UNIVERSITY OF CAPE COAST

PERCEIVED STRESS LEVELS AND COPING STRATEGIES OF IMMEDIATE FAMILY CAREGIVERS OF HOSPITALISED PATIENTS IN THE INTENSIVE CARE UNIT OF THE TAMALE TEACHING HOSPITAL.

SOPHIA TWIAKU

2019

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BY

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Thesis submitted to the School of Nursing and Midwifery of the College of Health and Allied Sciences, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Nursing Degree.

OCTOBER 2019

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature……. Date……

Name: Sophia Twiaku

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature …… Date……

Name: Dr. Nancy Ebu Enyan

Co-Supervisor's Signature…… Date……

Name: Dr. Samuel Victor Nuvor

ABSTRACT

Illness of a family member causes a perplexing feeling in the family, especially when a family member is admitted to the Intensive Care Unit (ICU). Immediate Family Caregivers (IFCs) of these patients tend to experience higher levels of stress. However, not much is known about the stress levels, stressors and coping strategies of IFCs in Ghana. This study sought to investigate the perceived stress levels and coping strategies of IFCs of hospitalised patients in the ICU and to examine the effect of stressors on perceived stress levels. The study employed a cross-sectional design and total population sampling method to select 301 IFCs of ICU patients as respondents. A questionnaire was used to collect the data and analysed using the Statistical Package for Social Science (SPSS) version 22.0. The statistical tests used were means, standard deviations, factor analysis, multiple regression and moderation analysis. The results indicated that the majority of IFCs of ICU patients had moderate perceived stress levels. The main stressors were staff communication, alteration in caregiver's role and patients' emotional responses. Frequently used coping strategies were social seeking support, positive reappraisal and accepting responsibility. The study, however, revealed that these coping strategies were not effective in resolving the perceived stress levels among the IFCs. The results showed that stressors affect perceived stress levels. Also, coping strategies interact with stressors to affect perceived stress levels. Confrontive coping strategy was found to be the most effective coping strategy. It is, therefore, important for health care professionals to take the responsibility of educating and caring for the IFCs as well.

KEY WORDS

Coping Strategies

Immediate Family Caregivers

Intensive Care Unit

Intensive Care Unit Environmental Stressors

Perceived Stress Level

Stress

Stressor

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DEDICATION

I dedicate this research to my lovely husband and children

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LIST OF ABBREVIATIONS

dB	Decibels
DDNS	Deputy Director of Nursing Services
F-COPES	Family Crisis Oriented Personal Evaluation Scales
ICU	Intensive Care Unit
IFC	Immediate Family Caregiver
IFCs	Immediate Family Caregivers
IRB	Institutional Review Board
MdICU	Medical Intensive Care Unit
MICU	Main Intensive Care Unit
MOH	Ministry of Health
MtICU	Maternal Intensive Care Unit
NICU	Neonatal Intensive Care Unit
Nil per os	nothing by mouth
PaSS	Parental Stressor Scale
PSS	Perceived Stress Scale
PTSD	Post-traumatic Stress Disorder
SICU	Surgical Intensive Care Unit
SPSS	Statistical Package for Social Science
TTH	Tamale Teaching Hospital
WHO	World Health Organization
WoCQ	Ways of Coping Questionnaire

CHAPTER ONE

INTRODUCTION

Background to the Study

Hospitals in general have often served as a reminder of ailment and suffering for most people, although it is expected to resolve health-related issues (Berglund, Westin, Svanström, & Sundler, 2012). Within the hospital are many departments including the Intensive Care Unit (ICU) which is a special department reserved for patients who are critically ill and require critical care. The requirement of the unit includes the provision of advanced medical and nursing care through invasive monitoring with the aid of life support equipment and medicines to maintain normal body functioning. Hence people with critical conditions are often admitted in this area. ICU cares for patients with multiple and complex conditions (Smith & Nielsen, 1999).

The nature of the ICU environment, type of diseases and the work demand pose stress to the health workers, patients and even the Immediate Family Caregivers (IFCs) (Godwin, Suuk, & Selorm, 2016; Kumar, Pore, Gupta, & Wani, 2016). Studies have shown that the stress level among ICU health workers could be attributed to workload, attending to emergencies, performing tasks within a limited time, excessive working hours, lack of sleep, lack of rest periods, frequent exposure to emotional situations, poor interpersonal relationship, conflicts with other staff, caring for aggressive patients, dealing with difficult relatives, patients undergoing painful procedures and unexpected deaths (Inoue, Versa, & Matsuda, 2014; Johan, Sarwar, & Majeed, 2017; Kakunje, 2011; Rodrigues & Ferreira, 2011). The

patients may also encounter stressors such as the experience of pain, not being able to carry out family roles, the introduction of tubes in the mouth or nose and the desire for water when they are on nil per os and others (Barth, Weigel, Dummer, Machado, & Tisott, 2016).

Though health workers and patients of ICU experience stress, studies have indicated that IFCs encounter higher perception of stress levels (Acaroğlu, Kaya, Şendir, Tosun, & Turan, 2008; Barth et al., 2016; Pang & Suen, 2009). IFCs are family members or relatives of a patient admitted to the ICU and are responsible for providing the emotional and physical needs of the patients (Reinhard, Given, Petlick, & Bemis, 2008). The findings of a comparative study indicated that family caregivers experience a higher perception of stress compared to the patient (Pang & Suen, 2009).

Additionally, it has been documented that the IFCs of ICU patients see the ICU environment as extremely stressful (Barth et al., 2016; Preto & Pedrão, 2009). Similarly, some studies have shown that stress is prevalent among families who have their members admitted to the ICU (Acaroğlu et al., 2008; Barth et al., 2016). A current study also confirmed a high prevalence of stress among families who have their members admitted to the ICU and reported that over 76% of the IFCs experience severe stress (Shinde, Belokar & Sivabalan, 2019). Likewise, another study reported a stress prevalence of 69.1% among IFCs (Pochard et al., 2001). It is also reported that eight out of every ten caregivers suffer at least one mental disorder as a result of the caregiving role (Al-Zahrani, Bashihab, Ahmed, Alkhodair & Al-Khateeb, 2015). Therefore, admission of a family member to an ICU could be distressing to families and may result in fear and emotional stress (Bandari et

al., 2014), more especially among IFCs whose relatives are admitted into the ICU for the first time or admitted unexpectedly (Schenker et al., 2012).

Additionally, the IFCs perceive the ICU environment to be strange due to the concentration of severely injured or ill patients who are subject to sudden changes in their general health status, exposure to death and dying patients, the use of advanced gadgets and the continuous monitoring of patients by clinicians. This atmosphere may constitute a significant source of stress to the IFCs (Barth et al., 2016; Preto & Pedrão, 2009) consequently, causing a feeling of helplessness and disbelief which influences the IFCs critical decision-making process towards the patient's care (Oerlemans et al., 2015). Also, the patients in the ICU may look a little different from their usual appearance due to the number and the type of technological gadgets connected to them. This may escalate the perceived stress levels, alter sleep pattern and increase fatigue among the IFCs (Chang, Wang, Chang, Yu, & Lee, 2018).

Furthermore, some of the rules and regulations governing the ICU also serve as stressors (factors that cause stress) to the IFCs. Short visitation period and having to dress in a particular way before having the opportunity to see their sick relatives also serve as a source of stress to IFCs. Some who miss the visiting period are unable to see their relative and have to wait for the next visiting period (Hagstrom, 2017).

Another key point is communication barriers between the IFCs and the hospital staff which may also pose as a challenge to the IFCs and account for high-stress levels. Some may also have difficulty in communicating with their ill family member due to the nature of the disease or the type of treatment the patient is receiving (Barth et al., 2016; Kourti, Christofilou, & Kallergis,

2015). IFCs seems to have a challenge with the unavailability of waiting areas in the ICUs, the absence of meeting schedules between nurses, doctors and IFCs of the admitted patients to discuss the patient's treatment plan which may also increase the stress levels among the IFCs. Moreover, the absence of a private room for discussion with the families and caregivers of patients may heighten their stress levels (Karale, Hiremath, Mohite, Naregal & Karale, 2016).

Apart from the environmental stressors, the IFCs provide both physical and emotional support to their sick relatives. They also take critical decisions for ill family members when they are unable to take the decision themselves (Neves, Gondim, Soares, Coelho, & Pinheiro, 2018; Riley, White, Graham, & Alexandrov, 2014; Schenker et al., 2012). Some of these decisions for the critically ill may cause adverse psychological symptoms and behavioural changes on the IFCs which make their decision-making roles difficult and may eventually cause interference in their role and function in caring for the critically ill (Morley & Cashell, 2017). The high perceived stress among IFCs adversely affects the patients because IFCs serve as caregivers and surrogate decision-makers for most of the patients in ICU especially for those who are incapable due to their sickness. The overwhelming effect of this role may complicate the problems of IFCs leading to post-traumatic stress disorder (PTSD) (Andresen, Guic, Orellana, Diaz, & Castro, 2015). In spite of all the stressors mentioned above, IFCs' level of stress, specific stressors and how IFCs cope with stress has not been identified in the Tamale Teaching Hospital (TTH).

The employment of coping mechanism among IFCs of patients admitted to the ICU is a very important issue as it contributes to their resilience against the stressors related to the admission in the ICU and healthy life of the whole family as well as the patient. Coping is a specific process of a cognitive appraisal to determine whether an individual has the necessary resources and ability to respond well to a stressor (Acaroğlu et al., 2008; Papathanasiou, Tsaras, Neroliatsiou, & Roupa, 2015).

The application of the appropriate coping strategy will aid quality health of IFCs and enhance quick recovery of the ill family member. IFCs who are not able to cope effectively may have a negative interpersonal relationship and inability to resolve problems (Reinhard et al., 2008). However, there are generally, effective ways of reducing stress which includes anxiety reduction techniques, anger management strategies, relaxation, balanced diet, bodily exercise, relaxation and efficient time management (Brown, 2019; Martínez-Montilla, Amador-marín, & Guerra-martín, 2017). In the same way, IFCs also employ various forms of coping strategies such as praying, maintaining hope, belief in spiritual practices to provide comfort and seeking social support or the use of social entertainment (Marques, Botelho, Marcon, Lenzi, & Pupulim, 2014; Pearce, Medoff, Lawrence, & Dixon, 2016). The findings of a study indicated that group and individual relaxation therapy section for caregivers are effective in relieving stress during the admission of their sick relative while it does not interfere with their visiting hours (Held, Mealer, Clark, Moss & Sottile, 2018).

Yet, some IFCs also employ negative coping strategies such as obsession, fantasy, anger, crying, feeling loneliness, denial, concealment,

withdrawal, self-blame, emotional detachment and medications among others (Gheibizadeh, Gholami, Bassaknejad, & Cheraghian, 2017; Martínez-Montilla et al., 2017). Moreover, positive coping is essential since it can affect the quality of nursing care the patient receives and the wellness of IFCs is said to be a significant factor affecting patients' well-being (Chan & Twinn, 2007; Feinberg & Houser, 2012). Therefore, there is a need to educate IFCs on the use of proper coping strategies, especially during the admission process, patient stay and discharge. It is also essential to remind IFCs of the coping strategies before initiating any decision-making process and to enhance appropriate decision as well as to prevent possible psychological distress (Peris et al., 2011; Turner-Cobb, Smith, Ramchandani, Begen, & Padkin, 2016).

Statement of the Problem

Many Immediate Family Caregivers (IFCs) experience stress such as bodily strain, psychological stress, poor sleep pattern, fatigue, depression and financial burden (Andresen et al., 2015; Choi et al., 2014). These have a significant impact on their physical health, thus making them potential patients (Feinberg, Reinhard, Houser, & Choula, 2011; Sit, Wong, Clinton, Li, & Fong, 2004). A report from the National Consensus Development Conference indicated that caregivers are faced with difficulties attending to their health and well-being while managing caregiving responsibilities (Family-caregivers-Alliance, 2006). Research indicated that the role of caring for a critically ill patient admitted in the ICU is very stressful for the IFCs (Barth et al., 2016; Shinde et al., 2019). About eight out of every 10 caregivers of hospitalised

patients are likely to experience some mental disorder (Al-Zahrani et al., 2015). Studies indicated that the prevalence of stress among IFCs was high (Pochard et al., 2001; Shinde et al., 2019).

Moreover, the patient-physician relationship focuses more on the rights of the patient and not family-centred care. Thereby little or no attention is paid to the stressful experiences of the IFCs but rather IFCs are left to cope on their own (Mitnick, Leffler, & Hood, 2010). However, a study has indicated that there is a need to promote a family-centred approach in bedside care (Davidson, 2009).

Globally, various studies have been conducted on caregivers stress and on the impact of patients' hospitalisation on caregivers (Al-Zahrani et al., 2015; Azoulay et al., 2005; Branscum, 2010; Johnson, Chaboyer, Foster, & Van Der Vooren, 2001; Neves et al., 2018). Some of these studies reported that caregivers experience a high rate of stress and are at high risk of fatigue and sleep disturbances (Neves et al., 2018; Reinhard et al., 2008). A qualitative study on the impact of hospitalisation process on the caregivers of the critically ill patient revealed that the process is stressful and full of emotional challenges but failed to identify the specific stressors or coping mechanisms the caregivers employ (Neves et al., 2018). Chui and Chan (2007) focused on coping strategies and stressors in IFCs of ICU patients, however, failed to measure the stress levels among the group they studied. Also, the stressors identified were in the general context and not specific to the stressor of IFCs in the ICU environment.

Most of the studies were carried out in the developed world, with a paucity of data on IFCs circumstances in developing countries (Andresen et

al., 2015; Choi et al., 2014; Pochard et al., 2001; Shinde et al., 2019). Moreover, in developing countries, taking care of the sick is mostly informal (unpaid services) and this role is carried out frequently by IFCs who are not even recognised as part of the care team and are likely to experience some stressors which are specific to developing countries (Aziato & Adejumo, 2018; Opoku-Boateng, 2016).

In Ghana, there have been several studies in the area of stress. However, these studies focused on the areas such as post-traumatic stress, burden of stress after discharge of patient from hospital, occupational stress, perception and economic burden (Abdulai, 2011; Agudu, 2017; Aziato & Adejumo, 2018; Dapaah, 2014; Godwin et al., 2016; Opoku-Boateng et al., 2017). A few of the studies were in line with family caregivers (Aziato & Adejumo, 2018, Opoku-Boateng et al., 2017). Opoku-Boateng (2016) revealed that caregivers experience a low quality of life. The study focused on caregivers of psychiatric patients and not ICU. Aziato and Adejumo (2018) also studied caregivers in the perspective of psychosocial factors influencing family caregivers during the care of patients who had undergone surgical procedures and were in pain. This also centred on family caregivers of post-operative patients and not IFCs of ICU patient and narrowed it to pain experience.

Additionally, all these studies were conducted in the southern part of the country: Ashanti, and the Greater Accra regions. From the review of literature, no study has been documented on family caregivers in the northern part of the country. However, personal observation and interaction with some IFCs of ICU patients in TTH revealed that there might be a lot of challenges, which warrant investigation to determine the extent of challenges of IFCs in the ICU.

Family caregivers of patients in the ICUs of TTH may also experience stress from providing care to their relatives on admission. But then none of these studies conducted in the area of stress among family caregivers has presented any information on the perceived stress levels and coping strategies of IFCs of hospitalised patients in the Intensive Care Unit within the Ghanaian setting. It appears there is little or no data on the perceived stress levels and coping strategies among IFCs of ICU patients in Ghana. Hence, the need to provide a comprehensive understanding of the ICU environmental stressors and the coping strategies IFCs employ to provide a useful starting point for addressing this important issue.

Purpose of the Study

The purpose of the study was to investigate the perceived stress levels and coping strategies of the IFCs of hospitalised ICU patients in the Tamale Teaching Hospital (TTH).

Specific Objectives

The specific objectives are to:

1. Determine the level of perceived stress among IFCs of patients hospitalised at the ICU of TTH.
2. Examine the type of stressors IFCs experience at the ICU of TTH.
3. Determine the stress coping strategies utilised by the IFCs of ICU patients of TTH.
4. Examine the effect of stressors on the perceived stress level of IFCs of ICU patients.

5. Establish whether coping strategies moderate the relationship between stressors and perceived stress level of IFCs of ICU patients.

Research Questions

The study was guided by the following research questions:

1. What is the level of perceived stress among the IFCs of ICU patients at the TTH?
2. What are the stressors IFCs of ICU patients encounter at the TTH?
3. What stress coping strategies do IFCs of ICU patients at the TTH utilise to overcome stress?

Hypotheses

1. H_0: There is no significant effect of stressors on the perceived stress level of IFCs of ICU patients.

   H_1: There is a significant effect of stressors on the perceived stress level of IFCs of ICU patients.
2. H_0: Coping strategies do not significantly moderate the relationship between stressors and the perceived stress of IFCs of ICU patients.

   H_1: Coping strategies would significantly moderate the relationship between stressors and the perceived stress of IFCs of ICU patients.

Significance of the Study

The findings of this study provided important information about the perceived stress levels, stressors and stress coping strategies of IFCs of the hospitalised patient in the ICUs of TTH. It also identified the appropriate and non-appropriate coping strategies IFCs utilised. Furthermore, the findings of the study will help stakeholders to develop policies, educational programmes

and protocols to teach and care for IFCs of ICU patients. The findings of the study may also propel the hospital administration to organise in-service training programmes for clinical staff on ICU stressors and stress coping strategies for IFCs of the patient to enhance quality care and speedy recovery. The IFCs will have the opportunity to know and understand the various stressors in the ICU environment. They will also have the opportunity to select the correct and appropriate coping strategy to combat a specific stressor or stressors. More importantly, it will help reduce significantly IFCs perceived stress levels.

Additionally, the result can be used to assist family caregivers of patients in ICUs and similar departments where applicable to help manage the burden of stress during hospitalisation of their relative. In effect, it will enhance satisfaction and improve the health of the family, the patient, clinical staff and the nation as a whole.

Delimitation

The study focused on the stress and coping strategies of Immediate Family Caregivers (IFCs) of patients in the Intensive Care Unit (ICUs) of Tamale Teaching Hospital (TTH). The study was delimited to the IFCs of the Neonatal Intensive Care Unit (NICU), Main Intensive Care Unit (MICU) and the Maternal Intensive Care Unit (MtICU) of the TTH who have spent at least seventy-two hours (72) or more in the ICU. Only two IFCs of each patient were included in the study. Family members who lost their patient before 72 hours were excluded. This is because those who have stayed for three days or

more may have more encounters with ICU stressors and will have more experience with the stressors within the ICU environment.

Limitations

The limitation of this study could be attributed to the selected design that is cross-sectional, which takes data at one particular time. There might have been differences in the stress levels if the data were taken more than once during the patients stay. It would have been best taking data across the ICUs in the country, however, due to time and resources the data were taken from only one hospital in Ghana hence the findings may not be generalizable to other ICU settings within the country. Another limitation is that the data from this study were self-report from the perspective of the IFCs on their perceived stress, stressors and coping strategies, hence getting a similar result in a repeated study may be a challenge. The utilisation of specific scales such as the stressor scale and ways of coping scale may limit the participants from stating other stressors and coping strategies that were not reflected on these scales. However, the results of the study add up to literature and give significant information on stressors and appropriate coping strategies IFCs of ICU patient's use.

Definition of Terms

Immediate Family Caregiver: is a member of one's family who carries the responsibility of caring for the needs of a patient who is admitted to the ICU, giving consent in critical decision period on behalf of the patient and being available most of the time for the patients physical and emotional needs (Reinhard et al., 2008).

Stress: Stress is defined as ‘‘psychological and physical strain or tension generated by physical, emotional, social, economic, or occupational circumstances, events, or experiences that are difficult to manage or endure’’(Colman, 2015).

Operational definition: stress is defined as the Immediate Family Caregiver’s perception of psychological, physical and environmental events that are difficult to manage during the hospitalisation period. It is measured using the Cohens perceived stress scale.

Stressor: A stressor is defined as a physical, psychological or social force that puts real or perceived demands on the body, emotions, mind, or spirit of an individual (Colman, 2015).

Operational definition: Stressor refers to the factors that cause stress such as an activity, event, or stimulus from the ICU environment or the patient to the Immediate Family Caregiver of a critically ill patient who is on admission in the ICU.

Coping strategies: Refer to the specific efforts, both behavioural and psychological, that people employ to master, tolerate, reduce, or minimize stressful events (Taylor & Psychosocial Working Group, 1998)

Operational definition: Coping strategy is the strategy employed by the Immediate Family Caregiver to overcome demands and pressures that seem to outweigh the IFC during the period his or her relative is admitted to the ICU.

Intensive care unit: It is a ward or unit within a hospital where critically ill patients are nursed by specially trained medical and nursing staff.

