying items while avoiding bias. Caregivers completed the questionnaires in a quiet and comfortable environment, ideally in a designated area within KUTRRH, allowing them to concentrate on the questions without interruptions. The surveys incorporated standardised instruments, including the Caregiver Burden Inventory (CBI) and the WHOQOL-BREF.

Pilot Testing

Prior to the main data collection, all research instruments were subjected to pre-testing to assess their clarity, reliability, and feasibility within the study context. The pre-test was conducted among a small group of caregivers (n=39, 10% of the target sample) who shared similar characteristics with the target population but were not included in the final study sample. Consultation with experts and peers was carried out on the instruments to find unclear and culturally inappropriate items. For reliability, Cronbach alpha coefficeint was computed for the instruments and alpha coefficients of 0.87, 0.92 and 0.81 were obtained for questionnaire, Caregiver Burden Inventory (CBI) and the WHOQOL-BREF respectively.

Data Analysis

This study employed both descriptive and inferential statistics methods. Preliminary diagnostic test of Shapiro-Wilk was conducted on variables to test for normality, where a p-value greater than ($p>0.05$) showed that the data were normally distributed. Secondly, the Variance Inflation Factor (VIF) was computed for all variables to test for multicollinearity, where a VIF value of less than 5 showed no serious multicollinearity and thus could not distort regression results. The major data analysis underwent three phases of analyses, including univariate,

bivariate and multivariate analyses. Spearman's rho correlation was used to assess the relationship between caregiver stressors (time burden, social stressors and emotional distress) as independent variables and Quality-of-Life as an outcome (dependent variable). Consequently, multiple regression and ANOVA were tested to determine the predictive strength and the significance of the model at $p<.05$. The study employed a multiple regression model to determine the influence of caregiver stressors on outcomes:

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_1X_1+\beta_1X_{1.....}+\ldots e$$

Where; Y (Dependent Variable); Quality-of-Life; X_1,X_2, X_3,…..(Indepndent variables) β_0: Constant (intercept); e=Error term

RESULTS

General Information and Demographic Data

Out of the 384 sampled respondents, a total of 378 caregivers participated in the study, translating into a response rate of 98%. This high response rate enhances the credibility and generalisability of the findings, indicating that the data is sufficiently representative of caregivers at the hospital. The demographic characteristics of the participants are presented under the following sub-sections:

Figure 2 Distribution of Caregivers by Gender

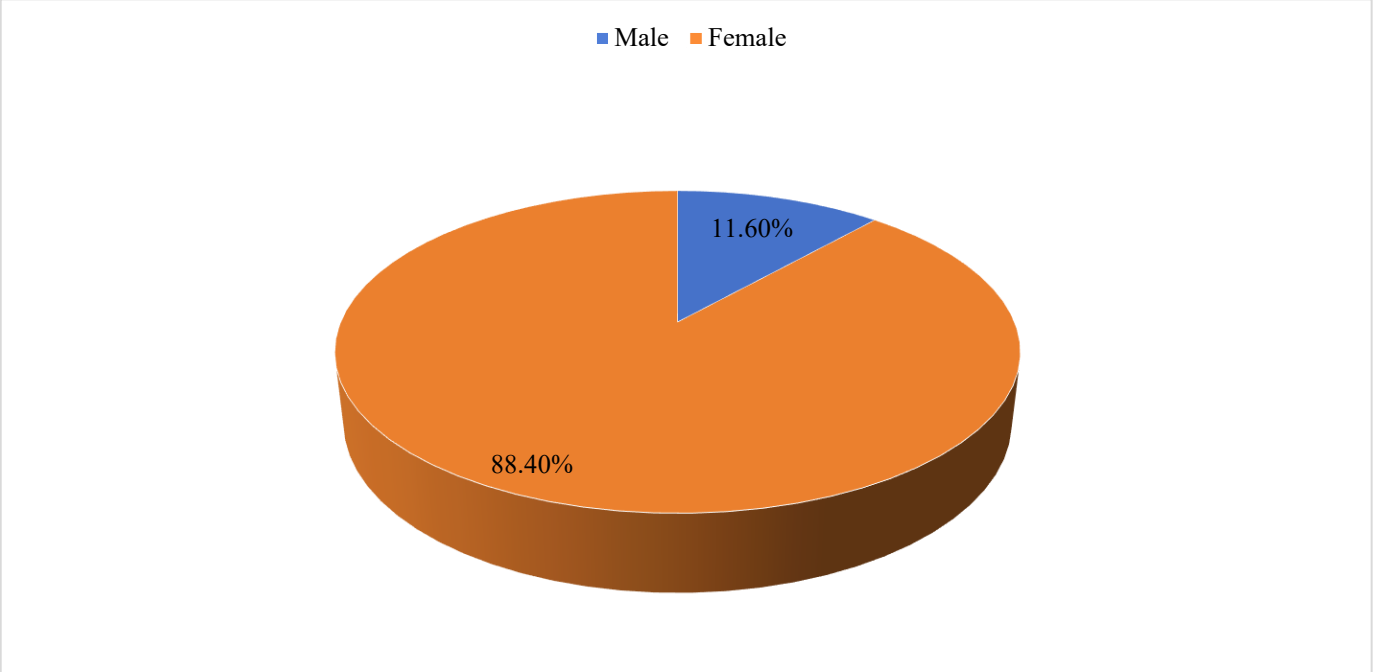
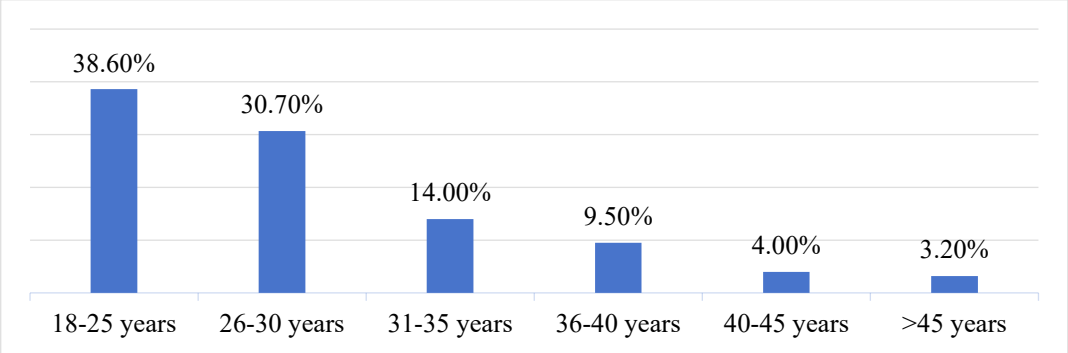


