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EFFECTS OF STRESS MANAGEMENT INTERVENTION AMONGST INTENSIVE CARE NURSES IN A GAUTENG PUBLIC HOSPITAL

Marlise Haarde

A research dissertation submitted to the
Faculty of Health Sciences, University of the Witwatersrand, Johannesburg
in fulfilment of the requirements for the degree
of
Master of Science in Nursing

Johannesburg, 2017

DECLARATION

I, Marlise Haarde, declare that this research report is my own work. It is being submitted for the degree of Master of Science (in Nursing) at the University of the Witwatersrand, Johannesburg. It has not previously been submitted for any degree or examination at this or any other university.

Signature  .

.....day of.....2017

Protocol Number : M150942

DEDICATION

“Man is capable of changing the world for the better if possible, and of changing himself for the better if necessary.”

Viktor E. Frankl, (1946)

This dissertation is dedicated to at all the nurses practising in the Intensive Care Units in South Africa, and to those nurses who participated in my study. These ICU nurses touch the hearts and souls of the people they meet. They care and they are determined to carry on without thinking about their own feelings. They put their stress, anxiety and frustration aside to take care of their patients.

Shall we allow stress to be the victor or shall we conquer it?

I especially want to thank my wonderful daughter for all your patience, love and support. I know it was not always easy. I love you.

To my sister, thank you for believing in me.

To my family, blood born and by friendship, your steadfast concern and unsurpassed motivation helped me to commit when times were hard.

Lastly I need to thank the Lord for giving me the power to turn a dream into a reality. As I look back today I see mostly only one pair of footprints visible in the sand – I thank You!

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I would like to thank Dr Shelley Schmollgruber and Agnes Huiskamp, my two supervisors for their assistance, comments, suggestions, skills as well as their time spent with me. It has been extremely valuable. Thank you to Dr Steve Olorunju a specialist biostatistician for your assistance and wise words.

ABSTRACT

Background: South African professional nurses, working in an Intensive Care Unit (ICU) experience many physical and psycho-social hazards and risks. Stress, provoked by failure to meet work demands, leads to illness, injury and psychological suffering. This in turn may result in absenteeism and to the nurse abandoning the profession. It is therefore necessary for healthcare administrators to address the aspects leading to nurse stress and work burnout.

Setting: The study was conducted in the adult intensive care units of a public sector hospital.

Purpose of the study: The purpose of the study was to develop and pilot test a stress management intervention for professional nurses practising in ICUs.

Method: A quasi-experimental non-equivalent control group design was selected for this study. It comprised of pre-testing, development and implementation of the intervention and post testing**.** Both groups of professional nurses were recruited from the same hospital by means of convenience sampling. Each group was asked to complete the Expanded Nurses Stress Scale (ENSS). The Intervention group participated in the educational intervention on stress management. The control group received no form of any intervention. Both groups completed the ENSS, four weeks after completion of the intervention. The intervention group of participants also completed a stress management intervention assessment form in order to collect feedback for the evaluation of the workshop and the researcher. The quantitative data was analysed by means of descriptive summary statistics.

Results: There was clear evidence of significant differences (p=0.000) emerging in all 9 subscale total average scores with respect to level of stress when considering the pre-test score and the post-test score. This indicates the stress management intervention had an effect on the stress levels of nurses practicing in the ICUs at the selected study sites. Evaluation of stress management intervention workshop also revealed that an overwhelming (>87%) number of nurse participants experienced all activities as meaningful, with contributory worth.

Recommendations arising from the study findings are put forward for intensive care nursing practice, occupational health nursing, executive hospital management and further research.

Key words: intensive care, nurses, stress management intervention.

TABLE OF CONTENTS

		Page
DECLARATION		ii
DEDICATION		iii
ACKNOWLEDGEMENTS		iv
ABSTRACT		v
TABLE OF CONTENTS		vii
LIST OF FIGURES		xiii
LIST OF TABLES		xiv
LIST OF ABBREVIATIONS		xvii
CHAPTER ONE: OVERVIEW OF THE STUDY		
1.0	INTRODUCTION	1
1.1	BACKGROUND OF THE STUDY	1
1.2	PROBLEM STATEMENT	5
1.3	PURPOSE AND OUTCOME OF THE STUDY	6
1.4	SIGNIFICANCE OF THE STUDY	6
1.5	PARADIGMATIC PERSPECTIVE	6
1.5.1	Meta-theoretical Assumptions	7
1.5.2	Theoretical Assumptions	7
1.5.3	Methodological Assumptions	8
1.6	LAYOUT OT THE DISSERTATION	9
1.7	SUMMARY	9
CHAPTER TWO: LITERATURE REVIEW		
2.1	INTRODUCTION	10
2.2	STRESS, OCCUPATIONAL STRESS AND BURNOUT: A CONCEPTUAL	11

	ANALYSIS	
2.2.1	Stress	11
2.2.2	Occupational stress	12
2.2.3	Burnout	12
2.3	THE EXTENT, NATURE OF STRESS AND BURNOUT IN INTENSIVE CARE NURSING	13
2.4	CAUSES AND EFFECTS OF OCCUPATIONAL STRESS IN INTENSIVE CARE NURSING	14
2.4.1	Causes of Occupational Stress in Intensive Care Nursing	14
2.4.2	Effects of Occupational Stress	17
2.4.2.1	Individual physical and mental health consequences for the ICU nurse	17
2.4.2.2	Effect on the patient	19
2.4.2.3	Effects on the organisation	20
2.5	STRESS PREVENTION AND MANAGEMENT IN INTENSIVE CARE NURSING	20
2.5.1	Best Practice Workplace Stress Prevention and Management	20
2.5.2	Ensuring a Positive Practice Environment	26
2.6	STRESS PREVENTION AND MANAGEMENT: AN OCCUPATIONAL HEALTH PERSPECTIVE	27
2.6.1	Legal and Ethical Framework	28
2.6.1.1	The Constitution of the Republic of South Africa (South Africa, 1996) (Section 23)	28
2.6.1.2	The Occupational Health and Safety Act (no 85 of 1993)	28
2.6.1.3	Other Acts relevant to a health workplace	29
2.6.2	Stress as a Psychosocial Hazard and Risk in Work Settings	30
2.6.3	Workplace Health Promotion and Wellness	30
2.6.4	The roles of the Occupational Health Nurse Practitioner in Stress	31

	Prevention and Management	
2.7	THEORETICAL FOUNDATIONS	32
2.7.1	Stress Theory	32
2.7.2	The World Health Organisation and International Labour Organisation Healthy Workplace Model	35
2.8	SUMMARY	35

CHAPTER THREE: RESEARCH METHODOLOGY

3.1	INTRODUCTION	38
3.2	AIM AND OUTCOMES	38
3.3	RESEARCH DESIGN	39
3.4	RESEARCH STRATEGY	39
3.5	POPULATION	40
3.6	SAMPLE AND SAMPLING METHOD	41
3.6.1	Inclusion and Exclusion Criteria	41
3.6.2	Sample Calculation	42
3.6.3	Variables	42
3.7	INTERVENTION	42
3.7.1	Development (Phase Two)	43
3.7.2	Implementation (Phase Three)	45
3.8	INSTRUMENTS	46
3.8.1	Expanded Stress Scoring Scale (ENSS)	46
3.8.2	Biographical Questionnaire	47
3.8.3	Stress Management Interest Questionnaire	48
3.8.4	Stress Management Intervention Evaluation Questionnaire	48
3.9	DATA COLLECTION PROCEDURES	48
3.9.1	Phase One	49

3.9.2	Phase Two	49
3.9.3	Phase Three	50
3.9.4	Phase Four	50
3.10	DATA ANALYSIS	50
3.11	VALIDITY AND RELIABILITY OF THE STUDY	51
3.12	ETHICAL CONSIDERATIONS	52
3.12.1	Permission to Conduct Research	52
3.12.2	Protection of Human Subjects	52
3.12.3	Confidentiality and Anonymity	52
3.13	SUMMARY	53

CHAPTER FOUR: DATA ANALYSIS AND RESULTS

4.1	INTRODUCTION	54
4.2	SAMPLE	54
4.3	SAMPLE CHARACTERISTICS	56
4.4	RESULTS	57
4.4.1	Phase One: Pre-test	57
4.4.1.1	Reliability and effectiveness of the instrument	57
4.4.1.2	Descriptive statistics	58
4.4.1.3	Control for equivalence in subjects and study groups	59
4.4.2	Phase Two: Interest in Stress Management Intervention	61
4.4.2.1	Open-ended responses	62
4.4.2.1.1	Positive interpersonal relationships	63
4.4.2.1.2	Supportive environment in the unit	64
4.4.2.1.3	Management	65
4.4.2.1.4	Education	65
4.4.3	Phase Three: Evaluation of Stress Management Intervention Workshop	66
4.4.4	Phase Four: Post-test	68

4.4.4.1	Reliability and effectiveness of the instrument	68
4.4.4.2	Descriptive statistics	69
4.4.4.3	Control for equivalence of subjects and study groups	70
4.4.5	Comparison of the intervention and control groups	72
4.4.5.1	Intervention group	72
4.4.5.2	Control group	73
4.5	SUMMARY	73

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1	INTRODUCTION	75
5.2	CHARACTERISTICS OF SAMPLE	75
5.3	OVERALL FINDINGS	76
5.4	PRE TEST	77
5.5	STRATEGIES FOR STRESS MANAGEMENT INTERVENTION	85
5.6	POST-TEST	87
5.7	LIMITATIONS OF THE STUDY	90
5.8	SUMMARY	91

CHAPTER SIX: SUMMARY OF THE STUDY, MAIN FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1	INTRODUCTION	92
6.2	SUMMARY OF THE STUDY	92
6.2.1	The Primary Outcome of the Study	92
6.2.2	The Secondary Outcomes of the Study	92
6.3	FUTURE DIRECTIONS AND RECOMMENDATIONS	93
6.3.1	Recommendations for Nurses Practising in ICU	94
6.3.2	Recommendations for Occupational Health Nursing Practice	94

6.3.3	Recommendations for Nursing Management, Human Resources and Executive Hospital Management	94
6.3.4	Recommendations for Nursing Research	95
6.4	CONCLUSIONS	96
LIST OF REFERENCES		98
APPENDICES		
APPENDIX A	Participant Information Letter	112
APPENDIX B	Expanded Nursing Stress Scale Questionnaire	113
APPENDIX C	Demographic Questionnaire	115
APPENDIX D	Interest in Stress Management Intervention Questionnaire	117
APPENDIX E	Stress Management Intervention Workshop	119
APPENDIX F	Ice Breaker – If Game Cards	130
APPENDIX G	Personal Life Events Analysis Questionnaire	131
APPENDIX H	Stress Management Intervention Evaluation Questionnaire	133
APPENDIX I	Ethical Approval	134
APPENDIX J	Hospital Permission to Conduct Research Study	135
APPENDIX K	Postgraduate Office Approval	136
APPENDIX L	Permission to use Instrument	137
APPENDIX M	Language Editing and Proof Reading	138

LIST OF FIGURES

Figures		Page
2.1	WHO Healthy Workplace Model	34
3.1	Overview of research strategy	40
3.2	Number of nurses practicing in the ICUs of the selected institution	41
4.1	Process of final sample in this study	55
4.2	Rank ordering of the mean importance of the nine subscales for the pre-test data by study groups	58
4.3	Boxplot showing the total mean stress score for the pre-test data by study groups	59
4.4	Rank ordering of the mean importance of the nine subscales for the post-test data by study groups	69

LIST OF TABLES

Table		Page
2.1	An overview of self-care practice activities in the literature	25
3.1	Outline of content of stress management intervention	44
4.1	Demographic data obtained from the participants in the pre-test and post-test groups	56
4.2	Summary Cronbach's reliability coefficient for items Q1 to Q57	57
4.3	Summary of ranked mean subscale scores for comparison of pre-test data by study groups	58
4.4	Summary of statistics for two sample test with unequal variances by study groups	58
4.5	Summary statistics from the Kruskal Wallis test for the pre-test by study groups	60
4.6	Stress management intervention interest of the nurse participants in the pre-test group	61
4.7	Categories, subcategories and statements from the data of ICU nurse participants	63
4.8	Evaluation of stress management intervention workshop	66
4.9	Summary Cronbach's reliability coefficient for post-test items Q1 to Q57	68
4.10	Summary of ranked mean subscale stress scores for comparison of the post-test data by study groups	69
4.11	Summary statistics for two-sample t-test with unequal variances by study groups	70
4.12	Summary statistics from the Kruskal Wallis test for post-test data by study groups	71
4.13	Summary statistics for comparison of the intervention group by pre-	72

test and post-test data

4.14 Summary statistics for comparison of the control group by pre-test and post-test 73

LIST OF ABBREVIATIONS

The following is a list of abbreviations used in the study:

ICN	Intensive Care Registered Nurse
ICU	Intensive Care Unit
HCW	Health Care Worker
ILO	International Labour Office
OHNP	Occupational Health Nurse Practitioner
OHSA	Occupational Health and Safety Act
WHP	Workplace Health Promotion

CHAPTER ONE

OVERVIEW OF THE STUDY

1.0 INTRODUCTION

The 21st century is characterised by a climate of increased globalisation, rapid changes, migration and a highly pressurised world population. Globally and nationally, increased stress in workplaces, such as hospital settings, has become a phenomenon of health concern. This is related to economic, technological and competitive influences in the healthcare industry. The shortage of nurses, in particular, specialist nurses has added to the burden of workplace stressors in the Intensive Care setting. According to the American National Institute of Occupational Safety and Health (2008), healthcare professionals are exposed to an even greater number of stressors leading to concomitant higher rates of distress than any other occupation.

The World Health Organization (WHO, 2003) defines work-related stress as the reaction a person may have when faced with work burdens and pressures, which are not matched to their knowledge and capabilities and challenge their ability to cope. From an occupational health, wellness and human resources management perspective, work-related stress is a major workplace hazard and risk requiring identification, assessment ad management. Therefore, it was within an occupational health nursing perspective and wellbeing of healthcare professionals that this study was conducted to ascertain the stress levels of ICU nurses and test the effect of a stress management intervention.

This chapter presents an overview of the study. Included are the background, problem statement, aim and outcomes of the study and its significance. Key concepts of the study are defined and explained. An overview of the study methods and outline of the layout are provided and the summary concludes the chapter.

1.1 BACKGROUND OF THE STUDY

Valentin and Ferdinande (2011) define Intensive Care as the way in which the service is provided to a patient who can recover from their condition, and who can benefit from more detailed observation and invasive treatment. It is not possible to implement this care safely in a general hospital ward, therefore a specific area or ward is allocated to patients in need of a higher level of care - Intensive Care Unit (ICU). These ICUs are usually occupied by

patients who have existing or potential organ failure (Valentin & Ferdinande, 2011), and the beds are surrounded by advanced technological equipment, such as mechanical ventilators. It is also important to have adequate space around the bed in the event of an emergency and need for life-saving procedures (Carmel, 2006).

The ICU work environment is known to be demanding and challenging. Critically ill patients require continuous observation from Intensive Care registered nurses, who need to be highly knowledgeable and competent to make informed decisions and apply their knowledge in practice (Divatia, 2014; Rodrigues & Ferreira, 2011). Intensive Care Nursing (ICN) is defined as a "specialist area of nursing that involves caring for patients who are suffering from life-threatening illnesses or injuries, while at the same time offering comfort and support to their family members" (De Beer *et al*. 2011).

In South Africa, 80% of residents are dependent on the Government for healthcare, and nurses are responsible for making sure these services are maintainable, reliable and effective (Klopper, Coetzee, Pretorius & Bester, 2012). Furthermore, these authors determined that nurses are influenced by their work environment and culture at their workplace, making it essential for these influences to have a positive effect on them (Klopper *et al.* 2012).

Many studies conducted overseas indicate that nurses practicing in ICUs are exposed to a constant source of stress, which may potentially lead to burnout (Epp, 2012; Pawar, 2014; Rodrigues & Ferreira, 2011). A study by Verdon, Merlani, Perneger and Ricou (2008), conducted in a university hospital ICU in Switzerland, indicated that 49% of the nursing team felt stressed and 28% of the caregivers showed a high level of burnout. Two other studies reported that the levels of burnout for ICU nurses are between 30 to 50% and 55% (Embriaco, Azoulay, Barrau, Kentish, Pochard Loundou & Papazian, 2007; Da Silva, Da Silva, Dos Santos Costa, Ramos, Lima & Texeira, 2015), respectively. Other studies suggest the sources of ICU stress are attributed to the complexity and unpredictability of patient care, the shortage of staff and a lack of control and uncertainty, coupled with a high sense of responsibility for patients and families, moral dilemmas and continuous exposure to advanced technological equipment (Epp, 2012; Mark & Smith, 2011; Pawar, 2014; Riahi, 2011; Rodrigues & Ferreira, 2011).

The risk of developing psychological problems and stress related symptoms/disorders are much higher for nurses practising in ICUs due to the continuous strains and burdens they have to bear (Elkonin *et al*. 2011; Mason et al. 2014; Maiden, Georges & Connely, 2011).

Other researchers conclude that ICU nurses are not only at risk but often develop stress related diseases and psychological problems, including burnout and post-traumatic stress symptoms (Epp, 2012; Hsu, Chen, Yu & Lou, 2010; Langley, Kisorio & Schmollgruber, 2015; Mealer, Conrad, Evans, Jooste, Rothbaum & Moss, 2014; Merlani, Verdon, Businger, Domenighetti, Pargger & Ricou, 2011; Milliken, Clements, Tillman, 2007; Rushton, Batcheller, Schroeder & Donohue, 2015).

Two other themes extensively described in the literature related to stress are that of moral distress and compassion fatigue. Moral distress may be experienced when nurses experience conflict while making ethical decisions (Langley *et al.,* 2015). This is magnified in ICUs when the decisions are about withholding or withdrawing treatment, and include feelings a person may experience, such as things around you are not real (Langley *et al.,* 2015; Roberts, Paula, Grubb & Grosch, 2012). One European study, by Papathanassoglou, Karanikola, Kalafati, Giannakopoulou, Lemonidou and Albarran (2012), indicated the level of moral distress was moderate among a sample of 255 ICU nurses from 17 countries and similarly, a South African study (Langley *et al.,* 2015) reported that more than 50% of the participants in their sample of nurses (n=75) urged that counselling and debriefing sessions be arranged by hospital management. In addition, compassion fatigue occurs when nurses distance themselves psychologically and become totally unattached from their patients, their work and the essence of their profession (Roberts *et al.* 2012). These authors found a strong relationship between burnout and compassion fatigue and both are the result of continuous emotional fatigue, depersonalisation and lack of personal achievement (Roberts *et al.,* 2012).

Stress not only negatively effects the health and wellbeing of the ICU nurse, as patient safety can also be compromised by nurses experiencing high levels of stress. Two studies by Moustaka and Constantinidis (2010) and Saleh, Awadalla, El-Masri and Sleem (2014) reported that stress in nurses affects the ability to concentrate and make appropriate decisions, which can lead to errors in patient care and safety, ultimately impacting on patient outcomes, such as morbidity and mortality.

Various and diverse stress management techniques and solutions to the prevention of burnout is described in the literature and research. The the literature review conducted by Epp (2012) concluded that to prevent burnout, the nurse manager must be accessible to the ICU nurses and they must foster a collegial relationship with the different disciplines. Additionally, they should offer therapy sessions with a psychotherapist, or group therapy, to assist with debriefing after the death of a patient or other stressful situations (Epp, 2012).