Organisation of the Study

The study comprised of five chapters. Chapter one comprised the background to the study, statement of the problem, purpose, research questions, significance, delimitation, limitations and the definition of terms. Chapter Two focused on the review of the literature which discussed the theoretical review of the study as well as the empirical review. Chapter Three then discussed the methodology employed in the study. It also contains the general background of the study area, research design, population, sampling and sampling size, method of data acquisition, instrument used and analysis. Chapter Four dealt with the presentation of the findings and discussion. Chapter five summarised the major findings of the study, the conclusions, recommendations and stated areas for further research

CHAPTER TWO

LITERATURE REVIEW

Introduction

The purpose of the study was to investigate the perceived stress levels and coping strategies of the IFCs of hospitalised ICU patients in the Tamale Teaching Hospital (TTH). Specifically, to determine the level of perceived stress among IFCs of patients hospitalised at the ICU of TTH, examine the type of stressors IFCs experience at the ICU of TTH, determine the stress coping strategies utilised by the IFCs of ICU patients of TTH, examine the effect of stressors on the perceived level of stress among IFCs of ICU patients and establish whether coping strategies moderate the relationship between stressors and perceived stress level of IFCs of ICU patients.

The chapter gives an overview of the various concepts to accord readers a better understanding of the study. Literature search on the study was done through the use of electronic databases such as PubMed, Google Scholar and EBSCOhost. Other non-electronic materials like thesis, books, grey materials and documents related to the study were used. Search terms such as stress, 'stress perception among ICU Immediate Family caregivers', 'stress among relatives of ICU patients', 'stress in ICU family members', 'level of perceived stress', 'ICU environmental stressors', 'coping strategies among Immediate Family Caregivers', 'ICU', 'Critical Care Unit' and others were used to access information on the study.

The literature was reviewed in two broad areas: the theoretical and empirical. The theoretical review discussed the overview of the study. This

was done with respect to the various concepts that guided the study, comprising specific areas such as; Intensive Care Unit environment, caregiver's role and stress. The conceptual framework of the study was also discussed. The empirical review discussed studies that were done with regards to the study objectives: perceived stress levels of IFCs of ICU patients, stressors in ICU and coping strategies among IFCs of ICU patients.

Intensive Care Unit Environment

In certain facilities, Intensive Care Unit (ICU) is known as the Intensive Therapy Unit, Intensive Treatment Unit or Critical Care Unit. There are various forms of ICUs, depending on the type of patient or type of conditions being managed. For instance, there are ICUs that cater for children (Neonatal or Paediatric ICU) and ICU that care for adult (Adult ICU). For specific conditions, there can be Maternity ICU, Cardio ICU, Surgical ICU, Medical ICU and others. This is a special department of a hospital that provides critical services for patients with life-threatening conditions that require constant and invasive monitoring with the aid of life support equipment and medicines to maintain a normal body functioning (Barth et al., 2016; Wenham & Pittard, 2009). These conditions are quite different from any illness most people might have experienced. Intensive care is a service provided for patients with potentially recoverable conditions who might benefit from more detailed observation and invasive treatment that cannot be provided in general wards or high dependency areas (Smith & Nielsen, 1999). Normally, the ICUs are made up of a bed capacity ranging from four to fifty and above (College of Intensive Care Medicine of Australia and New Zealand, 2011).

This unit is often managed by highly trained healthcare providers who offer specialised care to severely ill patients. The health care providers comprise nurses, doctors, trained critical care nurses, clinical pharmacists, respiratory therapists, dieticians, clinical psychologists and intensivists. An intensivist is a physician who has specialised in critical care medicine. He serves as the leader of the ICU team and has ultimate responsibility for patient care in the unit (College of Intensive Care Medicine of Australia and New Zealand, 2011). Nurses also function in various aspects of the work including close monitoring and reporting changes in patients' health status. The other staff also perform a variety of specific roles to complete the necessary care required (Ervin, Kahn, Cohen, & Weingart, 2018).

The ICUs differ from the general wards by the high staff to client ratio, type of diseases, the use of advanced medications, setting and the type of equipment which are usually not present in the general wards (Ervin et al., 2018; Falk & Wallin, 2016; Singer, Negrello, & Rondeau, 2015). The ICU environment is characterised by the presence of sophisticated medical equipment like monitors, ventilators, perfusors with high-pitched sounds and fluorescent tubes producing excessive bright lights. Other equipment includes cables, breathing tubes, cords and sockets. There is also limited space which can sometimes create physical barriers during critical incidents (Kumar & Avabratha, 2015). Each bed has an emergency trolley, gadgets, items and medications prepared for resuscitation activity. Additionally, almost all the patients are connected to various devices for monitoring and serving of medications (Gallegos, 2011).

The health staff are frequently found performing various clinical procedures for the patient as their normal obligation (Barth et al., 2016). Some studies reported that at night the noise generated in the ICU far exceeds the acceptable sound levels by World Health Organization (WHO). The average sound levels suggested by WHO is between 35 to 40 decibels (dB) at night within the hospital (McLaren & Maxwell-Armstrong, 2008). However, the noise from ICU normally exceeded this recommendation with most noise sources emanating from staff conversations in addition to the noise from the gadget and patients (Darbyshire & Young, 2013; Delaney et al., 2017).

Role of Family Caregivers

A family can be defined as 'a group of people related by blood, marriage, law (in the case of adoption), common identity as well as lineage and ethnic group'(Ministry of Gender Children and Social Protection/ UNICEF, 2015, p. vii). The family could also be said to be the basic unit of care for every individual where one is attended to at the initial discovery of a disease (Olagundoye & Alugo, 2018). In Ghana and many other developing countries, taking care of the sick is mostly an informal occupation and this role is carried out by close family members (Opoku-Boateng, 2016; Aziato & Adejumo, 2018). A study on the quality of life of family caregivers of schizophrenic patients reported that caregivers experienced low quality of life as a result of the care they render (Opoku-Boateng, 2016).

Most patients have families who provide some level of care and support during the period of admission in the hospital. The family members who take charge of attending to the needs of the sick member are known as the

Immediate Family Caregivers (IFCs). IFCs are referred to as "secondary patients," hence may also require protection and guidance during this period since their role as caregivers put them at high risk of physical or psychological injury. The IFCs spend quality time to interact with their sick relative, assist with activities of daily living such as bathing and feeding among others without having time for themselves (Reinhard et al., 2008).

Van Rosse, Suurmond, Wagner, De Bruijne and Essink-Bot (2016) investigated the role of relatives of ethnic minority patients in patient safety in hospital care and identified four main roles of the IFCs. These are the role of a visitor, interpreter, a patient and a caregiver. First of all, the family caregiver visits the sick relative to provide social and psychological support to enhance the recovery. Secondly, the family caregiver also serves as an interpreter for the sick relative in situations where the spoken dialect is a barrier between patient and clinical staff. Thirdly, the family caregiver also serves as 'the patient'. In certain situations where patients are not aware of their own condition and deficient in the information about the treatment and of the condition, the relative acts as the patient to give the information about the disease though, the sick person may be available. Finally, the family caregiver serves as 'care provider'. The relatives assist in the day to day activities such as washing, providing food and mobilising financial resources. This is similar in the ICU's of the TTH where immediate family caregivers serve all these purposes in one way or the other while their family member is admitted.

IFCs of patients admitted to the ICU offer significant support during the admission of their family member. They assist in both the physical and psychological needs of the patient. IFCs perform activities such as assisting in

bathing the patient, massaging, serving some medication and feeding the sick relative among others which increase their sense of control and reduce their stress level (Wartella, Auerbach, & Ward, 2009). IFCs are pivotal in critical decisions period on behalf of the patient treatment plan.

In the course of serving as a caregiver, IFCs experience some level of stress. Studies have shown that these caregivers are affected by the state of the patient, the ICU environment and communication (Barth et al., 2016; Chan & Twinn, 2007; Pooni, Singh, Bains, Misra & Soni, 2013). Moreover, while IFCs are busy caring for the needs of the ill family member, they tend to forget about their own needs. Therefore, putting their own health at risk which often results in stress, elevated blood pressure, anxiety, depression, physical exhaustion and probably neglecting their own health and medical issues (Family Caregiver Alliance, 2012). There is, therefore, the need for the clinical staff to support caregivers on how to manage themselves in times of caring for a relative.

Definition of Stress

Stress has been a topic of interest to many researchers since the early twentieth century and continues to be an area of interest to many (Costa & Pinto, 2017). Several authors have described the term stress with several theoretical frameworks in an attempt to explain the defining attributes, antecedents and the effects of stress (Australian Psychological Society, 2012; Canadian Mental Health Association, 2014; American Psychology Association, 2019; Lazarus, 1993). Stress is a feeling of being overloaded, tense or worried (Australian Psychological Society, 2012)' or the body's

response to a real or perceived threat (Canadian Mental Health Association, 2014). The response to stress tends to get an individual prepared for action which could either be positive or negative. This is incongruent to the argument that stress is a negative experience. Stress might inspire an individual to get work done or stimulate an individual to perform well. However, exposure to a stressful agent for a long time can impact negatively on an individual's physical and mental health (American Psychology Association, 2019; Freshwater, 2018).

Types of Stress

There are various classifications for stress. Stress can be categorised into three main groups; acute, episodic acute and chronic stress. Acute stress occurs briefly when an individual feels tensed or threatened and within a short time the threat or tension gets resolved. This is often brought about by specific demands or pressures of a situation. Episodic acute stress ensues in people who frequently experience acute stress. Whereas chronic stress is stress that is ongoing and may appear to have no end. This kind of stress can cause significant damage to an individual's physical and mental health (American Psychology Association, 2019).

Stress could also be classified in terms of its relation to nature, its influence on an individual and the period of exposure. The first classification which is the relation to nature deals with the physiological or psychological aspect of the person. Psychological stress is an internal process that happens at the period one encounters stressful events and the interpretations given to the stressor. This seems to concur with Lazarus (1993) who explained stress as a

perception of threat, harm, loss or not harmful. The second classification is the influence of stress on an individual. This is described as either positive (eustress) or negative stress (distress) experienced by the individual during the encounter with the stressful event. This, therefore, refers to the impact the stressor has on the individual. And the third is the period of exposure. The period of exposure describes the time duration with the stressor. It may be a short period (acute or short-term), or a long period (chronic or long-term). The longer the time frame of negative stress the greater its effect on the individual (Shahsavarani, Abadi, & Kalkhoran, 2015). These authors classified stress using various terms but the explanations seems to point to the same thing. However, the classification did not factor the stressors in relation to the environment as ICU environment may pose some level of stress.

Coping

Coping resources could be derived from both the individual and the environment. It refers to the reserves a person has and draws upon to manage stressful encounters. Coping is a reflection of how stress affects an individual either positively or negatively (Skinner, Edge, Altman, & Sherwood, 2003). Coping is also said to be the thoughts and behaviours people use to manage the internal and external demands of stressful events. It is one's ability to handle and control situations that seem overwhelming in order to lessen the impact of stressful situations. Nonetheless, coping strategies could be learnt through teaching and modelling. There are many ways of coping with stress and these coping strategies are rarely used alone but a selected coping strategy may change over time with changing situational demands. Furthermore, the

effectiveness of coping strategies may depend on the type of stressor, the particular individual, and the circumstance causing the stress (Mcleod, 2015).

There are two types of coping: problem-focused and emotion-focused coping. Problem-focus coping shows ways of finding a solution to a problem while minimising emotional consequences. Normally the problem is reviewed repeatedly to bring out a number of possible solutions (Abdel, Hassan, Mohamed, Elnaser, & Sayed, 2011). Problem-focused coping comprises strategies such as confrontative coping, seeking social support, planful problem-solving, to address the problem causing the distress. These strategies are used to either change or manage the problem causing the stressful experience. Emotion-focused coping regulates negative emotions associated with the stressor using strategies such as distancing, seeking emotional support, and escape-avoidance (Folkman & Lazarus, 1988). Evidence indicates that both forms of coping can be used by the same individual depending on the circumstance. Most people tend to use problem-focused strategy when the circumstance is seen as a changeable and emotion-focused strategy is adopted in a situation that cannot change easily (Berjot & Gillet, 2011).

There are different ways people cope with stress. Some may show their feelings openly and others may interpret the stress-inducing event in a positive manner to reduce the impact of the stressor as a way of managing their individual stress (Duhachek & Kelting, 2009).

Stress could cause unusual and dysfunctional behaviour and contribute to poor physical and mental health. It could also lead to psychological

problems which endanger people's ability to maintain a healthy work-life (Stavroula Leka, Griffiths, & Cox, 2005).

Perceived Stress Level among Caregivers

Research findings suggested that Immediate Family Caregivers (IFCs) stress perceptions ranged from mild/low, moderate and severe/high (Chang et al., 2018). Some of the studies reported that a greater percentage of the participants recorded high perceived stress levels (Patil, Kapurkar, & Jagdale, 2015; Shinde et al., 2019). However, some reported low perception, but majority reported moderate stress levels (Karale et al. 2016; Kumar & Saini, 2012; Nagesh, Kola, Bakerdalin, & Mary, 2017). In this, nurses have been predicted to play a significant role in improving the caregivers' well-being through teaching and training family caregivers on stressors and coping strategies during the period of admission, discharge and home care to curb or reduce the perceived stress level of IFCs (Imanigoghary et al., 2017).

A study on the extent of burden and coping strategies among caregivers of mentally-ill patients, which used a sample of 32 caregivers indicated that caregivers were moderately stressed in dealing with patients who had chronic conditions. The researchers reported that 31.3% of the participants experienced severe stress, 43.8% of the participants perceived the stress burden as moderate and 25% perceived it as low (Kumar & Saini, 2012). This result was noteworthy since about 75% of the participants reported a significant perception of stress levels with only a quarter experiencing low levels of stress. As much as 31.3% being severely stressed was a matter of concern. Perhaps the condition of the patients in this study might have

contributed to the significant level of stress among the caregivers or having a greater percentage of the sample, thus two thirds of the participants as females since most studies have established the fact that the stress experienced by the caregivers is significantly linked with the caregiver's gender, where the females experience higher stress than the males (Acaroğlu et al., 2008; Chui & Chan, 2007; Wartella et al., 2009). The health and well-being of these caregivers might be adversely affected and in turn, affect the care of their sick relative.

Karale et al. (2016) reported on a study conducted in India among 60 family caregivers. The study recorded stress levels, ranging from severe, moderate and mild with the percentages of 3.33%, 73.3% and 23.4% respectively indicating that a significant number of IFCs were moderately stressed. Comparing this to findings of Kumar and Saini, (2012), though the percentage of stress was significant with about 73.3% being moderately stressed, the severe category was very low comparing the 31.3% to 3.3%. There may be an intervention this group introduced or the type of patients may also be a factor.

In another study conducted among 60 family caregivers of ICU patient's majority of the participants, 90% were moderately stressed, 8.3%, and 1.66 % were severely and mildly stressed respectively. Out of the total participants, it was found that 83.3% applied some level of coping but none of them was able to cope effectively (Nagesh et al., 2017). In relation to the already discussed studies, stress appeared to be a matter of concern among the IFCs of ICU patients.

Similarly, in a study that compared stress levels among IFCs in surgical ICU (SICU) and medical ICU (MdICU), the MdICU reported 16%, 76% and 8% of severe, moderate and low-stress levels respectively. While 8%, 44% and 48% of severe, moderate and low-stress levels respectively represented figures from SICU. The SICU participants reported lesser stress levels (Patil et al., 2015). From the percentages presented, it could be deduced that SICU seems to handle stressors among the IFCs better than MICU. However, they all had significant proportions of the participants being moderately stressed which calls for action. Zarei, Hashemizadeh and Keyvan (2015) also supported the argument that caregivers experienced stress while caring for their family members on admission. Zarei et al. (2015) concluded by agreeing to the fact that family caregivers of ICU patients experienced significant stress levels and were more stressed compared to caregivers of other units.

Relatedly, the prevalence of stress was found to be 69.1% and that of depression was identified as 35.4% in a study among 836 family caregivers at a French Intensive Care Unit (Pochard et al., 2001). The study indicated that 72% of caregivers exhibited symptoms of anxiety or depression. The study found that factors emanating from the patient (no chronic disease), caregiver (poor interaction with professionals) and the family (the caregiver's relationship with the patient that is being a child or a spouse) contributed to the stress level or prevalence. A subsequent study reported a high prevalence of stress/anxiety of 73.4% and 35.3% depression in IFCs of patients in the ICU. This study concluded that the prevalence of symptoms of stress and

depression may be high for family caregivers irrespective of the outcome of patient care (Pochard et al., 2005).

Likewise, over 60% of caregivers investigated for symptoms of anxiety and depression at the Intensive Care Unit of a general hospital in Athens, Greece revealed that caregivers experienced severe symptoms of anxiety and depression (Kourti et al., 2015).

A study assessing perceived needs, stress and coping strategies among caregivers of patients admitted at critical care areas of Pravara Rural Hospital, revealed that a significant percentage (76%) of caregivers who participated in the study were severely stress (Shinde et al., 2019).

Andresen et al. (2015) confirmed that close relatives of ICU patients, involved in the patient care while their member was admitted to the ICU and after discharge, experienced symptoms of Post-traumatic Stress Disorder (PTSD) even during and after the hospitalisation.

From all these studies there is an indication that IFCs experience some level of stress in their mandate as caregivers to ICU patients. The moderate and high perception of stress experienced may be associated with stressors within the ICU arena. Therefore, in order to have an effective way of managing stress among family caregivers the main stressors within the ICU environment must be identified.

Immediate Family Caregivers Stressors in the ICU

Several studies have been conducted in the area of stressors among family caregivers (Ramírez, Navarro, Clavería, Molina, & Cox, 2018; Sittler, 2016; Turner, Tomlinson, & Harbaugh, 1990; Yava, Tosun, Ünver, & Çiçek,

2011). These studies have identified a number of stressors in relation to the caregiving role and it may be grouped into various dimensions. These are physical, physiological, psychological, social, financial and environmental stressors (Patil et al., 2015; Sittler, 2016; Turner-Cobb et al., 2016; Yava et al., 2011). The physical stressors identified sights and sounds, patient appearance, and procedures on the patient. Additionally, physical stressors also emanate from lack of sleep, attending to their patient's needs, and the regular travelling to and from the hospital to supply the needs of the patient. Meanwhile, staff communication and behaviour, change in caregivers role, fear of the unknown, uncertainty, worrying over nature of the unit, money, lack of time, illness and other concerns accounted for the psychological stress among caregivers (Sittler, 2016; Turner-Cobb et al., 2016; Yava et al., 2011).

However, IFCs of ICU patients are also likely to encounter some environmental stressors. These environmental stressors include state of the patient, sophisticated gadgets, unfamiliar environment, restrictions on visiting periods among others (Barth et al., 2016; Kourti et al., 2015; Turner-Cobb et al., 2016). These stressors negatively impact the IFC's health and the care given role, and further affect the care the patient receives. Studies have also documented that the stressors from ICU places IFCs at risk for Post-Traumatic Stress Disorder (PTSD) (Alfheim et al., 2018; Andresen et al., 2015).

The findings of a study showed that physical stressors were perceived to be the most stressful ones whereas the psychological ones were the least stressful (Hweidi & Nizamli, 2015). On the contrary, a study conducted by Yava et al. (2011), reported that physiological stressors were perceived to be the most stressful for ICU patients.

Patil et al. (2015) classified the stressors of family caregivers of ICU patients into six categories; physiological, social, psychological, physical, environmental and financial. However, the participants' stressors ranged from social, physiological, and psychological where social stressors ranked high scoring 30.60%, and psychological stress with the least of 21.49%. The study utilised participants from both Surgical and Medical Intensive Care Unit. Evidence suggests that visiting the patient is one of the main needs of the family and therefore, the need to adjust visiting hours according to the needs of IFCs. Also, giving adequate information and attention to the religious needs of both patient and IFCs is vital (Chrisoula & Dimitris, 2018).

A qualitative study which analysed the stressors and coping strategies of Chinese adults with a partner admitted into an intensive care unit in Hong Kong, reported uncertainty, difficulties in communication, changes in roles and responsibilities, difficulties in decision making, financial strain and changes in relationships as stressors encountered by caregivers in the ICU (Chan & Twinn, 2007).

In addition to the above stressors, Barth et al. (2016) identified difficulty in communicating with a patient as the main stressor to IFCs. Also, patient disease features, interpersonal relationship, self-perception, and ICU environment were also listed among the stressful factors of ICU family caregivers. Furthermore, patient factors such as a patient having breathing difficulty, suffering pain, unresponsive and crises in other patients were extremely stressful situations for IFCs. The severity of a patient's illness was also identified to be a significant stressor. However, the presence of monitors and equipment, regular activities of staff and staff interaction with caregivers

were of little or had no significant effect on IFCs perception of stress. (Pooni, et al., 2013).