Figure 2 reveals that the majority of caregivers were female, totalling 334 (88.4%), whilst males comprised only 44 (11.6%). This unequivocally demonstrates that women primarily assume caring duties. This research implies that female caregivers experience more exposure to caregiver-related stressors, such as emotional strain, exhaustion, and role overload. This could adversely impact their mental well-being and overall Quality-of-Life. This suggests that interventions designed to alleviate caregiver stress must be gender-sensitive, prioritising support for female caregivers who endure the worst load.

Figure 3 Distribution of Caregivers by Age



The results in Figure 3 indicate that the predominant age group of caregivers was 18–25 years, including 146 individuals (38.6%), followed by the 26–30 years age group with 116 individuals (30.7%). Individuals aged 31–35 years comprised 53 (14.0%); those aged 36–40 years accounted for 36 (9.5%); individuals aged 40–45 years represented 15 (4.0%); and those above 45 years totaled 12 (3.2%). This indicates that caregiver duties are predominantly shouldered by young adults, with more than two-thirds of respondents under the age of 30.

Figure 4 Distribution of Caregivers by Marital Status

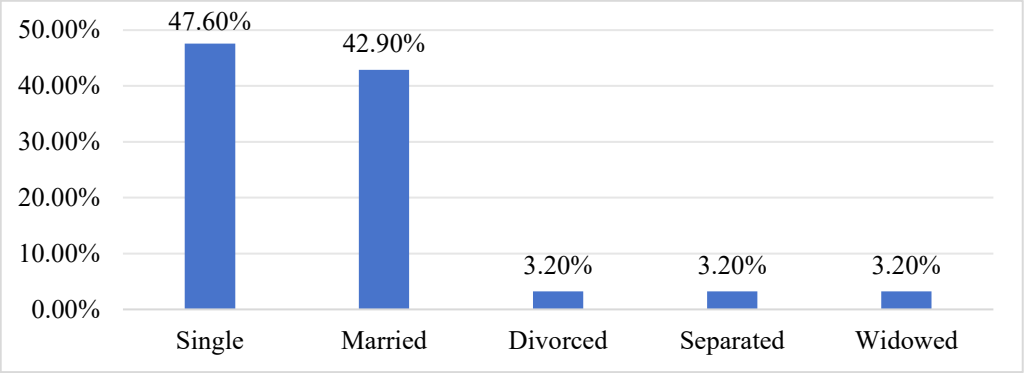


Figure 4 indicates that a greater percentage of caregivers were single; 180, (47.6%), followed by married individuals 162; (42.9%), with divorced, separated, and widowed caregivers each comprising 12; (3.2%). This indicates that both single and married adults participate in caregiving, with single caregivers constituting the majority. Single caregivers may have heightened vulnerability to stress and social isolation due to the absence of spousal or partner support, while married caregivers may encounter role conflict as they navigate the dual demands of caregiving and family obligations. This underscores the necessity for customised support systems in both groups.

