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STRESS AND COPING STRATEGIES AMONG INFORMAL CAREGIVERS OF THE CRITICALLY ILL AT THE GREATER ACCRA REGIONAL HOSPITAL

BY

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DECLARATION

I, **ELLEN AMOAKOHENE**, do hereby declare that apart from references to other people's works that have been duly acknowledged, this dissertation is the result of my efforts under able supervision. I further declare that this work has not been submitted for any degree in this institution or any other elsewhere.

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Date

DEDICATION

This dissertation is dedicated to my family for their love, prayers, and encouragement.

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LIST OF ABBREVIATION

ICU	Intensive Care Unit
NICU	Neonatal Intensive Care Unit
GARH	Greater Accra Regional Hospital
PICU	Pediatric Intensive Care Unit
WHO	World Health Organization
GHS	Ghana Health Service
MOHG	Ministry of Health Ghana
GHS-ERC	Ghana Health Service Ethics Review Committee
ICON	Intensive Care Over Nations
AOR	Adjusted odds ratio
COR	Crude odds ratio
DASS	Depression Anxiety Stress Scale

OPERATIONAL DEFINITION

Critically ill patient:	A patient on admission in the emergency ward, NICU, ICU, PICU and recovery ward.
Caregiver:	Family member, relative, or a friend who spends time with the critically ill on daily basis without being paid.

ABSTRACT

Background

Stress among caregivers of the critically ill over the last decade has become an issue of great concern to health professionals and policy makers, both locally and internationally. According to Hickman & Douglas, (2010), the proportion of family members exposed to the psychological consequences of critical illness will continue to increase due to the consistently increasing number of patients admitted to the intensive care unit (ICU).

In developed countries, policymakers are recognizing the importance of supporting the caregiver (Schulz and Sherwood, 2008). In Ghanaian society, there is little information on the issue focusing importance on providing care to the ill at the expense of the psychological and physical health of caregivers. Inadequacy of evidence based data makes efforts towards the formulation of policy to deal with the situation difficult, if not impossible. For these reasons, the conduct of additional research on the subject would be the right step towards the solution of the problem.

Objective

This study aimed at assessing the stress among caregivers of the critically ill and its associated factors as well as the coping strategies employed by caregivers of the critically ill to minimize the level of stress they undergo.

Methods

The study involved an analytical cross-sectional design utilizing quantitative methods for data collection and analysis. A consecutive sampling method was used to survey participants and collect data which were analyzed with STATA 15.0 with chi square and simple logistic regression. Bivariate regression analysis was used to determine the association between the dependent and independent variables at a 5% significant level (P-value<0.05), and multivariate regression analysis was used to determine the strength of association.

Results

The proportion of caregivers of critically ill patients who are stressed at the Greater Accra Regional Hospital (GARH) were 73.4%. 39.3% of caregivers reported that they were under extremely severe stress. The coping strategies associated with stress include; reliance on financial support from family members and friends (p = 0.002), reliance on emotional support from family members and friends (p = 0.003) and decision to see situation as another test case (p = 0.020). Among the socio demographic factors, caregivers between the ages of 26 to 35 years (aOR = 2.16; 95% CI = 1.00 – 4.65; p = 0.050), 36 to 45 (aOR = 2.76; 95% CI = 1.09 – 7.00; p = 0.032), 46 to 55 years (aOR = 4.71; 95% CI = 1.15 – 19.34; p = 0.032) and 55 to 70 years (aOR = 5.71; 95% CI = 1.28 – 25.39; p = 0.022), cohabiting (aOR = 4.39; 95% CI = 1.29 – 14.91; p = 0.018), and grandparents of the critically ill (aOR = 0.18; 95% CI = 0.05 – 0.64; p = 0.007), were the factors that significantly influence stress among the caregivers.

Lastly, relative to situational factors, spending three hours at the hospital daily (aOR = 16.76; 95% CI = 3.12 – 90.13; p = 0.001), spending 4 hours or more at the hospital daily (aOR = 4.62; 95% CI = 1.09 – 19.69; p = 0.038), long distance from home to hospital (aOR = 2.31; 95% CI = 1.13 – 4.74; p = 0.022) and very long distance from home to hospital (aOR = 3.04; 95% CI = 1.47 – 6.29; p = 0.003) were factors found to be significantly associated with stress among caregivers of critically ill patients.

Conclusion

The act of caregiving by informal caregivers though unappreciated in GARH put caregivers under unprecedented levels of stress. It is an issue of major concern and needs attention.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Stress is the expressive and bodily tension produced in reaction to burdens and demands that their surroundings or environment pose on them. Stress responses well known to man are strain, moodiness, loss of focus, uncomfortable and varied physical indications that includes headache and increased heart rate (Caspi et al.,, 2003; Fink G. (2010).

Over the last decade, stress among caregivers of the critically ill has become an issue of great concern to health professionals and policy makers, both locally and internationally. The proportion of family members exposed to the psychological consequences of critical illness will continue to increase due to the consistently increasing number of patients admitted to the intensive care units (ICU) of healthcare institutions (Hickman & Douglas, 2010). Admission to the ICU by definition, is caused by onset of a life-threatening health situation and can precipitate severe stress within a family (Maxwell et al., 2007). A family member`s admission to the ICU is often perceived as a crisis by the family, as it creates multiple challenges for the family members including emotional and financial strain, change in role as well as responsibilities, and adjustment to work and career schedules (Adakarem & Alsharari, 2019).

In India, the overall stress level among caregivers was 5.18 ±0.26 (on a scale of 1-10), and nearly 62% of caregivers were ready to ask for professional help from nurses, medical social workers, and counsellors to help them cope with stress (Kulkarni et al., 2014). Exposure to critical illness has devastating physiological effects on patients and damaging psychological effects on family members (Adakarem & Alsharari, 2019). Critical illness requires prolonged care and abundance of health and financial resources in an effort to keep a loved one alive or increase their likelihood of survival. Minimizing stress among caregivers of the critically ill would offer several benefits to the caregiver, the patient and policy makers.

Unlike in developed countries, data on caregiver stress particularly in Africa, is limited. Nonetheless, the absence of such data should not be considered an indication that caregiver stress is a non-occurrence. More importantly, such absence of statistics on stress, communicates the need for studies that seek to determine the proportion of caregivers of the critically ill who are living with stress and identify the coping strategies required to deal with stress. Aboderin (2004), reports that in sub-Saharan Africa, the foremost source of support for the critically ill has been the immediate family due to the African values of reciprocity, reverence, and respect of caregiving and is the major source of support when members become old and are threatened by economic deprivation, disability and social isolation (Kumado & Gockel, 2003). The caregiving role has significant impact on the physical and mental health of the caregiver mostly because of inadequate support systems. In a study conducted by Sanuade and Boatemaa (2015), it was reported that, less than 5% of caregivers received financial, emotional, physical and personal health care support.

Coping with stress is mostly individualized and can be maladaptive in nature, requiring effective personalized strategies. A study in America (Chipas et al., 2012) revealed that people employ the services of mental health professionals, take prescription medications, engage in hobbies and look for sources of empowerment or motivation that teach them to control their life and surroundings in order to cope with stress. A Ghanaian study by Esia-Donkoh et al. (2011) also documented a variety of coping strategies including active coping, planning, suppression of competing activities, restraint coping, seeking social support for instrumental and emotional reasons, positive reinterpretation and growth, acceptance, denial and mental disengagement.

1.2 Statement of the Problem

Stress among caregivers is a major health concern as it can adversely affect the physical, psychological and emotional wellbeing of families and contribute to poor health as well as delay recovery of the critically ill patient.

Research has shown that caregivers of the critically ill undergo stress for various reasons whiles caring for the sick (Davidson, 2009; Al-Mutair et. al., 2013***a***). The uncertain trajectory of critical illness exposes the patient's family to heightened levels of psychological distress. Hospitalization of a loved one is often unexpected, and families face the possibility that their loved one may be severely disabled or even die. There are the added economic burdens both in terms of hospital cost and possible loss of future earnings. The consequences of all these is that, one tends to find families of the critically ill patient so distraught, looking helpless, hopeless, and a sense of fear written on their faces. Although symptoms suffered by families of the critically ill often dissipate over time, a significant proportion of family members may remain at moderate to high risk for psychological distress well after the patient's death or discharge from the ICU. Caregivers are largely not given support resulting in extensive and prolonged stress which is detrimental to their health especially, mental or psychological making it a major issue of public health importance (Schulz and Sherwood, 2008). In developed countries, policymakers are recognizing the importance of supporting the caregiver (Schulz and Sherwood, 2008). In the Ghanaian society, there is little information on the issue focusing importance on providing care to the critically ill at the expense of the psychological and physical health of caregivers. In fact, there remains no published work on the subject at the Greater-Accra Regional Hospital (GARH), although caregivers may be experiencing stress. This study, therefore, focused on filling the research gap by examining stress and coping mechanisms employed by relatives of the critically ill. Such a study would also help formulate policy to minimize stress among caregivers of the critically ill in Ghana.

1.3 Objectives of the Study

1.3.1 General Objectives

This study aimed at assessing stress and coping strategies among caregivers of critically ill patients at the Greater-Accra Regional Hospital (GARH).

1.3.2 Specific Objectives

The specific objectives of this study were to:

1. Determine the proportion of caregivers of the critically ill living with stress at GARH.
2. Assess the factors associated with stress among caregivers of the critically ill.
3. Identify the various coping strategies adopted by caregivers of the critically ill to deal with stress.

1.4 Research Questions

1. What proportion of caregivers of critically ill patients are stressed at the GARH?
2. What factors are associated with stress among caregivers of the critically ill at GARH?
3. What are the coping strategies used by caregivers of the critically ill to deal with stress?

1.5 Justification

Stress among caregivers of the critically ill could lead to anxiety, irritability, depression, mood swings, memory and concentration problems. This study, therefore, sought to assess stress and strategies adopted to cope with stress among caregivers of the critically ill patients at the GARH.

Conduct of this study would help document essential information on stress experienced by caregivers of critically ill patients and strategies they employ to minimize stress. Such information is necessary for healthcare workers at the GARH to provide a family-centered and holistic health care to the critically ill. This will go a long way to reduce caregivers burden and improve overall recovery rate among such critically ill persons. Findings from the study would also augment existing knowledge on stress and coping mechanisms, especially in Ghana, and provide evidence based information to guide stakeholders and policymakers in the formulation of policy on a holistic approach necessary to mitigate stress among caregivers of the critically ill. When factors that influence stress among caregivers are identified and tackled, these caregivers would be able to provide the needed support that the critically ill need thereby ensuring bio-psychosocial and holistic health care to the critically ill and wellbeing of these caregivers assisting the critically ill.