Some stressors from the paediatric ICU on IFCs emanate from the fact that it is the first time of being separated from their child and the difficulties involve when one wants to see his or her child. IFCs, especially mothers, also experience stress from playing the double role of managing the home and being in the hospital as well (Hagstrom, 2017). This could lead to a traumatic experience for IFCs and often result in a cluster of psychological complications such as the Post-traumatic Stress Disorder (PTSD) symptoms, poor sleep quality due to anxiety, tension and fear (Andresen et al., 2015; Day, Haj-bakri, Lubchansky, & Mehta, 2013; Schmidt & Azoulay, 2013).

According to Musabirema, Brysiewicz and Chipps (2015) patients' appearance and behaviour were described as most stressful factors to Caregivers recording a mean value of 4.02. However, sights and sounds were least stressful with a mean score of 2.5. On the contrary, a study from a paediatric ICU on parental stress reported sight of monitors, equipment and the unresponsiveness of their patients as most stressful for caregivers. It further reported that intravenous cannulation and taking of blood samples were sources of stress. Other stressors identified included caregivers who had their patients admitted for the first time, the state and crises in other sick patients. The study also noted that irrespective of the patient's disease condition and state, the elderly caregiver had low-stress levels compared to the younger caregivers (Kumar & Avabratha, 2015).

In addition, Gallegos (2011) identified changes in caregiver's role as the top stressor. Other stressors pointed out by the participants included

sudden sounds from monitors, patient acting or looking like in pain, seeing tubes in the patient, and not being able to hold their patient. On the other hand, staff behaviour, such as jokes from staff, not identifying themselves by their names and staff communication was of minimal source of stress (Barth et al., 2016).

Furthermore, a study among parents of children admitted to a Paediatric ICU in Jordan reported that procedures and the patient behaviour and emotion were the most stressful environmental stressors. But the male participants reported that the appearance of the patients were most stressful. However, behaviour of staff in the unit and staff communication were of no stress to the participants (Yacoub, Alkharabsheh, Zaitoun, & Al-Atiat, 2012).

In a current study on parental stressors in a Paediatric ICU, stressors were classified into three groups Clinical, Emotional and Communication. Clinical dimension consisted of sounds and images, procedures, changes in caregiver's role, behaviour and emotions of patients. Out of these the findings, sounds and images, procedure, patient behaviour and emotion were found to be more stressful however, behaviour and communication with the professional staff were less stressful (Ramírez et al., 2018).

It appears staff behaviour had no stressful impact on the IFCs. Perhaps the staff relation and attitude in these studies were acceptable or the major desire of these caregivers was to see their patient recover and felt they were receiving exactly that. The reviewed studies used various scales and study approaches hence it is difficult to state the exact stressor that is most stressful. It appears the review cuts across different countries and varied group of

patient caregivers resulting in different stressors (Barth et al., 2016; Chan & Twinn, 2007; Ramírez et al., 2018; Yacoub et al., 2012).

However, some of the commonly identified stressors are the patient's appearance and emotion, sights and sound, difficulties in decision making, financial strain, changes in relationships, uncertain prognosis, fear of death or permanent disability and unfamiliarity with the intensive care environment (Barth et al., 2016; Chan & Twinn, 2007; Ramírez et al., 2018).

Impact of Stress in Caring for a Patient in the ICU

Admission of a family member seems to have negative impact on caregivers financial state and plans and this frequently disrupts their routine activities (Swoboda & Lipsett, 2002). Intensive care services seem to be expensive in terms of finances and this perception determines whether a family would continue or discontinue patients' care (Kumar et al., 2017). This adds to the IFCs stress and stress-related symptoms which affect their personal health as well as the quality of care rendered to the patients on admission. The vulnerability of these caregivers could be a predictor of Post-Traumatic Stress Disorder (PTSD) (Chang et al., 2018). Studies among families of ICU patients reported that IFCs usually experience PTSD, depression and anxiety. Alfheim et al. (2018) revealed that family caregivers who are young or have low levels of hope suffer higher symptoms of PTSD and depression. Furthermore, Azoulay et al. (2005), McAdam and Puntillo (2009) found elevated levels of depression and PTSD in about one-quarter of participants or larger proportion of those receiving less communication, support and information.

Risk factors such as gender, age and educational level were associated with stress levels. Gender plays a key role as a female caregiver or a mother may be at high risk of stress, anxiety and depression. On the other hand, young caregivers and caregivers with higher educational status have been associated with reduced stress levels (Gil-Juliá, Bernat-Adell, Collado-Boira, Molés-Julio, & Ballester-Arnal, 2018). Studies revealed that female family caregivers and caregivers with low educational status are the worst affected by stressors (Adelman, Tmanova, Delgado, Dion & Lachs, 2014; Wartella et al., 2009). Conversely, findings of another research suggested that male IFCs of patients in the ICU experienced significantly higher burden than their female counterparts (Foster & Chaboyer, 2003).

To minimize the stress levels of families who have their relatives on admission in the ICU, there should be a paternalistic approach. Staff should anticipate the family's need for information and provide appropriate information to the IFC. The use of appropriate therapeutic measures such as simple and clear communication strategies by clinical staff aids in reducing stress levels among IFCs of ICU patients. (Kumar et al., 2017; Zarei et al., 2015). Twibell (1998), however, described the coping measures used by some IFCs as slightly effective, Wartella et al. (2009) also believed that the application of coping strategy is relevant and effective at all stages of clinical care- admission, discharge and follow-up when applied appropriately.

Coping Strategies among Family Caregivers

The impact of stress on an individual is determined by the amount of pressure experienced and coping strategies adopted to deal with it. Therefore,

to avert stress, it is important to develop a repertoire of coping strategies (Thompson, Murphy & Strading, 1994). Caregivers utilise different strategies to cope with stress in the ICU environment. These include music, alcohol, distraction strategies, spirituality, control of the environment, adequate sleep, acceptance, getting social support, problem-solving and seeking spirituality among others (Andolhe, Barbosa, Oliveira, & Padilha, 2015; Kumar & Kaur, 2015; Salehi-tali, Ahmadi, Zarea, & Fereidooni-Moghadam, 2018; Zanetti, Stumm, & Ubessi, 2013).

Relatedly, a study reported that the coping strategies utilised by caregivers included seeking for social support, strategies based on the stressor, Religiosity/Fantasy and Thinking. This was among 41 caregivers during the fourth day of their patients' admission into an ICU at a tertiary university hospital in Brazil. There was no significant relationship between coping strategies and stress scores (Casarini, Gorayeb, & Filho, 2009)

Similarly, Turner-Cobb et al. (2016) recognised coping strategies used by the family caregivers in an ICU as acceptance, seeking support through advice and information, and substance use with social support as the main strategy preferred. A study revealed that good coping strategies were derived from both cultural and spiritual values. According to the participants, as they held to their beliefs and values to show love to their ill family member, all the difficulties they encountered faded and their attention was focused on the positive outcome of the patient condition (Salehi-tali et al., 2018).

Additionally, a study exploring the burden and coping strategies in caregivers of stroke survivors reported that caregivers utilised coping strategies such as acceptance, getting social support, problem-solving and

seeking religious assistance. However, the least strategies employed were denial and distracting negatively (Kumar, & Kaur, 2015). On the contrary, Marques et al. (2014) in a qualitative study on coping strategies used by family members of individuals receiving haemodialysis reported the use of escape-avoidance, social support and problem-solving as the frequently used coping strategies by these family members. Escape-avoidance however, was the topmost strategy preferred by the caregivers. Similarly, it was found that the use of both emotional and problem-focused strategy declined while avoidance strategy remained unchanged in a study that assessed coping strategies and posttraumatic stress symptoms in post-ICU family decision-makers after five days of admission (Petrinec, Mazanec, Burant, Hoffer, & Daly, 2015). The above studies showed the use of social seeking support as one of the immediate coping strategies employed by IFCs irrespective of their relatives' condition.

Seeking information, reliance on cultural beliefs and practices, maintaining hope and acceptance of illness were coping strategies used by the participants who had their patients admitted to ICU (Chan & Twinn, 2007). But cultural and religious practices were the main coping strategies the participants endorsed.

In another study, positive reappraisal was the most preferred coping strategy by participants. Positive reappraisal has religious dimension that caregivers relied on when experiencing burden. It generates a positive meaning for spiritual and personal growth. The study also revealed that Caregiver burden was positively and significantly correlated with self-controlling coping strategy (Alnazly, 2016).

Furthermore, a study on the levels of anxiety and ways of coping among 120 family members of patients hospitalised in the Neurosurgery ICU in Turkey indicated that IFCs utilised submissive and helpless coping styles more frequently, and the level of anxiety/stress increased with increasing levels of Helpless/Self-Accusatory coping approach which were emotion-focused strategies (Acaroğlu, 2008).

In another study, Family Crisis Oriented Personal Evaluation Scale (F-COPES) was used to assess the coping strategies of family members of hospitalised psychiatric patients used. The study showed that emotion-focused coping strategies were used more than problem-focused coping strategies. The common coping strategies identified were communicating with immediate family, acceptance of their situation, passive appraisal, avoidance, and spirituality. The family caregivers also made use of support from immediate families, mental health care professionals and their churches (Eaton, Davis, Hammond, Condon, & McGee, 2011).

It was found that self-controlling, positive reappraisal and escape-avoidance were coping strategies employed among caregivers of schizophrenic patients in a study comprising 100 caregivers of schizophrenic patients from psychiatric inpatient and outpatient clinic of Neuropsychiatry Department at Assiut University Hospital. It was also detected that the participant had a high level of stress. Moreover, confrontive coping, distancing, seeking social support and positive reappraisal coping strategies had a negative association with burden/stress. It was further explained that some coping strategies reduced the level of stress among caregivers of schizophrenic patients. On the other hand, self-controlling, accepting

responsibility, escape-avoidance and planful-problem solving cause a surge in perceived stress levels among the caregivers (Abdel et al., 2011).

A study among 41 parents of children and adolescents with Type-1 diabetes indicated that seeking social support and planful problem-solving coping strategies obtained the highest stress scores. Also, confrontive, escape-avoidance, problem-solving and distancing coping were significantly associated with stress. Lower use of confrontation, self-control, seeking social support, escape-avoidance and positive reappraisal were associated with better motivation for being a caregiver. That notwithstanding, frequent use of problem-solving was associated with higher caregiver satisfaction and lower stress scores (Grover et al., 2016).

In a similar study, distancing was the most common coping strategy used by caregivers. The caregivers were detached from their caregiving responsibility. However, the older participants used accepting responsibility and confrontive coping strategies which were seen to be effective. Nonetheless, Confrontive coping and escape avoidance were the least frequently used coping strategies (Alnazly, 2016).

A study examined the relationship between stress, coping, and its influences on perceived stress and coping abilities on health and work performance and concluded that the participants with high stress used poor coping strategies resulting in the experience of very poor health outcome, therefore, stress and coping strategies influence the health and work performance of nurses (Jordan, Khubchandani, & Wiblishauser, 2016). This indicated that there is an interaction between stress and coping strategies. Similarly, a study evaluated the effect of stress management on job-related

stress among nurses working with psychiatric patients and revealed a statistically significant reduced stress score after a stress management programme was carried out, indicating that the use of coping strategies affect the level of stress (Zaki & Barakat, 2018).

A study also indicated that there was a statistical positive significant relationship between coping strategies and stress levels. It was observed that the use of denial as a coping strategy comes with a corresponding increase with stress burden (Kumar & Kaur, 2015).

Another study on the effects of perceived stress and ways of coping in a sample of Portuguese health workers revealed that the nurses use self-controlling, planful problem-solving and seeking social support more frequently. The study revealed that seeking social support, self-controlling, planful problem-solving, distancing and escape-avoidance were negatively correlated with perceived stress indicating that those who frequently used these showed lower perceived stress levels. However, no significant correlations were identified between the total score of the PSS and the subscales of confrontive, accepting responsibility and positive reappraisal (Laranjeira, 2012). These studies revealed that there are various coping strategies which interact with stress. This interaction can lead to a either positive or negative significant relationship.

Baqutayan (2015) stated that an increase in the use of social support will result in an increase in an individual's health status irrespective of the existing level of support. Additionally, large social networks provide individuals with regular positive experiences. Social support may intervene between the stressful event and stress reaction by weakening or preventing a

stress appraisal response. Having the perception that others can and will provide necessary resources may give a different meaning to the potential harm posed by the situation. This increase one's perceived ability to cope with potential demands hence, preventing a situation from being perceived as highly stressful. In the same study, Baqutayan also indicated that Social support mediates between the stressor and stress, thereby lessening or preventing a stress appraisal response. Hence, adequate Social support may intervene between the experience of stress and the onset of the pathological outcome by reducing or eliminating the stress reaction or by directly influencing physiological processes.

Multiple factors, however, contributed negatively to affect caregivers' coping and have a cumulative effect on the caregivers' wellbeing. Daily, stressors accrue and overwhelm the caregivers, through continuous exposure to the factors causing stress. These stressors affect the caregivers' emotional management and pose a risk to the caregivers, leading to a potential emotional breakdown. It was concluded that coping strategies could inform the caregivers' perceived ability to manage consistent difficulties or stress causing-factors in palliative care (Uren & Graham, 2013). Therefore, the need for strategies to assist IFCs to manage stressors regularly, rather than allowing them to become overwhelmed by the accumulating stressors (Jones & Griffiths, 2007).

Provision of psyche education and counselling services to caregivers could help cope with the stress. Also, training sections on coping strategies targeting both health workers and caregivers on measures to reduce stress, Post-traumatic stress disorder (PTSD) and depression associated with caring

for patients in the intensive care will be necessary (Bayuo & Agbenorku, 2017).

ABCX Model of Family Stress

The ABCX model of family stress which was developed by Rueben Hill in 1949 sought to explain "the crisis-proneness and freedom from crisis among families". This model was developed after a study on the effect of separation and reunion on war-torn families was done (Smith, 1984). Hill represented the model with the alphabets ABCX and explained how the alphabets interacted with each other which eventually led to crises or freedom. For crises to happen there should be an interaction between these variables.

Hill (1949) used the alphabets 'ABCX' to explain the model. In the model, letter 'A' represents a condition or situation for which the family had slight or no earlier idea about and therefore viewed it as a problem. Letter B represents the existing family resources from which comfort could be obtained. Letter C represents the definition or meaning the family gives to the stressor or the stress-causing factor and letter X represents the crises resulting from the interaction. Letter A, the crisis-precipitating events (stressors) affect families in different ways and may be viewed as either positive or negative stress.

The model mentioned some difficulties the family face such as drastic changes in income, poor housing, wife or child falling sick, and one spouse carrying the responsibility of both partners. According to Hill, the stressor (A) interacts with the resource ('B') the family's crisis-meeting resources, which is considered as the factor that reduces or prevent the occurrence of the family

stress. Hill observed that family resources were employed prior to the occurrence of crises hence the term B was interpreted as family crisis-meeting-resources.

Additionally, the factors that mediate family crises include family integration and family adaptability. These resources can be from internal, external, family resources or from social support. When these resources are available, it reduces the impact of the stressor on the family and the reverse happens when the resources are not available. However, a family's resources and ability to adapt may determine whether the family will be free from stress or will be at risk of a stressor (Hill, 1949). These two, A and B, which are stressor and resource, also interact with C, the interpretation the family gives to the stressor. The interpretation of the stressor may lead to crises or not. Giving a positive interpretation of the stressor may lead to a positive outcome. This makes stress subjective and how the family views the stressor or event will determine whether the situation would be crisis provoking or just a challenge that can be overcome. When the family perceives the stressor as positive effective coping ensue. However, when the stressor is perceived as a negative stressor coping becomes difficult. The interaction between these three variables then results in 'X' which refers to the crisis that resulted from the stressful situation. A family in crises would experience role changes and possible decline in regular care and service to family members resulting in reduced affection among family members (Hill, 1949).

A (event) interacts with B (Family resources) and the two then interact with C (the definition the family gives to the stressor) to produce X (crises). Though the model is the basis for family stress it has been criticised on the

basis that it does not explain adaptation to stress but only looks at precrisis variables. Also, the construct named 'the family's crisis-meeting resources' is said to be inappropriate, since it comes in at the stressor stage (Smith, 1984). With all these critiques it still remains the basis for family theory (Boss, 2000) and remains a useful tool to determine how successful a family manages stressful events.

Though this formula is basic and has other advanced models like the double ABCX model it satisfies and explains the objectives of this study.

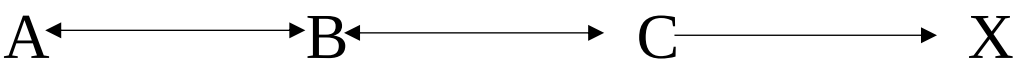

Figure 1: Graphical presentation of Hill's Model

Conceptual Framework

The theory underpinning this study is the ABCX Model of family stress and coping propounded by Hill (1949). This theory was selected on the basis of its relevance to the topic under study as its variables described the key concepts of this study such as stressors, perceived stress levels and coping strategies. The model was used by Joseph, Goodfellow and Simko (2014) as a framework to guide their study. Sullivan (2015) also used the model to assess, identify and treat family crisis in the clinical setting. It has been the basis of most family stress models hence applicable in studying stress and coping strategies of family caregivers of a hospitalised patient in the Intensive Care Unit.

The study made use of part of the constructs indicated in the model such as A (stressors), B (existing resources, coping strategies) and C (perception,

which explains the perceived stress levels). However, the X (crisis) construct was not used since the Letter X represents the crises resulting from the interaction of the three variables. This crises or the outcome of the stress on the individuals could be explained as, how the interaction affects the care of the patient, the IFCs or the family among others. But this study investigated the stress levels, stressors and the coping strategies.

The adapted conceptual framework consisted of three constructs: the perceived level of stress, stressors, and the coping constructs. It explained the interaction between stressors and perceived stress, whether stressors influenced the perceived level of stress and also determined if coping moderated the relationship between stressors and perceived stress level. It also looked at how the IFCs' perceived stress level may be influenced by a selected coping strategy in the presence of stressors.

This guided the study to achieve the stated purpose; the perceived stress level was measured using the Perceive Stress Scale (PSS). The ICU stressors were also examined using the Parental Stressor Scale (PaSS) designed by Cater and Miles (1983). Then coping strategies were measured with the 'Ways of Coping Scale' (WoCQ) designed by Lazarus and Folkman (1984). The study also examined the effect of stressors on perceived stress levels using multiple regression analysis. Finally, the study established whether coping mediates the relationship between stress and perceived stress through moderation PROCESS analysis.

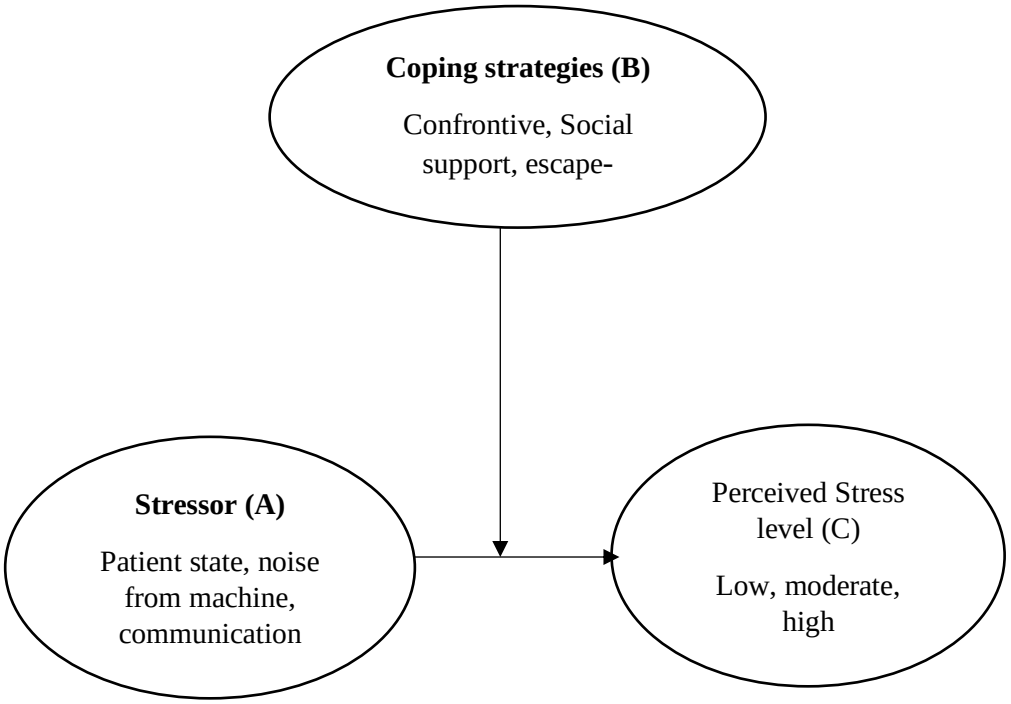

Figure 2: Conceptual framework adapted from ABCX model by Hill (1949)

CHAPTER THREE

RESEARCH METHODS

Introduction

The purpose of the study was to investigate the perceived stress levels and coping strategies of the Immediate Family Caregivers (IFCs) of hospitalised Intensive Care Unit (ICU) patients in the Tamale Teaching Hospital (TTH). Specifically, the study aims to determine the level of perceived stress among IFCs of patients hospitalised at the ICU of TTH, examine the type of stressors IFCs experience at the ICU of TTH, determine the stress coping strategies utilised by the IFCs of ICU patients of TTH, examine the effect of stressors on the perceived stress level of IFCs of ICU patients and establish whether coping strategies moderate the relationship between stressors and perceived level stress of IFCs of ICU patients. This chapter described the methodology for the study, consisting of the study design, study area, population, sampling procedure, data collection instruments, data collection procedures, data processing and analysis.