Figure 5 Level of education

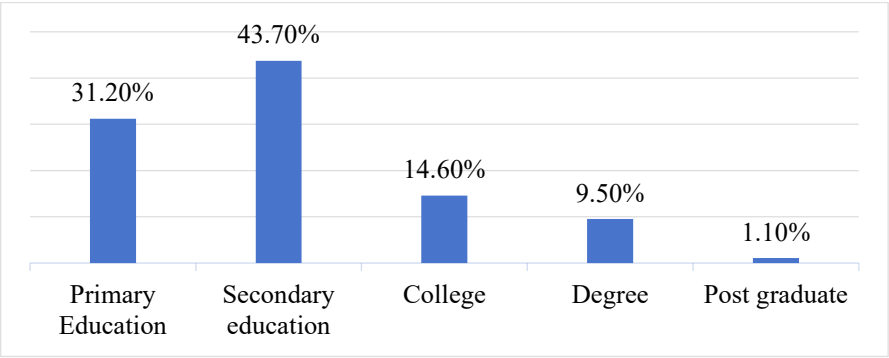
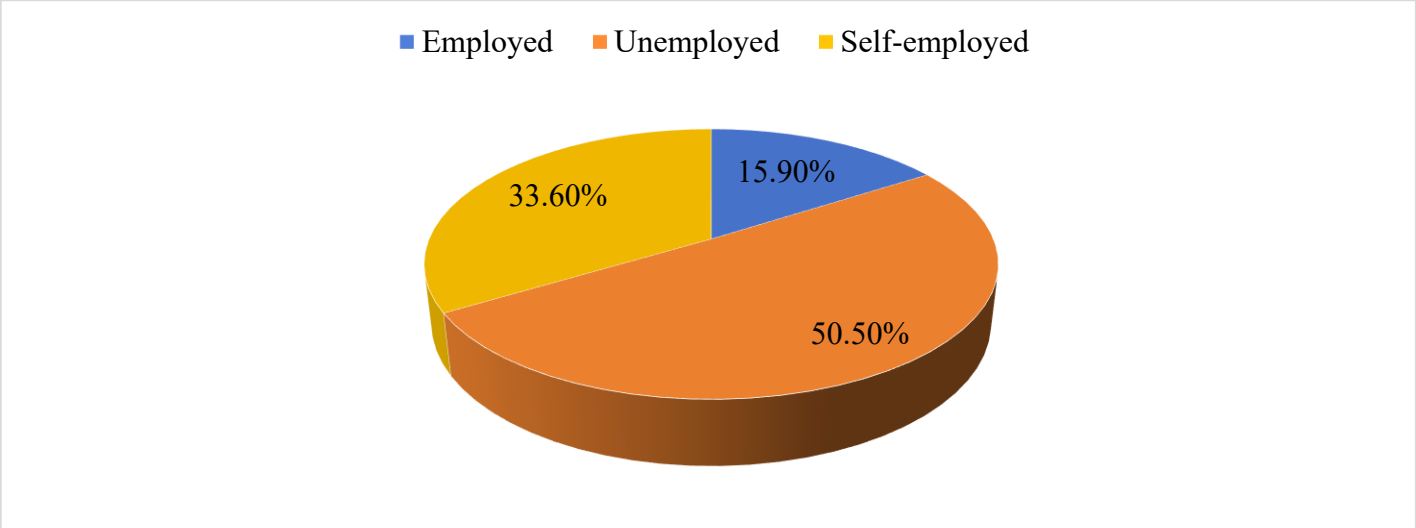


Figure 5 shows that the majority 165(43.7%) of caregivers had a secondary education, followed by primary education 118 (31.2%). There were 55 (14.6%) with a college degree, 36 (9.5%) with a bachelor's degree, and

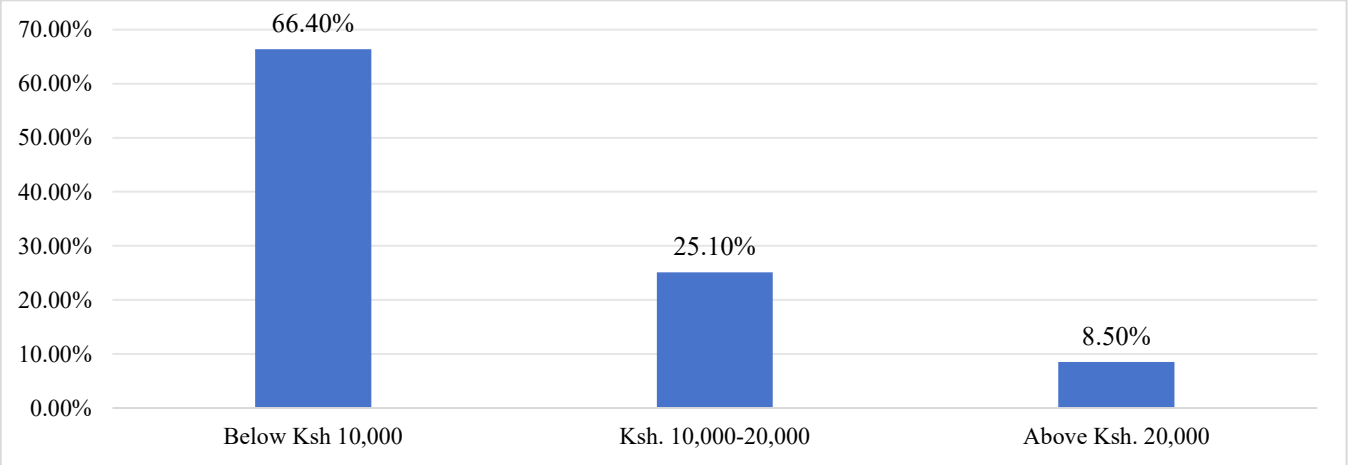
only 4 (1.1%) with a postgraduate degree. These findings imply that that majority of caregivers in this sample had primary and secondary education. This emphasises how crucial it is to give caregivers simpler health education and training in order to improve their Quality-of-Life and competence.

Figure 6 Status of employment



According to the results in Figure 6, 60 (15.9%) of the caregivers had a formal job, while 191 (50.5%) were unemployed and 127 (33.6%) were self-employed. These findings demonstrate the wide range of caregivers' working circumstances, indicating that a sizeable percentage may struggle to manage job and caring obligations. The effects of these occupational statuses on caregivers' well-being and access to support networks might be investigated further.

Figure 6 Monthly Household Income Level (KSH)



The results are shown in Figure 7 reveal that 251 (66.4%) of the caregivers made less than Ksh 10,000, followed by 95 (25.1%) who made between Ksh 10,000 and Ksh 20,000, and only 32 (8.5%) who made more than Ksh 20,000. According to this research, the majority of caregivers were from low-income families. The implication is that access to healthcare services, caregiver resources, and support networks may be restricted due to financial constraints, which would increase the stress and difficulty of providing care.

Influence of Caregiving Stressors on Mental and Social Health

The study sought to examine the of caregiver stressors on the mental and social health of family caregivers of cancer patients at Kenyatta University Teaching, Referral and Research Hospital (KUTRRH) in Nairobi, Kenya. In this section, direct caregiver stressors, psychological distress and caregiver burden are orderly

scored on a 5-item Likert scale.

Normality Test (Shapiro-Wilk)

First, Shapiro-Wilk test was conducted to establish whether the data under this objective comes from a normal distribution (Table 1).