Furthermore, a study of the coping strategies would help towards charting effective health and hospital based policy to assist caregivers to better cope with or reduce the stress they face while caring for the critically ill

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1.6 Narrative of the Conceptual Framework among caregivers of the critically ill

Figure 1, illustrates the conceptual framework of the association between stress and various factors that affect development of stress among caregivers of the critically ill. Stress among families, especially bedside caregivers, of the critically ill may be influenced by a multiplicity of factors. Demographic factors such as age, gender, educational and income levels may I nfluence the level of stress experienced by a caregiver of the critically ill. A younger person looking after a critically ill relative may be less stressed because of physical activeness and the ability to move with ease in between hospital units to purchase drugs, send request forms to the laboratory quickly enough to facilitate health delivery.

Caregivers who are females tend to have the natural art of caregiving hence may experience lower stress levels compared to males, when providing such services to a critically ill relative. Educated care givers are also more likely to be busy due to their job and other responsibilities and have the tendency to feel hassled by changes in situations that cause them to have to leave their job schedules to spend time with a critically ill relative leading to stress. Lack of financial muscle or income to take care of a critically ill relative can be stressful to the caregiver.

In addition, the relationship between the care giver and the critically ill, may influence stress levels among caregivers. This is because people tend to love and care for near relatives more, and therefore, tend to experience greater fear of losing such relatives to critical illness than distant ones.. For this reason, the closer the relative the more traumatizing and stressful caregiving may be to the caregiver. Health facility factors such as distance to the facility, attitude of the health care workers, and perceived adequacy of facilities to facilitate care may contribute to the level of stress experienced by caregivers of the critically ill.

Furthermore, the gravity of critical illness suffered by one relative, as a situation, results in certain factors that may influence the level of stress experienced by caregivers. The situation may determine the duration of stay with the critically ill, and daily time spent at the hospital. In addition, caregivers who have previous experience of caregiving to a critically ill may find it less stressful caring for a critically ill relative. Individuals are also different in their abilities to cope with the stressful situations for various reasons. Finally, coping strategies adopted may minimize the gravity of stress experienced by the caregiver. These coping strategies may be directed at the problem or at the emotions felt by the stressed individual.

1.7 Conceptual Framework Diagram

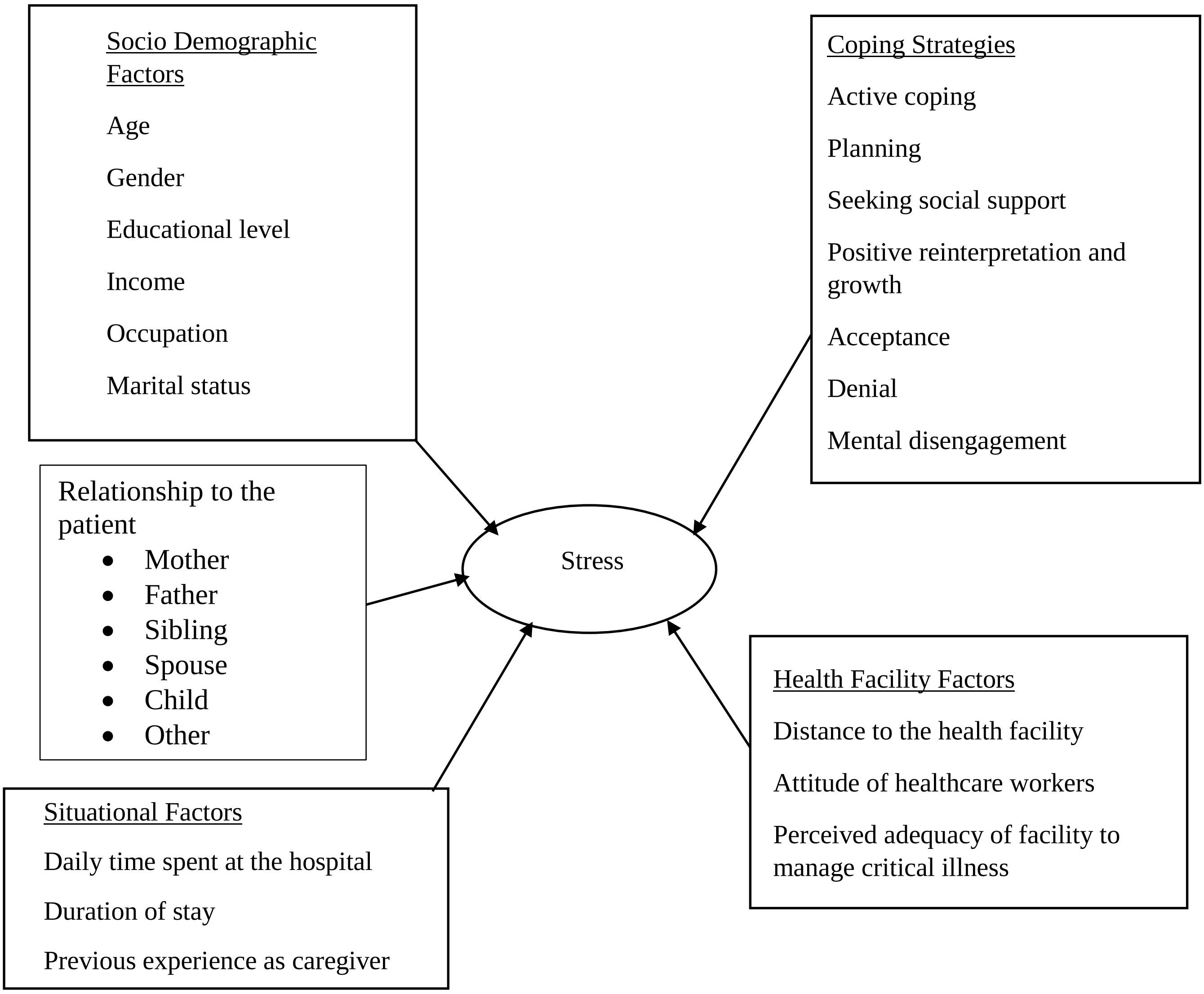

Figure: 1 Conceptual Framework on Stress and Coping (Author's construct)

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Health care delivery all over the world makes use of various levels of team work involving healthcare providers and the immediate family of patients, especially the hospitalized or critically ill to provide all the necessary health needs, most importantly, taking decisions on their behalves and facilitating the health providers understanding of patient's preferences (Wong et al., 2015). Aboderin (2004) stated that in sub-Saharan Africa the greatest source of support is the family of the critically ill. In Ghana there is often an abundance of family support for the sick (Sackey, 2005), even though recently only a few associate with the extended family (Kyei-Arthur, 2013).

Having a critically ill relative can be stressful for family members, affecting their day to day activities (Davidson, 2009) since there is a strong need to be near the ill as well as requiring periodic detailed information from the healthcare personnel (Al-Mutair et. al., 2013***a, b***) on the present condition of the ill. The stress relatives go through may be more psychological than physical since anxiety, lack of sleep, depression, fatigue, changes in eating habits and despair may be involved (Carlson et al., 2015). These could be caused by inadequate information, ineffective communication, misunderstanding of the diagnosis, prognosis, and treatment as well as the possibility of imminent death (Davidson, 2009). Despite the numerous strategies employed by caregivers, none of the strategies are most effective (Tuncay et al., 2008) in coping with stress. Hence this study sought to assess stress levels and coping strategies employed by the caregivers of the critically ill to deal with stress.

2.2 Critical Illness

The intensive care unit (ICU) provides critical care to severely ill patients (CIHI, 2016). The care of critically ill people is a large (Wunsch et al., 2008), and expensive (Wild & Narath, 2005) component of modern health care. Developed countries have extensive ICU infrastructures (Wunsch et al., 2008) but this is not the case in developing countries. This is a strong reason behind the greater number of deaths recorded in ICUs of developing countries compared to developed countries. This insight is necessary for ensuring that all health care systems are able to meet current and future needs for ICU care (Garland et al., 2013).

Vincent et al. (2014) in their assessment of the worldwide burden of critical illness: The Intensive Care Over Nations (ICON) Audit reported that, Europe recorded 5445 (54.1%) critically ill patients followed by Asia (1928 patients; 19·2%), America (1723 patients; 17·1%), Oceania (439 patients; 4·4%), Middle East (393 patients; 3·9%), and Africa (141 patients; 1·4%). Overall ICU mortality rate was 16·2% across the whole population.

In Canada, the 2005 Canadian Institute of Health Information report indicates that 11% of hospitalizations are ICU cases (CIHI, 2005), and 19% of critically ill persons die there (Heyland et al., 2000). In addition, in 2013–2014, 11% of adult hospital admissions in Canada outside of Quebec included time in the ICU (CIHI, 2016) and 19% of critically ill persons die from their conditions (Heyland et al., 2000).

In the United States, 50% of all people experience ICU care during their final year of life (Barnato et al., 2004), many die there (Angus et al., 2004), and demand is still on the rise (Halpern et al., 2004).

A study by Garland et al. (2013) in Manitoba showed that in the year 2007, Manitoba had approximately 0.72% of men and 0.47% of women admitted to ICUs yearly. The age adjusted, male to female ratio was 1.75 with the mean age being 64.5 ± 16.4 years. The number of ICU admissions rose rapidly after age 40, peaked at age 75 to 80, and declined for the oldest age groups. ICU admissions were higher among low income earners as compared to the rich. At a point ICU admissions declined while ICU bed days rose, implying a longer duration of stay of admitted patients. Also 16% of ICU patients were people who had received ICU care previously.

2.3 Stress and Caregiving

The majority of caregivers have to balance their employment, financial security, physical and mental health, and overall quality of life with caring for the sick (Tooth et al., 2005).

Caregiving allows caregivers to feel good about themselves, learn new skills, and strengthen family relationships (Schulz & Sherwood, 2008). In spite of these benefits, caregivers experience drastic life changes such as becoming isolated from social support as a result of their responsibilities and confinement and therefore may be at risk for increased stress and depression (Coetsee, 2007). Shah at al., (2010) also adds that, one-third to one-half of carers suffer significant psychological distress and experience higher rates of mental illness. Yıkılkan et al (2014) conducted a descriptive cross-sectional study on depression, anxiety and quality of life of caregivers, reporting that 58.7% had symptoms of depression with 2.7% actually suffering severe depression.

2.3.1 Theoretical Framework

The transactional model of stress and coping argues that the experience of stress is ultimately a system of appraisal, response and adaptation (Lazarus & Folkman, 1984). In the presence of a stressor such as the critical illness of one’s relative, the caregiver or relative who has to take care of the patient's day-to-day needs and also assist health professionals to ensure holistic care of the critically ill can be stressed. The level of stress experienced is moderated by personal factors (age, gender, educational level, income, occupation, and relationship with patient) and situational factors (daily time spent at hospital, duration of stay, distance to facility, attitude of health care workers, previous experience as caregiver, available resources for care). These factors may influence stress in a caregiver. According to Krohne (2002) appraisal could be primary or secondary.