Another option is for the ICU nurses to start self-care strategies amongst themselves, to comfort and support each other and help prevent the development of burnout (Epp, 2012). Poulin Mackenzie, Soloway & Karayolas (2008) Shapiro, Astin, Bishop and Cordova (2005) discuss the different stress management interventions available, which range from critical incident stress management techniques, relaxation and self-care strategies to social support and employee support programmes. However, Marshall and Zolnierek (2012) are of the opinion that more research on the topic of interventions is required and Kravits, McAllister-Black, Grant and Kirk, in 2010, found a need for more interventions and support for the nurses so that an enduring change in self-care is generated.

All workplaces, and thus employers, in South Africa are required to comply with the Occupational Health and Safety Act, No 85 of 1993 as amended. Section 8 (1) states the employer must, where reasonably practicable, provide a healthy and safe workplace without any negative effect on the health and safety of the employees. In terms of the law, employers have a legal obligation to reduce and prevent work-related stress (McFarlane & Bryant, 2007). Therefore organisations need to anticipate exposure to traumatic experiences and incidents and have strategies in place to deal with any potential effects (McFarlane *et al*. 2007), as these may have an impact on the mental health of the worker in the workplace (McFarlane *et al*. 2007). This will require the provision of a safe working environment and the protection of employees from foreseeable risk. According to McFarlane *et al.* (2007), foreseeable risk is the bedrock upon which the law of negligence is built and hence occupational health personnel cannot avoid being drawn to give advice and assistance in this domain" (McFarlane *et al*. 2007:404). According to Sieberhagen, Rothman and Pienaar (2009), the National Health Act (Act No 61 of 2003), which deals with occupational health and safety, states in section 20(3) that "health establishments must implement measures that minimise injury or damage to the person or property of Healthcare Workers (HCW)."

The goal of stress management in the workplace is to make sure there are processes and procedures in place to mitigate the impact of stressful events and to restore the adaptive functioning of employees, as well as to facilitate the recovery process. Considering the above discussion, it is worth noting that according to the International Labour Office (ILO) in Geneva, the physical and mental health expectations of workers must be met by the conditions at work and kept under control (ILO, 1986). The World Health Organization (WHO), also states that stress is a psychosocial stressor/hazard in the workplace and thus an occupational health as well as a human resources management concern that needs to be addressed and managed effectively (WHO, 2010).

In summary, what is known about stress among ICU nurses is that it has been investigated nationally and globally and that in general, ICU nurses experience high levels of stress. It is evident from the literature that the ICU is a very complex and demanding work setting in which nurses and other healthcare professionals are exposed to numerous psychosocial and physical hazards and risks due to many factors in this unique work place. If these hazards and risks are not managed adequately, burnout, moral distress, compassion fatigue, post-traumatic stress symptoms and physical health problems for nurses working in the ICU environment can occur. These factors may also have a detrimental consequence and influence on the standard of care patients receive and the hospitals as a whole. Various stress management techniques are also addressed in the literature, however some authors are of the opinion further research needs to be done on interventions. No the literature was found on stress management intervention studies for ICU nurse's stress in the South African context.

1.2 PROBLEM STATEMENT

Studies indicate that professional nurses practising in ICU's experience many physical and psycho-social hazards and risks in this specific and unique workplace setting (Browning, 2013; Elpern, Cover & Kleinpell, 2015; Mason *et al*. 2014; Mealer *et al.* 2007; Papathanassoglou, *et al*., 2012). Anecdotal evidence suggests there are no, or few, effective stress management systems or other forms of support for professional ICU Nurses in Gauteng public hospitals. The researcher's personal experience of visiting ICU's and interaction with ICU nurses, revealed nurses suffer from fatigue, work overload and stress. The physical and psycho-social stressors nurses are exposed to and suffer from, as well as their coping mechanisms are known, however the specific stressors registered nurses experience in the selected hospital are not known.

Marshall and Zolnierek (2012) advocate for more research on interventions. Also, the efficacy of a person-centred and organisation-focused intervention to manage stress more effectively has not been tested and is, therefore, unknown in this context. To gain an understanding of the work related stress experienced by ICU nurses, the researcher conducted a study about stress and a stress management intervention in a South African public central hospital.

This study attempted to answer the following research questions:

- What are the stress levels of ICU professional nurses?
- How can stress be reduced in ICU settings according to the professional nurses?

- To what extent does a stress management intervention assist professional ICU nurses in the effective management of stress in the short term?

1.3 PURPOSE AND OUTCOMES OF THE STUDY

The main aim of this study was to develop and pilot test a stress management intervention for professional nurses practicing in ICUs.

Primary outcome: Enhanced use of healthy and effective occupational stress management coping skills and decreased levels of stress intensity.

Secondary outcomes:

- Stress levels measured pre- and post-test using the Expanded Nursing Stress Scale (ENSS).
- Efficacy of stress management intervention determined in the short term.
- Description of stress reduction strategies according to ICU nurses.

1.4 SIGNIFICANCE OF THE STUDY

Evidence was gathered regarding the efficacy of specific stress management interventions in the public health domain. The findings from this study may inform occupational health nurse practitioners on how to manage stress as an occupational health matter in hospital settings. It is anticipated the findings of this study could assist in identifying potential mitigating measures that could be implemented by employers to manage stress and inform further studies to assist both nurses and employers. This could be implemented to help ICU nurses handle stress more effectively and lead to improved patient outcomes in nursing practice, as well as enhancement of the quality of work life of nurses. The study results can potentially be used by management and occupational health nurses to create a more positive practice environment for ICU nurses.

1.5 PARADIGMATIC PERSPECTIVES

Creswell (2009) made the comment that a paradigm is a view of the world, the way that we act, what we believe is true and the foundation of our thoughts. In this way, we can find meaning and understanding of the way we observe the world. In order to guide and give study directions and break a study into phases, all research studies need to be placed in a

paradigm. In this study, the paradigmatic perspectives involve the meta-theoretical, theoretical and methodological assumptions, which will be discussed in the next section.

1.5.1 Meta-theoretical Assumptions

Meta-theoretical assumptions are axiomatic statements not meant to be examined or tested by the study (Klopper, 2008). In nursing, the meta-theoretical assumptions comprise the individual, environment, health and nursing, and in this case, is relevant to the practice of Intensive Care Nursing.

Guided by Betty Neumann's theory, the researcher believes the person is a unique holistic being, and Neumann sees the health of a person as dynamic in nature, in which the person's health is the level of health continuum—making the person healthy or sick. Neumann defines nursing as "action which assists individuals, families and groups to maintain a maximum level of wellness, and the primary aim is the stability of the patient/client system, through nursing interventions to reduce stressors" (Neumann, 1995).

1.5.2 Theoretical Assumptions

Theoretical assumptions involve all the theories and beliefs used as a departure point for a study (Bousso, Poles, de Almeida & de Cruz, 2013).

The definitions, as illustrated below, show the direction in the way the terms are used in context to the study.

Development refers to a process in which someone or something grows or changes and becomes more (Cambridge English Dictionary, 2009).

Pilot testing: Is a smaller version of a proposed study that is conducted to develop or refine the methodology, such as the treatment instrument or data collection process (Grove, Burns & Grey, 2013:703).

Stress: Stress is a negative feeling that affects people's health physically and psychologically (O'Donovan, Doody & Lyons, 2013).

Intervention: An intervention is a specific activity that is delivered in the context of nursing care to establish if that specific action is of benefit or not (Forbes, 2009).

The professional nurse is “a person who is qualified and competent to independently practice comprehensive nursing in the manner and to the level prescribed and can assume accountability and responsibility for such practice” (Nursing Act No. 33 of 2005). This study’s population included all professional nurses practising in ICUs, who hold an additional qualification in the field of specialisation and have acquired this additional experience through informal training.

Intensive Care Nurses (ICN) are specialist nurses with an advanced level of education and an extensive foundation of understanding and training, and high level of decision-making skills (De Beer, Brysiewicz, & Bhengu, 2011).

Intensive Care: Intensive Care Society (1997:5) defines Intensive Care broadly as “a service for patients that have the ability to recover from their conditions. The patient can benefit from more detailed observed and invasive treatment; it is care that cannot be provided safely in an ordinary ward or high dependency area. Furthermore, these Intensive Care Units are usually reserved for patients with threatened or established organ failure.”

1.5.3 Methodological Assumptions

Methodological assumptions are the researcher’s conclusions and suppositions, which are mirrored in the process of the research. For this research, a quasi-experimental, non-equivalent method was used and consisted of a pre-test intervention and post-test that included an intervention group and a control group. A detailed description of the research method is given in Chapter Three.

It is assumed the findings of this study may assist in identifying potential mitigating measures that could be implemented by employers to manage stress better and inform further studies to assist both nurses and employers. This could then be implemented to help ICU nurses handle stress better and prevent burnout syndrome, thus improving patient outcomes in nursing practice.

Theoretical assumptions:

- Professional nurses and professional ICU nurses practicing in ICU may have some knowledge regarding the management of stress.
- Professional nurses and professional ICU nurses practicing in ICU may have occupational stress.

- Professional nurses and professional ICU nurses practicing in ICUs may lower their stress levels after attending a stress management intervention.

1.6 LAYOUT OF THE DISSERTATION

The dissertation entails the following chapters in which the research is described:

Chapter One:	Overview of the study
Chapter Two:	The literature review
Chapter Three:	Research design and methods
Chapter Four:	Data analysis and results
Chapter Five:	Discussion of findings and limitations
Chapter Six:	Conclusion, future directions and recommendations

1.7 SUMMARY

This chapter provided an overview of the study in which the background, research rationale and questions were detailed. The researcher's assumptions were discussed, and the research methodology briefly described.

In the next chapter, the review of the the literature will be discussed in detail.

CHAPTER TWO

THE LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of this chapter is to discuss the relevant the literature concerning occupational stress and stress management in Intensive Care nursing. According to Polit and Beck (2012), a the literature review provides a succinct summary of research on a topic of interest and is usually prepared by the researcher to place the research problem into a context. The aim of this review was to find out how much knowledge was available on the subject and to identify the gaps in the literature about stress prevention and management interventions in Intensive Care nursing.

To ensure the research project is completed and understood, the researcher undertook a widespread data collection on numerous studies and the literature sources to gain knowledge and comprehension of the subject. Textbooks, journal articles, Internet sources, policies, Acts of Parliament and fact sheets by the World Health Organization (WHO) were included in the review. The keywords used were occupational/workplace stress, Intensive Care nursing, stress, distress, stress management, burnout and stress intervention. An electronic search of the literature was performed using online databases, such as PubMed, the Cochrane library, Google, Google Scholar and Google Web. Web sites of key stakeholder organisations in occupational health, such as the International Labour Organisation (ILO), World Health Organization (WHO) and the European Agency for Safety and Health at Work were also included in the review.

To structure the discussion in a way that had meaning and relevance for the study, it was necessary to divide the discussion into sections. Therefore, the chapter begins with an explanation of key concepts for the study, which included stress, occupational stress and burnout, followed by causes and effects of stress and occupational stress in Intensive Care settings. The discussion then turns to stress prevention and management from an occupational health perspective and, as applied to Intensive Care nursing. The chapter concludes with a summary.

2.2 STRESS, OCCUPATIONAL STRESS AND BURNOUT: A CONCEPTUAL ANALYSIS

From the reviewed the literature, it is evident **various** definitions of stress exist and are perceived from different perspectives by different authors.

2.2.1 Stress

Selye explained in his stress model, in 1936, how ageing and disease were caused by chronic exposure to stress (Sonnentag & Frese, 2002). Selye borrowed the term stress from one of the fathers of stress research in the field of physics. In physics, stress describes the force that creates a strain on a physical body, for example, bending a piece of metal until a break occurs due to the force, or stress, exerted on it. Selye used the term stress after finishing his medical training at the University of Montreal in the 1920's. Selye observed that no matter what illness or disease a patient was suffering from, they all had one mutual thing in common, they all looked sick, so to him all were under physical stress (Centre for Human Studies on Human Stress, n.d).

O'Donovan *et al.* (2013) defined stress as "an undesirable feeling affecting people's health either physically and or psychologically." Morton, Fontaine, Hudak and Gallo (2005:13) however described stress as "a condition that exists when a creature is faced with any stimulus that causes disequilibrium between psychological and physiological functioning."

Stress is also seen from different perspectives. O'Donovan *et al*. (2013) explain the two types of stress, namely eustress, which is seen as a positive response that promotes a person's ability to work, and distress, which occurs when the strains on the person exceed their ability to handle it. Sonnentag and Frese (2002) stated that stressors could be organised or grouped into categories, namely physical stressors, work-related stressors, role stressors, social stressors, time-related stressors, career-related stressors, traumatic events and stressful change processes.

Despite the difficulty in defining stress, there is widespread belief it portrays various roles (Chmiel, 2000; Furnam, 2005). Stress is a motivation when we look at the cause, however, it is also a reaction to a situation or a response, in other words it is the intervening process between the stimulus and response (O'Donovan, Doody & Lyons, 2013).

2.2.2 Occupational stress

The literature reveals that different terms or concepts are used when referring to stress originating or linked to stressors in the workplace settings, such as work or job-related stress and occupational stress. The WHO (2003) defines work-related stress as the reaction a person may have when faced with work burdens and pressures, not matched to their knowledge and capabilities, which challenges their ability to cope. As a result, their physical and psychological wellbeing maybe affected directly or indirectly by the experience of stress (WHO, 2003). ”Occupational stress refers to a cause of human injury or illness and not the condition itself” (McDonnell 2010:95). The theory of stress in the workplace is that work demands certain actions from the worker, and these actions or demands could lead to physical illness or psychological stress (Edwards & Burnhard 2003).

From an occupational health perspective, stress is a psychosocial hazard and risk. A psychosocial hazard, as defined by the International Labour Organization (ILO 1986), is the interaction of job content, work organisation and management, and other environmental and organisational conditions on the employee’s competencies and needs. It refers to those interactions that prove to have a hazardous influence on the employees’ health through perceptions and experience (ILO, 1986).

2.2.3 Burnout

The literature reveals a relationship exists between stress and burnout, and therefore is discussed in more detail in this section (Baker, Le Blanc & Schauefli, 2005, Laschinger and Leiter 2006 Swartz, Knodr, Radtke and Hariri 2015).

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Burnout, as an occurrence, has probably been in existence since Old Testament times (Exodus 18: 17-18), as pastors speak of the “weariness of Elijah” (Kaschka *et al*., 2011).

The concept of burnout, as first described by Freudenberger in 1974, was the reactions workers had due to chronic stress (Jennings, 2008). Much of the literature claims chronic stress causes burnout, and includes emotional fatigue, depersonalisation and reduced personal success or accomplishment (Rushton *et al*. 2015 (Lederer, Kinzl, Traweger, Dosch, & Sumann, 2008: Schaufeli & Greenglass, 2001). According to Swartz, Knodr, Radtke and Hariri (2015), Laschinger and Leiter (2006), burnout is a chronic stress condition that usually presents itself after exposure to stressors within one to four years.

The high number of acknowledgements given to the illness is proven by the fact that burnout has been earmarked as an influencing result, which adds to the physical wellness status and contact with health services in the 10th edition of the International Classification of Diseases (ICD-10). Burnout is coded in the residual category Z 73.0, and the definition seen as a condition of critique tiredness (Bianchi, Shonefeld & Laurent, 2015). However, Kaschka, Korczak and Broich (2011) suggested that because of the lack of knowledge of what is called "burnout syndrome," the term "burnout" cannot be used as a diagnosis or as a reason for a sick note. Nevertheless, the main goal is to prevent burnout syndrome and the best way is by promoting health in the workplace (Kaschka *et al*, 2011).

When looking at professional nurses and their work environment, burnout is described by Millekin *et al*. (2007) as "a direct reflection of the biopsychosocial process of professional nurses constantly exposed to high levels of stress." According to these authors, if the nurse is not able to manage that stress, the end-result will be a burnout with serious consequences both personally and professionally (Millekin *et al.* 2007). Similarly, stress was identified as the main driving force behind the development of emotional exhaustion and burnout amongst Intensive Care nurses (Baker, Le Blanc & Schauefli, 2005).

2.3 THE EXTENT, NATURE OF STRESS AND BURNOUT IN INTENSIVE CARE NURSING

In 1952, the polio epidemic broke out, and the first modern Intensive Care Unit (ICU) was implemented (Carmel, 2006). At this time, it was observed the mortality rate of patients was drastically reduced by having an attendant continuously at the bedside. Between the periods of 1970 to 1980, the current concept of critical illness had developed and involved the treatment of physiological suffering rather than the disease itself (UK Intensive Care Society, 2003).

The occupationally related stress of ICU nurses, and nurses in general, has been extensively researched, as evidenced in the literature (Latifzadeh & Zarea, 2015: Rushton *et al*. 2015; Zhan, Huang & Guan, 2015 (Kekana, Du Rand and Van Wyk (2007) and Moola *et al*.'s 2008).

In South African ICUs, both registered and registered ICU nurses are exposed to elevated levels of stress on a daily basis (Moola, Ehlers, & Hattingh 2008).

Burnout in ICU nurses has been studied globally and nationally, as reflected in the the literature. A Brazilian study by Da Silva *et al*. (2015) investigated the frequency of burnout syndrome and the psychosocial factors contributing to it amongst 130 ICU nurses. The study revealed the occurrence of burnout syndrome and high levels of stress was seen in 55% of nurses. Verdon *et al*. (2007) conducted a study in a 20 bed surgical ICU in Switzerland to determine the levels of burnout and the related factors; 28% of ICU nurses presented with burnout and almost half (49%) felt stressed. Baker *et al*. (2008) investigated burnout in 1 849 ICU nurses in 12 different European countries and found co-workers experienced burnout complaints amongst each other as statistically significant and noticeably larger. The same authors are of the opinion that burnout is transmittable and may cross over from nurse to nurse. A study by Coetzee, Klopper, Ellis and Aiken (2013), among 1152 professional nurses in South Africa, showed almost half of the nurses (517/1152: 44.9%) presented with high levels of burnout.

It is evident from the the literature that professional nurses practicing in American, Canadian and European ICU's also experience many physical and psycho-social hazards and risks (Epp, 2012: Mark & Smith 2011: Mason, *et al*. 2014; Merlani *et al*. 2011).

2.4 CAUSES AND EFFECTS OF OCCUPATIONAL STRESS IN INTENSIVE CARE NURSING

2.4.1 Causes of Occupational Stress in Intensive Care Nursing

Research indicates numerous factors can cause work-related stress in the healthcare sector in general. These factors include lack of adequate staff, extended working hours, shift work, uncertainty with job positions, working in a harmful environment due to illnesses and harmful material (Jennings (2008) and Riahi (2011). The workload of a person, as described by the Pan American Health Organization (2006), is the most common cause of occupational stress amongst nurses. South African studies, conducted amongst nurses with stress as the focus, revealed factors were related to staff shortage, absenteeism, high expectancies from doctors, inadequate support from management and co-workers, work overload, and the available resources and the opportunities offered for career development, role uncertainty, poor working conditions and organisational structure (Kekana, Du Rand and Van Wyk (2007) and Moola *et al*.'s 2008).

Challenges ICU nurses face are the patient, the patient's family and life changing tragic patient consequences, death of the patient, prolonging life unnecessarily, relationships with management, conflict with co-workers, shortage of preparation and skills, equipment that changes frequently (Epp, 2012; Mason *et al*., 2014: Mehta and Singh, 2014). Other factors noted in the literature are no definite way of following procedures and inadequate guidance, a low distribution of power between doctors and nurses, violence in the hospital setting and retention of staff, which can cause and contribute to stress, compassion fatigue, moral distress and burnout (Epp, 2012: Mason *et al*., 2014; Mehta and Singh, 2014). Moola, Ehlers and Hattingh (2008) conclude ventilated patients, in particular, who are unable to communicate, create tremendous pressure for the nurses, as they need constant monitoring. Registered nurses and registered ICU nurses are expected to work effectively with minimal resources; they are short-staffed and lack managerial support (Moola *et al*. 2008).