Table 1 Normality Test (Shapiro-Wilk) for Caregiving Stressors and Burden

Variable	Statistic	df	Sig.
Direct caregiver Stressors	0.967	378	0.072
Psychological Distress	0.971	378	0.085
caregiver challenges	0.834	378	0.071
Time-Dependent Burden	0.902	378	0.025
Developmental Burden	0.873	378	0.032
Physical Burden:	0.911	378	0.075
Social Burden	0.771	378	0.03
Emotional Burden	0,673	378	0.085

Table 1 displays the outcomes of the Shapiro–Wilk test conducted to assess the normality of the study variables. The findings demonstrate that the majority of variables, such as direct caregiving stressors ($W = 0.967$, $p = 0.072$), psychological distress ($W = 0.971$, $p = 0.085$), and physical load ($W = 0.911$, $p = 0.075$), exhibited a normal distribution, as their p-values exceeded the 0.05 threshold. This indicates that parametric analysis, including correlation and regression, was suitable for the dataset. Nonetheless, certain variables, including time-dependent burden ($p = 0.025$), developmental burden ($p = 0.032$), and particularly social load ($W = 0.771$, $p = 0.03$), contravened the assumptions of normality. This suggests a little skewness in responses, possibly mirroring the actual experiences of caregiver, where social and developmental disruptions are encountered more acutely and unevenly across respondents.

Multicollinearity Test (VIF)

Furthermore, the Variance Inflation Factor (VIF) was employed to assess collinearity, which evaluates the degree to which the variance of an estimated regression coefficient is inflated, hence indicating the stability of the regression model (Table 2).

Table 2Multicollinearity Test (VIF) for Caregiving stressors and Burden

Predictor Variable	VIF	Tolerance
Direct caregiver Stressors	1.95	0.53
Psychological Distress	2.25	0.34
caregiver challenges	2.15	0.51
Time-Dependent Burden	2.67	0.52
Developmental Burden	1.95	0.51

Physical Burden:	2.25	0.44
Social Burden	2.05	0.49
Emotional Burden	2.4	0.42

The Variance Inflation Factor (VIF) results presented in Table 2 demonstrate that all predictor variables exhibited VIF values between 1.95 and 2.67, much below the standard threshold of 5. This verifies the lack of multicollinearity and demonstrates that the independent variables specifically direct stressors, psychological distress, aspects of caring load, and caregiver challenges were adequately independent for regression analysis. This statistical independence is conceptually significant because, following the caregiver Stress and Burden Model (CSBD). Caregiving stressors function as separate yet interrelated domains rather than as overlapping notions. The present data thus confirm the conceptual distinction among physical, emotional, social, and financial pressures in the caregiver process.

Univariate Analysis

Descriptive analysis was conducted on the Direct Caregiving stressors whilst identifying which domains are most affected and require intervention as presented in Table 3.

Table 3 Descriptive Statistics for Caregiver Challenges

Caregiving Stressor Indicator	SA F(%)	A F(%)	N F(%)	D F(%)	SD F(%)	Mean	SD
It has been long enough giving care to the patient	79 (20.9%)	192 (50.8%)	54 (14.3%)	38(10.1%)	15(4.0%)	3.75	1.024
I spend more than 12 hours a day providing care	42 (11.1%)	144 (38.1%)	61 (16.1%)	96(25.4%)	35(9.3%)	3.16	1.194
I feel adequately prepared to provide care	48 (12.7%)	145 (38.4%)	55 (14.6%)	96(25.4%)	34(9.0%)	3.20	1.211
Medication administration is the most frequent caregiver task I perform	70 (18.5%)	164 (43.4%)	50 (13.2%)	65(17.2%)	29(7.7%)	3.48	1.195
Feeding administration is the most frequent caregiver task I perform	80 (21.2%)	164 (43.4%)	52 (13.8%)	53(14.0%)	29(7.7%)	3.56	1.189
Emotional support is the most frequent caregiver task I perform	73 (19.3%)	186 (49.2%)	51 (13.5%)	51(13.5%)	17(4.5%)	3.65	1.075

Key: SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

The results in Table 3 demonstrate that caregiver is marked by significant intensity and extended involvement, as the majority of respondents concur that they have been engaged in caregiving for an extended duration (79 = 20.9% strongly agree; 192 = 50.8% agree; mean = 3.75, SD = 1.024). This indicates prolonged exposure to

caregiver responsibilities, which amplifies cumulative stress. A significant percentage of caregivers indicated that they dedicate over 12 hours daily to caregiver responsibilities (42 = 11.1% strongly agree; 144 = 38.1% agree; mean = 3.16). This indicates a considerable time load and validates the existence of time-consuming caring responsibilities, which are established predictors of caregiver weariness. Medication administration (mean = 3.48) and feeding support (mean = 3.56) were recognised as common caregiver chores, although emotional support exhibited the highest mean (3.65), signifying that caregivers engage in both physical care and emotional labour. The findings align with the Stress Process Model, which identifies core stressors, including medical care demands and emotional caring, as key contributors to caregiver strain. The findings correspond with Lazarus and Folkman's Cognitive Appraisal Theory, indicating that prolonged caring obligations are likely perceived as burdensome when time and resources are constrained.