A primary appraisal evaluates a situation based on negativity or positivity as to whether it would bring harm or good (Wood, Wood & Boyd, 2007). Secondary appraisal on the other hand looks for coping strategies that could be used to offset the stressor (Wood et al., 2007). Lack of strategies to deal with the stress at this point greatly increases stress levels whereas available coping mechanisms would reduce the stress drastically (Wood et al., 2007). Overall outcomes depend on the ability of the caregiver to deal with the stress situation.

2.4 Factors Associated with Stress Experienced by Caregivers of the critically ill

2.4.1 Introduction

Individuals who care for the critically ill experience stress in their care giving duties and the level of stress experienced is influenced by personal factors (age, gender, educational level, income, occupation, and relationship with patient) and situational factors (daily time spent at the hospital, duration of stay, distance to facility, attitude of health care workers, previous experience as caregiver and available resources for care).

2.4.2 Age and Stress

Kulkarni et al., (2014) reported that caregivers are from a wide age range (17-83) with an average age of 43.46±1.39 and that older caregivers experience greater stress than younger ones (Pinquart, 2001).

2.4.3 Gender and Stress

The background of the caregiver in terms of gender could have an influence on stress levels or psychological health (Pochard et al. 2001). Women report higher levels of stress than men (Koerner & Kenyon, 2007). In a lot of societies, women are the foremost family members that assume caring duties for children, old people, the sick, the handicapped, and others who cannot look after themselves (Songsore & McGranahan, 2003). Until recent times, women were the automatic caregivers with responsibility shifting to men (Koerner & Kenyon, 2007). Songsore & McGranahan (2003) suggested that cultural barriers prevented men from being caregivers. Women have been reported to suffer a lot of psychological stress and trauma sometimes resulting in various levels of depression and mental illness and made worse when the critically ill shows little chance of survival or actually passes on. In Ghana, Kyei-Arthur, (2013) and Ae-Ngibise et al. (2015) stated that mothers, sisters, daughters and wives are the majority of care givers.

2.4.4 Educational Level and Stress

A study by Kulkarni et al., (2014) revealed that 19.6% of caregivers were uneducated, 49.2% had primary school education, 13.6% studied in high school and 17.4% has tertiary education. The educational level of caregivers affected the level of stress they experience. This relates to their understanding of prognosis, diagnosis and treatment (Adams et al., 2014) given to the critically ill.

2.4.5 Income and Stress

Caregivers of the critically ill who are of low income status and have limited support, experience more stress (Pinquart, 2001).

2.4.6 Occupation and Stress

The majority of caregivers (53%) are unemployed (Kulkarni et al., 2014). Most critically ill patients are unable to do day- to- day activities for themselves. This creates a huge burden on the caregiver forcing them to resign from their paid jobs to care for the ill since there is a strong need to be near the ill (Davidson, 2009). This creates chronic stress promoting physical and psychological strain resulting in secondary stress at work and in the family (Schulz & Sherwood, 2008).

2.4.7 Relationship with Patient and Stress

The caregiver is a central point in relation to the critically ill. The caregiver links up to healthcare workers, the family and the sick. Frustration from all points may be directed on the caregiver when something goes wrong, sometimes the sick get frustrated with their current state and this is vented out on the caregiver (Oliver et al., 2017**)**. Azoulay et al. (2005) found out that, three to six months following discharge or death of a relative, family members experience high levels of acute Post-Traumatic Stress Disorder (PTSD). Having a critically ill relative can be stressful for family members affecting their day to day activities (Davidson, 2009) since there is always a strong need to be near the ill The background of the caregiver especially in terms of relationship to the care receiver could influence psychological health (Pochard et al. 2001). Spouses are reported to experience higher levels of stress than adults and children (Kang, 2006). A qualitative study in Greece by Koukouli et al. (2018) identified that relatives of critically ill patients frequently exhibited high levels of psychological distress and anxiety which resulted from the changes in their lives, the unstable condition of the patient, the unexpected changes of patient’s body and face, and the difficult treatment decisions family has to take.

2.4.8 Daily Time Spent at Hospital and Stress

As aforementioned in this chapter, caregivers' stress levels can be directly influenced by their number of engagements associated with the nature of their occupation and income levels. A cross-sectional survey of 50 elderly caregivers in Japan by Hirano et al. (2011) revealed that caregivers who spent continuous hours at healthcare centers with their patients were suffering from hypertension, followed by hypercholesterolemia, diabetes and cancer. Similarly, Pinquart & Sörensen (2003) found that the time spent for caregiving and providing care at healthcare centers and home have been described as a stressful experience that can wear away the psychological well-being and physical health of caregivers.

2.4.9 Duration of Stay and Stress

In most cases of critical illness there is a prolonged period of illness resulting in prolonged stress (Kulkarni et al., 2014). The average duration of care is 24.02 months which is long enough to lead to the development of stress and or manifestation of its effects.

2.4.10 Distance to Facility and Stress

Stress related caregiving varies by distance to health facility (CFCOA, 2016). Caregivers who live at least 1 hour from the facility face greater stress than those at a proximal location. This could be related to the issue of waking up early to the facility and leaving late to their homes. Bad roads, traffic situations, long bus queues and rusty buses are some challenges caregivers face in getting to the critically ill.

2.4.11 Attitude of Healthcare Workers and Stress

Caregivers resort to various coping strategies to offset the stress they encounter during caregiving. The level of collaboration with health care providers in terms of explanation of the condition, prognosis and treatment are some of the coping strategies employed by caregivers (Lo et al., 2001). Having a critically ill relative can be stressful since there is a need for requiring periodic detailed information from the healthcare personnel (Al-Mutair et. al., 2013***a*** and ***b***) on the present condition of the ill. Nevertheless, research findings indicate that healthcare professionals are not paying enough attention to the psychosocial needs of caregivers in terms of communication, information, emotional support, more flexible visiting hours and the need of the family to feel accepted and discuss the possibility of imminent death (Browning and Warren, 2006; Carlson et al., 2015; Khalaila, 2013).

2.4.12 Previous Experience as a Caregiver and Stress

Kulkarni et al. (2014), revealed that 62% of care givers had no prior experiences in caregiving with the least experience being 0.1 month, the maximum being 360 months with an average of 24.02 months. Stating that a catalogue of caregiving experiences helps caregivers deal better with stress compared to first time caregivers.

2.4.13 Available Resources for Care and Stress

Social or family support and income (Lo et al., 2001;Yeh & Bull, 2012; Choi & Sok, 2012; Losada et al., 2010; Lin, Chen & Li, 2013; Calderon & Tennstedt, 1998) affected stress levels of caregivers. Stevens et al. (2013) investigated three types of social support (appraisal, belonging, and tangible) on caregivers’ level of stress in Mexico.

Belonging refers to the act of fitting in with respect to societal placement. In Africa, it is common to find stories of the critically ill and their caregivers being discriminated against, isolated or abandoned. This could be attributed to the cultural and superstitious beliefs concerning the sick’s condition. This impacts the physical and mental health of the caregiver because of inadequate community support systems (Sanuade and Boatemaa, 2015).

Tangible support refers to material things such as money, clothing, toiletries and food items donated to support the work of the caregiver. These items have been reported to be a great source of motivation to caregivers but in our part of the world it is rare to see that happen due to the financial problems faced by sympathisers (Sanuade and Boatemaa, 2015). Stevens et al. (2013) also found out that the longer the period of care giving the lesser the social support over time. Results also showed that tangible social support encouraged caregivers to do more and also positively affected their level of irritability (Cumming et al., 2008).

Appraisal refers to an evaluation of a caregiver's performance based on how well the caregiver is able to manage arising situations and demands. The appraisal is based on the idea that the level of stress experienced depends on the expectations the caregiver has in relation to the significance and outcome of the current situation (Krohne, 2002). This explains differences expressed in terms of the quality, intensity, and duration of psychological impact an equal amount of stress has on different individuals. According to Krohne (2002) appraisal could be primary or secondary.

A primary appraisal evaluates a situation based on negativity or positivity as to whether it would bring harm or good (Wood, Wood & Boyd, 2007). As such, when a person is faced with a stressor, he or she evaluates the potential threat or benefits. Primary appraisal has to do with when a person judges an event as stressful, positive, controllable, challenging or irrelevant. Secondary appraisal focuses on looking for coping strategies that could be used to offset the stressor (Wood et al., 2007). Secondary appraisals address what one can do about the situation. Actual coping efforts aimed at regulating the problem give rise to outcomes of the coping process (Freire et al., 2020; Baqutayan, 2015; LBP, 2020). Lack of strategies to deal with the stress at this point greatly increases stress levels whereas available coping strategies would minimize the stress drastically (Wood et al., 2007).

2.4.14 Coping Mechanism

Coping is considered one of the core concepts in health psychology and in the context of quality of life, and is strongly associated with the regulation of emotions throughout the stress period (Folkman & Moskowitz, 2004; Kartalova-O'Doherty & Doherty, 2008). Models of coping identify two distinct categories based on the intention and function of coping efforts: problem-focused and emotion-focused coping. Parks and Novielli (2000) assert that coping strategies are vital in assisting caregivers to manage burdens because they act as a preventive measure against affective disorders commonly associated with caregiving. However, Tuncay et al. (2008) affirm that there is no consensus as to which coping strategies are most effective, and how well a coping strategy serves the purpose of solving problems or relieving emotional distress. Folkman and Lazarus (1980) add to this by suggesting that problem-focused and emotion-focused strategies can be used for the same stressful event. Some examples of coping strategies include reading, praying, asking for help, exercising, singing among others.

Problem-focused coping refers to strategies aimed at solving the problem or doing something to change the source of stress. This includes planning and gathering of information relevant to the situation. Previous research has pointed out that negative effects of caregiving can be reduced with social support and positive coping behaviours such as problem-focused strategies (Goldzweig et al., 2013). Problem-focused coping is often associated with reduced distress (Tuncay et al., 2008).

Emotion-focused coping refers to strategies that aim to reduce or manage feelings of distress such as denial, seeking emotional support, wishful thinking, or avoidance. These according to research are positively related to reports of depressed moods (Tuncay et al., 2008).

1. Active coping: Taking steps to try to remove the stressor to improve its effects by initiating direct action, increasing one's efforts and trying to cope in a systematic way **(**Carroll et al., 2013; Esia-Donkoh et al., 2011).
2. Planning: Thinking about how to cope with a stressor by drawing action strategies, thinking about what steps to take and how best to handle the problem (Greenaway et al., 2014).
3. Suppression of competing activities: Suppressing involves competing activities with the view of concentrating more fully on the challenge or threat at hand **(**Corbin et al., 2013).
4. Restraint coping: Waiting until an appropriate opportunity to act presents itself, holding oneself back, and not acting prematurely **(**Esia –Donkoh et al.,2011**)**.
5. Seeking social support for instrumental reasons: Seeking advice, assistance or information on the problem at hand (Ozbay et al.,2007).
6. Seeking social support for emotional reasons: Getting moral support, sympathy or understanding on a problem at hand (Ozbay.et al., 2007).
7. Positive reinterpretation and growth: Managing distress emotions, rather than dealing with the stressor per se (Cheshire et al., 2010).
8. Acceptance: Accepting the reality of a stressful situation (Dubow & Rubinlitcht, 2011).
9. Denial: Refusal to believe that the stressor exists or trying to act as though the stressor is not real (Blum et al., 2012).