Many studies have indicated there are high-risk factors in the nursing work environment. These include work shifts, job satisfaction, education, social support, support from managers, speciality tools, working with physicians, death of patients, personnel shortages, painful care systems, difficulty working with other nurses, workload, noise levels, lighting, satisfying the demands and needs of patients and their families and coping strategies (Latifzadeh & Zarea, 2015: Rushton *et al*. 2015; Zhan, *et al*. 2015). A systematic review by Gershon, Stone, Zeltser, Fuacett, Macdavitt and Chou (2007), on Intensive Care nurses' well-being, including occupational health, found that a lack of supervisory support and involvement were related to emotional exhaustion and burnout. These authors also stated there was a negative association between burnout and negative aspects of the organisational climate.

Epp (2012) conducted a the literature review from 2007 to 2012 and confirmed that burnout, as a syndrome, is a concern amongst nurses practicing in a Critical Care environment in Canada and other parts of the world. The vulnerability of these nurses is the result of exposure to chronic stressors, such as the obligation of taking care of patients needing intense and constant high-level care, the ability to know how the technical equipment works, supporting the patients' families and dealing with ethical dilemmas when a patient's life is unnecessarily prolonged (Epp (2012).

According to Maiden *et al*. (2011), moral distress may be experienced by a healthcare practitioner, when the institution makes it impossible to do the right thing or take the right action, especially when they know what may be the right thing to do. It also involves the

perception that the core values of a person are violated leading to psychological disequilibrium. Other situations in the ICU that contribute to moral distress include dealing with situations where patients are dying, no support or training on how to help and assist the patients and their family members with their emotional and spiritual needs, shortage of trained staff and unfamiliar incidents that happen in the ICU's (Rushton *et al*. 2015).

One South African study, by Van der Colff and Rothmann (2009), examined the complex relationship between the following five factors: occupational stress, a sense of coherence, burnout, coping and work engagement among 818 registered nurses in Gauteng province. The outcome revealed that high levels of occupational stress, low levels of a sense of coherence and passive coping mechanisms (such as the venting of emotions) predicted both burnout and poor work engagement. The study further concluded that when stress was the result of job demand and lack of resources, burnout followed (Van der Colff & Rothmann, 2009). Kekana, Du Rand and Van Wyk (2007) and Moola *et al*.'s (2008) studies highlighted major stress related factors for South African nurses. These factors were related to staff shortage, absenteeism, high expectancies from doctors, inadequate support from management and co-workers, work overload, and the available resources and the opportunities offered for career development, role uncertainty, poor working conditions and organisational structure.

A contributing factor to the stressful environment in which nurses function, is the long hours due to staff shortages. A study by Scribante and Bhagwanjee (2007) revealed South Africa faces a big challenge when looking at the shortage of trained and experienced nurses. This study showed that in 2007, South Africa had 4168 ICU and High Care beds for patients cared for by 4584 professional nurses, meaning the nurse to bed ratio was 1.1 nurses per ICU/HC bed; the shortage of ICU nurses now amounts to 7920. Scribante and Bhagwanjee (2007) confirmed there was no difference between the ratio in the government and private hospitals in South Africa. They further illustrated the percentage of ICU managers who had an ICU qualification was 74.8%, but the percentage of nurses working in the ICU with an ICU qualification was only 25.6%, with 42.8% of the nurses having less than five years of practical work experience in the ICU. This study further demonstrated that ICU nurses were exhausted with low energy levels, often unhealthy, overwhelmed and dissatisfied and had low morale. In 2008, approximately 250 000 health workers were employed in the South African health sector; these numbers were almost the same as those reflected in 1997/98 (Department of Health. Human Resources for Health South Africa [HRH Strategy for the Health Sector: 2012/13–2016/17]; National Department of Health, 2011), thus affirming the shortages of personnel in South African healthcare settings. The World Health Organization

(2006) determined a global shortage of 4.3 million healthcare professionals and predicted an increase of 20% over the forthcoming 20 years. A study by Gershon, *et al.* (2007) predicted an estimated shortage, by the year 2020, of 340,000 to almost one million registered nurses in the USA. A study by Mphande (2014) showed the nurse to population ratio in Malawi was 3.4 nurses per 10,000 populations, Lesotho has 6.3 nurses per 10,000 populations, and Mozambique has only two nurses per 10,000 populations. South Africa has a ratio of 39.3 nurses per 10,000 populations, which is far lower than the WHO recommendations of 50 nurses per 10,000. There is a projected personnel shortage in South Africa that exceeds 30,000 registered nurses and the most common reason for the shortage, according to Bauman (2007), seems to be an unhealthy practice environment.

Dall' Ora, Griffiths, Ball, Simon and Aiken (2015) conducted a survey amongst 31 627 registered nurses in medical and surgical units of 12 European countries. In some countries, the perception of the nurse managers was that 12 hours shifts improve the nurses' efficacy and productivity leading to a reduced number of nurses per shift, resulting in fewer hand-overs and less interruption of care to the patient (Dall'Ora *et al*. 2015). Dall'Ora *et al.* (2015) further explained the perception from the nurse's was that they have a week with fewer work days and more days off-duty (rest days), meaning less money spent on transport fees, and giving the nurses more flexibility. The conclusion reached by the authors was that long shifts negatively affect nurse's well-being, job satisfaction and many have plans to leave their job. Furthermore, the routine implementation of shifts longer than eight hours and the use of overtime may not be the ideal way to assist with the nurse shortages (Dall'Ora *et al.,* 2015).

Earlier studies by Van der Colff and Rothmann (2009) demonstrated a significant relationship between exhaustion and depersonalisation of nurses, which were mainly the result of increased demands in the workplace and inadequate support from the organisation.

2.4.2 Effects of occupational stress

2.4.2.1 Individual physical and mental health consequences for the ICU nurse.

The literature mostly claims that the intense, continuous demands and strains on Intensive Care Unit (ICU) staff causes them to be at an even a greater risk of developing psychological, stress disorders and short and long term health problems (Langley *et al*. 2015; Milliken *et al*. 2007; Rushton *et al*. 2015 Klopper *et al*. 2010). A study conducted by Jones *et al*. (2015), on French Intensive Care Nurses (ICN), showed that shift work and the

high stress in this environment have some serious effects on the physical and mental health of the ICNs, leading to poor quality of sleep and lower energy levels. Furthermore, stress and burnout in nurses lead to health related problems such as heart disease, migraines, hypertension, irritable bowel syndrome, muscle, back and joint pain, gastric ulcers and mental health problems (Milliken *et al*, 2007) and was even associated with Type 2 Diabetes (Melamed, Sirom, Toker & Shapira 2006). Nurses who experience health problems can experience difficulty in completing tasks successfully, uncertainty in making decisions, inability to concentrate, feelings of apathy, anxiety and low motivation (Milliken *et al*, 2007). These can lead to low work performance and patients' safety and health being compromised, perhaps causing the death of a person, which in turn may result in organisational problems that have significant financial consequences (Milliken *et al*, 2007).

Occupational stress in ICU is associated with reduced work satisfaction and increased absenteeism (Maiden *et al*., 2011, Mehta *et al*., 2014 Merlani *et al*., 2011, Milliken *et al*. 2007). Absenteeism due to stress related problems leads to the unintentional and financially costly replacement of staff or overtime, which is mandatory for nurses, which in turn contributes towards an environment of stress and burnout (Langley *et al*. (2015).

Studies have found nurses in the ICU also work extended hours and because of the high demands of their work, they are emotionally exhausted, and suffer from sleep deprivation and constant low energy levels (Reader *et al*. 2008). Globally, nursing is recognised and acknowledged as a demanding and strenuous job, and occupational stress is widespread and has an enormous effect on the level of job contentment for the nurse and the quality of care of the patient (Kamal, Al-Dhshan, Abu-Salameh, Abuadas & Hassan, 2012). The nursing shortage has resulted in nurses working longer hours under stressful conditions, which in turn results in extreme exhaustion, injury and dissatisfaction in the workplace (Aiken, Sloane, Bruyneel, Van den Heeden & Sermeus, 2013). For most ICU nurses, the demanding work environment and lack of support will lead to changes in their frame of mind, resulting in extreme fatigue (Lederer *et al*. 2006). Bianchi, *et al.* (2015) are of the opinion burnout is directly associated with negative outcomes in a person's wellbeing and causes a higher demand in nursing turnover, which leads to patients' dissatisfaction.

The literature reveals that nurses make use of various coping skills to deal with occupational stress, such as smoking, substance abuse, over indulgence in alcohol, excessive and unhealthy eating habits (Miranda ,Gore, Boyer, Nobrega & Punnett, 2015 , Kenaga, 2010). Another study by Mark and Smith (2011), involving 870 UK nurses, illustrated that the negative coping skills used by nurses included, blaming themselves for things that had gone

wrong, ambitious thoughts and escape from reality, which also lead to depression and anxiety. The following are the strains of the profession: moral support, management skill, choices and support, over-commitment, acknowledgement and other ways of handling stress. They concluded that after looking at all the transactional models, the best and most important way to manage stress was to implement coping skills in the work setting (Mark & Smith, 2011).

2.4.2.2 Effect on the patient

When considering the impact of a highly stressful environment on the nurse, it is also worth noting the impact on patients. Nursing is a demanding and strenuous job, and occupational stress is widespread, and has an enormous effect on the pleasure a nurse gets from work and the quality of care of the patient (Kamal *et al*. 2012).

Moustaka and Constantinidis (2010) concluded that the consequences of nurses with few coping skills to handle stress has a negative effect on the care of their patient. The nurses' inability to concentrate has a direct effect on the patient, causing poor decision-making skills thus leading to errors in patient care and errors in patient safety (Moustaka & Constantinidis, 2010). Embriaco *et al*. (2007) illustrated there is an association between the increased mortality rate of patients (i.e. medication errors) and high degrees of burnout in healthcare professionals practicing in the ICU. Emotional exhaustion,sleep deprivation and constant low energy levels of nurses can lead to burnout, with the more serious consequences involving the patients' safety due to human and medical errors (Reader *et al*. 2008). Organisational problems include nurses' stress and overwork, which leads to absenteeism, sluggishness and job turnover, all of which ultimately jeopardises the safety and care of the patient (Roberts, Paula, Grubb & Grosch, 2012).

The Institute of Medicine, in the USA, estimated between 44,000 to 98,000 deaths in USA hospitals are caused by medication errors by nurses and compensating for these adverse effects, costs between $6 to 29 billion annually (Shahrokhi, Ebrahimpour & Ghadousi, 2013). The leading cause of nursing errors, according to Shahrokhi *et al*. (2013), and Carlton and Blegen (2006), are individual factors. These factors involve stress, weariness, confusion, the physician's prescription, errors in carrying out orders, inadequate attention to detail, lack of time to complete tasks, tiredness, shortage of trained personnel and not enough equipment (Shahrokhi *et al*, 2013: Carlton *et al*, 2006). A more recent study also found that medication errors were related to depression, sleep problems and other stress-related causes (Saleh *et al*. 2014). Maiden *et al*. (2011) looked at Intensive Care nurses

and moral distress, compassion fatigue and perception about medication errors, and found that 1 to 10% of medication errors were preventable and could have saved 3.4 billion dollars

2.4.2.3 Effects on the organisation

The literature on stress in the workplace suggest that organisational problems include nurses' stress and overwork, which leads to absenteeism, sluggishness and job turnover, all of which ultimately jeopardises the safety and care of the patient (Roberts, Paula, Grubb & Grosch, 2012).

If, however, there is a lack of support from the supervisors, with little or no participation in decision-making and a shortage of medical provisions and working equipment with no opportunity to be promoted, constant demands of the job will lead to nurses leaving their jobs and their countries (Kingma, 2008). The International Council of Nurses (2015:3) stated, "The chronic underinvestment in the health sector, combined with poor employment conditions and policies, such as low remuneration, heavy workloads and exposure to occupational hazards, have resulted in deterioration of working conditions in many countries." There is clear evidence globally that this has a serious negative impact on the recruitment and retention of health professionals, the productivity and performance of health facilities and ultimately, on patient outcomes.

2.5 STRESS PREVENTION AND MANAGEMENT IN INTENSIVE CARE NURSING

2.5.1 Best Practice Workplace Stress Prevention

The goal of stress management in the workplace is to ensure processes and procedures in place to mitigate the impact of stressful events and to restore the adaptive functioning and facilitate the recovery process (Mealer *et al*. 2007). However Milliken *et al*. (2007) conclude that stress is damaging to nurses, but it is highly unlikely that the demanding nature of the healthcare setting will ever be less than what we know therefore, what is required is an increased effort to counteract the stress.

The the literature review for this study revealed ICU nurses, and nurses in general, could take personal actions to combat stress. In addition, nurse managers are required to create and maintain a psychologically safe work environment supported by organisational change.

Stress management interventions for nurses described in the literature include a range of activities such as self-management (Milliken *et al*. 2007), self-care plans (Kravits *et al*. (2010) and Britt-Pipe, Buchda, Launder, Hudak, Hulvey, Karns and Pendergast (2012), short or brief mindfulness-based cognitive therapy (b-MBCT Kim-Lan, Subramanian, Rahmat & Kar, 2014) and education empowerment (Fitzpatrick, Campo, Graham and Lavandero 2010).

A plethora of recommendations and opinions from researchers on stress and burnout prevention and management in nursing exists. These include the use of stress reduction techniques and self-management practices (Milliken *et al*., 2007), the role of the nurse manager (Milliken *et al*., 2007), organisational culture aspects (Da Silva *et al.,* 2015) and keeping stressful experiences diary or journal (Alford, Malouff & Osland, 2005).

Recommended actions by the nurse manager should include a request for employee assistance programmes and the offer of group counselling to address nurse burnout (Milliken *et al*. 2007). According to Milliken *et al*. (2007), proper leadership and work ethics with good work organisation are the most effective ways to manage stress. Furthermore, Milliken *et al*. (2007) conclude that managers should be aware of stressed employees. One way to help, for example, is to “stand in" for a few minutes for the nurse whom you see is stressed, while the stressed worker is allowed to take a "stress break" (Milliken *et al*. 2007). Da Silva *et al.* (2015) concluded that if factors such as work organisation, management, hierarchy and interpersonal relations are kept under control, working conditions will meet the worker's expectations, which will lower stress and lead to a better outcome for the worker's physical and mental health.

Epp (2012) conducted a the literature review between 2007 and 2012 that looked at strategies to prevent burnout; these included the involvement of the nurse manager and the support given by the managers to the ICU nurses. Support by nurse managers involved coaching, nurturing, being a companion at work and having a counsellor or grief team available to facilitate debriefing after stressful situations (Epp, 2012). The outcome showed that by being supportive and creating a supportive environment for the Critical Care nurse, the nurse supervisor plays a big role in preventing burnout (Epp, 2012). Moola *et al*. (2008) conclude there is a need for support systems such as stress management programmes, services and counsellors that provide debriefing and in-service training, which should be available to address mindfulness, awareness and enhance coping skills.

Milliken, *et al.* (2007) and Gershon *et al*. (2007) stated that by monitoring nurses' work life, and improving hospital working conditions, the safety of the employee and probably the profitability of the hospital would improve. According to the authors, the abovementioned is due to an improved system such as lower turnover of employees, reduced risk coverage and ultimately, the quality of patient care delivered. Papathanassoglou *et al*. (2012: 208) add, "If the sources of stress can be identified and controlled, the overall effect might be an improvement in nursing performance, resulting in optimal care for patients."

In a systematic review of work-directed interventions, Marine, Ruotsalainen, Serra and Verbeek (2006) concluded the interventions for the prevention of workplace stress need to include communication skills, as this could be beneficial in preventing and lowering stress that leads to burnout. Research involving intellectual and cognitive components and training, had better-improved outcomes to those with behavioural components (Marine et al 2006). A meta-analysis by Richardson and Rothstein (2008), on 36 experimental studies representing 55 interventions, determined the effectiveness of stress management interventions in the occupational setting produce consistently larger effects when cognitive-behavioural programmes were. Graveling, Cowie, Amati and Vohra (2008) illustrated that interventions, which included psychosocial training to help improve the worker's effectiveness at work and skills, showed positive results for prevention of burnout in the short term.

Fitzpatrick, Campo, Graham and Lavandero (2010) conducted a study in the USA, with 6 589 Intensive Care nurses. The study showed that education makes a difference in the level of empowerment and nurses should be encouraged to advance themselves both educationally and for clinical competence. This study affirms that by educating and training nurses, their perception of empowerment changed regarding the way they viewed themselves, their level of knowledge, salary and intent to resign from their jobs, thus the value of education is a direct link to patient outcome (Fitzpatrick *et al*. 2010).

Merlani *et al*. (2011) suggested that the attitude of leaders towards their co-workers and acknowledgement of the potential to develop burnout could encourage change in the world and hospitals. The intention of this study was that institutional approaches should receive support for interventions that encourage mindfulness, meditation and self-awareness exercises (Merlani *et al*. 2011).

A the literature review undertaken in Canada revealed nursing managers and Intensive Care nurses are both responsible for implementing strategies to prevent burnout in Intensive Care nurses (Epp, 2012).

Shapiro *et al*. (2005) revealed different stress management interventions are available, ranging from critical incidents stress management techniques, relaxation and self-care strategies to social support and employee support programmes. However, even though all the interventional studies prove the outcomes of the interventions are positive, it is difficult to evaluate the effectiveness. Marshall and Zolnierek (2012) are of the opinion that more research is needed to promote interventions.

Studies, as evidenced in the the literature, reflect that mindfulness interventions can reduce stress levels and increase nurses wellbeing (Kim-Lan, Subramanian, Rahmat & Kar, 2014, Mackenzie, Paulin & Seidman-Carlson*,* 2006; Cohen- Katz, Wiley, Capuano, Baker, Kimmel & Shapiro, 2005; Britt- Pipe *et al*. 2009). Mindfulness is defined by Kabat- Zinn, (2011) who is an expert in the field, "as what arises when you pay attention, on purpose, in the present moment, non-judgmentally, and as if your life depended on it. Moreover, what arises is nothing other than awareness itself" (Kabat-Zinn, 2011:17). Through the process of mindfulness, one can have a more pleasant and fulfilling experience (Childs, 2007).

A quasi-experimental pre-post single group study conducted in Malaysia on 41 ICU nurses used a short training programme on mindfulness to assist nurses in reducing their stress and to help increase the feeling of wellbeing. The ICU nurses who took part in this intervention showed improved levels of mindfulness with a mean score of 0.56, and an improved mean score of 1.57 in the subjective happiness level. The conclusion of the study indicated that the s*hor*t or brief mindfulness-based cognitive therapy (b-MBCT) had good effects in lowering stress levels and promoting well-being, and was not expensive to implement in the ICU nursing landscape (Kim-Lan, Subramanian, Rahmat & Kar, 2014). Other studies also found that mindfulness-based stress training demonstrated a reduction in stress and enhanced coping ability by lowering perceived stress and promoting well-being among nurses (Mackenzie, Paulin & Seidman-Carlson*.,* 2006; Cohen- Katz, Wiley, Capuano, Baker, Kimmel & Shapiro, 2005; Britt- Pipe *et al*. 2009). Another study by Poulin *et al*. (2008) evaluated mindfulness-based stress interventions for human services professionals and found that regarding relaxation and life satisfaction, the benefits, even in a short intervention, had recognisable benefits for nurses.

A randomised controlled trial done by Shapiro *et al.* (2011) demonstrated that a person with increased levels of mindfulness before an intervention showed increases in mindfulness, well-being, empathy and hope and lower perceived stress levels, which persisted for a longer duration in time.