Table 4 Decsriptive Statistics for Caregiver Challenges

Caregiver Challenges	SA F(%)	A F(%)	N F(%)	D F(%)	SD F(%)	Mean	SD
Financial difficulties have made it hard to provide care to the patient	57(15.1%)	160(42.3%)	47(12.4%)	80(21.2%)	34(9.0%)	3.33	1.221
I hardly find time to meet my personal obligations	64(16.9%)	168(44.4%)	47(12.4%)	65(17.2%)	34 (9.0%)	3.43	1.213
Giving care has made me suffer from stress and other mental problems	52(13.8%)	165(43.7%)	50(13.2%)	84(22.2%)	27 (7.1%)	3.35	1.174
Giving care to the patient has weakened my relationship with friends and family	65(17.2%)	168(44.4%)	50(13.2%)	69(18.3%)	26 (6.9%)	3.47	1.172
I have not fulfilled my personal achievements because I spend most of my time giving care	59(15.6%)	164(43.4%)	49(13.0%)	79(20.9%)	27 (7.1%)	3.39	1.184

Key: SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

The results in Table 4 demonstrate that family caregivers of cancer patients at KUTRRH encounter moderate-to-high degrees of obstacles associated with caregiver in financial, social, and psychological aspects. The mean score for financial hardship was 3.33, indicating that a significant number of caregivers experience economic strain while delivering care. The significant percentage of respondents who either concurred or strongly concurred that caregiving has complicated their financial situation further substantiates this. Furthermore, caregivers indicated challenges in meeting personal obligations (mean = 3.43), signifying considerable role pressure and temporal conflicts. Social disruptions were apparent, characterised by diminished connections (mean = 3.47) and decreased personal success (mean = 3.39), underscoring the multifaceted nature of caregiver strain. These data indicate that caregiving transcends just physical support and substantially impacts caregivers' economic stability, social roles, and personal growth. The failure to uphold personal obligations and relationships indicates that caregivers may experience role overload, jeopardising their well-being and the quality of care they deliver. Financial constraints may restrict access to healthcare resources and exacerbate psychological discomfort, consequently worsening caregiver outcomes. The results align with the understanding of caregiver pressures as complex, including financial, social, and emotional issues (Applebaum & Sannes, 2025; Goto et al., 2023).

Table 5 Psychological Distress Score

Psychological Distress Indicator	SA F(%)	A F(%)	N F(%)	D F(%)	SD F(%)	Mean	SD
I feel overwhelmed by caregiving responsibilities to the cancer patient	59(15.6%)	174(46.0%)	53(14.0%)	69(18.3%)	23(6.1%)	3.47	1.138
I feel stressed while providing care	41(10.8%)	140(37.0%)	59(15.6%)	101(26.7%)	37(9.8%)	3.12	1.205
I feel anxious while providing care	74(19.6%)	184(48.7%)	44(11.6%)	57(15.1%)	19(5.0%)	3.63	1.110
I feel physically scared and in despair while providing care	61(16.1%)	172(45.5%)	53(14.0%)	67(17.7%)	25(6.6%)	3.47	1.152
I feel physically exhausted due to caregiving	48(12.7%)	149(39.4%)	53(14.0%)	94(24.9%)	34(9.0%)	3.22	1.211

Key: SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

Table 5 indicates that caregivers endure moderate to elevated psychological distress, with anxiety exhibiting the highest mean (3.63), followed by feelings of being overwhelmed (3.47) and hopelessness (3.47). Physical tiredness exhibited a significant mean of 3.22, signifying that caregiver entails both emotional and physical repercussions. The substantial consensus across these measures indicates that caregiver for cancer patients correlates with enduring emotional distress and exhaustion. These findings indicate that caregivers face significant risks of mental health issues, such as worry, stress, and emotional fatigue. Chronic psychological discomfort might hinder caregivers' decision-making, diminish caregiver efficacy, and elevate susceptibility to enduring mental health illnesses, including depression. The existence of physical weariness indicates that psychological stress is exacerbated by physical fatigue, potentially resulting in burnout. The results align with Bhandari and Gupta (2024), who contend that prolonged caregiver stress markedly elevates the likelihood of anxiety and depression.

Table 6 Caregiver Burden Score from the Inventory Tool

Caregiver Burden item	N	Mean
Time-Dependent Burden	378	3.402
Developmental Burden	378	3.38
Physical Burden	378	3.456
Social Burden:	378	3.386
Emotional Burden:	378	3.4375

Table 6 illustrates that caregivers endure moderate to high levels of stress across all domains: time-dependent (mean = 3.402), developmental (mean = 3.38), physical (mean = 3.456), social (mean = 3.386), and emotional

load (mean = 3.4375). The mean for physical load was the highest, suggesting considerable exhaustion and health decline, while emotional burden was also significantly elevated, signifying emotional instability and stress. These data indicate that caregiver load is multifaceted and cumulative, impacting caregivers physically, emotionally, socially, and developmentally. The significant physical burden implies a heightened chance of health decline, but the emotional burden signifies susceptibility to psychological discomfort. The developmental burden suggests enduring repercussions, including hindered professional advancement and diminished life chances.

Correlation Analysis

Correlation analysis was crucial for assessing the strength and direction of the association between caregiver pressures and psychological distress. It directly pertains to the study objective by determining if heightened stress correlates with diminished mental health. Table 7 displays data regarding the correlation study between caring pressures and psychological distress.