10. Mental disengagement: Using alternative activities, such as games, exercises, watching movies and drinking alcohol to take one's mind off a problem. (Traeger, 2013)

2.5 Limitations of earlier studies on stress and coping strategies

According to Aboderin (2004), the foremost source of support for the critically ill in sub-Saharan Africa has been the immediate family due to the African values of reciprocity, reverence, and respect for caregiving. Kumado & Gockel (2003), also intimated that the immediate family is the major source of support when members become old and are threatened by economic deprivation, disability and social isolation. Since caregiving is stressful, the immediate family members who are directly involved in informal caregiving to relatives that are incapacitated, disabled or critically ill, experience varying degrees of stressful situations.

Nevertheless, various studies on assessment of stress and coping strategies conducted among caregivers in healthcare facilities reviewed so far, have concentrated heavily on healthcare staff, particularly, nurses (Lim et al., 2010; Polanco-Roman et al., 2006; Cohen-Katz et al., 2005; Milutinovic et al., 2012), with virtually none on informal caregivers of the critically ill.

To address this limitation therefore, this current study sought to assess stress and coping strategies among informal caregivers of the critically ill in order to generate the critical data needed to formulate policy towards addressing stress and coping strategies' related issues among caregivers of the critically ill in Ghana.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the methods and procedures that were employed in this study. It includes the study design and location, study population, sample size, sampling techniques, data collection techniques and tools, ethical considerations, among others.

3.2 Study Design

A cross-sectional quantitative design was adopted for this study. The study assessed the stress and coping strategies among caregivers of the critically ill at the Greater Accra Regional Hospital.

3.3 Study Location

The study was carried out at the Greater Accra Regional Hospital (GARH) formerly known as the Ridge Hospital (Figure 2). It is in the Accra metropolis of the Osu-Klottey Sub-metropolitan.

Geographically, GARH is located on latitude 5.5627°N and longitude 0.1990°W. It was built by the Europeans in 1928 and was mainly used by them until independence. It was upgraded to a district hospital in 1974 and further upgraded to a regional hospital in 1996. Currently it has been rehabilitated with ultra-modern facilities and expanded to 420-bed capacity with various departments such as paediatrics, medical, surgical obstetrics and gynaecology, among others. The hospital has an emergency unit that admits critically ill patients referred from other facilities and also has an intensive care unit (ICU) with bed capacity of 6 patients. Up to 8 patients are admitted monthly in the ICU. The hospital has a well furbished Neonatal intensive care unit (NICU) which admits about 120 neonates monthly. There is also the

Pediatric Intensive Care Unit (PICU) which admits about 12 patients a month. All the critically ill patients admitted to the various intensive care units of the GARH have caregivers some of whom are living with stress.

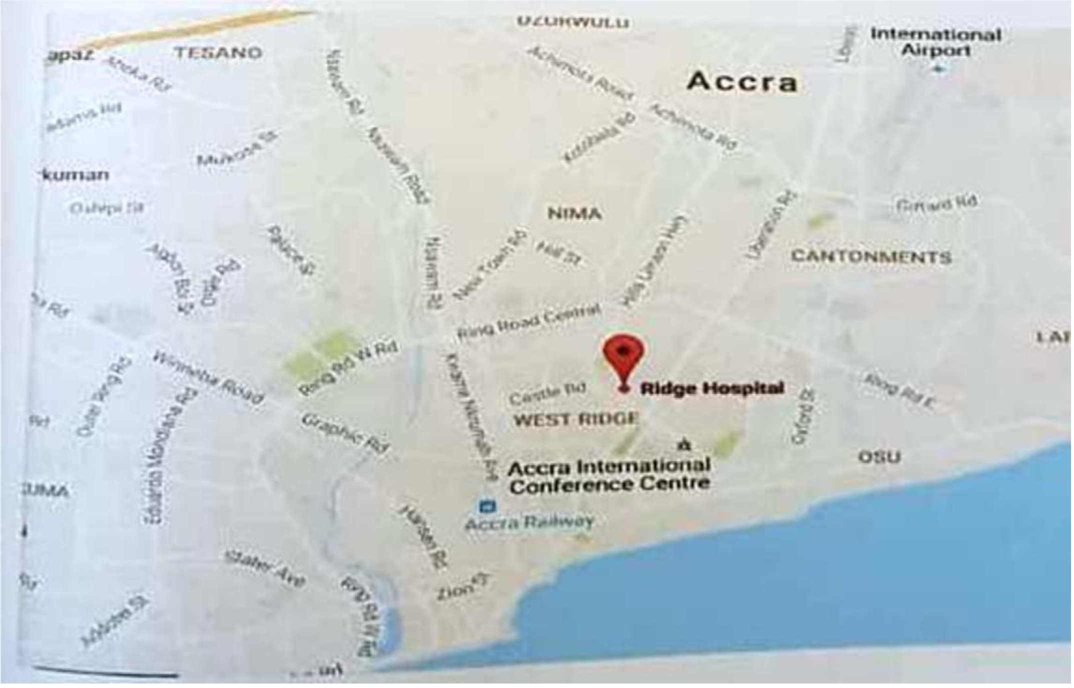

Figure 2: Sectional map of Accra locating Greater Accra Regional Hospital

3.4 Study Population

This included caregivers of critically ill patients who were giving support at GARH.

3.4.1. Inclusion Criteria:

1. All caregivers of critically ill patients at the ICU of GARH.

3.4.2. Exclusion Criteria

1. All caregivers of the critically ill who did not give consent to participate in the study.
2. Caregivers under 18 years of age.

3.5 Sampling

3.5.1 Sample Size Calculation

Yıkılkan et al (2014) conducted a descriptive cross-sectional study on depression, anxiety and quality of life of caregivers, reporting that 58.7% were depressed. Thus, the sample size of this study was calculated at 95% confidence interval and a 58.7% prevalence of stress using Cochran formula (Cochran, 1977).

$$n= \frac{Z^{2}\ pq}{e^{2}}$$

Where:

n= required sample size

Z = standard normal deviate for two tailed-test based on 95% confidence level = 1.96

p = proportion of stressed care givers (depression) = 58.7% = 0.587 (Yıkılkan et al, 2014).

- q = 1 - p = 1 - 0.587 = 0.413
- e = margin of error = 5% = 0.05
- Therefore, the sample size will be calculated as follows
- N = $\frac{1.96^{2} \times 0.587\ (1-0.587)}{0.05^{2}}$
- N= $\frac{3.8416\ \times 0.552\ \times 0.448}{0.0025}$
- N= 372.0 = 372
-

However, to cater for non-response, an attrition rate of 5% was used to upwardly adjust the sample size, giving

- N = $\left\{ \underline{5\ \text{X}}\ 372/100) \right\}$

=372+18=390.

Therefore, a sample size of 390 participants were surveyed in the study.

3.5.2 Sampling Method

Enrolment of participants for the study was done systematically through three (3) phases (i) stakeholder consultation (ii) selection and enrolment of study participants (iii) data collection.

Phase 1: stakeholder consultation: The principal investigator and research assistants engage d the hospital authorities, informed them about the project and secured permission in order to carry out the study.

Phase 2: Enrolment of study participants: Once approval was given, the study employed total population sampling method and recruited caregivers of critically ill patients to answer questionnaires. The hospital has an emergency unit that admits critically ill patients referred from other facilities and also has an intensive care unit (ICU) with bed capacity of 6 patients. The emergency admits an average of 250 new patients monthly. They admit up to 8 patients monthly in the ICU. The hospital has a well furbished Neonatal intensive care unit which admits about 120 neonates monthly. The pediatric intensive care unit (PICU) also admits up to about 12 patients in a month. The overall sample size of 390 participants was split into three unit-specific sample sizes i.e. 250 from emergency, 120 from the NICU, 8 from the ICU, 12 from PICU, using a population proportionate to size calculation. Data were collected over a one-month period. Within this period, the caregiver of any patient admitted into these units was approached to participate in this study per the inclusion criteria. Only persons who gave consent were recruited into the study. Data was collected simultaneously in all the units within the period to achieve the unit- specific sample sizes.

Phase 3: Data collection:

The data collection tool employed was structured questionnaires. The structured questionnaire was interviewer-administered and in English.

3.6 Data Collection Tools and Methods

The structured questionnaire had three parts (a copy is found in Appendix II). The first part contained a series of questions to collect socio-demographic information such as sex, age, marital status, income level. The second section elicited information on situational factors that can cause stress. Stress was measured using the DASS-21, depression anxiety and stress assessment tool presented in appendix III of the dissertation. It consisted of a short form of Depression Anxiety and Stress Scale (DASS)–21, which was modified and used to measure the levels of stress among caregivers of the critically ill and the proportion of caregivers at the Greater-Accra Regional Hospital (GARH) living with stress. The short version of DASS-21 is based on three (3) subscales of stress, anxiety and depression. Each subscale consisted of statements by which study participants were supposed to specify the manner in which each applied to them. It had four (4) Likert Scale answers ranking from 0 (did not apply to me at all); 1 (apply or applies to me to some degree, or some of the time); 2 (apply or applies to me to a considerable degree or a good part of the time); 3 (applied to me most of the time). Scores were written off as “normal”, “mild”, “moderate”, “severe” and “extremely severe” (Lovibond and Lovibond, 1995). According to Tran, Tran and Fisher (2013), the English and non-English version of DASS-21 have a high internal reliability (Cronbach’s alpha scores >0.7). Table 3.1 below shows the ratings and scores of DASS-21.

Table 3.1 Ratings and Scores of DASS-21

	Depression	Anxiety	Stress
Normal	**0-9**	**0-7**	**0-14**
Mild	**10-13**	**8-9**	**15-18**
Moderate	**14-20**	**10-14**	**19-25**
Severe	**21-27**	**15-19**	**26-33**
Extremely Severe	**28+**	**20+**	**34+**

Source: Lovibond & Lovibond (1995).

A structured questionnaire was used to elicit information from study participants. These questionnaires had four sections. The first part of the questionnaire focused on personal factors. Coping strategies were elicited in section three. Prior to the administration of questionnaires, the aim of the study was explained to all respondents to ensure full comprehension and to rule out any form of ambiguity. The questionnaires were self-administered whereby respondents filled out the questionnaires before they were collected back by the researcher.