Study Design

Research design is an action plan purposely selected to help find a solution to the research question. There are various types of research designs, however, its selection is dependent on the aim or focus of the study. The selected approach influences the type of data to be collected, how the data is analysed and the interpretation of the findings. The main types of research approaches are quantitative and qualitative (Dunlock, 1993).

This study utilised a quantitative descriptive analytic survey design that aimed to determine stress levels, stressors, coping strategies and examine the effect of stressors on perceived stress levels as well as establish the role of coping strategies in moderating perceived stress levels and stressors. This study specifically employed a cross-sectional design, where data was collected at a specific point in time to give a snapshot of what was happening in a particular group at a specific time. The data was taken once from the selected IFCs of ICU patients to describe their perceived stress levels, examine the stressors and determine the stress coping strategies they use (Mathers, Fox, & Hunn, 2009). Though there are other research designs, cross-sectional is faster and less expensive hence aiding to complete this study within the expected time frame (Levin, 2006). However, this design may affect the result in repeated studies since IFCs interpretations of situations may change with time.

Study Area

Northern Region is part of the sixteen regions in Ghana. It is located at the northern part of the country and used to be the largest of the ten regions, with a land area of 70,384 square km and the estimated population size of 2,479,46 until December 2018 when the two new regions; Savannah and Northeast were created from it. However, Tamale remains the capital of the northern region with a population of 1,436,13 and the land area of 23,769.3 (Brobbey-commission, 2018; Ghana Statistical Service, 2012). Tamale is the fourth largest city in Ghana and the majority of its inhabitants are peasant crop farmers who live in rural areas (Ghana Statistical Service, 2012).

The study was carried out in the Tamale Teaching Hospital (TTH) in the Northern Region of Ghana. TTH was suitable for the study because it is a referral centre for the Northern regions; Upper East, Upper West, Northern, Savannah and Northeast Regions. It also serves the northern parts of the Brong-Ahafo Region and the neighbouring countries Ivory Coast, Burkina Faso and Togo. That is, the majority of patients needing intensive care services within these catchment areas are likely to be admitted to this facility. The hospital has various departments and provides specialist services in obstetrics and gynaecology, general surgery, accident and emergency, orthopaedics and trauma, neurosurgery, urology, internal medicine, endoscopy, pathology, ear, nose and throat, child health, anaesthesia clinic, intensive care, dialysis, dentistry and eye units (Tamale Teaching Hospital Annual Report, 2018).

Also, the hospital has three Intensive Care Units (ICUs), comprising the Main, Maternity and Neonatal ICUs. The ICUs have a total bed capacity of sixty-two (62), with the Main ICU accounting for six (6) beds, Neonatal ICU accounting for fifty (50) beds for neonates who need ICU care. The Maternity ICU has a capacity for six (6) beds. The Main ICU admits patients from all the other departments as well as referral cases. Maternity ICU caters for pregnant women who need ICU care; complicated post-delivery, complicated gynaecological and surgical cases that need ICU care.

Population

The population of a study is the entire collection of people, a group of items or objects that are of interest to the researcher (Polit & Beck, 2010). The

target population in this study involved two Immediate Family Caregivers (IFCs) of patients admitted to the ICUs of TTH. This study included IFCs of patients who have spent at least seventy- two (72) hours or more in the ICU. This was because caregivers within 24 to 48 hours of admission experience high levels of stress, almost near panic approach but reduces significantly after 48 hours (Gallegos, 2011). Only two IFCs of each patient who actively participated in the patient daily care and their particulars were recorded in the Admission and Discharge book and official relative's contact book were included in the study. However, family members who do not take an active part in the patient daily care but just pay a visit were excluded. The study also excluded IFCs whose patients died or were discharged before the third day in the ICU. This is because those who have stayed for three days or more may have more encounters with ICU stressors and will have more experience with the stressors within the ICU environment.

The population was based on the number of patients admitted to all the ICUs of TTH in the year 2018, the average number of patients per month for the ICUs was fifty-one (51) (Tamale Teaching Hospital Annual Report, 2018). The estimated period of four months purported for the study generated two hundred and four (204) patients who were likely to be admitted. To obtain enough samples for this study, two IFCs per each patient were included in the study since two provide better representation of the construct and give accurate estimates of what is true within the IFCs of ICU patients. It also makes the result applicable and representative of the larger population and not just the sample of interest. This gave a total population of four hundred and eight (408) IFCs.

Sample Size

The study employed total population sampling by including the entire population in the study. Total population sampling is a sampling technique that include the entire population that have a particular set of characteristics that is of interest to the researcher. The justification for using this sampling method is that the target population was small and could be easily managed. Studying the entire population gave deeper insight into the problem under study. It also reduced the risk of bias (Glen, 2018). However, IFCs who showed up during the period of data collection and agreed to participate out of the estimated 408 were included in the study. A total of 301 caregivers were used for the study giving a response rate of 73.8%.

Sampling Procedure

Due to the quantitative nature of the study, a probability sampling technique would have been appropriate. However, the population was based on the previous years' number of patients admitted where the total number of patients was small hence the entire population could be easily managed. In situations where the researcher would not be able to determine the probability of a particular person being involved in a study a non-probability sampling could be employed (Burns et al., 2008). It was also assumed that in using a probability sampling technique, sampling frame must be generated which was difficult in this study since admission was done as and when the patients come (Cochran, 1977). In addition, the total population of the group under study with reference to the previous year's number of patients was of a manageable size. For this reason, a total population sampling method was used to select the

IFCs. This method made use of two IFCs of each patient who met the inclusion criteria and agreed to participate. This sampling method best suited the study since the population was manageable size and the participants were easily available. However, there is a limitation with the generalisability of the findings (Wu Suen, Huang, & Lee, 2014).

Data Collection Instruments

The data collection instrument used was a questionnaire developed by adopting three standardised scales to assess the perceived stress levels, stressors and stress coping strategies utilised by the IFCs of ICU patients. The scales included perceived stress scale (PSS) which was used to assess the perceived stress levels of IFCs of ICU patients. It was a ten-scale item, developed by Sheldon Cohen in 1983 and remains a popular choice for helping to understand how different situations affect feelings and perceived stress levels of humans (Cohen, 1994). The questions asked about feelings and thought of IFCs of patients admitted to an ICU during their patients stay on the ward. The questions used in the scale were of a general nature and not specific to a particular population, therefore, was used in this study. The questions were on a five-point Likert scale ranging from never, almost never, sometimes, fairly often to very often. It ranges from (0) being never to (4) very often, respectively. The perceived stress scale PSS-10 comprised 6 positive items (1, 2, 3, 6, 9 and 10) and 4 negative items (4, 5, 7 and 8) items. The scale recorded a Cronbach's alpha of 0.78 (Taylor, 2015).

The questions on the stressors were answered by adopting a Parental Stressor Scale (PaSS) designed by Carter and Miles (1983). The scale was

designed to study the source of stress for family members who have their patients admitted to the ICU. It was a 37-item instrument used to assess the stressors experienced by IFCs of ICU patients during the period of hospitalisation of their patient in the ICUs of TTH. The stressors were grouped under seven dimensions; patient's appearance, sights and sounds, procedures, staff behaviour, immediate family member's role alteration, staff communication, patient's behaviour and emotions. Each dimension was made up of a number of items.

Patient's appearance was made up of three items, which described whether a patient's physical appearance may be a source of stress to the caregiver. Sights and sounds consisted of three items; this described the effect of environmental technology on caregiver's stress. Procedure was also made up of six items, describing invasive and non-invasive treatments that might serve as stressors to the caregivers. Staff behaviour comprises four items describing professional's behaviour caregivers had observed. Caregiver's role alteration had six items asking about changes in the caregiver's responsibility as a result of having a loved one admitted to the ICU. Staff communication had five items, which described the effect of staff-caregiver verbal or non-verbal interaction. Lastly, the patient's behaviour and emotions consisting of 10 items which showed how a patient's behavioural changes might serve as a stressor to the caregiver. The scale was on a five-point Likert scale that ranges from 1 (not stressful) to 5 (extremely stressful). The score ranged from 1 to 185.

The alpha coefficient for the original instrument was 0.95. The coefficients of the various dimensions were Appearance 0.92, Sights and

Sounds 0.83, Procedures 0.86, Role Alteration 0.99, Staff Communication 0.99 and Behaviour & Emotions of child 0.97 (Carter & Miles, 1983). In a study conducted by Yacoub et al. (2012) the coefficients alpha for the subscales ranged from 0.71 to 0.94 and the internal consistency for the entire scale was 0.72. The Cronbach alpha recorded for this study was 0.87.

The ways of coping questionnaire (WoCQ) was developed by Lazarus & Folkman (1984) to measure stress coping strategies. It was a self-reporting tool dealing with "problem-focused" or "emotion-focused" coping. The scale consisted of 44 items and used a four-point Likert scale with responses ranging from "not used" to "use a great deal. It was categorised into eight subscales and the subscale with the highest value was considered frequently used. The subscales were confrontive, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem-solving and positive reappraisal. Each subscale comprised a number of stated items. Cronbach's alpha reliabilities, for the 8 subscales, ranged from 0.56 to 0.85 (Folkman & Lazarus, 1988). The Cronbach's alpha reliability for this study was 0.90.

Ethical Consideration

An introductory letter was obtained from the school of Nursing and Midwifery at the University of Cape Coast (SNM/R2/Vol.4/) and clearance letter was acquired from the University of Cape Coast Institutional Review Board (UCCIRB/CHAS/2019/87). The letters were sent through the Chief Executive Officer of Tamale Teaching Hospital to the research department where permission was granted (TTH/R&D/SR/041). Copies of the permission

letters were then sent to the Deputy Directors of Nursing Services (DDNS) of the various wards and to the managers of all the wards in which the study was conducted. The staff of the ICUs were informed about the research and the consent of the participants were also sought. The researcher and assistant informed the participants about the study objectives. Participants were informed that their participation was not of compulsion but voluntary hence they could opt-out at any point they feel uncomfortable with the questions.

The participants were assured of confidentiality of their information as names were not required of them. They were also informed that the data was purely for academic purpose. Those who accepted to participate were made to sign a consent form prior to the study. They were made aware that no answer was right or wrong and should freely and honestly tick what pertains to them. There was no risk to participants since no biological data was required. There were no identified risks for the Immediate Family Caregivers and none of them reported being stressed by answering the questionnaire. Caregivers were told that the questionnaire was a little bulky but demand only ticking what applies to him/her.

Data Collection Procedures

One field assistant was recruited and trained to help with the questionnaire administration. The assistant was a master's degree holder in nursing and was given sufficient background knowledge about the study. The principal researcher took the research assistant through the items on the questionnaire to ensure clarity in understanding the questions and to avoid incorrect interpretations.

The researcher and assistant identified patients who had spent three days or more and contacted their caregivers in the ward during the visiting hours. Others were also reached on phone after assessing their contacts from the Admission and Discharge books as well as the official relative's contact books and were informed about the study. Those who were willing to participate were given further information about the study. The purpose of the study was explained to them.

Appropriate time and place were scheduled after the study was fully explained to the participants. The participants were made to sign a consent form prior to the administration of the questionnaire. The researcher and research assistant then administered the questionnaire to the participants at the scheduled time and allowed them time to answer and return the questionnaire while the researcher and research assistant were available to explain any of the questions that needed clarification. The IFCs answered the questionnaire in the nurses' rest room. The study was carried out in the English language and a few clarifications were provided when necessary. The data was collected on a daily basis when patients had spent at least three days in the ward. The data was collected during the two visiting hours. However, IFCs who were available during working periods were engaged until the period for the data collection elapsed. The data collection procedure lasted for four months, March to June 2019 in order to obtain enough data for the study. A total of 301 caregivers participated in the study.

Data Processing and Analysis

Retrieved questionnaires were kept under key and locked at the end of each day to ensure the safety of data from unauthorized persons. The processed data were also kept in a folder and password protected. Both soft and hard copy of the participants' information will be discarded appropriately after five years when there is no need for it. At the end of the data collection period, each questionnaire was scrutinised and checked for completeness. Uncompleted questionnaires were discarded. The questions were coded and then entered into the Statistical Package for Social Sciences (SPSS) programme. It was analysed using SPSS version 22.0. All entries were double-checked after entering the variables into the computer. The data was cleaned to ensure items were entered completely and correctly. On the Perceived Stress Scale (PSS), the 4 negative items (4, 5, 7 and 8) items were reverse-coded.

For research question one, composite scores were computed which ranged from 0 to 40 such that higher scores indicated higher levels of perceived stress and an increased likelihood that environmental demands exceeded the individual's ability to cope. The opposite was true for lower scores. Scores on the Perceived Stress Scale (PSS) ranged from 0 to 40 with higher scores indicating higher perceived stress. Scores ranging from 0-13 were considered as low stress, 14-26 moderate stress and 27-40 considered as high perceived stress. Frequency counts and percentages were used to reorganise the data to find out how many participants had low, moderate and high stress.

For research question two, a 37-item scale was used to find out stressors IFCs of ICU patients encounter at the TTH. The stressor scale looked at 7 (seven) different stressors: physical appearance, sights and sounds in the ICU, medical procedures, the behaviour of professional staff, IFCs role, communication with doctors and nurses, and emotional response in the intensive care units. These stressors were measured on five-point scale (never/not stressful-0, slightly stressful-1, moderately stressful-2, very stressful-3, extremely stressful-4). For each of the subscale, the mean of means was computed and compared. Higher mean scores on a stressor showed that the caregivers found the stressor as moderately to extremely stressful. The lower mean score, on the other hand, revealed that the stressor was moderately stressful to never stressful.

For research question three, a 44-item scale was used to examine the stress coping strategies IFCs of ICU patients at the TTH utilised to overcome stress. The scale had 8 types of coping strategies which included confrontive coping, distancing, self-controlling, seeking social support, accepting responsibility, escaping-avoidance, planful problem solving and positive reappraisal. Factor analysis was first conducted to confirm the factors and later mean and standard deviations were computed for each of the components. For the confirmatory factor analysis, a cut-off of 0.32 was used as a criterion to confirm whether an item was an indicator of a factor or not for all the sub-scales (Pallant, 2011).

Hypothesis one was tested with Standard Multiple Regression Analysis was conducted to assess the effect of stressors on the perceived stress level of IFCs of ICU patients. Whereas the composite score of the stress scale served

as the criterion, the predictors were the forms of stressors which were physical appearance of patient, behaviours at ICU, medical procedures, sight and sounds of activities in the ICU, roles of IFCs, behaviours of professional staff, and communication with doctors and nurses regarding the patients' condition.

Prior to the analysis, certain assumptions underlying the use of standard multiple regression were tested. These assumptions included normality, linearity, autocorrelation, and multicollinearity. The normality assumption was ensured by the use of bootstrapping approach which guaranteed accurate estimation of the confidence intervals and parameters. The analysis used 1,000 bootstrap samples at 95% confidence interval with an alpha level of 0.05. The bootstrapping catered for the normality assumption. The analysis used 1,000 bootstrap samples because the regression analysis conducted was not higher-order regression analysis (Hayes, 2013).

Again, a linear relationship was also recorded among the variables (predictors and the criterion). Hence, the linearity assumption was not violated. The result from Durbin Watson *d* test yielded a value of 1.689. Since the value is greater than 1.5 and less than 2.5 (Pallant, 2011), there was no autocorrelation present in the data. Furthermore, a closer look at the Tolerance and Variance Inflation Factor (VIF) revealed that there was an absence of multicollinearity in the data. All the Tolerance values were greater than 0.20 whereas the VIF values were greater than 10 (Pallant, 2011).

Moderation analysis by Hayes (2013) PROCESS, was used to test the hypothesis two which tests whether coping strategies significantly interacted with stressors to affect the perceived stress level of IFCs. That is, the stressor was used as the predictor variable, the coping strategies were employed as the

moderators and the criterion variable was stress level of IFCs. Since the moderators were eight, separate moderation role for each of the moderators was tested. The analysis used 5,000 bootstrap samples with 95% confidence interval at 0.05 alpha level.

CHAPTER FOUR

RESULTS AND DISCUSSION

The purpose of this study was to investigate the perceived stress levels and coping strategies of Immediate Family Caregivers (IFCs) of hospitalised patients in the Intensive Care Unit (ICU) of the Tamale Teaching Hospital (TTH). This chapter presents the analysis of the data gathered as well as the discussion. The chapter first presents the socio-demographic characteristics of the IFCs, followed by the analysis of the main data which answered the research questions. Out of 408 caregivers, 301 participated in the study, resulting in a response rate of 73.8%.

Socio-Demographic Characteristics of Immediate Family Caregivers (IFCs)

The study described the socio-demographic characteristics of the IFCs in order to understand the background of the IFCs who participated in the study. These socio-demographic characteristics included gender, age, level of education, marital status, religion, IFCs relation to the patient, monthly income, type of employment, and the patients' ward. The socio-demographic characteristics of participants are presented in Table 1.

The data revealed that more females (68.8%) than male (31.2%) IFCs participated in the study. This is obvious with the gender ideologies of our contemporary society. In Ghana, females are trained and oriented to be caretakers/caregivers. This is typically seen in several homes where females are engaged in home chores and taking care of the home whereas males are given masculine duties like farming, weeding, packing of heavy materials, etc.

With this orientation, people grow up to believe that females are better caregivers.

Table 1: Socio-demographic characteristics of IFCs

Information	Frequency	Percentage
Gender		
Male	94	31.2
Female	207	68.8
Age range (years)		
18-27	104	34.6
28-37	138	45.8
38-47	50	16.6
48+	9	3.0
Marital Status		
Single	37	12.3
Co-habiting	37	12.3
Married	225	74.8
Separated	2	0.7
Religion		
Christianity	90	29.9
Islam	210	69.8
Traditionalist	1	0.3
Level of Education		
Primary/Junior High School	35	11.5
Senior High School	71	23.6
Tertiary	114	37.9
No formal education	81	26.9
Monthly Income		
Gh¢300 or less	108	35.9
Gh¢300-500	78	25.9
Gh¢ 501-700	28	9.3
Gh¢701-900	22	7.3
Gh¢ 900+	65	21.6

Table 1 continued

Type of Employment		
Formal	97	32.2
Informal	70	23.3
Unemployed	91	30.2
Retired	-	-
Student	43	14.3
IFCs relation with the Patient		
Spouse	19	6.3
Sibling	47	15.6
Mother/Father	178	59.1
Child	27	9.0
Caregiver/friend	30	10.0
Patients' Department		
Main ICU	60	19.9
Maternity ICU	56	18.5
Neonatal ICU	185	61.5

Source: Field Survey (2019)

The mean age was approximately 31 years (M=30.66, SD=7.80). The youngest IFC was 18 years old whereas the oldest IFC was 56 years old. The largest proportions of the participants were between 28 to 37 years (45.8%). The data made it clear that most of the caregivers were considered adults. Normally, children would not be allowed to be caregivers since they are considered as minors. In most cases, hospitals do not even encourage having a caregiver who is considered as a child based on the 1992 constitution of Ghana. Again, children might not be allowed because of the difficulties they might find coping with the condition of their patients. This explains why none of the caregivers was found to be below the age of 18 years.

The data further revealed that a greater percentage of the participants were married (74.8%) while only 12.3% were single. Inferring from the fact

that a larger proportion of the participants were females with a mean age of 31 years, it is obvious that majority of the participants would have been married. It can be speculated that because married people have larger social space, they have a higher probability of being caregivers. Additionally, most of the IFCs were from the Islamic religion (69.8%) and 29.9% from Christian religion. This was due to the fact that the data was taken from a hospital located in an Islamic dominated environment. The result also depicts that a larger proportion of the IFCs had tertiary education (37.9%) and a few with Basic School education (11.5%).