Table 7 Correlation Analysis between Caregiving Stressors and Mental Distress

		Mental health related experiences				
Caregiving stressors		I feel overwhelmed by caregiver responsibilities to the cancer patient	I feel stressful while providing care	I feel anxious while providing care	I feel physically scared and in despair while providing care	I feel physically exhausted due to caregiver
1.It has been long enough giving care to the patient	Pearson	.487**	.090	.063	.077	.024
	Sig. (2t)	.000	.079	.219	.137	.646
2.I spent more than 12 hours a day on providing care	Pearson	-.225**	.696**	-.118*	.291**	-.062
	Sig. (2t)	.000	.000	.022	.000	.232
3.I feel adequately prepared to provide caregiver	Pearson	.104*	.225**	.605**	.219**	.382**
	Sig. (2t)	.044	.000	.000	.000	.000
4.Medication administration is the most frequent caregiver task I perform	Pearson	.122*	.334**	.261**	.621**	.140**
	Sig. (2t)	.017	.000	.000	.000	.006
5.Feeding administration is the most frequent caregiver task I perform	Pearson	.016	.112*	.441**	.281**	.354**
	Sig. (2t)	.754	.029	.000	.000	.000
6.Emotional support is the most frequent caregiver task I perform	Pearson	-147**	.060	.116*	.046	.087
	Sig. (2t)	.004	.245	.024	.368	.091

**Correlation is significant at the 0.05 level (2-tailed). *Correlation is significant at the 0.01 level (2-tailed). Sig. (2t)= Sig. (2-tailed)

The correlation data presented in Table 7 demonstrate a substantial association between caregiver pressures and both mental and distress outcomes. In terms of mental health, the duration of caregiver and the severity of tasks (e.g., medicine delivery) exhibit substantial positive relationships with indicators of distress, including anxiety and despair. Medication administration showed a significant connection with anxiety and despair (r = 0.621). The findings indicate that heightened caregiver obligations directly deteriorate psychological well-being. Task-intensive caregiver and extended care hours elevate emotional stress, resulting in isolation and the deterioration of relationships. This indicates the necessity for specific interventions aimed at decreasing workload and enhancing social support. Nguyen et al. (2024) substantiate the correlation between work intensity and psychological suffering, revealing that extended caregiver hours markedly diminish Quality-of-Life.

Table 8: Correlation Analysis between Caregiving Stressors and Social Distress

	Social distress related experiences				
Caregiver Stressors	I feel that caregiver has limited my social interactions and friendships	I feel isolated because of my caregiver role	I have less time to spend with family or friends due to caregiver	I feel that my social life has been negatively affected by caregiver	Caregivering has made it difficult for me to maintain personal relationships
1. It has been long enough giving care to the patient	Pearson	.452**	.112*	0.071	0.089
	Sig. (P2t)	.000	0.031	0.168	0.094
2. I spent more than 12 hours a day on providing care	Pearson	-.198**	.664**	-.136*	.318**
	Sig. (P2t)	0.001	.000	0.015	.000
3.I feel adequately prepared to provide caregiver	Pearson	.121*	.243**	.572**	.238**
	Sig. (P2t)	0.021	.000	.000	.000
4. Medication administration is the most frequent caregiver task I perform	Pearson	.139**	.352**	.284**	.598**
	Sig. (P2t)	0.009	.000	.000	.000
5.Feeding administration is the most frequent caregiver task I perform	Pearson	0.028	.134*	.409**	.267**
	Sig. (P2t)	0.598	0.018	.000	.000
6.Emotional support is the most frequent caregiver task I perform	Pearson	-.132**	0.074	.129*	0.058
	Sig. (P2t)	0.011	0.176	0.019	0.281

The correlation results in Table 8 demonstrate a substantial association between caregiver pressures and social distress outcomes. In terms of social health, caregiving stressors exhibited a strong correlation with social isolation (r = 0.664), restricted friendships (r = 0.452**), and diminished partnerships (r = 0.598**). These findings affirm that caregiver pressures substantially undermine both psychological and social well-being. The results robustly endorse the Stress Process Model, which associates main and secondary stressors with adverse outcomes. Their results align with Lazarus' theory, which asserts that the effects of stress depend on one's perceived ability to cope. Consistent with these findings, Acquati et al. (2023) discovered a high correlation between caregiver and social retreat and isolation. The results align with Ahmad et al. (2023), who assert that caregiver substantially impacts social well-being by constraining social involvement and connections. Brown et al. (2023) similarly reported that caregiving impedes social activity and relationships. Conversely, Badger et al. (2020) discovered that psychosocial interventions might alleviate isolation, indicating that organisational support systems may mitigate social suffering.

Multiple Regression Analysis

Multiple regression analysis is a statistical technique used to estimate the value of a single dependent variable based on two or more independent (predictor) variables. It augments simple linear regression by examining correlations among several variables, assessing the marginal effects of each, and forecasting trends (Junior et al., 2020). This method is extensively employed in diverse disciplines, such as economics, social sciences, and health research, as it facilitates a more thorough comprehension of the determinants affecting the dependent variable. This strategy enables researchers to make educated decisions and pinpoint prospective areas for intervention or more investigation (Shetty et al., 2020). Table 9 delineates the model employed for the regression analysis pertaining to caregiver stressors and psychological distress.

Table 9 Model Summary

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.720a	.518	.500	.851	.518	30.055	13	364	.000
Predictors: (Constant), Caregiving stressors Dependent variables; Mental and Social distress									

The model summary in Table 9 reveals that caregiving stressors exhibit a robust and statistically significant predictive correlation with mental and social distress in family caregivers (R = 0.720). The coefficient of determination ($R^2 = 0.518$) indicates that roughly 51.8% of the variation in mental and social distress is accounted for by caregiver-related stressors. The adjusted R^2 value of 0.500 further substantiates that the model maintains significant explanatory power despite the adjustment for the number of factors. The elevated R^2 value indicates that caring stressors represent a significant element of this stress process. The modest standard error of the estimate (0.851) indicates that the model aligns well with the observed data. The findings indicate that caring stressors are significant drivers of caregiver well-being, explaining over fifty per cent of the observed variation in mental and social health outcomes.