3.7.1 Dependent Variables

Stress among caregivers of critically ill patients was the dependent variable.

3.7.2 Independent variables

These included:

Personal Factors

Age, gender, educational level, income, occupation, and relationship with patient

Situational factors

Daily time spent at the hospital, duration of stay, distance to facility, attitude of health care worker

s, previous experience as caregiver, and available resources for care.

3.8 Quality control

Data collected was sorted, coded and entered into Microsoft Excel. Data was checked, cleaned and exported into Stata version 15.0 file (Stata Corporation, Texas, USA) before analysis.

3.9 Data Analysis

Descriptive statistics such as means, frequencies, standard deviation were used to summarize the data. Percentages were reported for categorical variables. Means and standard deviations were determined for continuous variables. Graphs and percentages were used to summarize the findings on stress and coping strategies. In addition, Pearson Chi-square or Fisher's exact test were used to test the association between the dependent variable (Stress) and independent variables (personal factors and situational factors). Furthermore, univariate analysis using logistic regression was conducted to determine the association between stress and the predictor variables. Risk factors identified after the univariate analysis were then fitted into binary or multinomial logistic regression model to determine the strength of the significance of association between the dependent and independent variables.

3.10 Ethical Consideration

Approval for the study was obtained from the Ethics Review Committee of the Ghana Health Service (GHS-ERC). Permission was sought from Management of Greater Accra Regional Hospital and finally, informed consent was also sought from the participants before the conduct of the study.

In line with the WHO, Ministry of Health, Ghana(MOHG) and the Ghana Health Service(GHS) protocol and guidelines for the prevention of spread of COVID-19, the research team and participants wore face masks before and during data collection. Alcohol (70%) based hand sanitizers was also used to sterilized the hands before the commencement of filling questionnaires. At least 1 metre distance between the researcher and the participants was ensured to adhere to social distancing rules. Hand gloves and tissues were made available for use where necessary.

3.11.1 Compensation

Participants were not given any monetary compensation. The findings of the study were however made available to the management of the Greater Accra Regional Hospital to be used as a source of reference regarding stress among caregivers of the critically ill. Recommendations made by this study could be used in formulating institutional and national policies on stress.

3.11.2 Confidentiality

In ensuring anonymity, participants were only identified with codes and numbers. No information regarding participants name or any other information that traces the data collected to the participants, was taken. Questionnaires were self-administered.

3.11.3 Privacy

Participant information was kept on a computer with a secured password. Filled questionnaires were kept under lock and key, and information gathered on participants was kept strictly confidential between the principal investigator and the supervisor.

3.11.4 Benefits

Participants had an opportunity to gain some knowledge of stress and ways to cope under such situation since each participant was educated after data collection. This education was done by the principal investigator. The education was in the form of reassurance and to let caregivers understand that the coping mechanism they adopt and their mental fortitude will enable them offer the support needed for the recovery of their critically ill relative**.**

3.11.5 Risks

This research did not pose any risk that borders on physical damage to the participant except for the discomfort of using some of the time they would have spent with their ill patient in answering questionnaire and provision of answers to questions bordering on their personal matters such as age, and marital status.

Since the study was conducted at a health facility, where there is the risk of Covid-19 pandemic the following measures were put in place to ensure safety of both researchers and participants.

All existing hospital protocols aimed at preventing the spread of Covid-19 were adhered to and in addition;

1. Researchers and respondents sanitized their hands with 70% alcohol based hand sanitizers before and after the administration of questionnaires.
2. Pens used to fill questionnaires were not passed on from one respondent or researcher to another.
3. A distance of at least 1 metre was maintained between respondents and researchers in adherence to social distancing protocols.
4. Face masks were provided and worn by researchers and respondents before the administration of questionnaires.
5. Gloves and tissues were provided for use where necessary for researchers and respondent.

3.11.6 Conflict of Interest

There was no conflict of interest.

3.11.7 Voluntary withdrawal

Participation in this study was voluntary and participants had the liberty to choose not to answer any question or all the questions. Participants were encouraged to fully participate in the study to ensure that the findings from the study were a true reflection of the factors being investigated, they however had the liberty to choose to withdraw from the study at any point in time.

3.11.8 Informed Consent and Consenting process

Consent was obtained from participants before commencement of the study. In line with maintaining moral principles during the research process, considerable efforts were made to clearly explain the purpose and objective of the study to the participants, and their informed consent sought before the administration of questionnaires. In light of this, study participants were provided with a detailed explanation of the purpose of the research and the research process in a clear and concise manner. In addition, participants were made to sign a written informed consent form after detailed explanation of the study.

3.14 Data storage and usage

Data collected in this study were strictly for research purposes. The data were subsequently stored with passwords on electronic media and safely locked boxes. Anonymity was ensured in dissemination of findings from this study since participants were not identified by names.

3.15 Declaration of conflict of interest

I hereby declare no conflict of interest.

3.16 Funding of the study

This study was self-funded by the principal investigator.

CHAPTER FOUR

RESULTS

PRESENTATION AND ANALYSIS OF FINDINGS

4.1 Socio-demographic characteristics of respondents

Table 4.1 shows the socio-demographic characteristics of respondents. Nearly thirty-eight percent 146 (37.6%) of caregivers were between the ages of 26 to 35. Out of the 388 respondents, 272 (70.1%) of them were females. Thirty-six percent of respondents (140) had had tertiary education. Majority of the respondents 257 (66.2%) were employed with a median income of GH₵800. The minimum and maximum incomes earned by the caregivers monthly were found to be GHC100 and GHC6000 respectively. Majority of the caregivers 159(40.9%) earned between GHC100 and GHC1000, whereas 141(36.3%) did not respond to the item at all. More than half of the respondents 209 (53.9%) were married. Nearly twenty-nine percent of respondents (28.91%) had their parents critically ill.

Table 4.1: Socio-demographic characteristics of respondents (n = 388)

Variables	Frequency	Percent (%)
Age in years		
18 to 25	66	17.0
26 to 35	146	37.6
36 to 45	125	32.2
46 to 55	24	6.2
55 to 70	27	6.9
Gender		
Male	116	29.9
Female	272	70.1
Educational level		
None	18	4.6
Primary	54	13.9
Secondary	87	22.4
Tertiary	140	36.1
Vocational	89	22.9
Employment status		
Unemployed	131	33.8
Employed	257	66.2
Income range (in Ghana Cedis / Ghc)		
100-1000	159	40.9
1001-2000	62	16
2001-3000	22	5.7
3001-4000	3	0.8
4001-5000	0	0
5001-6000	1	0.3
No response	141	36.3
Marital status		
Married	209	53.9
Cohabiting	34	8.8
Single	145	37.4
Relationship with critically ill person		
Grandparents	31	8.0
Spouse	44	11.3
Child	82	21.1
Parents	112	28.9
Sibling	64	16.5
Others	55	14.2

4.2 Proportion of stressed caregivers

Out of the 388 caregivers, 73.4% indicated they were stressed (percentage = 73.4%; 95% CI = 68.7% - 77.8%). However, 112 (39.3%) of caregivers reported that they were under extremely severe stress (Table 4.2.1).

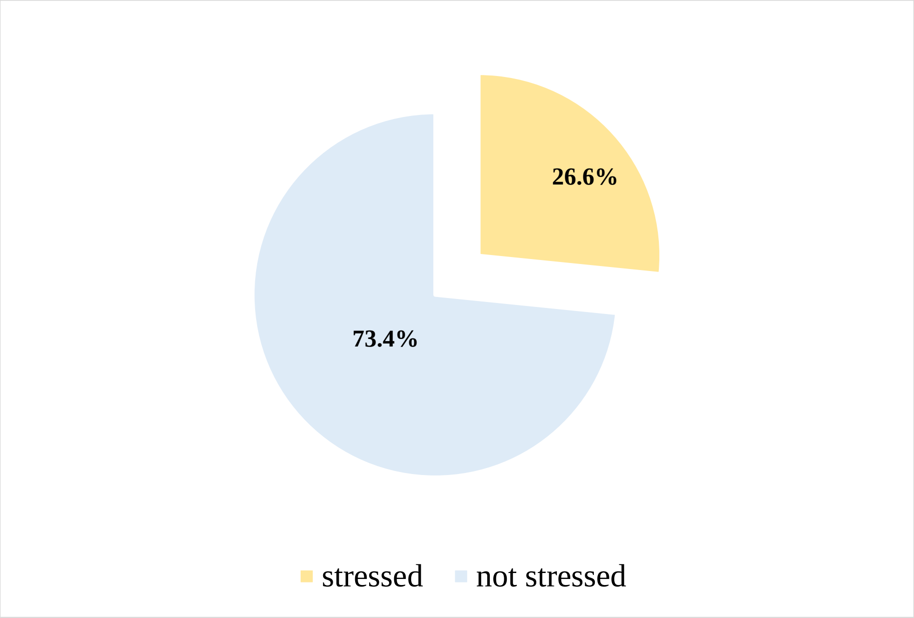

Figure 4.2 Proportion of stressed caregivers

Table 4.2.1 Level of stress among caregivers

Levels of stress	Frequency	Percent (%)
Mild	36	12.6
Moderate	73	25.6
Severe	64	22.5
Extremely severe	112	39.3

4.3 Socio-demographic characteristics associated with stress

Table 4.3 below shows the results from a Chi-Squared test/Fischer's exact test and a two sample t-test of socio-demographic characteristics associated with stress. The age of caregivers (p = 0.050), marital status and relationship with critically ill person (p = 0.012) were the socio-demographic characteristics associated with stress.

Table 4.3 Socio-demographic characteristics associated with stress

Variables	Stress		χ^2 p-value
	Stressed (n = 285)	Not stressed (n = 103)	
Age in years			**0.050***
18 to 25	40(60.6)	26(39.4)	
26 to 35	108(74.0)	38(26.0)	
36 to 45	94(75.2)	31(24.8)	
46 to 55	19(79.2)	5(20.8)	
55 to 70	24(88.9)	3(11.1)	
Gender			0.229
Male	90(77.6)	26(22.4)	
Female	195(71.7)	77(28.3)	
Educational level			0.351
None	15(83.3)	3(16.7)	
Primary	43(79.7)	11(20.4)	
Secondary	65(74.7)	22(25.3)	
Tertiary	95(67.9)	45(32.1)	
Vocational	67(75.3)	22(24.7)	
Employment status			0.160
Unemployed	102(77.9)	29(22.1)	
Employed	183(71.2)	74(28.8)	
Income	1012.6 ± 73.0	972.9 ± 49.1	0.660
Marital status			**0.036***
Married	157(75.1)	52(24.9)	
Cohabiting	30(88.2)	4(11.8)	
Single	98(67.6)	47(32.4)	
Relationship with critically ill person			**0.012***
Grandparents	25(80.6)	6(19.4)	
Spouse	38(86.4)	6(13.6)	
Child	62(75.6)	20(24.4)	
Parents	83(74.1)	29(25.9)	
Sibling	36(56.2)	28(43.8)	
Others	41(74.5)	14(25.5)	

$^+$ (fisher's exact) *(statistically significant, $p \leq 0.05$)

4.4 Situational factors associated with stress

The time spent at the hospital on a daily basis ($p < 0.001$) and the distance from home to the hospital ($p = 0.018$) were the situational factors found to be significantly associated with stress among the caregivers.