The workplace is an ideal situation where health promotion/wellness intervention for nurses can take place, but according to Chan and Perry (2012), nurses have not been included as a focus group to participate in health promotion. In a systematic review, by Chan and Perry (2012**),** the authors looked at studies conducted from 2000 to 2011 that evaluated the usefulness of lifestyle health promotion and interventions aimed to decrease the risk of developing illnesses and improve the results for prevention of stress in nurses; they found only three intervention studies, from the US, Canada and Taiwan. The authors concluded that "nursing is a priority workforce with recognised occupational health hazards but limited information available regarding nurses in health risk profiles, targeted by almost no reported health promotion intervention studies" (Chan & Perry, 2012: 2256**).**

Within the ambit of workplace health promotion/wellness another highly regarded strategy to manage stress is the implementation of self-care plans, which aim to promote the individuals physical, emotional, spiritual and mental wellbeing (Kravits *et al*. (2010). The same authors further mentioned that a wellness plan should be included in guided exercises and activities as this could have a good outcome for the individual's wellbeing. Components in the wellness plan as per Kravits *et al*. (2010) included:

- physical - yoga or stretching, riding a bicycle or going for a run, eating in a healthy manner, massage, practising deep breathing;
- emotional - breathing exercises, socialising with friends, having a hobby and writing in a diary;
- spiritual - saying prayers, attending church, meditating and reading inspirational books;
- mental - positive affirmations, learning other ways of distracting oneself and positive objectives;
- social - spending time with family and friends, group activities, dancing, spending time with your partner and cultural activities, such as going to the theatre.

Table 2.1 An overview of self-care activities described in the literature

Activity	Brief Description
Labyrinth walk	"The labyrinth is a real path for meditation and a metaphorical pathway for changing directions as we release and let go of the past, receive the gifts that education brings, and return as transformed individuals practicing nursing" (Abdallah-Baran, 2003; White & Stafford, 2008).
Mantra	An "ancient practice of silently repeating a mantram or mantra, a word or phrase with spiritual meaning as an innovative form of stress management that is portable, immediate, inexpensive, invisible, and nontoxic" (Bornmann, 2005:163).
Reiki/healing touch	Based on one of the earliest forms of Japanese healing techniques, it is done by placing your hands gently on a person, or in absentia, on the assumption that the person practising the Reiki technique is in a meditative state that allows the Reiki energy to pass to where the patient needs it, in a non-directed and non-diagnostic style (Lee, Pittler & Ernst, 2008).
Drum circle	"A drum circle when a group of individuals sit in a circle, with every person playing a drum or some kind of percussion instrument, while building the community (Clare, 2008)."
Music/art/pet therapy	Therapies based on music, an art form, or spending time with animals (Rao, Nainnis, Williams, Laigner, Eisin & Paice, 2009).
Tai Chi	"A form of martial arts that requires a capacity for sustained concentration in order to achieve precision in the execution of mechanical exactness in slow movement" (Wang, Bannuru, Ramel, Kupelnick, Scott & Schmid, 2010).
Tea and/or herbal/aroma therapy	The Persian people receive tuition from a young age that nature must be preserved and honoured, so they planted aromatic herbs and flowers mostly to provide a spiritual place of holiness. This formed part of the godly design, and these gardens are sacred places to care for something holy and create a place like heaven on earth (Ross, 2011).
Hypnotherapy	Is a therapeutic technique where a health professional helps a person to make and experience post-hypnotic alterations in perception by making certain suggestions that will change their emotion, feelings, behaviour and thoughts (Park, 2013).

Table 2.1 continued

Activity	Brief Description
Guided imagery	"The use of relaxation and mental visualisation to improve mood and/or physical well-being." It encompasses "A variety of techniques from simple visualisation and direct imagery-based suggestion through metaphor and storytelling" (Beck, 2015).
Massage	A way to help a person relax, by making use of touch through massage to relax muscles in different parts of the body (Turkeltaub, Edilma, Yearwood & Friedmann, 2014).

Kravits *et al*. (2010) and Britt-Pipe, Buchda, Launder, Hudak, Hulvey, Karns and Pendergast (2012) explored and developed ways to help professional nurses transform stressful situations. The above authors concluded the most effective ways for transformation of these situations was to have an optimistic method of approach. They stated the best way was for nurses to empower themselves with skills and techniques that would assist them. Interventions that can help are, writing down thoughts and describing stressful experiences in a diary or journal; this assists in identifying incidents that occur on a regular basis and cause stress, thus the nurses will become aware of their reactions and formulate a plan or solution to manage their stress (Alford, Malouff & Osland, 2005).

2.5.4 Ensuring a Positive Practice Environment

The importance of creating a humane, safe and healthy work environment for nurses is evidenced in the discussion below.

Deussom, Jaskiewicz, Adams and Tulenko (2012) conclude that the health of the healthcare provider should not be influenced or damaged to ensure quality care is provided to their patients. In the past, the patients' rights and the focus on improving health service delivery quality took preference over attention to the personal safety and health of the provider, but the question is, how can quality care be provided if the health of the healthcare worker is not protected (Deussom, *et al.,* 2012)? In addition, these authors are of the viewpoint that a preventative approach, by implementing a positive practice environment, will result in lowering occupational safety and health risks and increase the worker's motivation and productivity (Deussom *et al.,* 2012). Positive practice environments are defined by the Positive Practice Environments for healthcare professional's documents

(Schmidt, 2012) as “settings that support excellence and decent work, in particular, they strive to ensure the health, safety and personal wellbeing of staff, support quality patient care and improve the motivation, productivity and performance of individuals and organisations.”

The International Council of Nurses (ICN) has committed to improving the workplace safety for nurses globally, through projects that include programmes which involve governance for intervention and the positive practice environments launched in 2010 (International Council of Nurses, 2010). Furthermore, the Registered Nurses’ Association of Ontario (2007) has a similar viewpoint, namely that “A healthy work environment is a practice setting that maximises the health and wellbeing of nurses, quality patient/client outcomes, organisational performance and societal outcome” (Registered Nurses’ Association of Ontario (2007)). Similar sentiments were echoed by Pino and Rossini (2012), who stated that to retain and recruit professional nurses to sustain the health system, it is vital to create a healthy working environment for them. In order to help ICU nurses cope with physical exhaustion, burnout and emotional distress, it is essential to retain, recruit and improve the work situation for the nurses working in this environment (Mason *et al*., 2014).

Coetzee *et al*. (2013) stated that 51.3% of nurses in private and 59% in government hospitals plan to resign from their positions in the next year, and almost half (44.9%) (government and private) reported having no faith in their superiors having answers or solutions to the patient’s problems.

Leka, Griffiths and Cox (2005) stated nurses faced burdens at home and at the organisation, and while employers cannot protect workers from the stressors outside of the workplace, they can protect them from stress that arises through their work. Preventing burnout is the responsibility of the Intensive Care Nurse (McFeely, 2007).

To conclude this section of the the literature review, Jennings (2008) is of the opinion that healthcare organisations must take action, they can no longer ignore the inescapabilty of stress in nursing and its negative impact on nurses and patients.

2.6 STRESS PREVENTION AND MANAGEMENT: AN OCCUPATIONAL HEALTH PERSPECTIVE

From an occupational health and occupational health nursing perspective, all the hazards and risks, of which stress is one, that employees/workers are subjected to be should be assessed and effectively managed. Occupational health and safety programmes are based on the hazard identification and risk assessment (HIRA) of a workplace.

2.6.1 Legal and Ethical Framework

Occupational health and safety in the South African workplace is guided by the Constitution (1996 section 23) and the Occupational Health and Safety Act (no 85 of 1993, South Africa 1993). Apart from regulations pertaining to this Act, the employer must ensure the workplace is safe and healthy and not allow any worker to perform work that could potentially be dangerous. The worker must be aware of the dangers of the work.

2.6.1.1. The Constitution of the Republic of South Africa (South Africa, 1996) (Section 23)

According to Sieberhagen *et al.* (2008), "*The Constitution states that everyone has the right to work and live in a healthy and safe environment*." Similarly, the WHO (2008) states that "all workers have the right to healthy and safe work and to work in an environment that enables them to live a socially and economically productive life" (WHO, 2008:3).

2.6.1.2 The Occupational Health and Safety Act (no 85 of 1993)

The Occupational Health and Safety Act (no 85 of 1993) as amended, is applicable to "all employers with the exception of miners, owners of certain shipping vessels, those exempted by the Minister and temporary employment services." The Act builds on the value that workers and employers should regulate their own workplaces to prevent occupational injury and disease. This Act maintains the general duty remains on employers to supply information, training and supervision as the need arises, to ensure health and safety are maintained, take reasonable steps to provide safe systems of work, plants and machinery and to mitigate potential hazards. Furthermore, the Act requires a health inspector to report and record any accident or happening in which an employee loses their life, is injured or when a dangerous situation arises (Grogan, 2005; Sieberhagen *et al*. 2008).

Employers need to foresee any action in the workplace that could place employees in physical and psychological harm or risk, and analyse and intervene in instances of occupational stress, however, at present little is done regarding this in South Africa (Sieberhagen *et al.* 2008). For South Africans, the law requires that an employer must ensure a workplace is safe and healthy and safeguard employees from illnesses caused by work-related stress. The employee or worker also has to take sensible safety measures to guarantee their own health, wellness and safety at work, for instance, they have to obey the safety measures and rules concerning health and safety recommendations (Department of Labour, 2008). Any unsafe situation or fortune needs to be reported as soon as possible to

the representative responsible for safety. Any person who acts in an irresponsible way or damages any safety equipment can be charged. This illustrates that besides the employer, the individual working in the workplace also has to take responsibility for their own wellbeing and health to ensure their own safety and wellness, including the safety and wellness of their fellow workers.

2.6.1.3 Other acts relevant to a healthy workplace

The Labour Relations Act 9 (no. 66 of 1995) (South Africa, 1995) "aims to encourage collective bargaining and settlement of disputes by enhancing powers of forums designed to facilitate these objectives." *The Basic Conditions of Employment Act (no 75 of 1997) (South Africa, 1997a***)** ensure that "working hours do not exceed certain maxima, that employees are granted adequate breaks during the working day and that they are given prescribed annual and sick leave." Furthermore, this act makes sure the employee is paid an exceptional amount of money for overtime and work on Sundays and public holidays. In addition, *The Code of Good Practice: Working Time* provides information and guidelines to employers and employees concerning the arrangement of working time and the impact of working time on the health, safety and family responsibilities of employees. This code governs the regulation of working time through Section 7 of the Basic Conditions of Employment Act and requires employers to regulate the working time of each employee, with due regard to the health and safety of employees. This code is particularly important to employees who perform shift work or regular night work. "Employers must conduct a risk assessment regarding the effects of night and shift work on employees, implement appropriate measures to eliminate or control hazards identified in the risk assessment and train and supply information to employees about the risks to their health and safety and the measures taken to control such risks."

The Compensation for Occupational Diseases and Injuries Act (no 130 of 1993) (South Africa, 1193a) ensures that employees, or their dependants, who have suffered injury, illness or death arising from the execution of their work are compensated; excluded from this however are soldiers, police officers, domestic workers and contract workers. This Act influences health and wellness of employees in that it ensures compensation for employees "whose health was negatively affected while performing their work." "Any disability caused by occupational injuries or diseases sustained or contracted by employees in the course of their employment, or death resulting from occupational injuries or diseases. PTSD is regarded as an occupational injury and a claim will not be eligible for benefits unless the

individual was exposed to an extreme trauma or unusual stressor, which arose out of and in the course of employment."

The online article from OCSA stated that Dr Berelowitz, Medical Director for OCSA, is convinced that several of this country's employees are not as protected as they should be. She further said, "On the whole, knowledge of the legislative requirement is sadly lacking and we need more support from the government and the unions to ensure that the codes and practices are applied more vigorously in South Africa" (http://www.ocsa.co.za/poor-compliance-the-downfall-of-sa%E2%80%99s-world-class-safety-legislation/).

2.6.2 Stress as a Psychosocial Hazard and Risk in Work Settings

Research done in the United Kingdom (UK) illustrated that stress and stress-related illnesses were the second most reported to musculoskeletal injuries as the major reason for work related illnesses (Sieberhagen *et al*. 2009). Individuals may be unwell due to not following a good and healthy way of living or they are ignorant of how to live a healthy lifestyle, nevertheless the side effects of pressures and stress on a person could cause bad performance in the workplace and general diminished effectiveness (Sieberhagen *et al*. 2009). Sieberhagen *et al*. (2009) are of the opinion that organisations in South Africa are experiencing the outcome of the impact stress has on high staff turnover, lower productivity, absenteeism, and mostly on the financial bottom line of the organisation. Governments and their organisations are therefore encouraged to make sure they provide the complete guidelines, standards and laws and to make sure this is followed (Burton, 2010: WHO Healthy Workplace Framework and model).

Berelowitz states that "safety in the workplace extends beyond life preserving fundamentals to exposure to dusts, gasses, fumes and noise, there is yet another level where the South African workforce should be better protected from issues, such as bullying, discrimination, stress and ergonomic hazards," (http://www.ocsa.co.za/poor-compliance-the-downfall-of-sa%E2%80%99s-world-class-safety-legislation/)

2.6.3 Workplace Health Promotion/ Wellness

According to the WHO (2011), health promotion is when people are empowered to take more control in the way they act to an extensive choice of environmental interventions to increase their health as a person.

There is an international trend to include/offer health promotion or wellness programmes in work settings to create and maintain human resources/workforce as healthy as possible and a healthy workplace. At this moment, there is no clear guidance or way instructed by law to ensure employee health promotion and wellness in South African workplaces. Workplace health promotion (WHP) is however a component of comprehensive workplace health management and there is an international trend towards integrating WHP and occupational health. A healthy and safe workplace should be created and maintained by complying with Acts and regulations and an implemented occupational health system and include a comprehensive workplace health promotion/wellness programme based on the physical and psychosocial hazard identification and risk assessment. Furthermore, a workplace should be physically and mentally healthy and safe for all people working in that environment. In order to mitigate and reduce the levels of occupational stress many organisations have implemented stress management interventions (Richardson & Rothstein, 2008).

Roberts *et al*. (2012) stated that a stress management programme involves a person-focused intervention and that half of the United States employers provide some form of stress management training to their employees. According to Roberts *et al*. (2012), these programmes focus on educating the employee on the nature and sources of stress, their effects and symptoms, thus improving the workers ability to cope with difficult situations and lowering the symptoms of stress.

2.6.4 Roles of the Occupational Health Nurse Practitioner in Stress Prevention and Management

Occupational health nurse practitioners (OHNPs), as a member of a multidisciplinary occupational health team, play an important part in identification of hazards and risks assessment in the workplace and therefore workplace health, and WHP. Mellor and St John (2007) stated that Occupational Health Care Nurse Practitioners (OHNPs) are expected to engage in traditional and expanded roles. The traditional roles entail providing preventative treatments, rehabilitation, counselling employees regarding health risks, providing follow-up of employees for workmen's compensation claims and health assessments (Mellor & St John, 2007). "The expanded role activities are aimed at initiating, developing, implementing and evaluating health promotion programmes" (Mellor & St John, 2007: 585).

In the context of this study, occupational stress prevention and management of the OHNP should fulfil the following roles and role activities:

As a clinician, the OHNP maintains professionalism and ethical conduct and has to adhere to legal requirements. In addition, the OHNP assesses the physical and psychosocial work environment, advocates for the improvement of work life, assesses workers health status, performs health surveillance, provides direct nursing care and conducts health education, such as stress management training and counselling, with the employer and employee to reduce psychosocial and physical stressors (Accut & Hattingh, 2011).

As a consultant, the OHNP gives advice to management and the members of the occupational health team on matters related to occupational health and all the legislative and ethical requirements, as well as matters related to the health of the employees/workers.

Zeller & Levin (2013) proposed that occupational health nurses must incorporate supportive programmes, such as cognitive behavioural training, relaxation training, and music, touch therapy and mindfulness training, as an aspect in the health and wellness programmes in hospitals.

2.7 THEORETICAL FOUNDATIONS

This current study drew on the perspectives of the stress theory described by Papathanasiou *et al.* (2015), and the model developed by the World Health Organization and Internal Labour Organization Healthy Workplace initiatives, as discussed in the following sections.

2.7.1 Stress Theory

According to Papathanasiou *et al*. (2015) the literature reveals many theories and models that exist to explain work related stress and these models can assist in identifying stressors in a specific situation and foresee the way a person will handle a stressful situation (Papathanasiou *et al*. 2015). The main theoretical approaches interpret it (stress) differently:

- as a stimulus (this focuses on the impact of the stressors);
- as a response (the physiological consequences);
- as a process (that involves continuous interaction, adjustment or transaction). (Papathanasiou *et al*. 2015).

Stress as a Process (Transactional model) developed by Lazarus and Folkman (1984:19**),** views stress from a psychological perspective, namely that “stress is a process or a particular relationship between the person and the environment and that it is appraised

by the person as taxing or exceeding his or her resources and endangering his or her wellbeing."

There are a few transactional models that base their explanation on the theory of Lazarus, which explains that people differ in the way they understand stress either as an experience or a response to stress (Papathanasiou *et al*. 2015). Lazarus developed the transactional interaction model that emphasises the role of cognition in two phases, namely:

- Phase one consists of the Primary Appraisal Response, which is a person's conclusion about the significance of an incident perceived as stressful, as positive, controllable, challenging or irrelevant (Papathanasiou *et al*. 2015).
- Phase two entails a Secondary Appraisal Response, wherein the individual assesses their handling of stress resources, which is supported by the direct and includes ecological environment factors, support they are getting from friends and family, knowledge and abilities acquired to help them lower risk of stress (Papathanasiou *et al*. 2015).

- **Stress as a Stimulus**

Positive and negative life events can be stressful, and the scale of stressful life events records and measures the recent stressful situations of the person, such as divorce, pregnancy or retirement. However, these scales should be used with caution as the extent of stress depends on the way it is interpreted by the individual, and those scales need to be validated in the age and socioeconomic status; it also needs to be culturally adapted Papathanasiou *et al*. 2015).

- **Stress as a Response**

In order to differentiate between cause and response, Selye introduced the term Stressor. Selye's model is called the "general adaptation syndrome (GAS)," which views stress as a condition of the body and the response to stress is presented by the release of hormones that alters the way the body is built causing changes in the configuration of the body (Papathanasiou *et al*. 2015).

2.7.2 The World Health Organization and International Labour Organization's Healthy Workplace Model

The model states that "A healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of workers and the sustainability of the workplace by considering the following, based on identified needs:

- health and safety concerns in the physical work environment and the psychosocial work environment including organisation of work and workplace culture,
- personal health resources in the workplace and, way of participating in the community to improve the health of workers, their families and other members of the community" (Burton (2010:2).

Figure 2.1 presents the WHO/ILO healthy workplace model as described by Burton (2010:2).