With regards to monthly income, most of the IFCs indicated that their monthly income was Gh¢ 300 or less (35.9%). Whereas quite a number of IFCs indicated that their monthly income was more than 900 Ghana cedis (21.6%) per month. The majority of the participants were working in the formal sector (32.2%) whereas 23.3% found themselves in the informal sector. None of the participants had retired. This appeared to be consistent with the age since none of the respondents was 60 years or above. The result has shown that more than half of the IFCs were mothers or fathers (59.1%) taking care of their children. It was also found that some of the IFCs were children taking care of their parents (9%) and 10% identified themselves as friends to the patients. Concerning the department of the patient, the result revealed that the majority of IFCs patients were in the Neonatal ICU (61.5%). The average number of days caregivers had spent at the hospital was 4.78.

Research Question 1: What is the perceived stress level among the IFCs of ICU patients at the TTH?

This research question sought to describe the perceived stress level among the IFCs of ICU patients at the TTH. Table 2 provides the analysis of responses from participants' perceived stress levels. The result revealed that the majority of IFCs were moderately stressed (90.7%). This was also evident from the overall mean score of 19.11 which falls within the range of 14 to 26. This notwithstanding, some of the participants were highly stressed (4.0%). This confirms the fact that IFCs of ICU patients experience stress in caring for their sick relative admitted to the ICU.

Table 2: Perceived Stress levels among Immediate Family Caregivers (n=301)

Category	Frequency	Percentage
Low	16	5.3
Moderate	273	90.7
High	12	4.0

Source: Field Survey (2019)

Research Question 2: What are the stressors IFCs of ICU patients encounter at the TTH?

This research question sought to examine the stressors IFCs of ICU patients encounter at the TTH. Table 3 presents the analysis of results on the factors IFCs considered as stressful in the process of taking care of their sick relative. The responses indicated that all the stated items were stressful to the caregivers: physical appearance, sights and sounds in the ICU, medical procedures, behaviour of professional staff, IFCs role, communication with

doctors and nurses and emotional response of patient in the intensive care units.

Table 3: Stressors IFCs of ICU Patients encounter at the TTH

Stressors	Mean	SD	Rank
Communication with doctors and nurses about the patient	1.83	0.77	1st
Immediate Family Caregiver's role	1.81	0.76	2nd
Behaviour and Emotional response of the patient in the intensive care units	1.78	0.79	3rd
Medical procedures	1.50	0.65	4th
Patients physical appearance	1.48	0.82	5th
Sights and sounds in the ICU	1.45	0.74	6th
Behaviours of professional staff	1.08	0.70	7th

Source: Field Survey (2019)

However, the extent to which these items were stressful differed from one another. Therefore, mean of means were computed and ranked. A higher mean score of a stressor showed that the caregivers found that particular stressor as moderately to extremely stressful. For instance, communication with doctors and nurses was found as the greatest stressful factor reported by the IFCs (*M*=1.83, *SD=0.*77), followed by the role they played as IFCs (*M*=1.81, *SD=0.*76) and then emotional response of patients in the ICU (*M*=1.78, *SD=0.*79). The IFCs also reported that medical procedures (*M*=1.50, *SD=0.*65), physical appearance (*M*=1.48, *SD=0.*82), and sights and sounds in the ICU (*M*=1.45, *SD=0.*74) as stressors in the process of taking care of their relatives. Behaviour of professional staff (*M*=1.08, *SD=0.*70) was

found as the least stressor for the IFCs. This shows that good communication is vital in the area of serving as a caregiver and can greatly affect one's caregiving role. Therefore, clinical staff should pay particular attention to what is said to caregivers and ensure proper understanding.

Research Question 3: What stress coping strategies do IFCs of ICU patients at the TTH utilise to overcome stress?

This research question sought to determine the stress coping strategies IFCs of ICU patients at the TTH utilise to overcome stress. Table 4 presents the confirmatory factor analysis results. For the first factor, which is confrontive coping strategy, all the items loaded according to the established criteria were factors of the sub-scale since the loadings were above the cut-off point of 0.32. All the items were also found to be significant. This implies that all the items were indicators of confrontive coping strategies since they all contributed at least 15.52% of the variance in confrontive coping strategy. For the distancing dimension, all the item loadings were also above the 0.32 cut-off-point and were significant hence found as indicators of the factor, suggesting that the items were distancing coping strategies because each indicator contributed at least 12.89% of the variances in distancing coping strategy.

In the case of positive reappraisal, 3 out of 6 indicators were confirmed as reflective factor. The items which were eliminated had a loading of 0.285, 0.207, and 0.167 which were all less than 0.32. The rest of the indicators adequately measured positive reappraisal coping strategy. For the remaining

three items each indicator explained at least 15.13% of the variations in positive reappraisal coping strategy.

Table 4: Confirmatory Factor Analysis of Coping Scale

Scale items	Loadings	p-value	Factors
Tried to get the person responsible to change his mind or her	0.780	0.001*	Confrontive
Took a big chance or did something very risky	0.624	0.0001*	Confrontive
I expressed anger to the person(s) who caused the problem	0.599	0.0001*	Confrontive
Stood my ground and fought for what I wanted	0.503	0.0001*	Confrontive
I did something which I didn't think would work, but at least I was doing something	0.427	0.0001*	Confrontive
I let my feelings out somehow	0.394	0.0001*	Confrontive
Went on as if nothing had happened	0.767	0.0001*	Distancing
Didn't let it get to me; refused to think too much about it	0.566	0.0001*	Distancing
Went along with fate; sometimes I just have bad luck	0.384	0.0001*	Distancing
Made light of the situation; refused to get too serious about it	0.359	0.0001*	Distancing
I was inspired to do something creative	0.889	0.0001*	Positive Reappraisal
I accepted the next best to what I wanted	0.781	0.0001*	Positive Reappraisal
I changed something about myself	0.389	0.0001*	Positive Reappraisal
Rediscovered what is important in life	0.285	0.0001*	Positive Reappraisal
Found new faith	0.207	0.009*	Positive Reappraisal
I prayed	0.167	0.034*	Positive Reappraisal
Just concentrated on what I had to do next	0.880	0.0001*	Planful Problem Solving
I made a plan of action and followed it	0.834	0.0001*	Planful Problem Solving
Drew on my past experiences; I was in a similar situation before	0.664	0.0001*	Planful Problem Solving
Came up with a couple of different solutions to the problem	0.652	0.0001*	Planful Problem Solving
Changed something so things would turn out all right	0.613	0.0001*	Planful Problem Solving

Table 4 continued

I knew what had to be done, so I doubled my efforts to make things work	0.518	0.0001*	Planful Problem Solving
Slept more than usual	0.899	0.0001*	Escaping Avoidance
Avoided being with people in general	0.680	0.0001*	Escaping Avoidance
Refused to believe that it had happened	0.583	0.0001*	Escaping Avoidance
Took it out on other people	0.549	0.0001*	Escaping Avoidance
Tried to make myself feel better by eating, drinking, smoking, using drugs or medication	0.501	0.0001*	Escaping Avoidance
Hoped a miracle would happen	0.277	0.0001*	Escaping Avoidance
Had fantasies or wishes about how things might turn out	0.177	0.027*	Escaping Avoidance
Wished that the situation would go away or somehow be over with	0.044	0.583	Escaping Avoidance
I apologized or did something to make up	0.714	0.0001*	Accepting Responsibility
Criticized myself	0.523	0.0001*	Accepting Responsibility
I made a promise to myself that things would be different next time	0.095	0.227	Accepting Responsibility
I got professional help	0.906	0.0001*	Social Support
Talked to someone who could do something concrete about the problem	0.355	0.0001*	Social Support
Talked to someone to find out more about the situation	0.322	0.0001*	Social Support
Accepted sympathy and understanding from someone	0.295	0.0001*	Social Support
I asked a relative or friend I respected for advice	0.128	0.013*	Social Support
Talked to someone about how I was feeling	0.275	0.0001*	Social Support
I tried to keep my feelings from interfering with other things too much	0.593	0.0001*	Self-controlling
Kept others from knowing how bad things were	0.505	0.0001*	Self-controlling
I tried not to act too hastily or follow my first hunch	0.400	0.0001*	Self-controlling
I thought about how a person I admire would handle this situation and used that as a model	0.388	0.0001*	Self-controlling
I tried to keep my feelings to myself	0.117	0.117	Self-controlling

Source: Field Survey (2019) * Significant at $p < 0.01$

The loading for the items under the Planful problem-solving factor showed that all the items fit the factor. In other words, all the items measured planful problem-solving coping strategy such that each of the items contributed not less than 26.83% of the variances in planful problem solving coping strategy. Although most of the items loaded on escaping avoidance dimension were factors measuring the subscale, three of them had low loadings with factor loadings of 0.227, 0.177, and 0.044. This implies that the rest of the items adequately measured escaping avoidance coping such that all the items accounted for not less than 25.1% of the variances in escaping avoidance coping strategy.

For accepting responsibility dimension, 2 out of 3 indicators were confirmed. That is, all the items were proxies for measuring accepting responsibility strategy. At least each of the indicators explained 27.35% of the variations in accepting responsibility strategy. For social support, 3 out of 6 indicators were confirmed, indicating that the three items gave a concrete description of social support coping strategies. Each of the remaining items at least contributed 10.36% of the variances in social support coping strategy.

On the last dimension, which was self-controlling, only one item was not confirmed. The rest of the 4-items were confirmed as indicators of self-controlling coping strategies. The items which were confirmed explained at least 15.1% of the variances in self-controlling coping mechanism.

Table 5 presents information on the type of coping strategy utilised by IFCs. The results indicated that all the coping strategies were somewhat used. However, the way and manner in which it was used differed. The IFCs reported that the largely used coping strategy, as compared to the other coping

strategies, was seeking social support (*M*=1.73, *SD=0*.57). This was followed by the use of positive reappraisal (*M*=1.56, *SD=0*.64), and then, accepting responsibility (*M*=1.38, *SD=0*.69). Other coping strategies which were reported to be used were confrontive coping (*M*=1.33, *SD=0*.70), escape avoidance (*M*=1.28, *SD=0*.50), self-controlling (*M*=1.27, *SD=0*.60) and planful problem solving (*M*=1.26, *SD=0*.79). Distancing was the least used coping strategy (*M*=1.14, *SD=0*.65). The participants employed more of social support which combines both problem focus-coping and emotional-focused coping strategies. They also employed more of positive reappraisal and emotion-focused coping strategy and this might have accounted for the majority of the participants being moderately stressed. Inferring from the major stressor identified among these participants, clinical staff are therefore, needed to help IFCs to utilise the coping strategies appropriately.

Table 5: Type of Coping Strategy Utilised by IFCs

Type of Coping Strategies	Mean	SD	Rank
Seeking social support	1.73	0.57	1st
Positive reappraisal	1.56	0.64	2nd
Accepting responsibility	1.38	0.69	3rd
Confrontive coping	1.33	0.70	4th
Escape avoidance	1.28	0.50	5th
Self-controlling	1.27	0.60	6th
Planful problem solving	1.26	0.79	7th
Distancing	1.14	0.65	8th

Source: Field Survey (2019)

Hypothesis One

H_0: There is no significant effect of stressors on the perceived stress level of IFCs of ICU patients

This hypothesis sought to test the effect of stressors on the perceived stress level of IFCs of ICU patients. Standard Multiple Regression Analysis was conducted to address this research question. The details of the result are shown in Tables 6 and 7. The regression model was found to be significant, F (7, 293) = 4.801, $p<0.001$. This indicated that the stressors come together to explain the perceived stress level of IFCs. The result further revealed about 10.3% of the variances in perceived stress level of IFCs was explained by the forms of stressors (i.e., physical appearance of patient, behaviours at ICU, medical procedures, sight and sounds of activities in the ICU, roles of IFCs, behaviours of professional staff, and communication with doctors and nurses regarding the patients' condition).

Table 6: Overall Significance of the Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	538.390	7	76.913	4.801	0.001[b]
	Residual	4693.769	293	16.020		
	Total	5232.159	300			

Source: Field Survey (2019) R^2=0.103; *Durbin-Watson*=1.689

The relative contributions of the individual predictors are shown in Table 7. The results, as shown in Table 7, found that while some predictors had a significant effect on the criterion, others did not. Apart from physical appearance of the patient, communication with doctors and nurses, and behaviour and emotions of patients at ICU, the rest of the stressors were not

found as significant predictors of the perceived stress level of IFCs. It was further found that communication with doctors and nurses was the highest predictor of stress level of IFCs, *b*=2.235, *t*=4.078, *p=0*.001. The behaviour and emotions at ICU was found as the next highest predictor, *b*=1.54, *t*=3.53, *p=0*.002 followed by Physical appearance of patients, *b=0*.769, *t*=1.961, *p=0*.043. However, sight and sounds was the least predictor of perceived stress level of IFCs. This goes to confirm communication as a major stressor to the IFCs.

Table 7: Coefficient of Individual Predictors

	B	Beta	Bootstrap[a]			Collinearity	
			Std. Error	t	Sig.	T.	VIF
(Constant)	18.37		.939	19.560	0.001	-	-
Physical Appearance	0.796	.157	.406	1.961	0.043*	0.544	1.838
Sights and Sounds	0.216	.038	.375	0.576	0.578	0.740	1.351
Medical Procedures	-.545	-.085	.426	-1.279	0.202	0.659	1.517
Behaviour of Professional Staff	0.457	.077	.564	0.810	0.428	0.418	2.391
Roles of IFCs	0.333	.061	.509	0.654	0.505	0.513	1.950
Communication	2.235	.413	.548	4.078	0.001*	0.314	3.185
Behaviour and Emotion at ICU	1.542	.292	.436	3.537	0.002*	0.570	1.754

Source: Field Survey (2019) * Significant at $p < 0.05$

Hypothesis Two

H_0: Coping strategies do not significantly moderate the relationship between stressors and the perceived stress

This hypothesis sought to test the role of coping strategies in the relationship between stressors and perceived stress level of IFCs of ICU patients. Moderation analysis by Hayes (2013) PROCESS, was used to address this question.

Confrontive Coping as Moderator

Confrontive coping strategy was used as a moderator to establish whether it could strengthen or weaken the relationship between stressors and perceived stress level of IFCs. Table 8 and Figure 3 provide much information of the results.

Table 8: Role of Confrontive Coping in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	17.96	1.25	14.37	0.0001*	15.51	20.44
Stressor (ST)	0.45	0.12	3.75	0.0001*	0.21	0.67
Confrontive (CC)	1.32	0.89	1.48	0.122	-.043	3.10
ST*CC	-0.39	0.09	4.33	0.0001*	-0.56	-0.22
Conditional effect of Confrontive coping	Effect.	SE	t-value	p-value	LLCI	ULCI
Low	0.32	0.07	4.27	0.0001*	0.17	0.47
Moderate	-0.14	0.07	-1.95	0.052	-0.27	0.001
High	-0.33	0.10	-3.36	0.001*	-0.52	-.137

R^2= .271, $F(3, 297)$= 36.827, $p<0.001$

The result in Table 8 shows the moderating role of confrontive coping in the relationship between stressors and perceived stress level. The result indicated that the stressor, confrontive coping, and the interaction term explain 27.1% of the variations in the perceived stress level of IFCs. The analysis further revealed that confrontive coping is a significant moderator in the relationship between stressors and perceived stress level of IFCs, b=-0.39, t=4.33, $p<0.001$. The results on conditional effect of confrontive coping suggested that increased use of confrontive coping results in reduced effect of stressors on perceived stress level of IFCs. That is, in the presence of increasing stressors, the effect of stressors on perceived stress level of IFCs keeps increasing for caregivers who slightly use or do not use confrontive coping, $b=0.32$, t=4.27, $p<0.0001$. Some statements used to assess confrontive coping include: I tried to get the person responsible to change his or her mind and I stood my ground and fought for what I wanted. Figure 3 gives a pictorial view of the moderating role of confrontive coping in the relationship between stressors and perceived stress levels of IFCs.

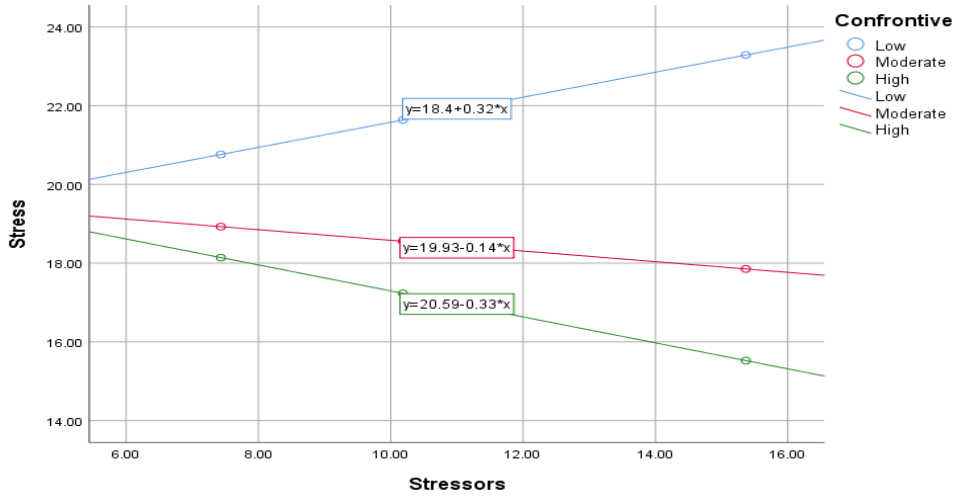

Figure 3: Moderating confrontive coping in the relationship between stressors and perceived stress level

From Figure 3, it appears that generally, confrontive coping is effective in decreasing the effect stressors have on perceived stress level of IFCs. That is, the more IFCs employ confrontive coping in the face of several stressors in their caregiving function, the less these stressors produce higher perceived stress levels. A critical look at Figure 3 shows that the low confrontive coping line has a positive slope whereas the high confrontive line has a negative slope. This implies that in the presence of stressors, caregivers who make little use of confrontive coping will experience high perceived stress levels, however, the perceived stress level of those who greatly use confrontive coping strategy will reduce drastically.

Distancing Strategy as a Moderator

Table 9 and Figure 4 also present results on the role of distancing strategy as a moderator in the link between stressors and stress level of IFCs. The result in Table 9 indicated that the overall model was significant, $F(3, 297) = 13.250$, $p < 0.001$, with stressor, distancing coping strategy, and interaction term (ST*DC) together explaining 11.8% of the variations in the perceived stress level of IFCs.

Table 9: Role of Distancing Strategy in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	24.75	1.67	14.86	0.0001*	21.75	28.18
Stressor (ST)	-0.38	0.14	-2.71	0.001*	-0.67	-0.13
Distancing (DC)	-6.66	1.40	-4.76	0.0001*	-9.44	-4.01
ST*DC	0.501	0.13	3.85	0.0001*	0.24	0.76
Conditional effect of Distancing strategy	Effect.	SE	t-value	p-value	LLCI	ULCI
Low	-0.13	0.08	-1.63	0.104	-0.28	0.03
Moderate	0.25	0.07	3.78	0.0001*	0.12	0.38
High	0.50	0.10	5.23	0.0001*	0.31	0.69

R^2= 0.118, $F(3, 297)$= 13.250, $p<0.001$

Further analysis revealed that distancing coping strategy significantly moderates the relationship between stressor and perceived stress level of IFCs, $b=0.501$, $t=3.85$, $p<0.001$. The analysis from the conditional effect of distancing coping strategy revealed that there is a significant positive change in the effect of stressors on perceived stress level of IFCs when there is moderate to high usage of the coping strategy. The questions used to assess distancing coping strategies include I went on as if nothing had happened and made light of the situation; refused to get too serious about it.

Figure 4 shows a pictorial view of the probing of the interaction. Figure 4 shows that the effect of the stressors on the perceived stress level of IFCs is large when the distancing coping strategy is highly used. The effect keeps increasing for high users when the stressors also increase. This effect is also high for low users of distancing coping strategy however, the effect continuously decreases for caregivers who slightly use distance coping

strategy. On the whole, it appears that the use of distancing coping strategy is not effective in reducing the effect of stressors on perceived stress level of IFCs.