Table 4.4 Situational factors associated with stress

Variables	Stress Stressed (n = 285)	 Not stressed (n = 103)	χ^2 p-value
Time spent at the hospital daily			**$^+$0.000***
less than hour	4(40.0)	6(60.0)	
one hour	19(59.4)	13(40.6)	
two hours	42(66.7)	21(33.3)	
three hours	52(91.2)	5(8.8)	
4 or more hours	168(74.3)	58(25.7)	
Duration of critically ill relative on admission			0.075
less than a day	13(76.5)	4(23.5)	
one day	25(69.4)	11(30.6)	
two days	30(57.7)	22(42.3)	
three days	53(76.8)	16(23.2)	
4 days or more	164(76.6)	50(23.4)	
Distance from home to the hospital			**0.018***
not far	36(59.0)	25(41.0)	
Far	116(74.8)	39(25.2)	
very far	133(77.3)	39(22.7)	
Attitude of health workers			0.863
not friendly	21(77.8)	6(22.2)	
Friendly	168(73.4)	61(26.6)	
very friendly	96(72.7)	36(27.3)	
Experience of caring for a critically ill patient on admission			0.060
Yes	138(69.3)	61(30.7)	
No	147(77.8)	42(22.2)	
Available financial support for critically ill relative			0.367
Yes	191(72.1)	74(27.9)	
No	94(76.4)	29(23.6)	
Available family support for critically ill relative			0.260
Yes	260(74.3)	90(25.7)	
No	25(65.8)	13(34.2)	

$^+$ (fisher's exact) *(statistically significant, $p \leq 0.05$)

4.5 Coping strategies associated with stress

The coping strategies significantly associated with stress include; reliance on financial support from family members and friends (p = 0.002), reliance on emotional support from family members and friends (p = 0.003) and decision to see situation as another test case (p = 0.020). These findings are summarized in Table 4.5.

Table 4.5 Coping strategies associated with stress

	Stress level		**χ^2**
Variables	**Stressed (n = 285)**	**Not stressed (n = 103)**	**p-value**
	No (%)	**No (%)**	
Facing the problem head-on by looking for all possible solutions			0.628
Yes	206 (72.8)	77 (27.2)	
No	79 (75.2)	26 (24.8)	
Thinking and planning possible steps to ensure successful recovery of critically ill relative			0.671
Yes	253 (73.1)	93 (26.9)	
No	32 (76.2)	10 (23.8)	
Reliance on financial support from family members and friends			**0.002***
Yes	179 (68.6)	82 (31.4)	
No	106 (83.5)	21 (16.5)	
Reliance on emotional support from family members and friends			**0.003***
Yes	175 (68.6)	80 (31.4)	
No	110 (82.7)	23 (17.3)	
Reliance on God and prayers from family members and friends			0.663
Yes	274 (73.7)	98 (26.3)	
No	11 (68.7)	5 (31.3)	
Decision to see situation as another test case			**0.020***
Yes	269 (74.9)	90 (25.1)	
No	16 (55.2)	13 (44.8)	
Acceptance of hard reality that relative is critically ill and will get well soon			$^{+}$0.384
Yes	275 (73.9)	97 (26.1)	
No	10 (62.5)	6 (37.5)	
Denial of fact that relative is critically ill			0.508

Yes	73 (76.0)	23 (24.0)	
No	212 (72.6)	80 (27.4)	
Engaging in hobbies to take mind off problems to reduce stress level			0.542
Yes	207 (72.6)	78 (27.4)	
No	78 (75.7)	25 (24.3)	

+ (fisher’s exact) *(statistically significant, $p \leq 0.05$)

4.6 Factors associated with stress among caregivers

Table 4.6 displays results from a multiple logistic regression of all variables that were significant with stress in the chi-square test done earlier. The significant factors which showed significant association with stress include; marital status, relationship with critically ill person, time spent at the hospital daily, distance from home to the hospital, reliance on financial support from family members and friends, reliance on emotional support from family members and friends, and decision to see situation as another test case.

Adjusting for all these variables, caregivers who were between the ages of 26 to 35 (aOR = 2.16; 95% CI = 1.00 – 4.65; p = 0.050) and 36 to 45 (aOR = 2.76; 95% CI = 1.09 – 7.00; p = 0.032), had significantly 2.16 times and 2.76 times respectively the odds of being stressed as compared to caregivers aged 18 to 25. Also, caregivers who were between the ages of 46 to 55 (aOR = 4.71; 95% CI = 1.15 – 19.34; p = 0.032) and 55 to 70 (aOR = 5.71; 95% CI = 1.28 – 25.39; p = 0.022), had significantly 4.71 times and 5.71 times respectively the odds of being stressed as compared to caregivers between the ages of 18 to 25.

Furthermore, the odds of cohabiting caregivers being stressed was significantly increased by 4.39 times as compared to caregivers who were married after adjusting for all other variables (aOR = 4.39; 95% CI = 1.29 – 14.91; p = 0.018).

Respondents whose sibling was critically ill had significantly 82% reduction in their odds of being stressed as compared to respondents whose grandparents were critically ill after adjusting for all other variables (aOR = 0.18; 95% CI = 0.05 – 0.64; p = 0.007).

The odds of being stressed after adjusting for all variables was significantly increased by 17 fold among caregivers who spend three hours at the hospital daily as compared to those who spend less than an hour at the hospital (aOR = 16.76; 95% CI = 3.12 – 90.13; p = 0.001). Spending 4 hours or more at the hospital also increased the odds of caregivers being stressed by 5 fold as compared to those who spend less than an hour at the hospital (aOR = 4.62; 95% CI = 1.09 – 19.69; p = 0.038).

After adjusting for all variables respondents who had to travel far from home to get to the hospital had significantly 2.31 times the odds of being stressed as compared to respondents who did not have to travel far (aOR = 2.31; 95% CI = 1.13 – 4.74; p = 0.022). Also, caregivers who had to travel very far in order to get to the hospital had significantly 3.04 times the odds of being stressed as compared to those who did not have to travel far to get to the hospital (aOR = 3.04; 95% CI = 1.47 – 6.29; p = 0.003).

Table 4.6 Factors associated with stress among caregivers

Variables	cOR(95% CI)	p-value	aOR(95% CI)	p-value
Age in years				
18 to 25	1.00		1.00	
26 to 35	1.85(0.99 – 3.42)	0.051	**2.16(1.00 – 4.65)**	**0.050***
36 to 45	**1.97(1.04 – 3.73)**	**0.037***	**2.76(1.09 – 7.00)**	**0.032***
46 to 55	2.47(0.82 – 7.43)	0.108	**4.71(1.15 – 19.34)**	**0.032***
55 to 70	**5.20(1.42 – 19.04)**	**0.013***	**5.71(1.28 – 25.39)**	**0.022***
Marital status				
Married	1.00		1.00	
Cohabiting	2.48(0.84 - 7.38)	0.102	**4.39(1.29 - 14.91)**	**0.018***
Single	0.69(0.43 - 1.10)	0.121	1.60(0.78 – 3.28)	0.198
Relationship with critically ill person				
Grandparents	1.00		1.00	
Spouse	1.52(0.44 - 5.25)	0.508	1.23(0.29 - 5.32)	0.779
Child	0.74(0.27 - 2.07)	0.571	0.34(0.09 - 1.23)	0.101
Parents	0.69(0.26 - 1.84)	0.455	0.63(0.20 - 1.99)	0.433
Sibling	**0.31(0.11 - 0.85)**	**0.024***	**0.18(0.05 - 0.64)**	**0.007***
Others	0.70(0.24 - 2.07)	0.521	0.74(0.21 - 2.62)	0.644
Time spent at the hospital daily				
Less than hour	1.00		1.00	
One hour	2.19(0.51 - 9.33)	0.288	3.21(0.66 – 15.61)	0.148
Two hours	3.00(0.76 - 11.79)	0.116	3.20(0.72 – 14.35)	0.128
Three hours	**15.60(3.27 - 74.46)**	**0.001***	**16.76(3.12 – 90.13)**	**0.001***
4 or more hours	**4.34(1.18 - 15.94)**	**0.027***	**4.62(1.09 – 19.69)**	**0.038***
Distance from home to the hospital				
Not far	1.00		1.00	
Far	**2.07(1.10 - 3.86)**	**0.023***	**2.31(1.13 - 4.74)**	**0.022***
Very far	**2.37(1.27 - 4.41)**	**0.007***	**3.04(1.47 - 6.29)**	**0.003***
Reliance on financial support from family members and friends				
Yes	1.00		1.00	
No	**2.31(1.35 - 3.95)**	**0.002***	1.81(0.87 - 3.79)	0.114
Reliance on emotional support from family members and friends				
Yes	1.00		1.00	
No	**2.19(1.29 - 3.68)**	**0.003***	1.87(0.91 - 3.83)	0.087
Decision to see situation as another test case				
Yes	1.00		1.00	
No	**0.41(0.19 - 0.89)**	**0.024***	0.47(0.19 - 1.20)	0.115

*(statistically significant, p≤0.05)

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1. Introduction

Chapter five presents a discussion of the findings made from the analysis of research data. The discussion is based on the three specific objectives set to define the scope of the study. Specifically, the exegesis further highlights the proportion of caregivers of critically ill currently undergoing varied levels of stress, factors associated with stress among caregivers of the critically ill and a summary of coping strategies used by caregiver of the critically ill in managing stress related tendencies.