Analysis of Variance (ANOVA). The ANOVA test determines whether the regression model is statistically significant, confirming that caregiving stressors collectively have a meaningful effect on psychological distress. Table 10 presents the summary of the ANOVA results for the regression analysis of caregiving stressors and mental distress.

Table 10: ANOVA[a]

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	283.260	13	21.789	30.055	.000b
	Residual	263.896	364	.725		
	Total	547.156	377			

The ANOVA findings in Table 10 demonstrate that the regression model is statistically significant ($F = 30.055$, $p < 0.001$). This indicates that the caring stressors encompassed in the model collectively exert a substantial influence on mental and social suffering among caregivers. The regression sum of squares (283.260) in relation to the residual sum of squares (263.896) demonstrates that a significant percentage of variability in distress is accounted for by the model. These data indicate that caring stressors, when evaluated together, significantly affect caregiver mental and social health. The model's statistical significance corroborates the study's premise that caregiving stressors are not arbitrary factors but are systematically associated with caregiver outcomes.

Regression Model Coefficients. Coefficient stable identifies which specific stressors contribute most to psychological distress, enabling targeted interventions.

Table 11: Coefficients Table

Coefficientsa						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.227	.424		.534	.593
	1.It has been long enough giving care to the patient	.016	.044	.014	.369	.712
	2.I spent more than 12 hours a day on providing care	.628	.045	.623	14.008	.000
	3.I feel adequately prepared to provide caregiver	.071	.051	.071	1.379	.169
	4.Medication administration is the most frequent caregiver task I perform	.149	.049	.148	3.046	.002
	5.Feeding administration is the most frequent caregiver task I perform	-.130	.062	-.129	-2.093	.037
	6.Emotional support is the most frequent caregiver task I perform	.038	.048	.034	.790	.430

	7Monthly household income level (KSH)	-.048	.069	-.026	-.694	.488
	8Financial difficulties has made it hard amidst giving care to the patient	.079	.039	.080	2.032	.043
	9.I hardly find time to fulfill my whilst giving care to the patient	.018	.038	.018	.472	.637
	10Giving care has made me suffer from stress and other mental problems	.082	.038	.080	2.168	.031
	11Giving care to the patient has weakened my relationship with friends and family	-.039	.040	-.038	-.995	.321
	12I have not fulfillment my personal achievement as I spend most of my time giving care	-.008	.038	-.008	-.208	.835
Predictors: (Constant), caregiving stressors Dependent variables; Mental and Social distress						

The results in Table 11 delineate specific caregiver stressors that significantly forecast mental and social suffering. Exceeding 12 hours of caring daily was identified as the most significant predictor ($B = 0.628$, $p < 0.001$), suggesting that prolonged caregiver duration markedly elevates distress levels. The delivery of medication demonstrated a substantial favourable effect ($B = 0.149$, $p = 0.002$), indicating that task complexity influences psychological strain. Financial hardship ($B = 0.079$, $p = 0.043$) and mental health issues arising from caregiver ($B = 0.082$, $p = 0.031$) were significant predictors as well. Feeding administration exhibited a negative correlation ($B = -0.130$, $p = 0.037$), indicating that caregivers might cultivate adaptive or routine-based coping strategies for simpler chores. Other variables, including the duration of caring and emotional support tasks, were not statistically significant, suggesting that some caregiver activities contribute less to discomfort. These data indicate that time load and task intensity are the primary determinants of caregiver's discomfort. Extended caring hours likely result in exhaustion, diminished personal time, and burnout. Intricate medical procedures heighten anxiety owing to the associated responsibility and risk, particularly when caregivers feel unprepared or lack adequate training to perform these tasks safely. Financial pressure intensifies stress, hindering caregivers' capacity to manage successfully. The adverse correlation with feeding tasks indicates that familiarity and routine may alleviate the perceived difficulty of specific caring chores, suggesting that implementing structured schedules could improve caregivers' overall well-being and reduce stress levels. The pronounced impact of time burden aligns with Nguyen et al. (2024), who discovered that caregivers delivering prolonged hours of care endure markedly diminished Quality-of-Life . Likewise, Stanley (2025) identified time demands as a principal factor in caregiver stress and role overload.

DISCUSSION OF FINDINGS

The study result revealed that caregivers encountered a myriad of challenges including high levels of time burden, emotional demands, financial strain, and social disruption among caregivers. The results align with those of Bekui et al. (2023) who emphasise that financial difficulties markedly elevate stress levels by limiting caregivers' access to vital services. Stanley (2025) corroborates that caregivers of cancer patients often encounter role overload and disruptions in their social lives, leading to the disturbance of personal obligations and social connections. Moreover, Thana et al. (2021) recognised financial hardship and social isolation as significant

factors contributing to caregiver burdens worldwide, corroborating the present findings. The social strain identified in this study is further validated by Brown et al. (2023), who illustrated that caregiver obligations markedly diminish social participation and interpersonal interaction. Furthermore, the reduced sense of personal achievement indicates developmental strain, as described by Muñoz-Cruz et al., where caregiver hinders career progression and life goals. Aoko's (2024) findings indicate a substantial link between caregivers' quality of life and socioeconomic factors, including income and occupation. These findings robustly endorse the Stress Process Model (SPM), which asserts that caring load emerges from both core stressors (care duties) and secondary stressors (financial strain and social disruption).