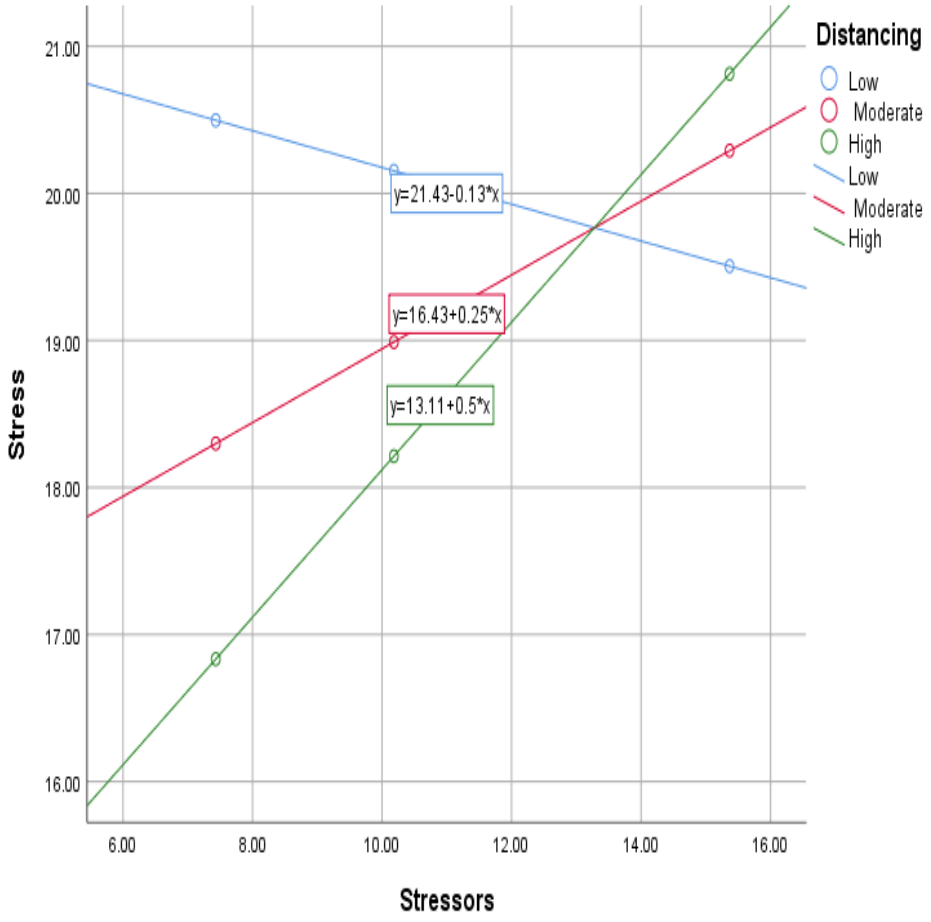

Figure 4: Moderating distancing in the relationship between stressors and perceived stress level

Self-controlling Strategy as a Moderator

Using self-controlling strategy as a moderator the study examined whether the coping strategy increased or decreased the strength of the relationship between stressors and perceived stress level of IFCs. Table 10 and

Figure 5, shows the details on the role of self-controlling as a moderator in the link between stressors and stress level of IFCs.

Table 10: Role of Self-controlling in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	21.38	1.46	14.64	0.0001*	18.65	24.41
Stressor (ST)	-0.24	0.14	-.1.71	0.095	-0.52	0.02
Self-controlling (SC)	-3.7	1.38	-2.68	0.006*	-6.43	-0.96
ST*SC	0.35	0.13	2.69	0.003*	0.09	0.62
Conditional effect of Self-controlling	Effect.	SE	t-value	p-value	LLCI	ULCI
Low	-0.034	0.09	-0.39	0.698	-.21	0.14
Moderate	0.25	0.07	3.33	0.001*	0.10	0.39
High	0.46	0.13	3.64	0.0001*	0.21	0.70

R^2= .045, F(3, 297)= 4.620, p=*0*.004

As shown in Table 10, it was found that the overall model was significant, F(3, 297)= 4.620, p=*0*.004. It was found that 4.5% of the variations in the perceived stress level of IFCs can be explained by stressors, self-controlling, and interaction term (ST*SC). Self-controlling strategy was found as a significant moderator in the relationship between stressors and perceived stress level of IFCs, b=*0*.35, t=2.69, p=*0*.003. Figure 7 presents a graphical view of the results.

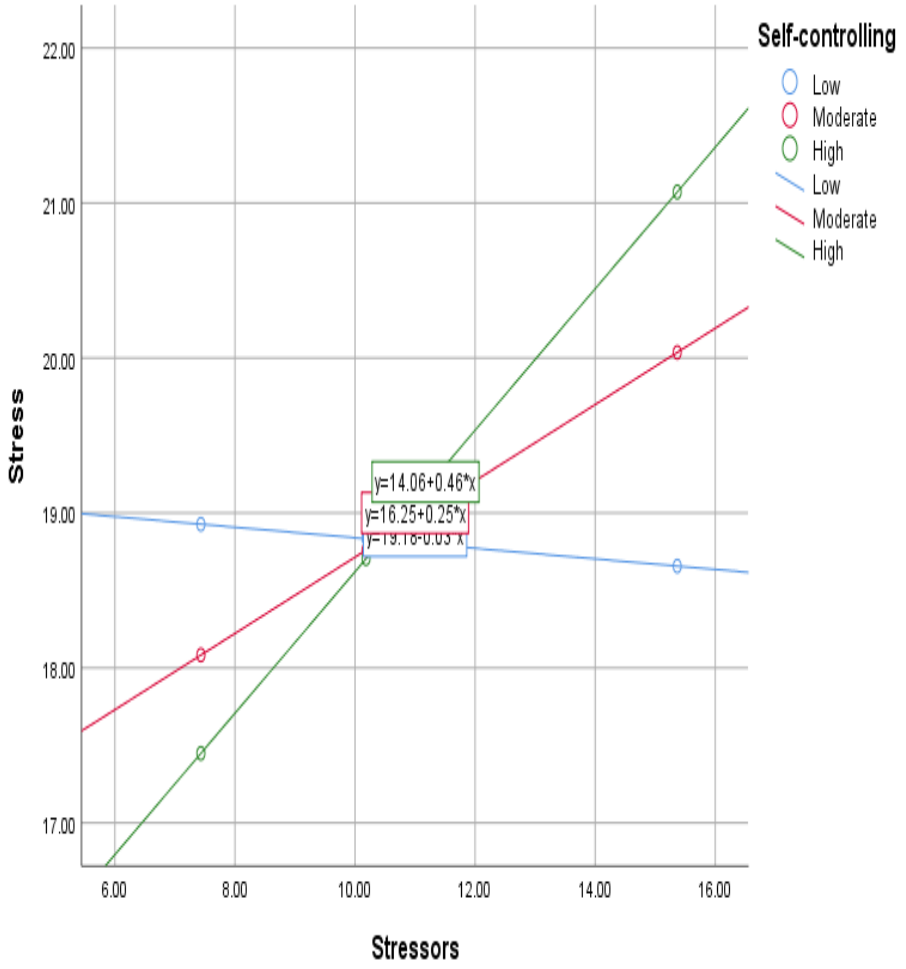

Figure 5: Moderating self-controlling in the relationship between stressors and perceived stress level

Figure 5 depicts the pictorial view of the role of self-controlling strategy in the relationship between stressors and perceived stress level. The graph shows that, in the presence of few stressors, the effect of the stressors on perceived stress level of IFCs is smaller for those who highly use self-controlling strategy. A larger effect was, however, found for caregivers who moderately or slightly use self-controlling coping strategy. Nevertheless, as the stressors continue to increase, their effect on the perceived stress level of IFCs becomes larger for caregivers who highly use the strategy as compared to those who slightly use it. It may not be an appropriate coping strategy for ICFs.

Social Support as a Moderator

Social support was used as a moderator in the relationship between stressors and perceived stress levels of IFCs. Table 11 and Figure 6 present the summary of results.

Table 11: Role of Social Support in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	23.55	2.05	11.49	0.0001*	19.79	27.92
Stressor (ST)	-0.49	0.15	-3.27	0.008*	-0.80	-0.21
Social Support (SSP)	-3.20	1.29	-2.48	0.008*	-5.86	-0.76
ST*SSP	0.33	0.09	3.67	0.001*	0.15	0.51
Conditional effect of Social Support	Effect.	SE	t-value	p-value	LLCI	ULCI
Low	-0.38	0.16	-2.46	0.015	-0.69	-0.08
Moderate	0.11	0.07	1.61	0.109	-0.02	0.24
High	0.27	0.08	3.25	0.001*	0.11	0.44

R^2= 0.062, $F(3, 297)$= 6.486, $p<0.001$

Result in Table 11 presents information of the role of social support in the relationship between stressors and perceived stress level. The overall model was found to be significant, $F(3, 297)$= 6.486, $p<0.001$. The study further indicated that 6.2% of the variations in the perceived stress level of IFCs was explained by stressor, social support, and interaction term (ST*SSP). It was further found that social support coping strategy is a significant moderator, $b=0.33$, $t=3.67$, $p=0.001$.

Figure 6 presents the graphical view of the moderation role of social support in the relationship between stressors and perceived stress level of IFCs.

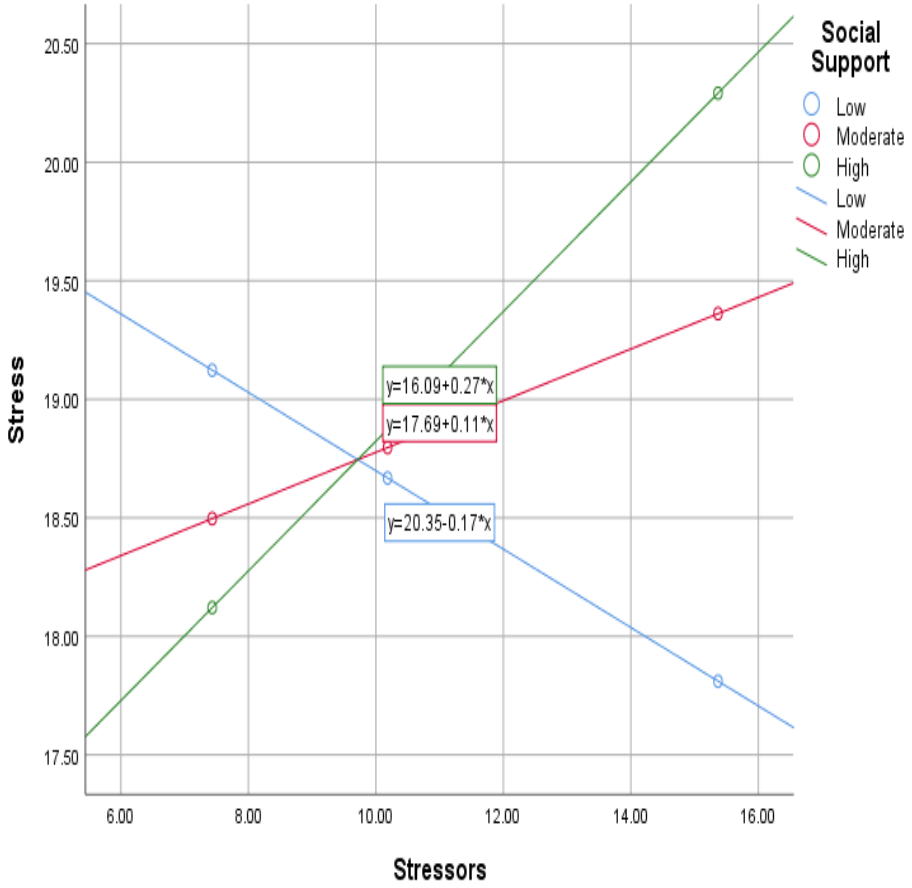

Figure 6: Moderating social support in the relationship between stressors and perceived stress level

The result in Figure 6 presents the pictorial view of the role of social support strategy in the relationship between stressors and perceived stress level. The graph revealed that, in the presence of the same number of stressors, the effect of the stressors on perceived stress level of IFCs was smaller for those who highly use social support strategy than those who slightly use the strategy. The trend of result tends to change as the number of stressors increases. In such instance, caregivers who greatly make use of social support would have high perceived stress level. From the graph, the effect of stressors

on stress levels is small for caregivers who slightly use social support when there are numerous stressors. In general, it seems the use of social support as a coping strategy would not be effective in reducing the effect of stressors on perceived stress level of IFCs.

Accepting Responsibility as a Moderator

Accepting responsibility was also used as a moderator to examine whether the effect of stressors on stress level of IFCs would differ or be the same for those who use this coping strategy and those who do not. Table 12 shows the results.

Table 12: Role of Accepting Responsibility in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	16.78	1.69	9.93	0.0001*	13.16	19.80
Stressor (ST)	0.48	0.18	2.67	0.0001*	0.17	0.86
Accepting Responsibility (AR)	-0.11	1.14	-0.10	0.913	-2.11	2.37
ST*AR	-0.17	0.11	1.55	0.054	-0.42	0.02

$R^2=0.124$, $F(3, 297)= 14.054$, $p<0.001$

The analysis in Table 12 shows that 12.4% of the variance in stress levels of IFCs is explained by stressors, accepting responsibility and the interaction term (ST*AR), $F(3, 297)= 14.054$, $p<0.001$. The result further indicated that accepting responsibility failed to act as a significant moderator in the relationship between stressors and perceived stress level. This suggests that accepting responsibility coping strategy was not able to strengthen or weaken the relationships which exist between stressors and perceived stress

level of IFCs. In other words, the effect of stressors on the perceived stress levels of IFCs was the same for caregivers who used accepting responsibility and those who did not use or used very little.

Escape-Avoidance as a Moderator

Escape-avoidance was also used to moderate the relationship between stressors and perceived stress level of IFCs. The analysis aimed to find out whether escape-avoidance as a coping strategy can strengthen or weaken the relationship between stressors and perceived stress level. The result is shown in Table 13.

Table 13: Role of Escape-Avoidance in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	19.97	1.50	13.31	0.0001*	16.95	22.86
Stressor (ST)	0.09	.15	0.60	0.562	-0.18	0.38
Escaping Avoidance (EA)	-2.03	1.29	-1.57	0.169	-4.58	0.48
ST*EA	0.05	0.13	0.38	0.692	-0.20	0.31

R^2= .049, $F(3, 297)$= 5.058, $p=0.002$

The analysis in Table 13 reveals that 4.9% of the variance in stress levels of IFCs was explained by stressors, escaping avoidance and the interaction term (ST*EA), $F(3, 297)$= 5.058, $p=0.001$. The result further revealed that escape-avoidance was not a significant moderator in the relationship between stressors and perceived stress level. This suggests that escape-avoidance coping strategy was not able to strengthen or weaken the relationship which exists between stressors and perceived stress level of IFCs.

In other words, the effect of stressors on perceived stress levels of IFCs was the same for caregivers who used escape-avoidance and those who did not use or used very little of it.

Planful Problem Solving as a Moderator

Planful problem solving was used as a moderator in the relationship between stressors and perceived stress level of IFCs. Table 14 and Figure 7 present the details of the result.

Table 14: Role of Planful Problem Solving in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	17.30	1.32	13.10	0.0001*	14.74	19.88
Stressor (ST)	0.49	0.12	4.08	0.0001*	0.25	0.71
Planful Problem Solving (SSP)	-0.75	0.92	-0.82	0.414	-2.47	1.08
ST*SSP	-0.18	0.08	-2.25	0.010*	-0.33	-0.04
Conditional effect of Social Support	Effect.	SE	t-value	p-value	LLCI	ULCI
Low	0.43	0.07	5.89	0.0001*	0.29	0.58
Moderate	0.25	0.06	4.30	0.0001*	0.14	0.37
High	0.10	0.10	1.02	0.307	-0.09	0.29

R^2= 0.332, $F(3, 297)$= 49.176, $p<0.001$

The results, as shown in Table 14, shows that the model consisting of the stressors, planful problem solving, and interaction term (ST*SSP) as predictors and perceived stress level as criterion were significant, $F(3, 297)$= 49.176, $p<0.001$. It was revealed that 33.2% of the variances in perceived stress levels of IFCs are explained by the predictors. Further, the analysis found that planful problem solving is a significant moderator in the

relationship between stressors and perceived level of stress. This indicates that the effect of stressors on perceived stress levels of IFCs is not the same for those who slightly use planful problem solving and those who greatly use it. Inferring from the conditional effect of social support, it appears that the effect of stressors on stress levels of IFCs is greater for those who do not use planful problem solving coping strategy. For those who greatly depend on planful problem solving as a coping strategy recorded a low effect of the stressors on the perceived stress level of IFCs.

Figure 9 presents a graphical view on the moderating role of planful problem solving in the link between stressors and perceived stress level of IFCs.

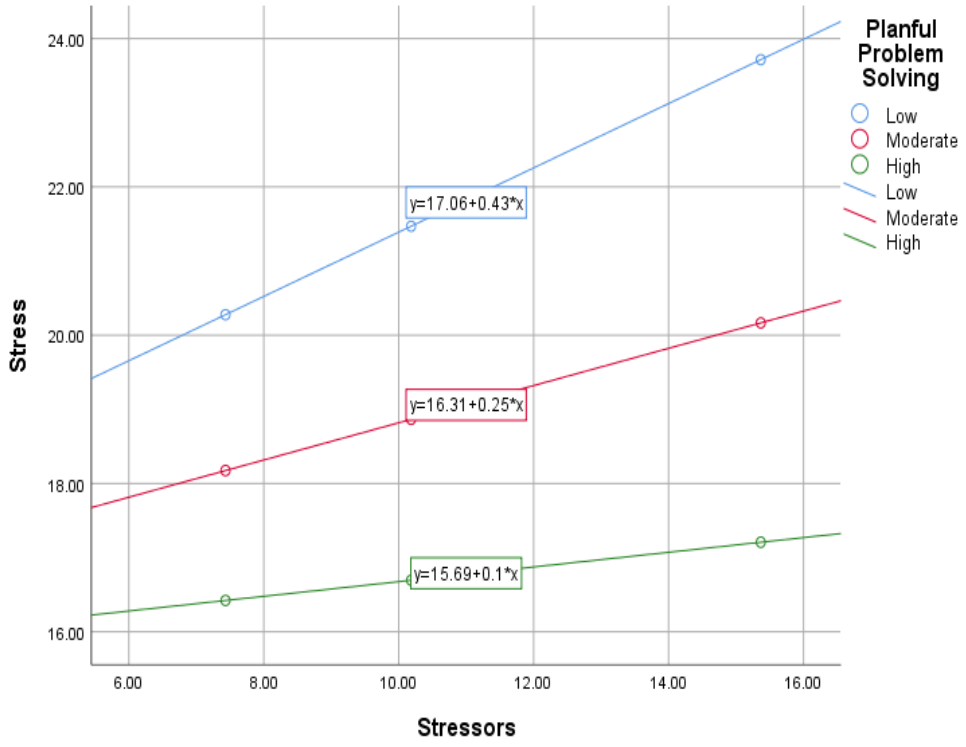

Figure 7: Moderating role of planful problem solving in the link between stressors and perceived stress level of IFCs

Comparatively, the effect of stressors on stress level of IFCs was found to be large among those who slightly use planful problem solving coping strategy than those who highly use the strategy (Figure 7). Some of the items used to assess planful problem solving included: I made a plan of action and followed it and Came up with a couple of different solutions to the problem. For those who highly use planful problem solving coping strategy, the perceived stress level steadily increases with an increasing number of stressors. In contrast with caregivers who slightly use planful problem solving strategy, the effect of stressors on perceived stress level of IFCs keeps increasing at a faster rate. Probably a combination of other strategies with planful problem solving will be very effective.

Positive Reappraisal as a Moderator

Positive reappraisal, which is the last moderator, was also used to moderate the relationship between stressors and perceived stress level of IFCs. Just like the previous analysis, the focus was to evaluate whether positive reappraisal, as a coping strategy, could strengthen or weaken the relationship between stressors and perceived stress level. Table 15 shows the results.

Table 15: Role of Positive Reappraisal in the Relationship between Stressors and Perceived Stress Level

Model 1	Coeff.	SE	t-value	p-value	LLCI	ULCI
Constant	16.68	1.73	9.64	0.0001*	13.15	20.01
Stressor (ST)	0.45	0.19	2.37	0.014*	.095	0.84
Positive Reappraisal (PR)	-0.23	1.06	-0.22	0.835	-2.26	1.90
ST*PR	-0.12	0.103	-1.17	0.264	-0.33	0.07

$R^2=0.054$, $F(3, 297)= 5.657$, $p=0.001$

The analysis in Table 15 shows that 5.4% of the variance in perceived stress levels of IFCs was explained by stressors, positive reappraisal and the interaction term, F (3, 297) = 5.657, $p=0$.001. The result further indicated that positive reappraisal failed to act as a significant moderator in the relationship between stressors and perceived stress level. This suggests that positive reappraisal coping strategy was not able to strengthen or weaken the relationship which exists between stressors and perceived stress level of IFCs. In other words, the effect of stressors on perceived stress levels of IFCs was the same for caregivers who used positive reappraisal and those who did not use or used very little.