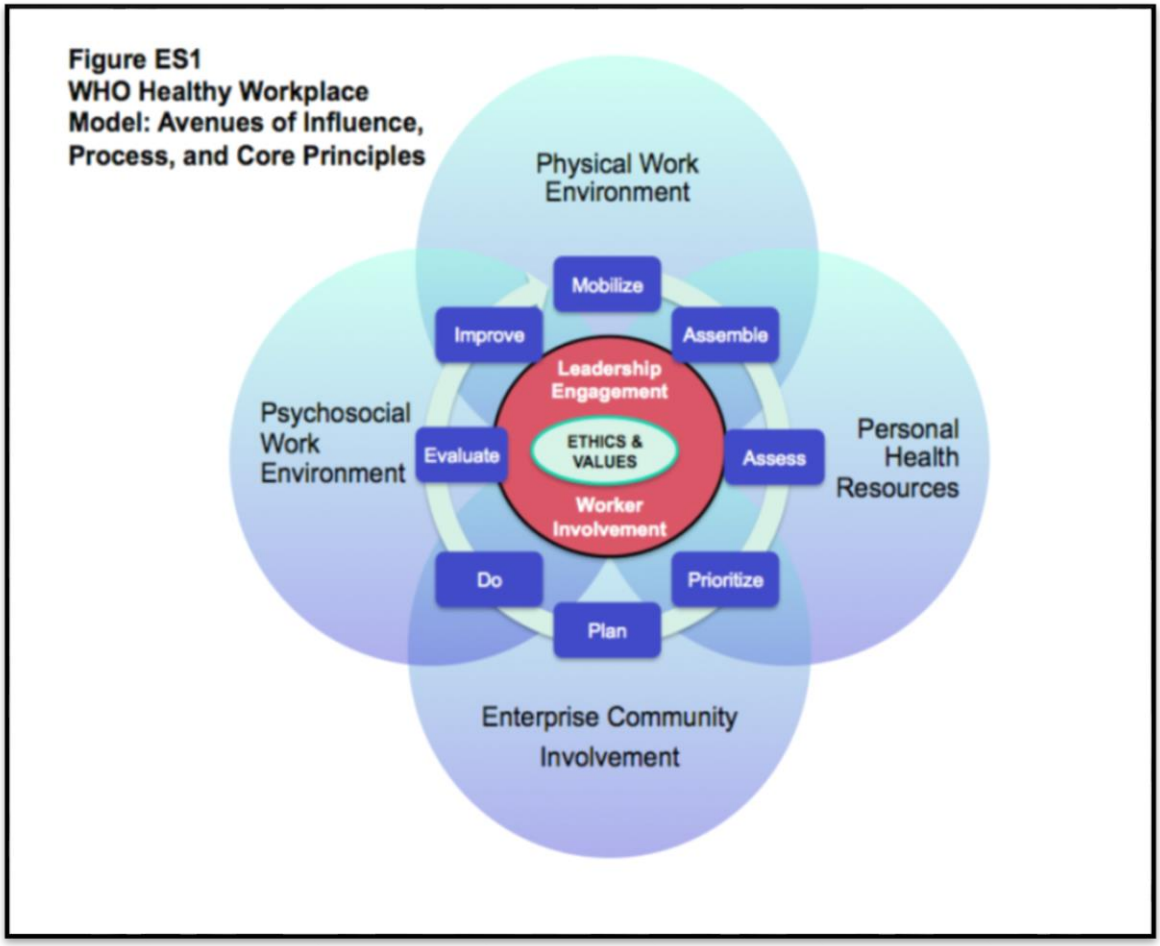


Figure 2.1 WHO/ILO Healthy Workplace Model (2010)

Source: Burton (2010:3) Business Case for a Healthy Workplace model

The healthy workplace model sets forth a continued process, as proposed by the WHO (2010), which includes eight steps: "*mobilise, assemble, assess, prioritise, plan, do, evaluate and improve,*" and four influences that represent the process: "*physical work environment, personal health resources, enterprise community involvement and the psychosocial work environment*" (Burton, 2010:3).

Burton (2010:3) states there are no legal requirements, or acts, in place that require a company to endorse or motivate healthy lifestyle practices in the occupational setting. However, the only country that has legislated health promotion is Germany, where it is required from the national sickness insurance providers to invest a specific amount of money per insurance member for promoting healthy living and wellness by incorporating it in their promotional platforms and usually implemented at the place of work (Burton, 2010). For workplaces to achieve pre-determined targets, they require inputs from workers who are mentally and physically healthy through health protection and promotion, and there is a strong business case for ensuring workers are mentally and physically healthy for practice settings (Burton, 2010). The importance of stress as a psychosocial hazard is emphasised in the model described by Burton (2010:2).

2.8 SUMMARY

In this chapter, the need for nurses to maintain and provide highly quality and safe care in a stressful environment was discussed, and it is imperative that every healthcare institution develops plans responsibly to improve working conditions and help nurses manage stress through the literature describing the high stress levels in the ICU.

The idea of ICUs originated in 1952, with constant bedside monitoring by dedicated well-trained nurses and showing that the mortality of these patients was lower. Care for the critically ill patient and family members is provided by a dedicated group of highly trained nurses deemed competent to practice, who understand the complexities of monitoring equipment and ventilator machines. These highly trained nurses have the ability to act in emergency and stressful situations to save lives and help patients recover. The ICU environment has proven to be extremely stressful and demanding thus leading to the development of psychological and stress disorders in nurses.

Various models and theories of stress exist and can assist in identifying stressors in a specific situation and foresee the way a person will handle a stressful situation. Studies have demonstrated there is a relationship between emotional exhaustion, depersonalisation

and moral distress of which prolonged stress leads to burnout. Burnout is an old concept that overlaps with depression and adaptation disorder, emotional exhaustion and depersonalisation. The literature emphasises the best way to prevent burnout is by promoting health in the workplace.

Numerous studies have concluded that causes of stress in the ICU include working conditions, heavy workloads, low remuneration, very sick and dying patients and conflict between staff. Different stressors, such as physical stress related to the occupation, stress related to the type of occupation, social stressors, working under time pressure, stressful events and stress caused by day to day work, all contribute to the stress levels of nurses practicing in ICU's. This in turn may trigger stress, compassion fatigue, moral distress and burnout. Studies have shown that the numerous psychological and physical symptoms that can be associated with stress may lead to absenteeism, resulting in organisational problems that ultimately have a financial influence on the institution and affect the quality of nursing care and safety of the patient.

There is undisputable evidence that the demand and supply of nurses is a worldwide problem. Employers have to sustain the demand of ICU nurses to maintain the quality of care and safety of the patients. Since 2006, the WHO has warned there will be a global shortage of nurses. The health sector, and more specifically the hospital Intensive Care setting, must make sure they are in line and follow world trends, understand the origins of organisational stress and the prevention of stress. If the hospitals unit managers, and employees do everything they can to minimise stress related to the occupational setting and apply skills to mitigate stress levels as well as collaborate to improve the occupational environment, this will guarantee a healthy and fruitful workforce and a supportable economic benefit for the hospital. As the demands in hospital Intensive Care Unit constantly change, so does the need for skills development, therefore there must be assurance that educational programmes are implementable on an on-going basis. As suggested by the occupational health and safety professionals, the managers and people in charge of policy development, the employees should be reformed and be included to help prevent psychosocial risk factors and to better the occupational environment and prevent work-related stress.

A healthy workplace is seen as a place where no harm is done physically or mentally to the wellbeing of employees, and where employees and supervisors work together to ensure there is continuous progress in improving the wellness, well-being and safety of all employees to ensure the sustainability of the workplace. Therefore, a long-term sustainable

solution in the workplace, which includes a positive approach, and development of polices and interventions has to be implemented.

In the last three decades, the field of occupational stress interventions have been rapidly expanding. There are a variety of interventions available that can be implemented to prevent the serious side effects caused in health that are the consequence of occupational stress. The interventions available focus on both the organisation and the individual. Internationally, wellness programmes developed for the workplace aim to promote and maintain healthy workers in the workplace. Indeed, it is the employers' legal obligation to control the risks of stress and to assess the risk of stress-related health impacts resulting from activities in the workplace.

The following chapter will discuss the research methodology.

CHAPTER THREE

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

This chapter describes the research methodology used in the study. The research design was a quantitative quasi-experimental (pre- and post-test), non–equivalent control group design used to develop and pilot test a stress management intervention for professional nurses practicing in the ICUs of one public hospital in the Gauteng Province. This chapter addresses the methods and procedures employed to accomplish the aim and outcomes of the study.

3.2 AIM AND OUTCOMES

For consistency, the aim and objectives of the study are repeated.

The aim of this study was develop and pilot test a stress management intervention for professional nurses practising in ICUs.

The primary outcome was enhanced use of healthy and effective occupational stress management coping skills and decreased levels of stress intensity. Secondary outcomes included:

- Stress levels measured pre- and post-test using the Expanded Nursing Stress Scale (ENSS) questionnaire.
- Efficacy of stress management intervention as determined in the short term.
- Description of stress reduction strategies according to ICU nurses.

3.3 RESEARCH DESIGN

The research design for this study was a quantitative quasi-experimental (pre- and post-test) non-equivalent control group, to develop and test a stress management intervention for professional nurses practicing in ICUs.

This research design was selected as it provided data collection points before and after the introduction of the intervention, which allowed the researcher to attribute the results post-

intervention to the introduction of the intervention (Polit & Hungler, 1997) - in this case, the intervention on stress management for nurses practicing in ICUs.

This study measured stress levels of professional nurses practicing in the ICUs. Measurement of stress involved utilisation of reliable and valid survey tools to characterise participant's response. The goal of this approach was quantification, and it is commonly applied to examine stress and coping amongst professional nurses in workplace settings. Survey research adapts to a quasi-experimental approach, with measurement of Likert-type responses in the context of research questions. In this study, the nurses' responses, addressed by the context of research questions, were delivered in a pre-test and post-test format to measure changes before and after the implementation of a stress management intervention.

3.4 RESEARCH STRATEGY

The research site was identified and ethical approval obtained from the hospital and university Ethics Committee, following a discussion with the Director of Nursing Services, Senior Nursing Services Manager and ICU unit managers. The study was conducted in the ICUs of a large public sector and tertiary level hospital and referral institution in Johannesburg. The adult ICUs had 90 ICU and high care beds with a varied case-mix of elective surgery, emergency admissions, medical and inter- and intra-hospital transfers that required Intensive Care treatment. The adult ICUs (n = 5) included trauma, cardio-thoracic, coronary care, neurosurgical and general units. On average, the acuity level of patients in these units was high (total mean SAPS II score 34.83 overall and 42.75 in trauma patients) (Schmollgruber, 2015). The average age of ICU patients was 48.2 years, mean length of stay in ICU was 7.3 days, and the predicted and actual mortality rate was 20% (Schmollgruber, 2015). During data collection in 2016, the average number of admissions to these units was 1460, and the professional nurse-to-patient ratio was 1:1 (Kisorio, Schmollgruber & Becker, 2010).

The study was conducted in four phases: Phase One was pre-testing, Phase Two development of the stress management intervention, Phase Three implementation of the intervention and Phase Four the post-test. **Figure 3.1** provides an overview of the research strategy.

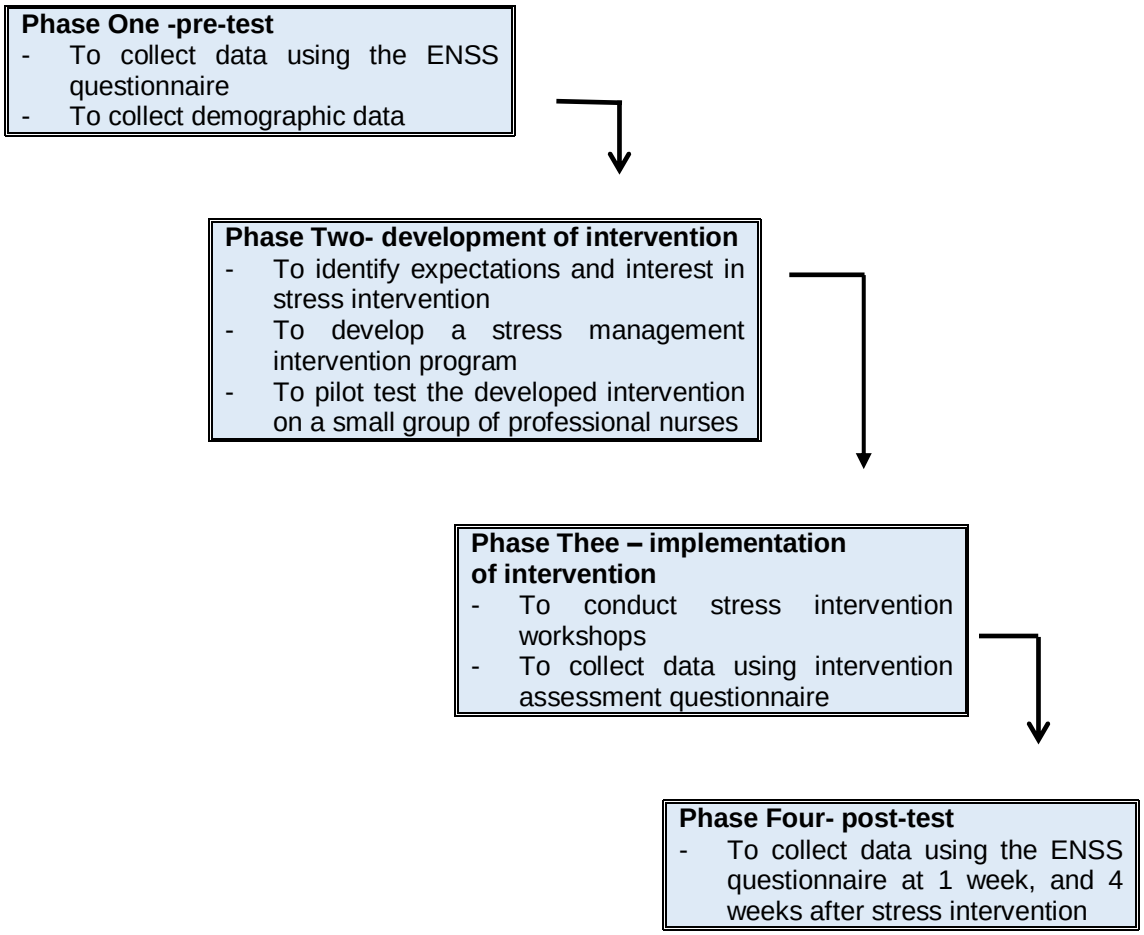


Figure 3.1 Overview of research strategy

3.5 POPULATION

The target population for this study was all professional ICU nurses in the Republic of South Africa. However, it was not feasible to include all, therefore an accessible population was selected comprising of professional nurses practicing in the ICUs of the selected Gauteng Central Hospital.

The accessible population for this study comprised of all nurses practicing in five ICUs in the selected institution and who met the inclusion criteria. They included the nurses practicing in the trauma ICU, cardiothoracic ICU, coronary care ICU, neurosurgical ICU and general ICU. A preliminary record review undertaken in February 2015 indicated there were approximately 169 (N=169) ICU nurses practicing in the ICUs. **Figure 3.2** displays these results.

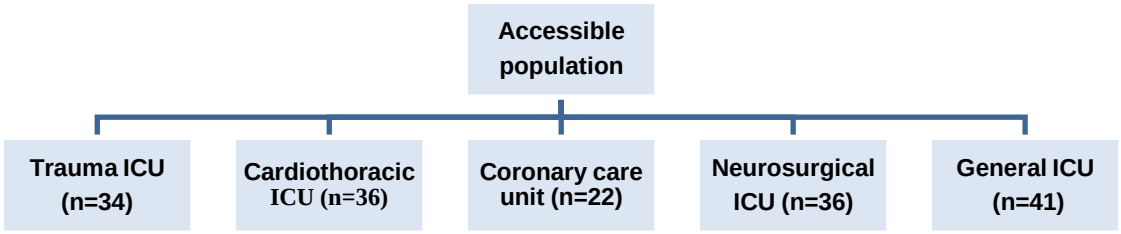


Figure 3.2 Number of nurses practising in the ICUs of the selected institution

3.6 SAMPLE AND SAMPLING METHOD

The total sample (N=169) was used to recruit participants for this study. As the study was conducted in one central public hospital, it was feasible to use a convenience sampling method to recruit sufficient numbers of nurses to the intervention and control group at the same time.

Convenient sampling has been criticised for introducing sampling bias, systematic bias and limitation of the findings (LoBiondo-Wood & Haber, 2009). According to Burns *et al*. (2013), this criticism can be addressed by carefully selecting a target population using systematic inclusion and exclusion criteria thereby decreasing potential bias and increasing the representativeness of the population.

3.6.1 Inclusion/Exclusion Criteria

The inclusion criteria for prospective participants were:

- Registered by the South African Nursing Council (SANC) with an additional qualification in Intensive Care nursing.
- Registered by the South African Nursing Council (SANC) as registered general nurse including permanent and agency nurses working in the selected public sector institution.
- More than six months experience in the selected Intensive Care Unit.

An exclusion criterion for the study was enrolled nurses and assistant nurses, as this category of sub-professional nurses do not hold the same responsibilities for patient care. Sub-professional nurses practice under direct supervision of professional registered nurses.

3.6.2 Sample Calculation

Following discussion with a biomedical statistician, a size of 130 (n = 130) was decided upon, as shown in the equation below, to ensure good representation of the population from which the sample size was drawn.

The sample size was determined by power analysis using a two-group χ^2 test with a 0.050 one-sided significance level, with 80% power to detect the difference between a smaller proportion, π_0, of 0.500 and a larger proportion, π_1, of 0.711, when the sample size is 65 in each of the control and intervention groups (130 in total). An adequate sample size reduces the risk of type II errors (accepting a false null hypothesis).

Given the fact that ICUs are known stressful environments, based on the nature of life threatening and unpredictable patient situations, it was ethically not possible for the researcher to assign participants to study groups.

In this study, the intervention group constituted professional ICU nurses who were interested in participating in the stress management intervention, whilst those not interested formed the control group.

The researcher acknowledged that the choice of the intervention group in this study might have introduced a biased sample because the nurses who participated were interested in the topic, which meant they started with a positive outlook.

3.6.3 Variables

The dependent variable for the study was stress experienced by nurses practicing in the ICUs. The independent variable was the implementation of the stress management intervention. Demographic data included (i) age, (ii) gender, (iii) highest academic qualifications, (iv) professional qualifications, (v) unit of work, and (vi) years of experience in ICU.

3.7 INTERVENTION

Phases Two and Three involved the development and implementation of the stress management intervention. Each aspect of the intervention will be discussed in the following paragraphs.

3.7.1 Development (Phase Two)

The development of the stress management intervention was based on an extensive the literature review and a free online set of Stress Management Training Manual. It was created through a collaborative process between the Community Association for Psychosocial Services (CAPS), staff in Kono, Sierra Leone, Concern Worldwide Innovations for *Maternal, Newborn & Child Health Staff* and a public consultant with psychosocial expertise. The training manual, Helping Health Workers Cope (HHWC, 2013), was designed to guide staff in a stress management project.

In this study, a pre-testing process was completed at which time the stress management intervention was administered to a group of eight occupational health nurse practitioners, who were also registered Master's degree students in the Department of Nursing Education. Based on feedback from the eight (n=8) nurses and two expert facilitators, the stress management intervention was deemed appropriate for the South African context.

To determine content validity, five (n=5) highly educated and experienced ICU nursing experts in clinical practice validated the content of the programme. Minor modifications were made according to their recommendations:

- **Item 1a** - pre-test was removed as this was a duplication of data that would be obtained in the pre-test phase of the study. It was suggested to replace this item with an ice-breaker activity using 20 pre-designed cards (see *Appendix F*).
- **Item IV -** remove feedback as an individual self-assessment and rather use a group feedback activity to encourage active participation.
- **Item Va -** reflective journaling was added as a learning new skills activity.
- **Item V -** practical exercises on the original tool were removed, being considered too basic, and replaced by practical exercises related to Mindfulness, Mandela art and deep breathing exercises.
- **Item VIIa -** wording was changed from "self-care prescription" to "self-care maintenance." The expert ICU nurses felt these were more suited to the ICU setting in current the literature.