With regards to psychological distress indicators such as anxiety, overwhelm, and exhaustion were prevalent. These findings indicate that caregivers face significant risks of mental health issues, such as worry, stress, and emotional fatigue. The mean for physical load was the highest, suggesting considerable exhaustion and health decline, while emotional burden was also significantly elevated, signifying emotional instability and stress. The study's multidimensional burden corresponds with Goto et al. (2023), who characterise caregiver load as comprising physical, emotional, social, and economic stressors. The significant time-dependent burden corroborates the findings of Stanley (2025), who identified time demands as a primary factor contributing to caregiver stress. Findings on physical burden align with Muñoz-Cruz et al. (2024) who indicated that caregiver correlates with physical fatigue and deterioration of health. Cham et al. (2022) similarly emphasise that extended care results in exhaustion and persistent health problems. Findings on emotional burden are corroborated by Sargolzaei et al. (2024), who discovered a significant correlation between caregiver burden and depression, as well as emotional discomfort. Furthermore, Glecia and Li (2024) and Leszko and Allen (2024) indicated that caregiver adversely impacts psychological well-being and social functioning. Findings of social burden correspond with Acquati et al. (2023), who discovered that caring results in social isolation and diminished social engagement. Yao et al. (2024) further established that social isolation is significantly correlated with heightened psychological discomfort. Benyo et al. (2023) corroborate the prevalence of emotional distress, indicating elevated levels of depressive symptoms among cancer caregivers worldwide. In the African context, Wassie et al. (2025) identified a combined depression prevalence of 47.21% among caregivers, with notably elevated rates in Kenya, underscoring the intensity of psychological distress documented in this study. Onyango et al. (2025) identified substantial levels of anxiety and depression among caregivers in Kenya, underscoring the critical necessity for mental health interventions.

The correlation findings indicate that heightened caregiver obligations directly deteriorate psychological well-being. Task-intensive caregiver and extended care hours elevate emotional stress, resulting in isolation and the deterioration of relationships. This indicates the necessity for specific interventions aimed at decreasing workload and enhancing social support. Nguyen et al. (2024) substantiate the correlation between work intensity and psychological suffering, revealing that extended caregiver hours markedly diminish quality of life. Caregiving stressors exhibited a strong correlation with social isolation ($r = 0.664$), restricted friendships ($r = 0.452^{**}$), and diminished partnerships ($r = 0.598^{**}$). These findings affirm that caregiver pressures substantially undermine both psychological and social well-being. The results robustly endorse the Stress Process Model, which associates main and secondary stressors with adverse outcomes. Their results align with Lazarus' theory, which asserts that the effects of stress depend on one's perceived ability to cope. Consistent with these findings, Acquati et al. (2023) discovered a high correlation between caregiver and social retreat and isolation. The results align with Ahmad et al. (2023), who assert that caregiver substantially impacts social well-being by constraining social involvement and connections. Brown et al. (2023) similarly reported that caregiver impedes social activity and relationships. Conversely, Badger et al. (2020) discovered that psychosocial interventions might alleviate isolation, indicating that organisational support systems may mitigate social suffering.

From the regression analysis, the findings indicate that caring stressors are significant drivers of caregiver well-being, explaining over fifty per cent of the observed variation in mental and social health outcomes. Nevertheless, given 48.2% of the variation remains unaccounted for, additional factors such as coping strategies, social support, and personal resilience may significantly influence the outcome. The significant predictive capacity of caring stressors aligns with Goto et al. (2023), who define caregiver stress as comprising various aspects that jointly affect well-being. Applebaum and Sannes (2025) assert that both objective demands (such as time and financial resources) and subjective stress perceptions substantially influence caregiver outcomes. The results

correspond with Nguyen et al. (2024), who discovered that caregiver load, especially time commitment and financial pressure, markedly diminishes caregivers' quality of life. In the Kenyan setting, Odeny et al. (2024) indicated that psychological and socioeconomic factors collectively account for disparities in caregivers' health-related quality of life, hence reinforcing the explanatory power of the proposed model. Moreover, the results are corroborated by Aoko (2024), who illustrated that the quality of life of caregivers is highly linked to socioeconomic and caregiver-related factors. This underscores the notion that caregiver pressures are crucial to comprehending caregiver well-being.

The ANOVA findings demonstrate that a significant percentage of variability in distress is accounted for by the model. These data indicate that caring stressors, when evaluated together, significantly affect caregiver mental and social health. The notable ANOVA findings align with the multifaceted characteristics of caregiver burden as delineated by Goto et al. (2023), wherein diverse stressors interact to affect caregiver well-being. Likewise, Stanley (2025) emphasises that caring obstacles seldom arise in isolation; rather, they amalgamate to generate cumulative stress consequences. The results are corroborated by Thana et al. (2021), who discovered that a confluence of economic stress, social isolation, and emotional strain substantially exacerbates caregiver burden worldwide. Adebayo et al. (2025) further illustrated that systemic variables, such as inadequate healthcare support, exacerbate the cumulative impact of caregiver pressures in sub-Saharan Africa. Moreover, Muñoz-Cruz et al. (2024) underscore that both objective and subjective loads converge to generate comprehensive caregiver distress, so emphasising the importance of the model identified in this study is crucial. The cumulative effect observed in the ANOVA results aligns with the findings of Cham et al. (2022), which indicate that extended exposure to various caregiver stressors resulted in burnout and psychological distress.

CONCLUSION

The study concludes that caregiver-related stressors significantly and negatively impact the emotional and social well-being of family caregivers of cancer patients at KUTRRH. The results indicate that both primary and secondary caring pressures collectively diminish the caregiver's quality-of-life with regard to psychological and social dysfunction. The findings robustly endorse the Stress Process Model, which asserts that caregiver outcomes are shaped by the interplay of many stressors. The model's statistical significance indicates that these stressors function collectively rather than independently.

Ethical Approval

This study adhered to ethical considerations including sending consent letters to the respondents and permits were obtained from the relevant institutions before the stud was carried out.

Disclosure statement

No potential conflict of interest was reported by the contributors of this study.

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