5.2. Proportion of Caregiver Living with Stress

The present findings under this section provides a general position of high but varied levels of stress present among caregivers of the critically ill currently accessing healthcare at the GARH. To achieve this objective, caregivers were asked to indicate their perspective of the levels of stress they were experiencing as a result of their caregiving to the critically ill using questions stated in the DASS assessment tool. Although this question may be subjective and open to interpretation, the caregivers' understanding of stress as defined within the scope of the study applied. The caregivers indicated the presence of stress in their lives as a result of the nature of care they provided to the critically ill. This observation further highlighted the intricate nature of the work of such caregivers vis-à-vis their personal and socio-economic status which might better explain the state they were in. Furthermore, the variable stress, was reviewed as a compendium of states with levels ranging from mild, moderate, severe to extremely severe. The observations from the findings revealed that majority of the caregivers experienced some form of stress with the highest proportion being extremely stressed which is similar to the results of studies conducted by Davidson (2009), who found that an increase in work load forced caregivers to resign their jobs due to associated stress. Such rates in stress levels justifies further understanding in the volume and nature of work provided by caregivers to the critically ill as indicated by Schulz & Sherwood (2008). In summary, caregivers experience a wide spate of varied bodily tensions as a result of individual reactions to the demands their environments and personal engagements posed though challenging caregiving has been found to give caregivers the chance to feel good about themselves, learn new skills, and strengthen family relationships (Schulz & Sherwood, 2008)

5.3. Factors Associated with Stress Among Caregivers of the Critically Ill

As aforementioned in this section, the current state and levels of stress experienced by caregivers of the critically ill necessitated further exploration to birth understanding and empirical information of the trend. Precisely, the factors; categorized as socio-demographic and situational, sought to further explain the sources and nature of the stress related incidents. Socio-demographically, caregivers between the ages of 26 and 45 years were observed to record the highest proportion of stress, whereas younger groups of caregivers were more resilient to stress. This observation aligns with Kulkarni et al. (2014), who reported that caregivers with an average age of 43.46±1.39 were more prone to experiencing tiredness. Similarly, the older caregivers are, the higher their chances of experiencing greater stress compared to younger ones (Pinquart, 2001).

Women have been found to report higher levels of stress than men (Koerner & Kenyon, 2007). Similarly, the findings of the current study reflect this information. Gender wise, the study findings further revealed that females were observed to experience more stress compared to males, although the proportion of females is more than the males used in the sample for the study. In addition, the trend could also be as a result of the nature of cultural values of our society. Women in society are more likely to assume the role of a caregiver every time someone in the family or within their circle becomes critically ill whereas men are expected to go and earn a living. Kyei-Arthur (2013), further supports this assertion by stating that mothers, sisters, daughters and wives comprise the majority of people who give care to the critically ill. Concomitantly, caregivers' stress was found to increase with the level of education of caregivers. Thus, a compendium of education or occupation related activity and caregiving responsibilities was postulated to have a high tendency of increasing the stress levels of caregivers. This increase in the frequency of physical activities to be conducted by individual can result in exhaustion and ultimately, stress related tendencies.

The finding further indicated that married caregivers experienced higher levels of stress, which could be as a result of the additional responsibilities such individuals have to deal with on daily basis which could be because of marriage. Finally, the closer the relationship between a critically ill person and a caregiver, the higher the level of stress observed. This observation is supported by Koukouli et al. (2018), who found that relatives of critically ill patients frequently exhibited high levels of psychological distress and anxiety which resulted from the changes in their lives, the unstable condition of the patient, the unexpected changes of patient's body and face, and the difficult treatment decisions family has to take. Thus, such people might not qualify as best caregivers. Although, these factors collectively formed the socio-demographics that sought to explore stress levels of caregivers, the age, marital status and relationship with critically ill person were found to be significant in explaining stress levels as observed in caregivers of the critically ill.

An exegesis of the situational factors that sought to explain the increasing proportion and levels of stress among caregivers of critically ill patients revealed that time spent at the hospital influences the stress levels among caregivers. Such a scenario demands a lot of time of the caregiver. In some instances, such caregivers have to forfeit other responsibilities such as family commitments, marital engagements, work, social commitments etc., just to be able to provide the necessary care needed by the critically ill. Such instances could be ascribed to prolonged illness and medical procedures involved which can lead to psychological distress and anxiety (Kulkarni et al., 2014).

It was also observed that the distance of the homes of patients and caregivers from the location of the hospitals had an influence on the stress levels of caregivers. Specifically, the farther the distance of patients' homes from hospitals, the more the proportion and levels of stress observed. Due to the nature of the Greater Accra Region and its suburbs, transporting patients and their caregivers from farther distances can increase the financial burden on families as well as create discomfort for patients. The draining of financial resources of a family as a result of chronic or critical health related issues can be frustrating and burdensome. Also, the challenge of distance can set into motion a chain reaction where caregivers and patients alike have to be up early for the health facility, endure hours of traffic and bad roads just to access healthcare. This can further deny caregivers the chance to focus on their work and other personal engagements, which can be frustrating leading to stress in the caregivers. In summary, stress related activities see a spike among caregivers and patients with a corresponding farther distance from the health facility (CFCOA, 2016).

Consequently, the influence of financial resources to critically ill relatives on stress levels of caregivers as investigated by the study revealed that the availability of financial resources to manage the caregiving process has a significant influence on the stress levels of the caregiver. Such resources mean, caregivers can access the best of transportation, health services and care that can help to reduce stress and anxiety. In agreement with this observation, it was indicated that family support and income availability affected stress levels among caregivers

(Lo et al., 2001;Yeh & Bull, 2012; Choi & Sok, 2012; Losada et al., 2010; Lin, Chen & Li, 2013; Calderon & Tennstedt, 1998).

5.4. Coping Strategies Adopted by Caregivers of the Critically Ill in Managing Stress

According to Parks and Novielli (2000), coping strategies are vital in assisting caregivers to manage burdens because they act as a preventive measure against affective disorders commonly associated with caregiving. In coping with the stress related issues experienced by caregivers of the critically ill, key strategies assessed include; facing the problem head-on by looking for all possible solutions, thinking and planning possible steps to ensure successful recovery of critically ill relative, financial support from family members and friends, reliance on emotional support from family members and friends, reliance on God and prayers from family members and friends, seeing situation as another test case, acceptance of hard reality that relative is critically ill and will get well soon, denial of the fact that a relative is critically ill and engaging in hobbies to take the mind off problems to reduce stress level. Significantly, the reliance on financial support from family members and friends, reliance on emotional support from family and friends as well as the decision to see situation as another test case were the key coping strategies adopted by caregivers in a bid to reduce stress. These strategies encompass the problem-focused coping and emotion-focused approaches proposed by Folkman (1980). The strategies further prescribe the use of reading, praying, asking for help, exercising, singing among others as strategies for coping with caregiving related stress. Although the problem focused strategies provided resources for the management of the daily needs of both the critically ill and the caregiver, the emotional focused strategies are aimed at developing a more resilient attitude towards stress within the caregiver. Both concepts go hand in hand and either cannot manage the stress related challenges in isolation.

5.5. Summary of findings

The following key findings were made under each of the objectives set for the study.

5.5.1 Proportion of caregivers of the critically ill living with stress at GARH

The results of the study, although simple in its presentation and discussion, was concise and specific in eliciting the current state of stress levels among informal caregivers of the critically ill at the GARH. Although it was found that most of the caregivers were stressed, the levels sought to determine the proportion of caregivers of the critically ill who were living with stress at the GARH and found that majority of the caregivers of the critically ill are experiencing some form of stress. Specifically, the results revealed that out of the 388 caregivers, 73.4% indicated they were stressed with 112 (39%) reported that they were under extremely severe stress. Furthermore, a total of 12.6% were mildly stressed, 25.6%, 22.5% and 39.3% were moderately, severely and extremely stressed respectively. Overall, considering the presence or absence any confounding variables, the routine of providing care for the critically ill at GARH has the tendency of elevating stress levels of caregivers.

5.5.2 Factors associated with stress among caregivers of the critically ill

The study also sought to assess the factors that influenced development of stress among the caregivers under demographic and situational factors. Demographically, caregivers who were between the ages of 46 to 55 years and 55 to 70 years had approximately 4 times and 5 times increased levels of stress respectively. Thus, older caregivers, have a higher chance of being stressed when caring for critically ill patients compared to their younger counterparts. Also, marital status and relationship with critically ill person were also key demographic factors that influenced caregivers’ stress levels. In this study, the number of hours spent at the hospital on a daily basis and the distance from home to the hospital with critically ill patients were found to have significant influence on the stress levels of caregivers.

5.5.3 Coping strategies adopted by caregivers of the critically ill to deal with stress

The study identified financial support from family members and friends, reliance on emotional support from family as the strategies adopted by caregivers of the critically ill to minimize the effect of stress among them. Thus, with support from family and friends, either in physical or emotional forms, caregivers are able to manage stress better. Finally, the use of mental cues to perceive the situations as another test case is also another strategy for coping with stress among caregivers.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

After a careful review of the findings of the study, the following conclusions were drawn:

Most caregivers of the critically ill experienced varied levels of stress as a result of their caregiving commitments. These caregivers experienced stress that can be described as mild, moderate, severe or extremely severe based on their caregiving duties vis-à-vis their occupations and other social engagements.

Key socio-demographic factors that were associated with increased stress levels among caregivers of the critically ill included age of caregivers, marital status of caregivers and relationship with the critically ill person. Likewise, situational factors found to influence stress levels of caregivers included time spent at the hospital on a daily basis and distance from their respective homes to the health centre. Thus, the more time spent in conveying the ill and caring for them significantly influenced the levels of stress experienced by caregivers of the critically ill. Coping strategies identified to help with stress experienced by caregivers of the critically ill were the reliance on financial support from family members and friends, reliance on emotional support from family members and friends and the decision to see the situation as another test case. Thus, caregivers who adhered to such strategies were less likely to experience stress as compared to those who did not.

6.2. Recommendations

Based on the conclusions from the study, the following recommendations were made:

Caregivers of the critically ill, irrespective of their qualification and level of education should be taken through stress relief activities. Such activities should be personal or designed and monitored by a health professional to help manage the increasing stress levels of caregivers. Occasionally, caregivers should engage other family members or friends to assist, thus allowing them to engage in recreational activities with family friends and loved ones. Such activities, if properly managed can help with the reduction in stress levels.

With respect to factors influencing stress levels among caregivers, the study recommends the engagement of younger family and friends as caregivers. This approach will ensure that caregivers are active, energetic, smart and always available in the discharge of their duties. Situationally, the study recommends that to lessen the time spent commuting from home to the hospital daily, hostel facilities should be provided for caregivers at the health facility.

The study further recommends that the caregivers, although not professionals, take time to read, study and research into professional caregiving and stress management strategies that have been empirically found to be effective in the management of stress levels among caregivers.

6.3. Limitations of this study and Suggestions for Further Research

The current study focused only on the assessment of stress levels and coping strategies among caregivers of the critically ill, at the GARH. The study therefore, recommends an expansion of the scope of the study to cover a larger or different geographical area for generalization purposes.

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APPENDIX I: PARTICIPANTS INFORMATION SHEET

This information sheet provides information about the research on caregivers of the critically ill at the Greater Accra Regional Hospital to give an informed consent of whether to participate in the study or not. It outlines the nature of the research, what the research involves, risks, benefits and compensation.