Table 3.1 provides a brief outline of the modified course content and a more detailed outline provided in **Appendix E.**

Table 3.1 Outline of content of stress management intervention

Title: Modified HHWC Stress Management Training

Objectives:

Upon completion of the programme, attendees will be able to:

1. Define stress including positive and negative aspects
2. Identify sources of stress in their personal and professional lives
3. Identify at least three ways to reduce stress within the work environment
4. Identify at least three techniques to improve stress management and self-care

I Introduction

a. Welcome, introductions, review of objectives and agenda
b. Administer ice-breaker, establish ground rules
c. Expectations from participants

II What is Stress? – 30 minutes

a. Definitions of stress
b. Discussion of positive and negative aspects of stress

(*Break – 15 minutes*)

III How Do We React to Stress? – 30 minutes

a. "Fight or flight" response, role of cortisol
b. Participant activity (pairs) on positive/negative stress

IV Exploring sources of stress – 90 minutes

a. Individual self-assessment activity, feedback group activity
b. Discussion of work-related stress
c. Discussion of stress (mind, behaviour, body, spiritual, workplace)
d. Introductory discussion on positive responses to workplace stress
e. Participant activity (health facility role play) on positive/negative responses to stress
f. Discussion of role play, health worker responses

(*Lunch break – 60 minutes*)

V Stress management strategies – 60 minutes

a. Introduction to stress management, learning new skills (reflective journaling)
b. Basic stress management techniques
c. Review of stress management tips (recognition, self-care)
d. Discussion/reactions to self-care ideas

VI Stress reduction/Relaxation – Practical Exercises – 30 minutes

a. Mindfulness
b. Mandela Art
c. Deep breathing exercises
d. Brief reflection on exercises

(*Tea break – 15 minutes*)

VII Personal Goal Setting – 15 minutes

a. Individual exercise – self-care maintenance
b. Brief discussion regarding personal goal setting

VII Wrap-up/Closing – 30 minutes

a. Recap, summary of learning from the day
b. Brief group evaluation
c. Re-visiting participants' training expectations
d. Administer post-test
e. Word of thanks, encouragement for self-care and stress management efforts

Source: Helping Health Workers Cope (HHWC, 2013)
Available at: http://innovationsformnch.org/finding-what-works/helping-health-workers-cope.

3.7.2 Implementation (Phase Three)

Workshops were used to implement the developed stress management intervention. Participants had been given an information letter before booking a suitable date to attend the workshop. To make attendance of the participants fair, lists on which to add names were put in the units with space for 15 participants on a self-determined day. The workshops were conducted in a private seminar room near one of the larger ICUs. The objectives of the workshop and significance of the study were explained. A non-threatening environment was ensured by welcoming participants in a friendly manner, with light refreshments (tea and cookies) offered as they entered the room.

The workshops were facilitated by a registered nurse specialist practitioner who was highly educated in psychiatric nursing and had extensive experience in working with groups on stress management and crisis intervention. The researcher acted as the link between the participants and the facilitator in the organisation of suitable times for the workshops. During the workshops, the researcher acted as a non-participant observer. Additionally, to avoid the possibility of participants trying to please the facilitator or the researcher in the feedback responses on the evaluation of the workshop, an assistant (MSc student) not involved in the study was used to collect the questionnaires (see *Appendix H*).

To help the participants change their mindset, relax and participate in the events of the day an “icebreaker” game was played. Participants divided themselves into groups of five and arranged their chairs in a circle, which helped to foster power sharing and interaction amongst members. Some of the participants’ responses to the icebreaker game were experienced as very funny and generated much laughter in the group, thereby promoting a comfortable and relaxed mood to commence the workshop.

The facilitator shared her background as a registered nurse, who was also working in the ICU environment. This background knowledge helped the participants associate with the facilitator and created collaboration within the group and a sense of psychological comfort. As the group was relatively small, all participants had an opportunity to introduce themselves and state what they hoped to gain from the workshop. The outline of the content of the workshop was discussed among the participants and suitable times for breaks negotiated and agreed on. Commitment from the members was obtained verbally regarding rules of the workshop, engagement and listening to what others had to add to the conversation without interruption. The participation and contribution of each person were

emphasised, the importance of confidentiality and a non-judgemental approach was agreed upon as individuals shared personal experiences and information.

Learning objectives were discussed in greater detail, for example, knowledge, awareness, attitude and stress handling skills, problem-solving skills, self-care techniques, relaxation techniques and coping skills. Participants were probed, encouraged to share opinions and speak openly. To keep the group engaged during the workshop activities questions were asked, clarification and agreement obtained, and opinions discussed while the facilitator listened actively.

At the end of the workshop session, the participants were asked to summarise what they had gained and learned from the workshop. It was compared to their expectations mentioned at the beginning of the workshop. The facilitator summarised the most important points at the end of the workshop, and the participants were given the opportunity for final comments, whilst the researcher took field notes. The participants were also asked to complete an evaluation form. A short feedback session was held between the facilitator, research assistant and the researcher after the workshops. In total, four workshops were conducted in this study, with each lasting, on average, between 6 to 7 hours.

3.8 INSTRUMENTS

Instruments used were a combination of tools previously developed, used and tested, or created specifically for this study. The instruments used to measure stress, demographic information and intervention interest and assessment were the Expanded Nursing Stress Scale (ENSS), Biographical Questionnaire, Stress Management Interest Questionnaire and Stress Management Intervention Evaluation Questionnaire. Each aspect of the instruments used in the study will be discussed in the following paragraphs.

3.8.1 Expanded Nursing Stress Scale (ENSS)

The Expanded Nursing Stress Scale (ENSS) is a self-reporting questionnaire (*Appendix B*) consisting of 57 items: seven related to death and dying, five to conflict with physicians, three to emotional preparation, six to problems with peers, six to problems with supervisors, eight to workload, nine to uncertainty concerning treatment, eight to patients and families, and three to discrimination. The Expanded Nursing Stress Scale (ENSS) asked the respondents about situations encountered as stress, as the major construct variable on a five-point Likert scale, with the rating option as 1 = *"never stressful"*, 2 = *"occasionally*

stressful", 3 = *"frequently stressful"*, 4 = *"extremely stressful"* and 5 = *"does not apply.*" Possible scores range from 57 to 228, with higher scores representing higher stress levels.

The Expanded Nursing Stress Scale (ENSS) originated in Canada, and is an expansion of the original Nursing Stress Scale (NSS) designed to measure the frequency and major sources of stress experienced by nurses in hospital units (Gray-Toft & Anderson, 1981). It was developed by French, Lenton, Walters and Eyles (2000), using a factor analysis of 2 400 nurses' responses to a list of stressful nursing situations that had been identified. A factor analysis is a form of validity that uses a statistical analysis procedure for determining the underlying dimensions or components of a variable (Lo-Biondo-Haber & Wood, 2009). The final version of the ENSS comprised 57 items and included nine factors, which formed subscales (death and dying, conflict with physicians, inadequate emotional preparedness, problems with peer support, problems with supervisors, workload, uncertainty concerning treatment, patients and families and discrimination).

The ENSS is well validated with good test re-test reliability. The reliability coefficient for ENSS and its nine subscales, calculated using Cronbach's alpha coefficients of subscales, were .70 or higher, and concurrent and construct validity assessments provided strong support for the expanded ENSS (French *et al.,* 2000). According to De Vos, *et al.* (2011), construct validity is the most difficult form of validity as it involves determining the degree to which an instrument successfully measures a theoretical construct, whereas concurrent validity is another form of validity undertaken on different samples.

The 57-item ENSS demonstrated improved reliability (α = .96) (French *et al.* 2000) over the original NSS (α = .89) developed by Gray-Toft and Anderson in 1981. Individual subscale reliability ranged from α =0.88 (problems with supervisors) to α = 0.65 (discrimination). Discriminant validity of the ENSS was examined by computing Product Moment Correlations with overall Life Stress ($r = .17$, $p < .001$ [one-tailed test]) and Health Problems Index ($r = .34$, $p < .01$ [two- tailed test]) (French *et al.* 2000). Furthermore, one independent study, conducted with nurses recruited from metropolitan and regional institutions in Australia, reported a reliability coefficient of 0.89 for the total scale and coefficients ranging from 0.64 to 0.77 for subscales (Healey & McKay, 1999).

3.8.2 Biographical Questionnaire

The self-administered biographical questionnaire was developed as a checklist (*Appendix C*) by the researcher and consisted of six items: age, gender, the highest level of academic qualifications, professional qualification, work unit and years of ICU experience.

3.8.3 Stress Management Interest Questionnaire

The self-administered stress management interest questionnaire (*Appendix D)* was developed as a checklist by the researcher. It comprised four items and included an expressed interest in attending a stress management intervention, options for timing duration of the workshop, and options or suggestions for reducing stress in the ICU. Closed-ended dichotomous responses and one open-ended item allowed the participants to either select responses or provide additional comments to elaborate on their responses.

3.8.4 Stress Management Intervention Evaluation

The self-administered stress management intervention evaluation (*Appendix H*) was also developed as a checklist by the researcher. Open and closed-ended responses were used to obtain responses from the participants after they attended the stress management workshops. A 4 point-Likert type scale was used in the closed-ended responses, with the rating option as *"excellent," "good," "average,"* and *"poor."* Open-ended responses provided for reflection and short answer responses.

3.9 DATA COLLECTION PROCEDURES

This study was conducted in four phases: Phase One was pre-testing, Phase Two was the development of the intervention, Phase Three the implementation of the intervention and Phase Four was post-testing.

During Phases One and Four, the researcher visited every ICU, checked the allocation register for names of the nurses that qualified to take part in the study, informed the nurses about the study and handed out questionnaires and participant information letters (*Appendix A*). A self-administered questionnaire was used therefore there was no need for a written consent. The researcher explained the study and procedures to the participants. Personal contact information (cell phone number) was collected from the participants for the intervention workshops and follow up (post-test) in the study procedures. Participants deposited the completed questionnaires in sealed boxes placed in each unit. The researcher personally handed out the coded questionnaires and the participants completed

them in their own time. The researcher collected the boxes after 10 days. Completion of the questionnaires required 20 to 30 minutes of participants' time.

All procedures and instruments were pre-tested on a sample of five (n=5) nurses before initiating the study. One minor revision to procedures was made upon review of pre-testing. The box used to collect and store survey packets until collection by the researcher was moved from the unit manager's office to an area beside the unit clerk, who was located centrally, and nurse communication was provided there. It was simpler and respondent's confidentiality was better maintained by having the box in that location.

3.9.1 Phase One

Before implementation of the intervention, eligible nurses were recruited to evaluate stress, using the Expanded Nursing Stress Score (ENSS), demographic data and stress management intervention interest questionnaire. The process consisted of the following:

1. Recruit participants. Identify potential participants from discussion with the unit managers and review of the unit allocation lists.
2. Explain the study and procedures to every potential participant and answer any questions they may have.
3. Give a copy of the information form to each participant for record keeping and key contact numbers.
4. Administer packet, containing ENSS, demographic questionnaire and stress management intervention interest questionnaire, to each participant.
5. Collect data, maintain confidentiality and store.

3.9.2 Phase Two

The stress management intervention programme was developed. The process consisted of the following:

1. Conduct the literature review. Identify key sources of information that can be used.
2. Review data obtained from participants on the stress management interest questionnaire.
3. Compile a content outline for a stress management intervention programme.
4. Engage in discussion with local domain experts in the field to nominate the facilitator.
5. Conduct a pre-testing process on a small group of postgraduate nursing students.

6. Refine stress management intervention programme based on recommendations and feedback data.
7. Validate the content of the intervention with expert nurses in the ICU setting.

3.9.3 Phase Three

The stress management intervention was implemented. The programme consisted of the following:

1. Analyse data obtained from participants on the stress management interest questionnaire.
2. Recruit participants. Identify participants from completed stress management interest questionnaire and review of unit allocation lists.
3. Arrange a suitable date and time for participation in the intervention workshop.
4. Implement the intervention with nurse participants facilitated by an expert in the field.
5. An evaluation of the intervention by the participants questionnaires collected by a research assistant.

3.9.4 Phase Four

Four weeks after the intervention, participants in the intervention group were asked to evaluate the effectiveness of the intervention using the ENSS questionnaire (*Appendix B*). The control group participants were also asked to complete the post-test ENSS questionnaire (*Appendix B*). Data were stored for later use.

3.10 DATA ANALYSIS

Data were entered into the statistical package STATA version 13 for analysis. Data entry was performed manually by entering individual answers into the system. All data were screened for accuracy, outliers and missing data.

Demographic characteristics were described using frequencies (categorical data) and descriptive statistics (continuous variables). Continuous variables were explored for normality. Characteristics of the two groups of nurses were tested for equivalence using chi-square statistics (categorical data) or independent t-tests (continuous variables). Results of the Stress Management Intervention Interest Questionnaire were summarised, and the ENSS was scored according to the author's instructions.

The following hypothesis was tested:

- Implementation of a Stress Management Intervention Programme will reduce the stress levels of ICU nurses, in the short term.

The hypothesis was tested using two-sample t-tests, with significance level set at 0.5 for rejecting the null hypothesis. Since assumptions were not met, non-parametric tests were used for continuous level data. T-tests were conducted to analyse continuous data, Kruskal-Wallis tests analysed categorical data and normality was tested using the Scheffe test.

Content analysis was used to develop categories and sub-categories of open-ended questions. The analysis followed the method as described by Elo and Kyngas (2007). Key essential steps were preparation, organising and categorising essential data to describe the phenomenon in a conceptual form. A co-coder, who is an expert in the field of study and experienced in descriptive content analysis, verified the study findings.

All completed forms were kept in a locked box, with the researcher having the only keys. Any information kept in a computer file was password protected. A memory stick was used for backup and portability of information and was kept in the same locked box as the completed forms when not in use.

3.11 VALIDITY AND RELIABILITY OF THE STUDY

The traditional criteria for validity and reliability are supported in the scientific paradigm in quantitative research. The measures that follow were applied, to ensure validity and reliability in the study.

- *Content validity* was ensured. The data collection tool was formulated from established instruments developed to measure stress levels of professional nurses practising in clinical settings. The instruments were amongst those most commonly used internationally and known in the current the literature to provide the necessary information for stress on ICU nurses. The validity of the instruments was established in published studies.
- *Sample calculation.* Effect size, power analysis and significance were computed to generate an adequate sample to allow for comparison, thereby providing an opportunity to reduce the risk of type II errors. A senior biomedical statistician from the Medical Research Council (MRC) assisted with data analysis and statistical tests.

- *The validity* of the study was maintained by ensuring consistency in data collection. This was in strict adherence to the data collection tool and guidelines provided by the developers (French *et al.,* 2000). A pre-testing process was undertaken to ensure the reliability of the study procedures in the South African context.

3.12 ETHICAL CONSIDERATIONS

Ethical considerations, as applied in this study, are discussed under the following headings: permission to conduct research, protection of human subjects and confidentiality and anonymity.

3.12.1 Permission to Conduct Research

The study was approved by the Committee for Research on Human Subjects of the University of the Witwatersrand (*Appendix I*), the Postgraduate Committee of the University of the Witwatersrand (*Appendix K*), the Chief Executive Office and Hospital Management at the selected institution (*Appendix J*) and unit nurse managers verbally before commencing the study. Written permission for the use of the data collection instrument (ENSS) was obtained from the primary developer, Dr Susan French (*Appendix L*).

3.12.2 Protection of Human Subjects

Participation in this study was voluntary; no ICU nurse was coerced into participation. All participants were asked to read an information letter, and the researcher was present at the time to answer any questions. No participant was permitted to answer the questionnaire until the information letter had been read and the participant had had the opportunity to ask questions. A copy of the information letter was provided to the participant at the time.

No information that personally identified the participants was collected on any instrument. Each participant was issued a researcher generated identification code, which was included on each of the data collection instruments.

No direct benefits were anticipated for participation in the study. Information obtained in the study was used to promote stress reduction in nurses practising in ICU in the future. If success was achieved in lowering the stress levels of nurses and improving coping skills, this or a similar plan could be used in other healthcare situations and at other institutions with the support of evidence-based research.

3.12.3 Confidentiality and Anonymity

To ensure confidentiality of all answers, all forms were locked in boxes held by the researcher until the data were collected and the statistical analyses completed.

3.13 SUMMARY

This chapter provided a detailed discussion of the research design and methods of the study, inclusive of the population, sample and sampling methods, development and implementation of the intervention, data collection and data analysis procedures followed. Measures of validity and reliability of the study were discussed and ethical considerations were addressed.

In the next chapter, the results of the study will be addressed.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.1 INTRODUCTION

This chapter presents the findings of the quasi-experimental study designed to develop and pilot test a stress management intervention. The primary outcome of this pre-test post-test study was to pilot test the effect of a stress management intervention on nurses practicing in the ICU in one public hospital in Johannesburg. A secondary outcome was to determine the viewpoints of ICU nurses on how stress can be reduced in the ICU setting. The research questions used in this study were as follows:

- What are the stress levels of ICU professional nurses?
- How can stress be reduced in ICU settings according to the professional nurses?
- To what extent does a stress management intervention assist professional ICU nurses in the effective management of stress in the short term?

A demographic profile of the study participants is presented and results associated with the three research questions are described. Research question one was evaluated using paired group differences in stress levels between intervention and control group participants after controlling for age, professional qualification and unit of work. Research question two was assessed using content analysis and categories were developed. Research question three was evaluated using paired group differences in stress levels between intervention and control participants.

In addition to ICU nurses' viewpoints for reducing stress in the ICU, data were collected from those nurses who participated in the stress management intervention workshop these are presented following the results of nurses' suggestions for reducing stress the ICUS.

4.2 SAMPLE

Nurses (N = 169) practicing in the ICUs, who met inclusion criteria, were approached to participate. The sample size for the pre-test was 114 (n = 114) and for the post-test sample, 103 (n=103), which represented a retention rate for the study of 90.4%. The sample size in the control group was 59 (n = 59), with 49 (n = 49) participants completing both questionnaires; this represents a retention rate of 83.1%. The intervention group recruitment sample was 55 (n = 55) and 54 (n = 54) remained in the study (retention rate 98.1%).

Ten participants in the control group did not complete the study because they did not complete both questionnaires, therefore these participants did not meet the inclusion criteria stipulated by the study.

One participant in the intervention group did not complete the study due to an unexpected resignation from the institution during the study period.

Figure 4.1 illustrates the process that resulted in the final sample.

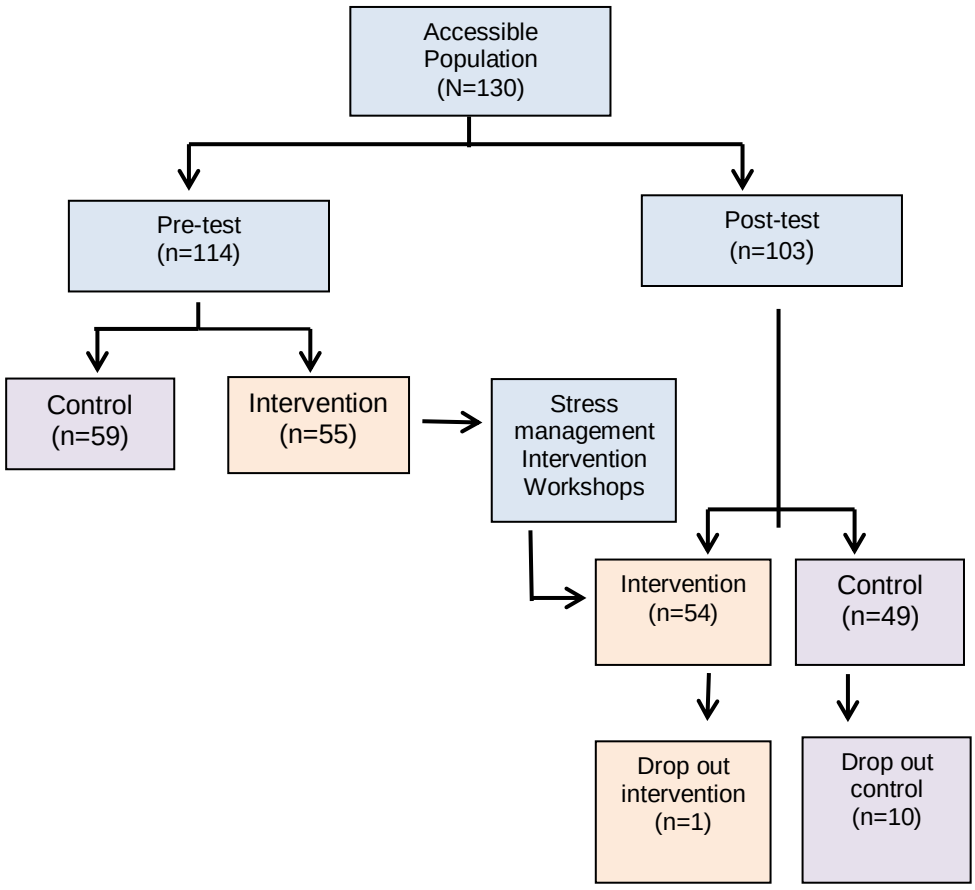


Figure 4.1 Process of final sample in this study

4.3 SAMPLE CHARACTERISTICS

Results of the process are summarised in **Table 4.1** for the pre-test group (n=114).