Discussion

This study sought to investigate the perceived stress levels and coping strategies of Immediate Family Caregivers (IFCs) of hospitalised ICU patients. Additionally, the study examined the effect of stressors on perceived stress levels as well as the role of coping strategies in the relationship between stressors and perceived stress level of IFCs of ICU patients in the TTH. This section of the chapter interprets the findings of the study and compares with the literature review. It is, however, organised according to the questions.

Perceived Stress Levels among IFCs of ICU Patients

The current study revealed that IFCs experience moderate levels of perceived stress. An overwhelming majority (90.7%) of the IFCs who participated in the study were moderately stressed, 4.7% were highly stressed and 5.3% had a low-stress score. This result happens to be in agreement with the findings of Karale et al. (2016), Nagesh et al. (2017) and Patil et al. (2015).

Nagesh et al. (2017), found that 90% of the participants in their study were moderately stressed, 8.3% were severely stressed while only 1.66% recorded low levels of perceived stress. This similarity in stress perception levels may be related to the fact that the studies were carried out in a similar setting (ICU) and also made use of the same stress scale (Perceived Stress Scale). However, they were carried out in different countries. Patil et al. (2015) reported moderate stress levels of 76% and 16% of low-stress levels from a Medical ICU (MdICU) which supports the findings of this study. The result is also in congruence with Karale et al. (2016) where 73.3% of participants were moderately stressed and 3.3% were severely stressed. This could be due to the similar nature of the facility as the study was done in an Intensive Care Unit of Tertiary Care Hospital. The finding seems to agree with a number of studies reporting moderate levels of perceived stress among the majority of caregivers (Kumar & Saini, 2012; Patil et al., 2015).

Nonetheless, the result is dissimilar to the findings of Shinde et al. (2019) where a majority of the participants (76%) recorded high perceived stress levels compared to the 4.7% of the current study. This difference may be partly due to the inclusion of other clinical areas such as casualty, operating theatre, trauma ward in addition to the ICU while the current study focused on ICU only. These other places may have different environmental settings as well as different stressors that might have influenced the stress scores. In addition, the tools for the data collection were a little different to that of this study and may have contributed to the high perception of stress levels. Another factor for the difference may result from the participant's age. The larger age group that responded to the current study was (28-37) constituting

45.8% of the participants but for Shinde et al. (2019) the highest participants were in the age bracket of 40-49 (45%). These people might have had more experience in life and are able to control emotions and issue better than the lower age group.

The higher percentage of participants who recorded moderate perceived stress level may be attributed to the fact that the IFCs have not stayed in the ward for a long period as the average length of stay recorded was four days. Perhaps the length of participants stay may cause a change in the stress levels. Furthermore, moderate stress perception levels reported by a majority of the IFCs may affect their physical and emotional health and ultimately the patient's care and recovery. Therefore, identifying the major stressors among this category of caregivers may help decrease, or perhaps halt this increasing perceived level of stress and enhance good health for IFCs as well as speedy recovery for the patients. The next section examined the major stressors IFCs encounter in the ICU.

Stressors within the ICU Environment

On the stressors in ICU, all the stressors on the scale were found to be stressful to IFCs. That is, communication with doctors, the role of IFCs, emotional response of patient, behaviour of staff, medical Procedures, patient appearance, sound and sight of monitors as seen in a number of studies (Barth, 2016, Chan & Twinn, 2007, Gallegos, 2011, Kumar & Avabratha, 2015 Musabirema, et al., 2015, Pooni et al., 2013). This seems to concur with Cater and Miles (1983) the developer of the scale. However, some stressors were more pronounced than others. The data analysis showed that major stressors in

ICU to the IFCs were communication with the staff, alteration in IFCs role and emotional responses of the patient. That notwithstanding, sound and sight of monitors and behaviour of staff were identified as the least stressful factors.

Communication was the highest-ranked stressor by the participants which is consistent with the studies by Barth (2016) and Chan and Twinn (2007) which also reported communication as a major stressor among caregivers. Nevertheless, the finding disagrees with the findings of some studies that indicated communication was the least stressor to caregivers (Gallegos, 2011; Ramírez et al., 2018; Yacoub et al., 2012).

This sub-scale looked at communication in terms of the effect of staff-caregiver verbal or non-verbal interaction. The statements used to assess this scale include explaining things too fast, using medical terms, not telling exactly the condition of the patient and not talking to me enough. The findings point to the fact that caregivers are dissatisfied with the level of communication they receive from the staff. Therefore, there is a need to adequately inform caregivers about their sick relative state and treatment plan in clear language to avert this stressor. Communication is the means by which IFCs interacts with the professionals caring for their patient. Simple and clear communication is one of the key ways that bring satisfaction to caregivers. This gives the IFCs insight as to how the state of the patient is whether recovering or deteriorating. A caregiver who has a relative in an ICU is mostly worried and entertains some level of fear awaiting to hear from the health professionals about the state of the patient and treatment plan. The information from the health professionals might give some form of reassurance and hope

to the IFCs. In the absence of good communication, the IFCs may experience it as a form of a stressor.

The staff perhaps used medical terms without realising that the IFCs do not understand, therefore if things are even explained, the IFCs may feel dissatisfied since it becomes difficult for them to comprehend. Moreover, there may be a difficulty on the part of IFCs in reaching to the staff or fear to find out things for themselves. Hence, it is vital to enlighten the IFCs on patient condition as well as the activities within the ICU environment using good communication skills and asking for feedback to ensure proper communication. Barth (2016) also teased out communication as the main stressor, however, the definition of communication was in line with communication between the IFCs and the patient as most of the patient on ventilators may not be able to communicate properly with other people hence it being a stressor. The current study however, examined communication between clinical staff and IFCs.

In accordance with this finding, Chan and Twinn (2007) found uncertainty, difficulties in communication, changes in roles and responsibilities as the top three stressors among IFCs. Communication which ranked first in this study was the second in Chan and Twinn's which also talked about the quality of information IFCs receive from the staff, confirming the importance of communication to the IFCs. This is similar because the participants from both studies had their relatives in the ICU and had to interact with the clinical staff to overcome the anxiety and uncertainty related to their relative's care.

The second stressor thus, alteration in caregivers role falls in line with Gallegos (2011), Chan and Twinn (2007) who indicated a change in caregiver's role as a stressor. The performance of certain activities for the sick in the Ghanaian setting, especially the northern part of this country, is the sole business of a family caregiver in our traditional homes. This is curtailed when a family member is admitted to the ICU where there are restrictions on visiting times and IFCs are unable to perform certain activities which could have been done at home and may possibly pose as a source of stress. Additional stressors such as uncertainty, difficulties in decision making, financial strain and changes in relationships among IFCs were also identified by Gallegos (2011) due to the qualitative approach of the study. These additional stressors could have been identified with the participants in this study, however, the stressors in this study were limited to ICU environmental stressors.

Additionally, emotional response of the patient was found to be the third-ranked stressor affecting caregivers. This corresponds to other studies which found patient behaviour and emotions as stressors (Pooni et al., 2013; Ramírez et al., 2018; Yacoub et al., 2012) Pooni et al. (2013) found patient behaviour and emotions as the topmost stressor and reported that extremely stressful situations of IFCs include a patient having difficulty in breathing, suffering pain, unresponsive and crises in other patients. These are emotions and responses of the patient. For the participants in the current study, communication has been the first and foremost stressor though, emotional response of patient was also found to be a stressor.

Sights and sound and staff behaviour were of little or no stress in this study and it appears to agree with most studies (Barth et al., 2016; Pooni et al.,

2013; Musabirema et al., 2015) which revealed that sight and sounds and staff behaviour had minimal stressful effect on IFCs. Even in the face of the buzzing noise from the gadgets in the ICU environment most of the caregivers believed that the gadgets were there to facilitate the healing process of the patient and perhaps the nature of the environment might have been explained to the caregivers resulting in it being less stressful. Contrary to the study findings, the stressor sight and sound which was rated as the least stressors to IFCs, was found to be the most stressful factor in Kumar and Avabratha (2015).

Unlike the findings of the current study, Yacoub et al. (2012) found procedures carried out on their patients as most stressful but was of minimal stress to participants of this study. Interestingly, staff communication featuring as the most stressful item had no significant stressful effect in Yacoub et al. The divergent view of the IFCs in these two studies can be related to the fact that in Yacoub et al.'s study, caregivers were allowed to be with the patient at all times and definitely would observe the several procedures carried on the patient daily. This may also allow good interaction with health care professionals thereby improving their communication relationship. IFCs in this current study were allowed into the ward when their services were needed or during visiting periods.

From the findings identified, it is quite obvious that these stressors can be addressed with the support from the stakeholders, nurses, doctors and the hospital administration among others to provide adequate information and educate caregivers on stressors associated with the ICU environment. Communication, patient emotional responses and alteration in IFCs role can

be addressed to some extent if policies are rolled out and all parties are committed to its implementation.

Coping Strategies Utilised by the IFCs of ICU Patients of TTH

The third objective sought to examine the coping strategies IFCs utilised. For this study, coping strategies adopted by the participants included seeking social support, positive reappraisal, accepting responsibilities, confrontive coping, escape and avoidance, self-controlling, planful problem solving and distancing. The most commonly used coping strategies by the IFCs were the social seeking support, positive reappraisal and accepting responsibilities. Support sought from health staff, families and friends serves as a source of social support. Social seeking support obtained from the health care staff offers emotional support to IFCs which clears doubt and misconception about patient's condition and prognosis as well as getting information on the needs for the patients care. Receiving direct information from the health staff gives access to correct information and explanation of activities and equipment used in the facility and this enhances adequate coping. Additionally, in the northern sector, it was observed that almost every family member or friend would like to take a turn to visit when a friend or relative is admitted to the hospital. The IFCs take this opportunity to air their worries and receive comfort from them.

The outcome of the present study corroborate those of Casarini et al. (2009), Eaton et al. (2011), Kumar & Kaur (2015) and Turner-Cobb et al. (2016). Casarini et al. (2009) revealed that the participants employed social seeking support and religiosity/Fantasy coping strategies to enhance

adaptability to stressors during the hospitalisation period of their relative in the ICU. Turner-Cobb et al. (2016) recognised coping strategies used by the family caregivers in ICU as acceptance, seeking support through advice and information, however, social support was the main strategy preferred which concurs to the findings of this study. In addition, the findings were also found to be consistent with Kumar and Kaur (2015) on the burden and coping strategies in caregivers of stroke survivors which reported the use of acceptance, getting social support, and seeking religious help. The study findings also agreed with the study of Eaton et al. (2011) which indicated that communicating with immediate family was one of the frequently used coping strategies.

Positive reappraisal was seen as a one of the frequently used coping strategies similar to Abdel et al. (2011). Positive appraisal had items about having faith and putting oneself together to achieve the best. It may be that the participant had hope of getting the best result for the patient through prayers and believing in the Creator hence the use of positive reappraisal as a coping strategy. And it is obvious from the background information that almost all the participants belong to a religious group. The similarity in the employment of the various coping strategies in these studies points to the fact that family members who have their relatives admitted to the hospital in one way or the other need encouragement and comfort form health staff, family, spiritual leaders, friends and others to keep them moving on.

The findings of the study are inconsistent with Abdel et al. (2011) and Marques et al. (2014). Abdel et al. (2011) identified escape-avoidance and self-controlling as the major coping strategies used unlike this current study

where escape-avoidance and self-controlling were among the least coping strategies used. The finding of the study is also dissimilar to Marques et al. (2014) where the participant employed mostly escape-avoidance as their first choice coping strategy. The differences may be attributed to the type of patients and disease conditions. Dealing with chronic conditions with the mind set of long-term continual care might have resulted to the choice for coping strategy.

The use of coping strategies as reported in this study should have shown a positive adaptation to the stressors, however, the perceived stress level shows that majority of the participants were moderately stressed. It can then be deduced that the IFCs though uses coping strategies such as social seeking, positive appraisal and accepting responsibility more, it is not effective or is rightly used. Therefore, it behoves on professional staff to dive into educating IFCs on how and when to use a particular coping strategy.

The Effect of Stressors on the Perceived Stress Level among IFCs of ICU Patients

The findings from the regression analysis of the study indicated that stressors have an effect on the perceived stress level. This findings are consistent with other studies (Hill, 1949; Uren & Graham, 2013). Hill (1949) explained that stressful situations affect the perception of the family. Uren and Graham (2013) argue that stressors affect the caregivers' emotional management and pose as a risk to the caregiver leading to a potential emotional breakdown. However, the current study indicated that stressors in the ICU contribute about 10.3% of the IFCs total stress. This adds up to

stressors from other sources such as work, society, financial and other areas of life (Patil et al., 2015). Out of the seven stressors identified in this study, three of them achieved significance level, which means that the three stressors had effect on IFCs perceived stress levels. Therefore, the effects of these three stressors are not due to chance but actual stressors that affect the perceived stress levels of IFCs.

These three stressors are physical appearance of the patient, communication with doctors and nurses, and behaviours and emotions of patients as observed in other studies (Chan & Twinn, 2007; Musabirema et al., 2015, Ramírez et al., 2018, Yacoub et al., 2012). The study further determined which of the three stressors had more significant contribution toward perceived stress level. It was revealed that communication, patients' behaviours and emotions and physical appearance of patient had significant effect on perceived stress levels with significant p- values of 0.001, 0.002 and 0.043 respectively. Chan and Twinn (2007) indicated that communication was a major stressor affecting perceived stress levels of IFCs.

Though it was a qualitative study, the participants described a feeling of intimidation and devastating upon receiving poor communication thereby heightening their stress levels. It was also observed that physical appearance of patients was the least significant predictor of the perceived stress level. Behaviours and emotions had a significant impact on IFCs perceived stress level as confirmed by a number of studies (Barth et al., 2016; Gallegos, 2011; Musabirema et al., 2015; Pooni et al., 2013). Though not much can be done about patient behavior and emotions, keeping the patient comfortable may help reduce the negative reaction from the patient. However, most of the

studies did not report on the effect of stressors on the perceived level of stress hence it is difficult to compare. Inferring from the result, communication still stands out as a key stressor that must be given keen attention since it significantly contributes to the stress of IFCs. Moreover, it is a stressor that can be managed to improve the perceived stress level of IFCs.

The Role Coping Strategies Play in the Relationship Between Stressors and Perceived Stress Level of IFCs of ICU Patients.

The research sought to find out whether coping strategies interacted with stressors to affect the level of perceived stress of IFCs. The findings of the current study revealed that confrontive coping, distancing, self-controlling, social support and planful problem solving were all significant moderators for stressors and perceived stress level. But the rest of the coping strategies failed to achieve significance: accepting responsibility, escape avoidance and positive reappraisal. These significant moderators indicated that these coping strategies can strengthen or weaken the relationship between stressors and perceived stress levels of IFCs.

It showed both negative and positive influence on the relationship between stressors and perceived stress levels as indicated in other studies (Baqutayan, 2015; Casarini et al., 2009; Jordan, et al., 2016; Kumar & Avabratha, 2015; Uren & Graham, 2013; Zaki & Barakat, 2018). However, the findings are dissimilar to Chang et al.'s (2018) where there was no significant relationship between stress and stressors when social support was adopted. Uren and Graham (2013) asserted that coping strategies inform the perceived ability to manage the stressors. This indicates that coping strategies play a role between stressors and perceived level of stress. The findings of

Casarini et al. (2009) indicated that there is a relationship between stress and social support coping strategy. However, this study revealed a negative relationship between stressor and perceived stress level in the presence of seeking social support coping strategy and was found to be an ineffective coping strategy. Those who use this strategy experience higher stress level. Perhaps the expected support they needed were not fully met.

Out of the five coping strategies that were statistically significant, only confrontive coping showed that continuous use causes a reduction of the effect of stressors on the perceived stress level of IFCs. That is, in the presence of increasing stressors, the effect of stressors on the perceived stress level of IFCs keeps decreasing for caregivers who highly use confrontive coping strategy. Confrontive coping is therefore effective in reducing the effect of stressors on perceived stress levels. This implies that IFCs with high perceived stress level must employ the use of confrontive coping strategy continuously.

This is consistent with studies of Abdel et al. (2011) and Alnazly (2016). Alnazly indicated that the use of confrontive coping strategy leads to a reduction in the level of stress. Conversely, Grover et al. (2016) argued that lower use of confrontive coping was associated with better motivation for being in the caregiver and ultimately lower stress score. The differences may be related to the fact that Grover's population were parents of children who might want the professionals to do what they feel is right for their children. Baqutayan (2015) found social support as a coping strategy that interacted with stressors to cause a reduction on the impact of perceived stress levels but in the present study, the continuous use of social support in the presence of numerous stressors resulted in increased perceived stress level.

Those who greatly depend on planful problem solving as a coping strategy recorded a low effect of the stressors on the perceived stress level of IFCs though the level of stress steadily increases with an increasing number of stressors. This finding is dissimilar to Abdel et al. (2011) who stated that planful problem solving causes a surge in perceived stress levelsThis may be the next to confrontive coping.

The current study revealed that distancing, self-controlling and social support coping strategies influenced the relationship between stressors and perceived stress level. This is consistent with the findings of Abdel et al. (2011), Baqutayan (2015), Grover et al (2016) which stated that distancing and seeking social support coping strategies interacted with stress. However, this study disagrees with Abdel et al. and Laranjeira's (2011) findings reporting that these coping strategies reduce perceived stress levels. The moderation analysis indicated that these coping strategies exhibit a positive effect on perceived stress level only at low levels of stressors but a negative effect with increasing stressors. It also agrees with Baqutayan (2015) who argued that distancing is associated with high perceived stress levels. For that matter, it may not be appropriate using distancing coping strategy in the events of stressors.

The other strategies such as accepting responsibility, escaping avoidance and positive reappraisal were not significant moderators in the relationship between stressors and perceived stress levels. This implies that these 'non-significant' strategies may not be able to cause change on perceived stress levels even if they are used. It may not be advisable to select these coping strategies when one is faced with ICU stressors. On the contrary,

previous studies showed that distancing and escape-avoidance were negatively correlated with perceived stress (Grover et al., 2016; Laranjeira, 2012). Perhaps the critical nature of the circumstances involved in caring for a patient at the ICU and serving as an immediate family member may need one's total involvement, thereby rendering distancing and escape-avoidance non-significant or having negative effect on IFCs perceived stress levels

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of the study was to investigate the perceived stress levels and coping strategies of the IFCs of hospitalised ICU patients in the Tamale Teaching Hospital (TTH). Specifically, to determine the perceived stress level among IFCs of patients hospitalised at the ICU of TTH, examine the type of stressors IFCs experience at the ICU of TTH, determine the stress coping strategies utilised by the IFCs of ICU patients of TTH, examine the effect of stressors on the perceived stress level of IFCs of ICU patients and to establish whether coping strategies moderate the relationship between stressors and perceived stress level of IFCs of ICU patients.

The study employed a quantitative cross-sectional design to achieve the purpose and was guided by the ABCX model of stress and coping propounded by Reuben Hill in 1949. A total population sampling technique was used to select 301 IFCs and data was taken using a questionnaire. There was a response rate of 73.8%. The data was analysed using SPSS software version 22.0 for descriptive and inferential analyses.

Key Findings

- Majority (90.7%) of IFCs of ICU patients at the TTH were moderately stressed.
- The major and frequently encountered stressors in the ICU environment were: communication with doctors and nurses, alteration in the role IFCs play and emotional responses of patients in the ICU.

- The least stressors stated by participants were behaviour of staff and sights and sound.
- The coping strategies frequently used by the IFCs were seeking social support, positive reappraisal and accepting responsibility.
- The least used coping strategies were distancing and planful problem-solving.
- Stressors have an effect on perceived stress levels.
- These stressors contribute about 10.3% of the perceived stress level of IFCs.
- Physical appearance of the patient, communication with doctors and nurses, and behaviour and emotions of patients at ICU were found to be significant stressors that affect perceived stress levels of IFCs.
- Communication was of greatest significance among the three, followed by emotions and behaviour of patients and then physical appearance of the patients.
- Coping strategies were found to mediate the relationship between stressors and perceived stress levels. Confrontive coping was a significant moderator in the relationship between stressors and perceived stress level of IFCs, therefore, increased use of confrontive coping results in the reduced effect of stressors on the perceived stress level of IFCs.
- Planful problem solving was the next alternative to confrontive coping, however, high usage in the presence of increasing stressors increases the perceived stress level steadily.