Title of Study: ASSESSMENT OF STRESS AND COPING STRATEGIES AMONG CAREGIVERS OF THE CRITICALLY ILL AT THE GREATER

ACCRA REGIONAL HOSPITAL

Introduction: I am Ellen Amoakohene a Master of Public Health (MPH) student at the School of Public Health of the University of Ghana, Legon. My email address is ellenamoakohene@gmail.com and my telephone number is 0249475151. I am conducting a research on the topic: **Assessment of stress and coping strategies among caregivers of the critically at the Greater Accra Regional Hospital**

Nature of research: This study is a quantitative research study, assessing the stress among caregivers of the critically ill and its associated factors as well as the coping strategies employed by caregivers of the critically ill. The study will take place in the Greater Accra Regional Hospital.

Participants Involvement: You are invited to participate in this study because you are a caregiver of a critically ill on admission at the ICU. I believe that you can help me by providing the appropriate responses to the questions.

Potential Risks: The study will pose no threat to life and does not involve any invasive procedures or treatment. The study is expected to help in assessing the stress and coping strategies among caregivers of the critically ill.

Benefits: Though you may not have any immediate or direct benefits from the study, your responses would be helpful in policy planning and formulation of recommendations to appropriate authorities concerning the stress and coping strategies among caregivers of the critically ill.

Costs: Participation in this study will not cost you any money. You will also not receive any money/incentives for participating in this research.

Compensation: You will not be compensated for your participation and loss of time

Declaration of Conflict of Interest: The researcher has no conflict of interest in this study.

Confidentiality: Your name and identity will not be taken in this study. However, the information you are going to provide will be coded and will be treated strictly confidential. You are assured of total confidentiality to the information you will give. Apart from the researcher and supervisor of this research, no one else will have access to information provided whether in part or whole. Data files would be kept for six months after which they will be destroyed or discarded.

Protection against COVID 19: You will be provided with personal face mask to be worn before the administration of the questionnaires.Tissues and hand gloves will be available for use when necessary.A distance of at least on(1) metre will be ensured between the researcher and the participant.

Voluntary participation/withdrawal: Participation is voluntary. You are free to choose if you want to take part in this study. Also, you can withdraw your consent at any time without further explanation, and without any adverse consequences.

Outcome and Feedback: Data gathered will help to improve policy formulation on stress and coping among caregivers of the critically ill.

Feedback to participant: No feedback will be given to you as an individual but a report will be given to the various stakeholders involved in formulating policies on critically ill and caregivers in Ghana. (GHS, MOH just to mention a few).

Funding information: The principal investigator is funding this study.

Sharing of participants Information/Data: Data gathered will be kept in my possession and will not be shared with any other organization(s) or individuals. It will be solely mine.

Storage of samples: Data files would be kept for six months after which they will be destroyed or discarded. Clearance will be sought from the Ethics Review Committee before it would be used for any other purpose.

Provision of Information and Consent for participants: You will be given copy of the Information sheet and Consent after it has been signed or thumb-printed to keep.

Who to Contact for Further Clarification/Questions: If you have a concern about any aspect of this research, please contact Ellen Amoakohene at the School of Public Health,

Legon or speak to me on telephone number 0249475151**. For further clarification/questions on ethical issues please contact Nana Abena Apatu, the administrator at the Ghana Health Service Ethics Review Committee on telephone 0503539896.**

APPENDIX II: CONSENT FORM FOR STUDY PARTICIPANTS

Study Title: ASSESSMENT OF STRESS AND COPING STRATEGIES AMONG CAREGIVERS OF THE CRITICALLY ILL AT THE GREATER ACCRA REGIONAL HOSPITAL

PARTICIPANTS‟ STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants‟ Information Sheet read and satisfactorily explained to me in a language I understand (English, ☐ Twi ☐ Ga ☐ Ewe ☐). I fully understand the contents and any potential implications as well as my right to change my mind (ie withdraw from the research) even after I have signed this form.

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in the (English, Twi, Ga, Ewe) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter……………………………

Signature of Interpreter………………………..

Date……………………………………………

Contact Details………………………………..

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language, he/she understood (English, ☐ Twi, Ga, Ewe)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name: …………………………

Date: ……………………………

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name……………………………………….

Signature …………………………………………………

Date…………………………………………………………

APPENDIX: III QUESTIONNAIRE

QUESTIONNAIRE ON ASSESSMENT OF STRESS AND COPING STRATEGIES AMONG FAMILIES OF THE CRITICALLY ILL

This is a research on **ASSESSMENT OF STRESS AND COPING STRATEGIES AMONG FAMILIES OF THE CRITICALLY ILL**. The study is trying to assess stress and coping strategies among families of the critically ill at the Greater Accra Regional Hospital. Kindly share related information you have to help make this study a success by responding to the following questions.

	QUESTIONS	CODING CATEGORIES	SKIP TO	CODES
	1. **PERSONAL FACTORS**			
a	Age (State your last birthday age)	**Please state……………………**		age
b	Gender	**1. Male [ ]** **2. Female [ ]**		gender
c	Educational level	**0. None [ ]** **1. Primary [ ]** **2. Secondary [ ]** **3. Tertiary [ ]** **4. Vocational [ ]**		educ
d	Employment Status	**1. Unemployed [ ]** **2. Employed [ ]**		employ
e	How much do you earn from your employment monthly?	**Please state** **………………………………………….**		income
f	Marital status	**1. Married [ ]**		mstat

		2. Cohabiting [ ] **3. Single [ ]**		
g	What is your relationship with the critically ill?	**1. Grandmother [ ]** **2. Grandfather [ ]** **3. Spouse [ ]** **4. Child [ ]** **5. Mother [ ] 6.** **Father [ ]** **Sibling [ ]** **7.** **Uncle/ Aunt [ ]** **8.** **Others [ ]** **9.** **Please specify** **…………………………………………** **….**		relation

SITUATIONAL FACTORS				
h	How much time do you spend at the hospital daily?	**1. Less than hour [ ]** **2. One hour [ ]** **3. Two hours [ ]** **4. Three hours [ ]** **5. 4 or more hours [ ]**		daily_time
i	How long has your critically ill relative been on admission?	**1. Less than a day [ ]** **2. One day [ ]** **3. Two days [ ]** **4. Three days [ ]**		dura_stay

		5. 4 days or more [ ]		
j	**How would you describe the distance from your home to the hospital?**	**1. Not far [ ] 2. Far [ ] 3. Very Far [ ]**		distance
k	**How would you describe the attitude of health workers in the hospital?**	**1. Not friendly [ ] 2. Friendly [ ] 3. Very friendly [ ]**		How attitude
l	**Have you ever had the experience of caring for a critically ill patient on admission**?	1. **Yes [ ]** 2. **No [ ]**		history care
m	**With the condition of your critically ill relative, is there any financial support to**	1. **Yes [ ]** 2. **No [ ]**		financial sup port

	enable you care for him/her ?			
n	With the condition of your critically ill relative, is there any support from family by way of visits or show of concern to enable care?	1. **Yes** **[ ]** 2. **No** **[ ]**		Family support

COPING STRATEGIES

Please indicate in the table below what you do to manage stress as a caregiver of the critically ill. Please read the statement carefully and tick the answer from the corresponding box that best describes your choice of response. Choose YES (1) if it applies to how you are dealing with the stress while caring for your critically ill relative or choose NO (2) if the statement does not apply to you.

o	I am facing the problem head-on by looking for all possible solution to avert the situation in which my critically ill relative find him/herself.	1. **Yes** **[ ]** 2. **No** **[ ]**		Active cope

p	I am thinking and planning possible steps that can ensure successful recovery of my critically ill relative.	1. **Yes** **[ ]** 2. **No** **[ ]**		Plancope
q	I am relying on the support I can get from family members and friends financially.	**1. Yes [ ]** **2. No [ ]**		Financope
r	I am relying on the emotional support I can get from family members and friends.	**1. Yes [ ]** **2. No [ ]**		Emosupcope
s	**I am relying on God and prayers from family members and friends .**	**1. Yes** **[ ]** **2. No** **[ ]**		Prayercope
t	**I choose to see this situation as another test case which will toughen me up to be able to handle same situation if I am faced with again in future.**	**1. Yes** **[ ]** **2. No** **[ ]**		Positivecope

u	I have accepted the hard reality that my relative is critically ill and hope that he/she will get well soon .	**1. Yes** **[ ]** **2. No** **[ ]**		Aceeptcope
v	**I cannot come to terms with the fact that my relative is critically ill. I think it's not true that this is happening.**	**1. Yes** **[ ]** **2. No** **[ ]**		Denialcope
w	**I engage in activities preferably hobbies to take my mind off the problem to reduce the stress level.**	**1. Yes** **[ ]** **2. No** **[ ]**		activitycope

DEPRESSION, ANXIETY AND STRESS SCALE - 21 ITEMS (DASS-21)

Please read each statement and circle a number 0, 1, 2 or 3, which indicates how much the statement applies to you over the period you are with your critically ill relative. There are no right or wrong answers.

The rating scale is as follows:

[0] **Does not apply to me at all.**

[1] **Apply to me to some degree, or some of the time.**

[2] **Apply to me to a considerable degree or a good part of time.**

[3] **Apply to me very much or most of the time.**

	Depression, Anxiety and Stress Scale items	**Response**
(a)	**I find it hard to rest since the illness of my relative**	[0] [1] [2] [3]
(b)	**I am aware of dryness of my mouth**	[0] [1] [2] [3]
(c)	**I can't seem to experience any positive feeling at**	[0] [1] [2]

	all	[3]
(d)	**I experience breathing difficulty (e.g. rapid breathing, breathlessness in the absence of physical exertion)**	[0] [1] [2] [3]
(e)	**I find it difficult to work up the initiative to do things**	[0] [1] [2] [3]
(f)	**I tend to over-react to situations**	[0] [1] [2] [3]
(g)	**I experience trembling (e.g. in the hands)**	[0] [1] [2] [3]
(h)	**I feel that I was using a lot of nervous energy**	[0] [1] [2] [3]
(i)	**I am worried about situations in which I might panic and make a fool of myself**	[0] [1] [2] [3]
(j)	**I feel that I have nothing to look forward to**	[0] [1] [2] [3]
(k)	**I find myself getting agitated**	[0] [1] [2] [3]
(l)	**I find it difficult to relax**	[0] [1] [2]

		[3]
(m)	**I feel down-hearted and pale**	[0] [1] [2] [3]
(n)	**I am intolerant of anything that keep me from getting on with what I am doing**	[0] [1] [2] [3]
(o)	**I feel I am close to panic**	[0] [1] [2] [3]
(p)	**I am unable to become enthusiastic about anything**	[0] [1] [2] [3]
(q)	**I feel I am not worth much as a person**	[0] [1] [2] [3]
(r)	**I feel that I am rather sensitive**	[0] [1] [2] [3]
(s)	**I am aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)**	[0] [1] [2] [3]
(t)	**I feel scared without any good reason**	[0] [1] [2] [3]
(u)	**I feel that life is meaningless**	[0] [1] [2]

		[3]