Table 4.1 Demographic data obtained from the participants for the sample

Category	Frequency	Percentage
Age		
- 20 to 29 years	19	16.7%
- 30 to 39 years	28	**24.6%**
- 40 to 49 years	39	**34.2%**
- 50 to 59 years	25	21.9%
- 60 and older	3	2.6%
Gender		
- Female	99	**86.8%**
- Male	15	13.2%
Highest academic qualification		
- Diploma	63	**55.3%**
- Advanced diploma	13	11.4%
- Bachelor's degree	28	24.6%
- Honours degree	9	7.9%
- Master's degree	1	0.9%
- Doctoral degree	-	-
Professional qualifications: ICU nursing		
- Yes	58	50.9%
Psychiatric nursing		
- Yes	65	57.1%
Unit of work		
- Cardiothoracic ICU	27	23.7%
- Neurosurgery ICU	18	15.8%
- General ICU	22	19.3%
- Trauma ICU	31	**27.2%**
- Coronary Care	15	13.2%
Years of ICU experience		
- >6 months & < 1 year	7	6.1%
- 1 to 5 years	51	**44.7%**
- 6 to 10 years	27	23.7%
- >10 years	29	25.4%

In this study, the largest (34.2%, n = 39) number of nurse participants were in the age category of 40 to 49 years, followed by 28 (24.6%) and 25 (21.9%) between ages of 30 to 39 and 50 to 59 years, respectively. Females accounted for the majority (86.8%, n = 99) and 13.2% (n = 15) were males. Most of the nurse participants in this study held a diploma (55.3%, n = 63) level as the highest qualification, and had an additional qualification in ICU nursing (50.9%, n = 58), and psychiatric nursing (57.1%, n = 65). The highest (27.3%, n =

31) number of the nurse participants practiced in the trauma ICU. Most of the nurse participants in this study had between 1 to 5 years of ICU experience (44.7%, n = 41). **Table 4.1** displays these results.

4.4 RESULTS

4.4.1 Phase One: Pre-test

The total sample comprised of 114 (n=114) participants who were registered nurses practicing in the ICUs. The instrument used in this study was the Expanded Nursing Stress Scale (ENSS) (French *et al.* 2000). The researcher adhered to the instructions provided by Dr Susan French (French *et al.* 2000) to analyse the questionnaire scores from the ENSS, and a total stress score computed by adding all 57 items. According to the scoring guidelines, the higher the participants score, the greater the stress level on individual item or total subscale scores.

Data were analysed by the intervention (n = 55) sample population to determine the stress response from the participants using measures of central distribution (means and standard deviations) for the total questionnaire scores.

4.4.1.1 Reliability and effectiveness of the instrument

Table 4.2 Summary Cronbach's reliability coefficient for items Q1 to Q57

Test	Number of items included	Average inter-item correlation	Reliability Coefficient
Test 1	Q1 to Q57 (57 items)	0.238	0.947
Test 2: Group 1 (control)	Q1 to Q57 (57 items)	0.202	0.935
Test 3: Group II (intervention)	Q1 to Q57 (57 items	0.270	0.955

Table 4.2 presented these results. Findings were based solely on the reliability coefficient, and no items were omitted (test 1) to maximise reliability of the coefficient alphas. Findings yielded Cronbach's alphas of 0.935 to 0.955 (test 2 and test 3) for construct and total questionnaire scores. These findings meet the standard 0.80 to 0.85 for reliability (Polit & Beck, 2008) and suggest a positive relationship exists between the variables of the total item scores.

4.4.1.2 Descriptive statistics

Table 4.3 Summary of ranked mean subscale stress scores for comparison of the pre-test data by study groups

Subscale	Subscale details	Pre-test			
		Control (n=59)		Intervention (n=55)	
		Mean (Rank)	SD	Mean (Rank)	SD
1	Death and dying	**23.2 (4)**	6.8	**21.6 (4)**	7.8
2	Conflict with physicians	14.9 (7)	3.3	14.1 (7)	4.1
3	Inadequate emotional preparation	9.3 (9)	2.3	9.0 (9)	1.8
4	Problems with peers	19.9 (5)	5.7	18.4 (5)	4.6
5	Problems with supervisors	16.0 (6)	3.5	14.4 (6)	3.5
6	Workload	**28.7 (1)**	4.4	**27.7 (1)**	5.9
7	Uncertainty concerning treatment	**25.8 (3)**	5.2	**24.3 (3)**	6.3
8	Patients and their families	**27.1 (2)**	4.8	**25.8 (2)**	5.0
9	Discrimination	9.8 (8)	1.7	9.1 (8)	2.5

Table 4.3 presented these results. **In this study,** the ranked ordering of mean importance of the nine subscale scores show similarity in both the control group and intervention group at the onset of the study, even though the mean subscale scores are slightly higher in the control group compared to the intervention group. **Figure 4.2** provides a graphical representation of these results.

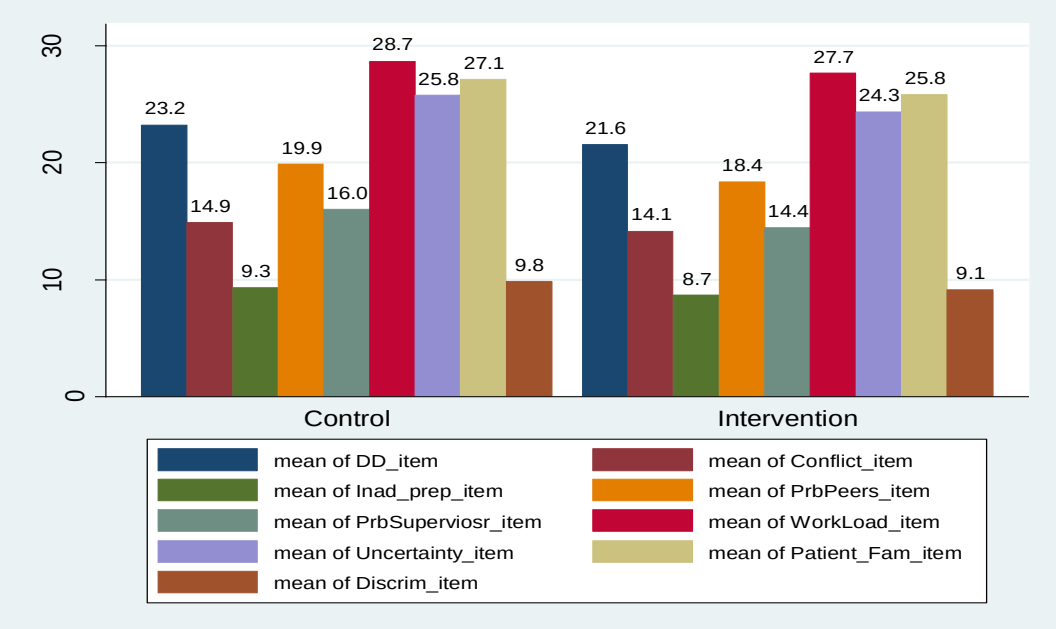


Figure 4.2 Rank ordering of the mean importance of the nine subscales for the pre- test data by study groups

4.4.1.3 Control for equivalence in subjects and study groups

Based on the observed differences in the mean subscale scores (see **Figure 4.2**), a two-sample t-test was employed to determine whether the two group mean scores had a greater difference than would be expected.

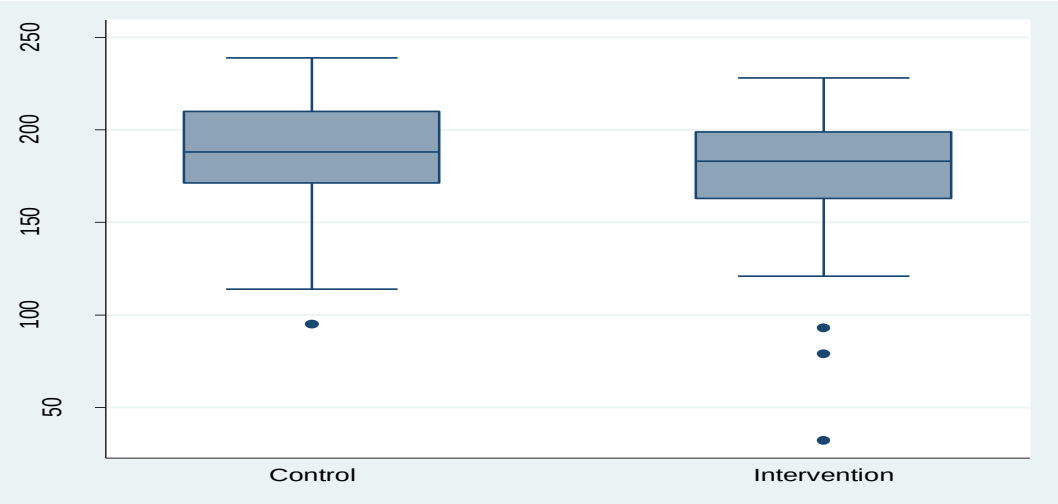


Figure 4.3 Boxplot showing total mean stress score for the pre-test by study groups

The two-sample t-test, with unequal variances, was used to compute the t-statistic, confidence interval and significance. According to Grove *et al*. (2013), computing a confidence interval (CI) is more appropriate as it provides the upper and lower ranges of the t-statistic. A p-value of 0.05 ($p<0.05$) was used to determine significance.

Table 4.4 Summary of statistics for two- sample t –test with unequal variances by study groups

Group	n	Mean	SD	95% CI
Control	59	186.3	30.7	178.3 to 194.3
Intervention	55	175.2	36.5	165.4 to 185.1
Total	114	181.0	33.9	174.7 to 187.3
Difference		11.1		

(Two sample t-test = 1.75; p=0.082)

These results indicated there was no statistical difference for mean total scores between the control group and intervention sample (p=0.082; CI 174.7 – 187.3). In other words, the control group (186.3) did not have a statistically significantly higher mean than the intervention sample (175.2), implying that in terms of mean total stress scores, these study groups are more likely to be similar at the onset of the study.

When testing whether samples originate from the same distribution, the non-parametric Kruskal-Wallis test was employed to provide the statistic. Normality of the sample was not equally distributed. The Kruskal-Wallis test is used for comparing two or more independent samples of equal or different sample sizes. It extends the Mann-Whitney U test, where there are more than two groups.

Table 4.5 Summary of statistics from the Kruskal Wallis test for the pre-test by study groups

Subscale	Subscale details	Group	Kruskal Wallis Ranksum	Chi-square	p-value
1	Death and dying	Control	3695.0	2.961	0.085
		Intervention	2860.0		
2	Conflict with Physicians	Control	3554.0	0.848	0.357
		Intervention	3001.0		
3	Inadequate preparation	Control	3624.5	1.765	0.184
		Intervention	2930.5		
4	Problem with Peers	Control	3576.5	1.095	0.295
		Interventions	2978.5		
5	Problem with Supervisors	Control	3821.5	5974.0	**0.015***
		Interventions	2733.5		
6	Workload	Control	3510.5	0.452	0.501
		Interventions	3044.5		
7	Uncertainty concerning treatment	Control	3585.5	1.203	0.273
		Interventions	2969.5		
8	Patients and families	Control	3680.5	2.687	0.101
		Interventions	2874.5		
9	Discrimination	Control	3626.0	1.797	0.180
		Interventions	2929.0		

Key: *=statistical significance

The relationship between the control and intervention groups' ranked median stress scores was investigated using the Kruskal Wallis test (see **Table 4.5**). Based on the results of this study, there was a **statistical significant difference for "*problem with supervisors*" between the control and intervention groups (p=0.015), with a median rank sum of 3821.5 for the control group and 2733.5 for the intervention sample**.

All other domains ("*death and dying," "conflict with physicians," "inadequate preparation," "problems with peers," "workload," "uncertainty concerning treatment," "patients and families"* and *"discrimination"*) show no statistically significant differences, which suggests the participants were homogenous. This means there was no cause to suggest the groups were different, at the onset of the study, with respect to these subscales.

Data were then explored by categorical variables (highest level of qualification, unit of work, professional qualification and age) for differences in the mean stress scores by 9 ENSS subscales ("*death and dying", "conflict with physicians", "inadequate emotional preparation", "problems with peers", "problems with supervisors", "workload", "uncertainty concerning treatment", "patients and families"* and *"discrimination"*). Results of this process indicated that there were no statistical significant differences between selected categorical variables and mean stress scores among all nine ENSS subscales. This means there was no cause to suggest that the groups were different, at the onset of the study, with respect to these categorical variables.

4.4.2 Phase Two: Interest in Stress Management Intervention

Results of this process are summarised in **Table 4.6** for the total sample (n=114). Items were combined to form coherent groups to facilitate discussion of the data.

Table 4.6 Stress management intervention interest of the nurse participants in the pre-test group

Stress management interest	Pre-test	
	Frequency	Percentage
Interest in attending stress management workshop		
- Yes	99	**87.5%**
- No	4	3.6%
- Unsure	10	8.8%
Reasons for interest in attending		
- Reduce my stress	84	73.6%
- Prevent burnout	77	67.5%
- Learn more about stress management	95	**83.3%**
- Enhance self-care practices	81	71.1%
- Enhance my health and wellbeing	85	74.6%
- Enhance my work satisfaction	82	71.9%
- Improve the quality of nursing care	87	76.3%
Reasons for not attending		
- Too time consuming	3	2.6%
- It does not work	-	-
- Too tired	2	1.8%
- It won't change my working conditions	2	1.8%
Workshop duration		
- One day	48	44.7%
- Two half days	15	13.2%
- One half day	31	42.1%
Music in the unit		
- Yes	82	71.9%
- No	32	28.1%

Table 4.6 presented these results. Of the total sample (n = 114), an overwhelming (87.5%, n = 99) number of participants indicated an interest in attending a stress management workshop, while only four (3.6%) indicated in the negative, whilst 10 (8.8%) were unsure of their interest in stress management.

In this study, the majority (83.3%, n = 95) of the participants indicated an interest in attending a stress management workshop to learn more about stress management, followed by 76.3% (n = 87), 74.6% (n = 85) and 73.6% (n = 84) indicating it was an opportunity to improve the quality of nursing care, to enhance their own health and well-being and reduce their own stress level, respectively. This was contrasted by a marginal number of participants (2.6%, n = 3) who felt that attending a stress management workshop would be too time-consuming, and two (1.8%) indicated they were too tired and it would not change their working conditions, respectively.

In response to the preference for duration of a workshop, most (44.7%, n = 48) of the participants indicated their preference for one day workshop, followed by 42.1% (n = 31) and 13.2% (n = 15) who chose one-half day and two-half days, respectively.

4.4.2.1 Open-ended responses

One-open ended question on the Stress Management Intervention Interest Questionnaire (**Appendix D**) asked of the participants:

> *"In your opinion, how can stress be reduced in your workplace?"*

The responses from this question were analysed using content analysis, one of the most common forms of analysis in qualitative research. It emphasises pinpointing, examining and recording patterns (or "categories") within data. Categories and subcategories are patterns across data sets that are important to the description of a phenomenon and are associated with a specific research question.

The responses to this open-ended question revealed ICU nurses are of the opinion the following strategies can assist with the reduction of stress in the ICU environment. From the analysis of the responses the following categories emerged, "*Positive interpersonal relations," "supportive environment," "management support"* and *"education."*

Table 4.7 Categories, subcategories and statements from the data of ICU nurse participants

Category	Sub-categories	Statements
Positive interpersonal relations	Communication	Proper and good communication Recognition Respect
	Team work	Goal setting and planning Team work and team building Understand needs of others
Supportive environment in unit	Counselling	Bereavement support Debriefing Talking about death Counselling services at work Emotional supportive environment
Management	Management of unit	Workload Democratic management No favouritism No over delegation or under delegation Improve management Leadership and listening skills Constructive conflict management
	Working conditions	Identification of stressors Manage stressors Employ enough staff Prevent work overload Equipment that work Enough rest time for nurses
Education		Stress management intervention In service training Good knowledge Being paid enough Critical care workshops/Symposium

For the purpose of this study, it was not feasible to discuss all categories, sub-categories and statements, therefore only some categories were narrated.

4.4.2.1.1 Positive interpersonal relationships

- *Communication*

Communication can be defined as the exchange of information, thoughts and feelings amongst people using speech or other means. Therapeutic practice involves the oral communication of public health officials and nurses on the one hand and the patient or his relatives on the other (Kourkouta & Papathanasiou, 2014).

"*It is a two-way process*." A prominent theme that emerged from the findings was that of positive interpersonal relations, of which communication was identified as a category. Many participants were of the opinion that the enhancement and improvement of communication

skills between nurses, medical practitioners and management would reduce stress levels, as was evidenced by the written sentences and words of the participants without any alterations or changes made.

One participant stated that *"Proper communication between doctors, managers and the staff,"* which was supported by other participants who were of the opinion "*Improvement of communication among health care professionals"* and "*Good communication between management and nurses."* Collaboration between members of the interdisciplinary team was another important concern, as one of the nurse said "*Sedating of restless patients*" causes stress.

- *Team work*

It was evident from the responses that teamwork was seen as a strategy to reduce stress, as illustrated by these comments *"Team spirit at all times, treating one another with dignity and respect, to maintain harmony in a shift"* was stated by a participant. Other participants supported this statement adding *"Stress can be reduced by team building and good communication," "Improve relationships,*" "*Team work,*" "*Understand needs of others,*" "*Cooperation,*" "*Work hand in hand, and respect each other.*"

4.4.2.1.2 Supportive environment in the unit

- *Counselling*

Another theme prominent in the feedback was counselling. Counselling is - to give professional help and advice to (someone) to resolve personal or psychological problems (South African Oxford School dictionary, 2008:106). It was clear from the responses of the nurses that counselling is a big need in the unit: "*We must have a debriefing session after a good or bad resuscitation"* and "*Counselling post deaths of patients, for instance where mortality is high,*" "*we need bereavement support."*

- *Emotional supportive environment*

Emotional support comes in various forms and there was a need for this support.
"Group meetings after stressful incident," "more platforms should be created where there is someone to talk to on a daily basis," "through stress workshop for participants to open up

about their experiences and relate to each other about their daily experiences" and "*good knowledge, good support, emotionally supporting environment.*"

4.4.2.1.3 Management

- *Management of unit*

The meaning of manage, is to be able to do something difficult, to be in charge, to control. (South African Oxford School Dictionary, 2008:273). This was clearly not an easy task and the need for proper management was supported by some nurses who said: "*Democratic management and well-staffed unit,"* this also involves "*Weekly meetings"* and "*Doing away with favouritism", "no over delegation or under delegation,"* and constructive feedback from the unit managers: "*Management in the unit - if you are doing well or bad in the unit,*" "*Improve management/leadership skills and listening skills.*"

- *Working conditions*

Occupational stress occurs when the demands in the unit overpowers the capacities of the nurses to cope with them. Previous studies also showed that workload is a major problem, as the nurses in this hospital stated *"Enough staff members to cover the ward" and "getting more staff to share the workload."* More nurses stated that dysfunctional working equipment also adds to more stress, as illustrated by this quote:" *Functional equipment, lights at each bed that work, to not wake patients* [stopping sedation practices] *and adequate staff."*

4.4.2.1.4 Education

Education is the process of training people's minds and abilities so they can acquire knowledge and develop skills (South African Oxford School dictionary, 2008:147). The lack of training and guidance in handling difficult situations was stressful for the nurses, as these statements show *"To give personnel enough or adequate training …,"* "*to have skill to handle stressful situations,"* "*orientation in the unit to new personnel"* and "*Stress management training.*" There was also a need for the staff to receive training on how to handle difficult patients and their families, as this quote illustrates "*Staff training on customer care," "patients' family are very demanding" and "counselling of patients and families.*"

By implementing and creating a supportive environment to manage the requests and statements mentioned above, the overall teamwork, knowledge, safety in the unit, positive

outcome for patients and confidence of the nurses would improve and help lower the stress in the Intensive Care Unit.