- Distancing coping strategy significantly moderates the relationship between stressor and perceived stress level of IFCs however, the level of stress of IFCs is large when the distancing coping strategy is highly used. It, therefore, appeared that the use of distancing coping strategy is not effective in reducing the effect of stressors on the perceived stress levels of IFCs.
- Self-controlling strategy was found to be a significant moderator in the relationship between stressors and stress level of IFCs. Nevertheless, as the stressors continue to increase, their effect on the level of stress of IFCs becomes larger for caregivers who highly use the strategy.
- Seeking social support coping strategy was also a significant moderator for caregivers but caregivers who greatly made use of social support had a high perception of stress level, though the effect of stressors on stress levels was small for caregivers who slightly used social support. In general, it seems the use of social support as a coping strategy is not effective in reducing the effect of stressors on the stress level of IFCs.
- The result further indicated that accepting responsibility, escaping avoidance and positive reappraisal failed to act as significant moderators in the relationship between stressors and perceived stress level. This suggests that these coping strategies were not able to strengthen or weaken the relationship which exists between stressors and stress level of IFCs. Moreover, positive appraisal was found to be the second most used strategy by the participants of this study. It may

account for the majority of participants being moderately stressed since its usage does not strengthen or weaken the stress perception.

Conclusions

Based on the findings of this study, it is clear that IFCs of ICU patients are stressed in their role as caregivers, as majority of IFCs were moderately stressed while caring for their relatives. This stress perception affects the caregiving duty, the IFCs and the patients as well. Therefore the attention of the hospital administration and the health staff is required to take measures to revert this state, which has a likelihood of affecting the IFCs health and the role of caregiving. The major stressors that contributed to majority being moderately stressed were communication with staff, change in IFCs role and emotional responses/behaviour of the patient. These are stressors that could be managed when all stakeholders are willing and ready to contribute to averting the situation. Reducing the impact of these stressors will automatically affect the perceived stress levels of the IFCs.

It was noted that the IFCs had their own ways of coping which were categorised as seeking social support, positive appraisal and accepting responsibility. However, these strategies seem not to be effective for this category of caregivers as majority of them were stressed irrespective of their use of coping of modalities. The study also revealed that positive appraisal and accepting responsibility were not statistically significant in moderating the effect of perceived stress. And the only statistically significant moderator the IFCs used frequently was seeking social support which also showed a negative effect on the perceived stress level of the IFCs.

However, Communication with doctors and nurses, the physical appearance and emotional responses and behaviour of patients were stressors that contributed to the perceived stress levels. This confirmed that communication and patients' emotional responses are major stressors and should be a matter of concern.

Confrontive coping had proven to be the best and appropriate strategy for this category of participants. Though the other strategies like distancing, self-controlling and seeking social support were statistically significant, these were useful at minimal levels of stressors and not effective when stressors increases. The participants were more inclined to the use of social support and not of confrontive coping which might have accounted for the overwhelming majority being moderately stressed. It will be necessary to educate caregivers on the usage of confrontive coping.

Recommendations

Based on the findings of the study, the following recommendations and suggestions for further studies are made.

Policy

The Ministry of Health and all ICUs in Hospitals should have policy guidelines comprising the following:

- Development of a well-designed and regularly supply brochure or leaflet on stress and coping strategies of family caregivers to the Intensive Care Units for distribution to all family caregivers.

- Institutionalisation of Public Health Education on the stressors and activities associated with ICUs in Hospitals to help create the awareness of the public on the stressors associated with ICU hospitalisation and the likely coping strategies to adopt.
- Creation of national/institutional support groups for caregivers who have their relatives admitted in the ICU and offer them assistance in all possible areas to include education on stress and finances among others.

Management of Tamale Teaching Hospital

- The ward managers should organise regular plan programmes for all family caregivers on stressors and coping strategies.

Education

- Universities should institute short courses or seminars on stress and coping strategies about family caregivers for the professionals, especially nurses and doctors.
- Nursing training institutions should include topics on IFCs stress, stressors and coping strategies in their curriculum.

Practice

- The nurses and doctors should create a ward protocol to have a counselling section for every family caregiver at the time of admission or within 24 hours of admission.
- Communication with staff was a key stressor, therefore management of TTH should remind and encourage clinical staff to

be conscious of their choice of words when communicating with IFCs.

- The ward managers should have regular meetings with all IFCs to allow them express their grievances and interact with staff
- Nurses as well as clinical staff should always keep the patients comfortable and clean to reduce the stressors related to patient's emotions and physical appearance.

Suggestions for Further Research

- A qualitative study on stress and coping strategies of ICU family caregivers to unearth some of the stressors which were not captured by the scale used in this study.
- A replicated study in the other regions within ICUs in the country. That is, stress and coping strategies among immediate family caregivers across the country.
- Further studies can be done to assess the effectiveness of combining specific coping strategies to manage stressors.
- Impact of stress and coping among family caregivers of ICU patients.

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APPENDICES

APPENDIX A: DATA COLLECTION INSTRUMENT RESEARCH QUESTIONNAIRE

Topic: Perceived stress and coping strategies of Immediate Family Caregivers of hospitalised patients in Tamale Teaching Hospital

SECTION A: Demographic data

Please, circle the best option that applies to you.

1. Gender:

   A. Female

   B. Male

2. How old are you? ……

3. What is your level of education?

   A. Primary/Junior High School

   B. Senior High School

   C. Tertiary

   D. No formal education.

4. What is your marital status?

   A. Single

   B. Co – habitation

   C. Married

   D. Separated

5. What is your religion?

   A. Christianity

   B. Islam

   C. Traditionalist

   D. Others (specify)……...

6. What is your relation to the patient?
   A. Spouse
   B. Siblings
   C. Mother/father
   D. Child
   E. Care-giver/friend
7. What is your total monthly income?
   A. Less Than 300 Ghana Cedis
   B. 301-500 Ghana Cedis
   C. 501-700 Ghana Cedis
   D. 701-900 Ghana Cedis
   E. 900 And Above Ghana Cedis
8. What type of employment are you engaged in?
   A. Formal
   B. Informal
   C. Unemployed
   D. Retired
   E. Student
9. Which ward is your patient?
   A. Main ICU
   B. Maternity ICU
   C. Neonatal ICU

SECTION B: Perceived stress levels

Instructions: Please indicate your response to the questions below by ticking (√) either **N= never, AN= almost never, S= sometimes, FO= fairly often, VO=very often.**

		N	AN	S	FO	VO
1	Since the admission of your patient to ICU, how often have you been upset because of something that happened unexpectedly?					
2	Since the admission of your patient to ICU, how often have you felt that you were unable to control the important things in your life?					
3	Since the admission of your patient to ICU, how often have you felt nervous and stressed?					
4	Since the admission of your patient to ICU, how often have you felt confident about your ability to handle your personal problems?					
5	Since the admission of your patient to ICU how often have you felt that things were going your way?					
6	Since the admission of your patient to ICU, how often have you found that you could not cope with all the things that you had to do?					
7	Since the admission of your patient to ICU, how often have you been able to control irritations in your life?					
8	Since the admission of your patient to ICU, how often have you felt that you were on top of things?					
9	Since the admission of your patient to ICU, how often have you been angered because of things that happened that were outside of your control?					
10	Since the admission of your patient to ICU, how often have you felt difficulties were piling up so high that you could not overcome them?					

SECTION C: Stressor Scale

Instruction**:** please tick **(√)** the box that best expresses how stressful these things have been for you.

NS= Not Stressful	SS= Slightly Stressful	MS =Moderately Stressful)	VS= Very Stressful	ES= Extremely stressful

Below is a list of items that might describe your patient's appearance.

		NS	SS	MS	VS	ES
1	Swollen face and body of my patient					
2	Changes in state of patient (not able to talk, restless, or connected to tubes)					
3	Patient appearing cold					

Below is a list of sights and sounds in an ICU.

		NS	SS	MS	VS	ES
4	Seeing the waves (movement) on the monitors/patient under the light					
5	The sound of monitors and equipment					
6	The sudden unusual sounds of monitors					

Below is a list of procedures that may have been done to your patient.

		NS	SS	MS	VS	ES
7	Injections/shots					
8	Fixing tubes in my patient					
9	Suctioning					
10	Putting needles in my patient for fluids, procedures or tests					
11	Making my patient cough and deep breath/pounding and clapping on my patient's chest					
12	Bruises, cuts, incisions on my patient					

Below is a list of behaviours of the professional staff that you may have observed.

		NS	SS	MS	VS	ES
13	Joking, laughing or talking loudly					
14	Not talking to me enough					
15	Too many different people (doctors, nurses, staff) talking to me					
16	Not telling me their names or who they are.					

These items relate to immediate family caregivers' roles.

		NS	SS	MS	VS	ES
17	Not taking care of my patient myself					
18	Not being able to visit my patient when I wanted					
19	Not being able to see my patient when I wanted					
20	Not able to be with my patient always					
21	Not being able to be with my crying patient					
22	How stressful, in general, has the total intensive care unit experience been for you					

Below is a list of items that relate to how the doctors and nurses may communicate with you about your patient's illness.

		NS	SS	MS	VS	ES
23	Explaining things too fast					
24	Using words, I don't understand					
25	Telling me different things about my patient's condition					
26	Not telling me what is definitely wrong with my patient					
27	Not talking to me enough					

Below is a list of behaviours and emotional responses that your patient may have exhibited while in the intensive care unit.

		NS	SS	MS	VS	ES
28	Confusion					
29	Rebellious or uncooperative behavior					
30	Crying or whining					
31	Demanding					
32	Acting or looking as if in pain					
33	Restlessness					
34	Inability to talk or cry					
35	Fright					
36	Anger					
37	Sadness or depression					

Section D: Coping strategies

Please indicate your response to the statements below by ticking (√) the appropriate box

Not Used - NU	Used Somewhat - US	Used Quite a Bit - UQAB	Used a Great Deal- UAGD

		NU	US	UQAB	UAGD
1	I continued with my normal plans				
2	I did something which I didn't think would work, but at least I was doing something				
3	Tried to get the person responsible to change his or her mind.				
4	Talked to someone to find out more about the situation.				
5	Criticized myself.				
6	Hoped a miracle would happen.				
7	I sometimes believe I just have bad luck.				
8	Went on as if nothing had happened.				
9	I tried to keep my feelings to myself.				
10	Slept more than usual				
11	I expressed anger to the person(s) who caused the problem.				
12	Accepted sympathy and understanding from someone.				
13	I was inspired to do something creative.				
14	I talk with doctor or nurse about my concerns.				
15	I apologized or did something to make up.				
16	I made a plan of action and followed it.				
17	I accepted the next best thing to what I wanted.				
18	I let my feelings out somehow.				
19	Talked to someone who could do something concrete about the problem.				
20	Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.				
21	Took a big chance or did something very risky.				
22	I tried not to act too hastily or follow my first hunch.				
23	Found new faith.				
24	Rediscovered what is important in life.				
25	Changed something so things would turn out all right.				

26	Avoided being with people in general.				
27	Didn't let it get to me; refused to think too much about it.				
28	I asked a relative or friend I respected for advice.				
29	Kept others from knowing how bad things were.				
30	Made light of the situation; refused to get too serious about it				
31	Talked to someone about how I was feeling.				
32	Stood my ground and fought for what I wanted.				
33	Took it out on other people.				
34	Drew on my past experiences; I was in a similar situation before.				
35	I knew what had to be done, so I doubled my efforts to make things work.				
36	Refused to believe that it had happened.				
37	I made a promise to myself that things would be different next time.				
38	Came up with a couple of different solutions to the problem.				
39	I tried to keep my feelings from interfering with other things too much.				
40	I changed something about myself.				
41	Wished that the situation would go away or somehow be over with.				
42	Had fantasies or wishes about how things might turn out.				
43	I prayed and believed in God.				
44	Talking and reading about how people in my situation handled things.				

Thank you for making time to participate in the study.

APPENDIX B: SCORING FOR COPING STRATEGIES

Scoring for coping strategies: To determine the predominant methods you used for coping, calculate your total score for each of the subscales below. Do this by summing the item scores noted for each scale.

Scale 1: Confrontive coping

2) I did something which I didn't think would work, but at least I was doing something.

3) Tried to get the person responsible to change his or her mind

11) I expressed anger to the person(s) who caused the problem

18) I let my feelings out somehow

21) Took a big chance or did something very risky

32) Stood my ground and fought for what I wanted

Total for Scale 1 _____

Scale 2: Distancing

7) Went along with fate; sometimes I just have bad luck

8) Went on as if nothing had happened

27) Didn't let it get to me; refused to think too much about it

30) Made light of the situation; refused to get too serious about it

Total for Scale 2 _____

Scale 3: Self-controlling

9) I tried to keep my feelings to myself

29) Kept others from knowing how bad things were

22) I tried not to act too hastily or follow my first hunch

39) I tried to keep my feelings from interfering with other things too much

44) I thought about how a person I admire would handle this situation and

used that as a model

Total for Scale 3 _____

Scale 4: Seeking social support

4) Talked to someone to find out more about the situation

12) Accepted sympathy and understanding from someone

14) I got professional help

19) Talked to someone who could do something concrete about the problem

28) I asked a relative or friend I respected for advice

31) Talked to someone about how I was feeling

Total for Scale 4 _____

Scale 5: Accepting responsibility

5) Criticized myself

15) I apologized or did something to make up

37) I made a promise to myself that things would be different next time

Total for Scale 5 _____

Scale 6: Escape-Avoidance

6) Hoped a miracle would happen

10) Slept more than usual

20) Tried to make myself feel better by eating, drinking, smoking, using drugs or medication

26) Avoided being with people in general

36) Refused to believe that it had happened

33) Took it out on other people

42) Had fantasies or wishes about how things might turn out

41) Wished that the situation would go away or somehow be over with

Total for Scale 6

Scale 7: Planful problem-solving

1) Just concentrated on what I had to do next

16) I made a plan of action and followed it

25) Changed something so things would turn out all right

34) Drew on my past experiences; I was in a similar situation before

35) I knew what had to be done, so I doubled my efforts to make things work

38) Came up with a couple of different solutions to the problem

Total for Scale 7 _____

Scale 8: Positive reappraisal

17) I accepted the next best to what I wanted.

43) I prayed

13) I was inspired to do something creative

23) Found new faith

24) Rediscovered what is important in life

40) I changed something about myself

Total for Scale 8 _____

APPENDIX C: UCC-IRB ETHICAL CLEARANCE LETTER

UNIVERSITY OF CAPE COAST

INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 0558093143 / 0508878309/ 0244207814
E-MAIL: irb@ucc.edu.gh
OUR REF: UCC/IRB/A/2016/342
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0009096

C/O Directorate of Research, Innovation and Consultancy

10TH APRIL, 2019

Ms. Sophia Twiaku
School of Nursing and Midwifery
University of Cape Coast

Dear Ms. Twiaku,

ETHICAL CLEARANCE – ID: (UCCIRB/CHAS/2019/87)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional Approval** for the implementation of your research protocol titled **Perceived stress levels and coping strategies of immediate family caregivers of hospitalized patients in the intensive care unit of the Tamale Teaching hospital**. This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

Prof P. K. Buah-Bassuah

UCCIRB Chairperson

CHAIRMAN
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST
Date: 12/04/19

APPENDIX D: AN INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF HEALTH AND ALLIED SCIENCES
SCHOOL OF NURSING AND MIDWIFERY
DEAN'S OFFICE

Telephone: 233-3321-33342/33372
Telegrams & Cables: University, Cape Coast
Email: nursing@ucc.edu.gh

UNIVERSITY POST OFFICE
CAPE COAST, GHANA.

Our Ref: SNM/R/2/Vol.4/

Your Ref:

14th February, 2019

Dear Sir/Madam,

INTRODUCTORY LETTER: SOPHIA TWIAKU

The above named is a Level 850 Post Graduate Student at the School of Nursing and Midwifery, University of Cape Coast.

As Part of the school's requirement for graduation, she has to do a research and present a report on it. She intends to collect data from the Tamale Teaching Hospital as her research topic: **"Stress and Coping Strategies of Family Caregivers of Hospitalized Patients in the Intensive Care Unit".**

We would be grateful if you could accord her any assistance she may require from you to enable her collect her data successfully.

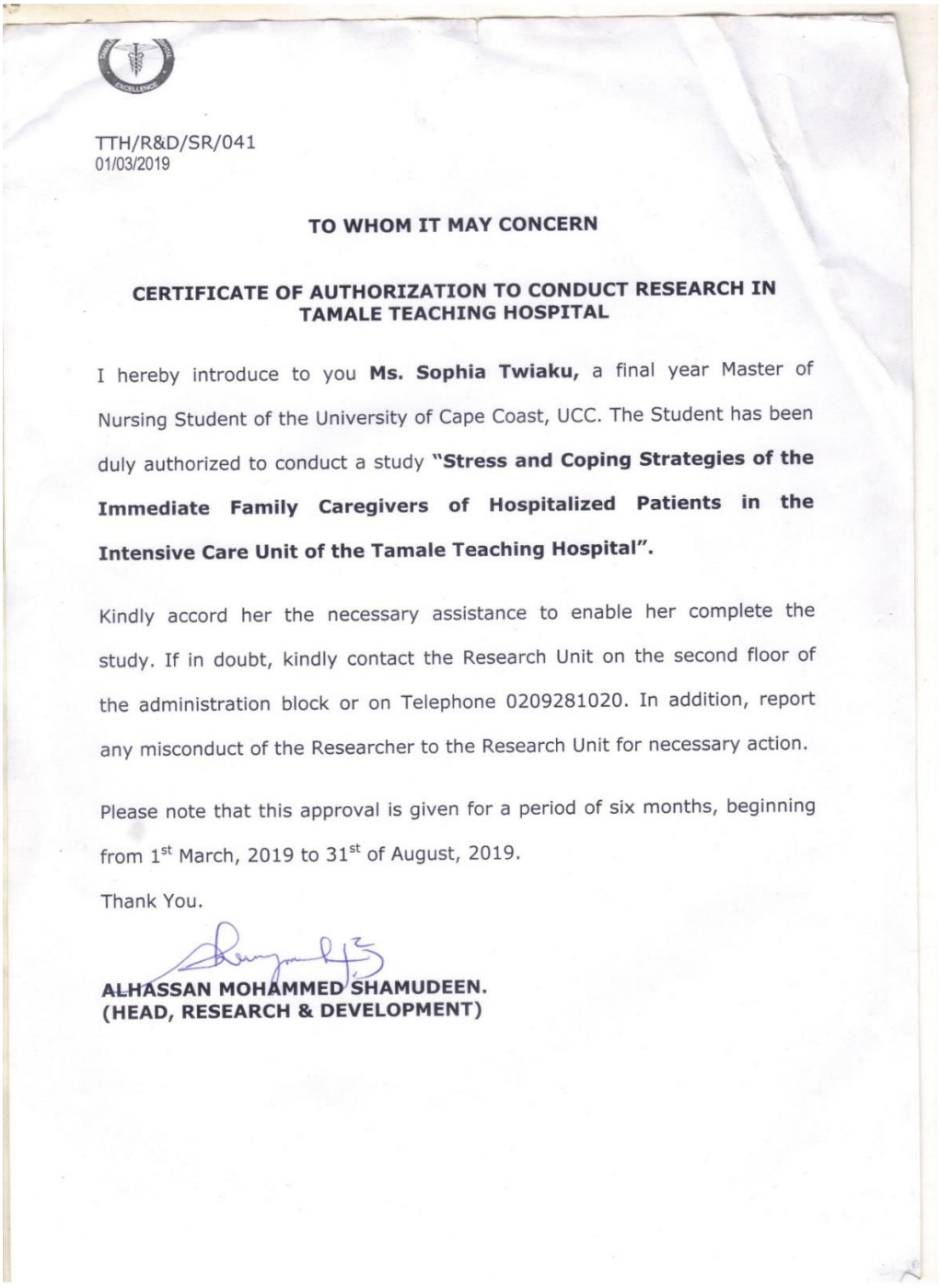
Counting on your usual cooperation.

Thank you

Yours faithfully,

Dr. Dorcas Obiri-Yeboah
DEAN

APPENDIX E: LETTER OF CLEARANCE TO CONDUCT THE STUDY IN TAMALE TEACHING HOSPITAL



TTH/R&D/SR/041
01/03/2019

TO WHOM IT MAY CONCERN

CERTIFICATE OF AUTHORIZATION TO CONDUCT RESEARCH IN TAMALE TEACHING HOSPITAL

I hereby introduce to you **Ms. Sophia Twiaku,** a final year Master of Nursing Student of the University of Cape Coast, UCC. The Student has been duly authorized to conduct a study **"Stress and Coping Strategies of the Immediate Family Caregivers of Hospitalized Patients in the Intensive Care Unit of the Tamale Teaching Hospital".**

Kindly accord her the necessary assistance to enable her complete the study. If in doubt, kindly contact the Research Unit on the second floor of the administration block or on Telephone 0209281020. In addition, report any misconduct of the Researcher to the Research Unit for necessary action.

Please note that this approval is given for a period of six months, beginning from 1st March, 2019 to 31st of August, 2019.

Thank You.

ALHASSAN MOHAMMED SHAMUDEEN.
(HEAD, RESEARCH & DEVELOPMENT)