4.4.3 Phase Three: Evaluation of Stress Management Intervention Workshop

This section related to the participant's evaluation of the stress management intervention workshop, which comprised closed and open-ended items (refer **Appendix H**). The data were obtained from the participants through a self-administered questionnaire. **Table 4.8** presents these results.

Table 4.8 Evaluation of stress management intervention workshop

Item	Description	Rating scale			
		Excellent – good		Average - poor	
		Frequency	Percentage	Frequency	Percentage
1	Facilitator	54	100%	-	-
2	Venue	47	87.1%	7	12.9%
3	Time allocation	49	90.7%	5	9.3%
4	Learning materials	54	100%	-	-
5	Content of intervention	54	100%	-	-
6	Overall impression and experience of the intervention	53	98.1%	1	1.9%

Table 4.8 presented these results. Evaluation of stress management intervention workshop revealed that an overwhelming (>87%) number of nurse participants experienced all activities as meaningful, with contributory worth. In addition, open-ended responses from the nurse participants are reflected in the following excerpts:

The most meaningful aspects were:

- *"Identify and deal with stress and manage stress*
- *Coping skills*
- *Relaxation techniques*
- *Loved the interaction of the group*
- *Writing in the diary*
- *Mindfulness exercise*
- *To voice opinions*
- *Everything in the workshop was meaningful*

- *Deep breathing exercise*
- *Colouring (Mandala art)"*

The least meaningful aspects were:

- *"The breaks*
- *Having to discuss some one's car trouble"*

The extent to which the intervention workshop addressed expectations was:

- *"Every attendant said yes*
- *A few said over exceeded their expectations"*

The extent to which the participants learnt was:

- *"To change ones' attitude toward stress*
- *To cope with and manage stress*
- *Ways to deal with stress*
- *The journal and mandala art*
- *Relaxing techniques*
- *That simple things can help you relax*
- *That most people experience stress and that I am not the only one with stress*
- *To take care of oneself first, and to make time for yourself*
- *That life is about here and now, and that stress is real and needs to be managed.*
- *Not to bottle up my feelings, but rather talk about it.*
- *That financial problems are most people's worry and that I must seek help from financial planners"*

Things that the participants would do differently in the future were:

- *"I am going to look after myself, put myself first*
- *Practice relaxation techniques*
- *Going to write in my diary*
- *I shall identify and acknowledge my feelings*
- *Learned that communication is key*
- *I learned coping mechanisms, ways to relax, time management, planning, self-awareness and putting "me" first*
- *Mandala colouring makes you relax*
- *I must share my feelings with people I trust*
- *To get help, and ask advice"*

Recommendations from the participants for future interventions were:

- *"We need more and more regular workshops like this*
- *This course must continue so that people are aware of stress management*
- *We need more people like you who care*
- *Must be repeated*
- *Please do a special workshop for nursing management*
- *Invite more people working in the hospital, managers at all levels, doctors, clerks etc."*

Participants recommended and emphasised strongly that that these workshops should be compulsory and must be held regularly and during "*on duty*" times to make sure everybody had the opportunity to attend. One participant said stress in her work environment was the "*silent killer*" and she would like to attend these types of workshops once a month. Another participant stated "*teach others to do what you do, coaching, so as to help reach the rest of the nursing population.*"

4.4.4 Phase Four: Post-test

The total sample comprised of 103 (n=103) participants who completed both pre-test and post-test questionnaires. Data were analysed by the intervention sample population (n=54) to determine the stress response of the participants using measures of central distribution (means and standard deviations) for the total questionnaire scores.

4.4.4.1 Reliability and effectiveness of the instrument

Table 4.9 Summary Cronbach's reliability coefficient for post-test items Q1 to Q57

Test	Number of items included	Average inter-item correlation	Reliability Coefficient
Test 1	Q1 to Q57 (57 items)	0.296	0.960
Test 2: Group 1 (intervention)	Q1 to Q57 (57 items)	0.241	0.947
Test 3: Group II (control)	Q1 to Q57 (57 items	0.139	0.902

Findings were based solely on the reliability coefficient, and no items were omitted (test 1) to maximise reliability of the coefficient alphas. Findings yielded Cronbach's alphas of 0.902 to 0.947 (test 3 and test 2) for construct and total questionnaire scores. These findings meet

the standard 0.80 to 0.85 for reliability (Polit & Beck, 2008) and suggest a positive relationship exists between the variables of the total item scores. Results of this process are summarised in **Table 4.9.**

4.4.4.2 Descriptive statistics

Table 4.10 Summary of ranked mean subscale stress scores for comparison of the post-test data by study groups

Subscale	Subscale details	Post-test			
		Intervention (n=54)		Control (n=49)	
		M	SD	M	SD
1	Death and dying	**17.0 (4)**	4.0	**22.1 (4)**	5.3
2	Conflict with physicians	11.1 (7)	3.2	15.0 (7)	2.8
3	Inadequate emotional preparation	6.1 (9)	1.8	9.3 (9)	1.8
4	Problems with peers	13.9 (5)	2.6	19.2 (5)	3.0
5	Problems with supervisors	12.5 (6)	3.3	15.9 (6)	2.9
6	Workload	**22.2 (1)**	5.4	**28.0 (2)**	4.0
7	Uncertainty concerning treatment	**19.3 (3)**	5.5	**25.1 (3)**	4.0
8	Patients and their families	**20.8 (2)**	5.1	**28.5 (1)**	5.9
9	Discrimination	7.7 (8)	2.3	10.0 (8)	1.8

Table 4.10 presented these results. In this study, the ranked mean ordering of importance of the nine subscale scores were slightly different in the intervention group compared to the control group after the stress management intervention. The mean subscale scores were lower in the intervention group when compared to the control group. **Figure 4.4** provides graphical representation of these results.

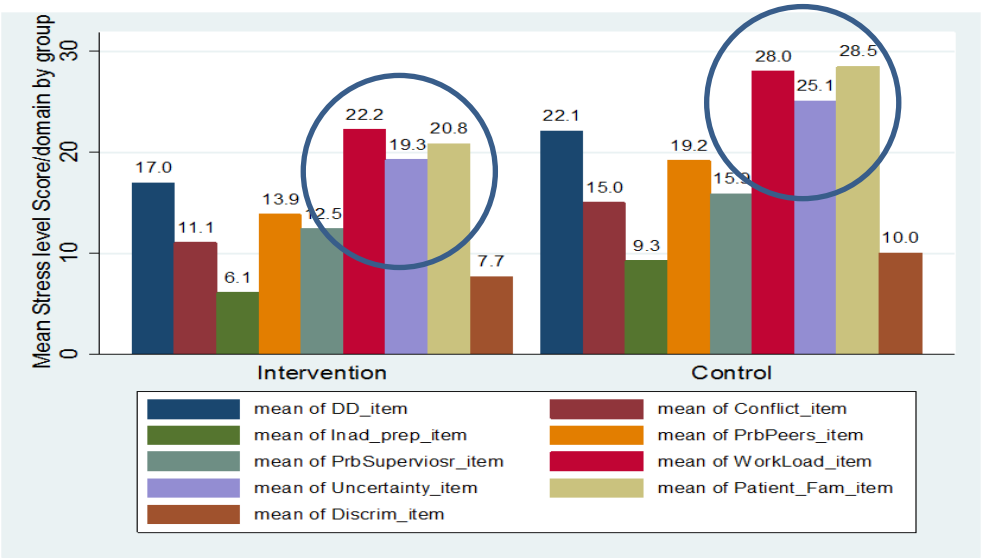


Figure 4.4 Rank ordering of the mean importance of the nine subscales for the post-test data by study groups

4.4.4.3 Control for equivalence of subjects and study groups

Based on the observed differences in the total mean subscale scores (see **Figure 4.4**), a two-sample t-test was employed to determine whether the two group mean scores had a greater difference than would be expected. The two-sample t-test, with unequal variances, was used to provide the statistic, confidence interval and significance. To determine significance, a p-value of 0.05 ($p<0.05$) was used.

Table 4.11 Summary statistics for two-sample t–test with unequal variances by study groups

Group	N	Mean	SD	95% CI
Intervention	54	139.17	29.68	131.06-147.27
Control	49	183.29	21.22	177.19-189.38
Total	103	160.15	34.05	153.49-166.81
Difference		-44.12		

(Two sample t-test = -8.74; p=0.000*)

Findings indicated there was a **statistical significant difference for mean total scores between the intervention sample and control group (p=0.000; CI 153.49-166.81).** In other words, the control group (183.29) had a statistically significantly higher mean than the intervention sample (139.17) implying that, in terms of total mean stress scores, these study groups were likely to be different.

Table 4.12 Summary statistics from the Kruskal Wallis test for the post-test data by study groups

Subscale	Subscale details	Group	Kruskal Wallis Ranksum	Chi-square	p-value
1	Death and dying	Control	3380.50	30.44	0.001*
		Intervention	1975.50		
2	Conflict with Physicians	Control	3376.00	30.25	0.001*
		Intervention	1980.00		
3	Inadequate preparation	Control	3575.00	45.89	0.001*
		Intervention	1781.00		
4	Problem with Peers	Control	3619.00	50.83	0.001*
		Interventions	1737.00		
5	Problem with Supervisors	Control	3295.00	24.62	0.001*
		Interventions	2061.00		
6	Workload	Control	3346.00	27.91	0.001*
		Interventions	2009.00		
7	Uncertainty concerning treatment	Control	3318.00	26.03	0.001*
		Interventions	2037.50		
8	Patients and families	Control	3519.50	41.29	0.001*
		Interventions	1836.00		
9	Discrimination	Control	3315.00	26.02	0.001*
		Interventions	2041.00		

Key: *=statistical significance

The relationship between the intervention and control groups ranked median stress scores was investigated using the Kruskal Wallis test (see **Table 4.12**). These results indicated there was a **statistically (p=0.0001) significantly difference** between intervention and control groups mean total stress scores in the subscales of the ENSS. That is, the **intervention and control groups stress scores after the stress management intervention were statistically (p<0.05) significantly different in all nine subscales** ("*death and dying," "conflict with physicians," "inadequate emotional preparation," "problems with peers," "problems with supervisors," "workload," "uncertainty with treatment," "patients and families"* and *"discrimination"*)**,** implying that in terms of stress scores, the **intervention group had lower total mean stress scores** than the control group in all **nine subscales of the ENSS**.

4.4.5 Comparison of the Intervention and Control Groups

4.4.5.1 Intervention group

Table 4.13 Summary statistics for comparison of the intervention group by pre-test and post-test data

Items	Description	Intervention group			
		Pre-test score (n=55)	Post-test score (n=54)	t-test	p-value
1	Death and dying	21.6	17.0	3.88	0.003*
2	Conflict with physicians	14.1	11.1	4.26	0.008*
3	Inadequate emotional preparation	8.7	6.1	6.41	0.000*
4	Problem with peers	18.4	13.9	7.28	0.000*
5	Problem with supervisors	14.4	12.5	2.92	0.004*
6	Workload	27.7	22.2	5.08	0.000*
7	Uncertainty concerning treatment	24.3	19.3	4.42	0.000*
8	Patients and families	25.8	20.8	5.17	0.000*
9	Discrimination	9.1	7.7	3.04	0.000*

Key: *=statistical significance

Table 4.13 presents a summary for comparison of the intervention group by pre-test and post-tests. Paired t-test and p-values were calculated for changes within the group. Considering the pre-test score and the post-test score, there was clear evidence of **significant differences (p=0.000) emerging in all nine subscale total mean scores with respect to level of stress.** This indicates the stress management **intervention had an effect on the stress levels of participants.**

4.4.5.2 Control group

Table 4.14 Summary statistics for comparison of the control group by the pre-test and post-test data

Items	Description	Control group			
		Pre-test score (n=59)	Post- test score (n=49)	t-test	p-value
1	Death and dying	23.2	22.1	1.03	0.33
2	Conflict with physicians	14.9	15.0	-0.17	0.87
3	Inadequate emotional preparation	9.3	9.3	0.00	1.00
4	Problem with peers	19.9	19.2	0.82	0.42
5	Problem with supervisors	16.0	15.9	0.16	0.87
6	Workload	28.7	28.0	0.87	0.39
7	Uncertainty concerning treatment	25.8	25.1	0.79	0.43
8	Patients and families	27.1	28.5	-1.33	0.19
9	Discrimination	9.8	10.0	0.61	0.55

Table 4.14 presents a summary for comparison of the control group by pre-test and post-tests. Paired t-tests and p-values were calculated within the group. Considering the pre-test score and the post-test, there was clear evidence of no difference emerging in the subscale total mean scores with respect to the level of stress**.**

4.5 SUMMARY

In this chapter, data collection was discussed, the sample was described and data were evaluated using STATA version 13 for statistical analysis. The results of the quasi-experimental pre-test post-test study were presented. The sample consisted of 114 nurses (55 intervention group and 59 control group), who were mostly female, aged 40 to 49 (30%), and held a diploma level education and ICU qualification. The primary aim of the study was to develop and test the effect of a stress management intervention on ICU nurses' stress levels. Nurses in the intervention group demonstrated a statistically significant decrease in stress levels following the intervention compared to control group participants. A secondary aim was to determine whether there was a statistically significant difference in stress levels

on ICU nurses in the short term. Results have shown that the intervention had an effect on the stress levels of participants in all nine domains of the ENSS.

In the next chapter, the findings of the study will be addressed.

CHAPTER FIVE

DISCUSSION OF FINDINGS AND LIMITATIONS

5.1 INTRODUCTION

This chapter discusses the results of the study and the interpretation of findings in the the literature. The aim of the study was to develop and pilot test a stress management intervention for professional nurses practicing in the ICUs. The primary outcome for the study was enhanced use of health and effective occupational stress management coping skills and decreased levels of stress intensity. Secondary outcomes included stress levels measured pre- and post-test and the efficacy of stress management intervention, determined in the short term, and description of stress reduction strategies according to the nurses. Limitations of the study will be addressed.

5.2 CHARACTERISTICS OF THE SAMPLE

One hundred and fourteen (n = 114) nurses participated in the study. One nurse in the intervention group dropped out during the study period. Ten participants in the control group dropped out leaving 103 participants, who completed the pre- and post-test questionnaires in the provision of data for this study (90.1% retention rate).

The majority (>85%) of nurses in this study were female, from age 20 to 60 plus years. It is a known fact that nursing is viewed as an occupation for females, and the ratio of male to female nurses for this study was 1:7.5, which is consistent with findings in one recent South African study by Langley et al. (2013). More than one third (>30%) of the nurses were aged between 40 to 49 years age, while one-quarter (25%) and one-fifth (20%) were in the age categories of 30 to 39 years and 50 to 59 years, respectively. The trend in the public hospital is that most highly qualified older nurses have left because of better remuneration and working environment of private hospitals and for retirement.

Public hospitals have recently resolved the workforce shortage by employing newly qualified registered nurses without an additional training in ICU nursing (Scribante & Bhagwanjee, 2007). This situation explains why almost half (>50%) of the nurses in the sample did not have an ICU qualification and had less than 5 years of ICU working experience. This finding was higher than the results of the study of Langley *et al.* (2013), whereby it was reported that 30% of nurses had less than 5 years of ICU working experience. More than half (>50%)

of the nurses held a diploma level education, and only one quarter (25%) had a Bachelor's degree; this finding is consistent with previously published local studies. In one South African study Perrie, Schmollgruber, Bruce and Becker (2014) indicated that most nurses practicing in ICU held a diploma level education, and Fisher (2012) reported in another study that most nurses were diploma level trained, but also found that 13% of nurses had a degree level education. In addition, while more than one quarter (>25%) of the nurse participants practiced in either the cardiothoracic or trauma ICU, one-fifth (20%) worked in the general or multi-disciplinary ICU. This finding is consistent with the findings in the studies of Langley *et al*. (2013) and Perrie *et al.* (2014).

5.3 OVERALL FINDINGS

At baseline, the total mean stress score was 186.3 (SD.7) for the control group and 175.2 (SD 36.5) in the intervention group. Following statistical testing, this difference was found not to be statistically significant (t = 1.75; p = 0.82; CI 174.7 – 187.3), implying that no differences existed in ENSS mean total scores between the two groups. Thus the groups were comparable at the onset of the study.

At four weeks follow up, after the stress management intervention, it was noted that the intervention group total mean ENSS scores were lower than the control group (M = 139.17; SD = 29.68, CI = 131.06 – 147.27 vs. 183.29, SD = 21.22, CI = 177.19 – 189.38), respectively. There was a statistical difference between the intervention and control groups (t = -8.74; p=0.000; CI 153.49 – 166.81), implying the groups were different. There was clear evidence of differences emerging in all nine subscale scores on the ENSS on stress. The ENSS domains are "*death and dying", "conflict with physicians", "inadequate emotional preparation", "problems with peers", "problems with supervisors", "workload", "uncertainty concerning treatment", "patients and families"* and "*discrimination*". This provides evidence that the intervention had an effect on the stress levels of the participants (Table 4.13). In the control group, there was evidence of no difference emerging in the nine subscales on the ENSS on stress (table 4.14), thus, efficacy of the stress management intervention was established.

Broadly, where the differences lie, the largest effect within the intervention group was observed in the "workload" (t = 5.08; p=0.000), "*patients and families*" (t = 5.17; p = 0.000) and "*uncertainty concerning treatment*" (t = 4.42' p = 0.000) and dealing with "*death and dying*" (t = 5.17; p = 0.000) domains. This suggests the stress management intervention had an effect in the ENSS physical, social relationships and psychological domains. The

intervention programme used in this study included education workshops on stress management and coping strategies. The intervention focused on stress reduction strategies for ICU nurses in the form practical exercises, which were mainly team-based and individual activities.

The least effect was observed in the "*problem with supervisors*" (t = 2.92; p = 0.004) and "discrimination" (t = 3.04; p = 0.000) domains. This suggests the stress management intervention had the least effect in the two ENSS domains related to social relationships. The can be explained by the fact that items under the domain "*discrimination*" may not have been perceived as a stressful situation among the predominantly female and same cultural sample of nurses in this study.

At the same time, the control group demonstrated a small increase in the "*patients and families*" (t = -.133; p = 0.19) and "*conflict with physicians*" (t = -0.17; p = 0.87) ENSS domains (Table 4.14). This suggests an increase in stress levels among control group participants in these social relationships during the study period. No reason could be found to explain these changes. However, as these nurses did not benefit from participation in the intervention programme it may be a critical area for further investigation.

5.4 PRE-TEST

The **first research question** was to determine the stress levels of nurse practicing in ICU. The pre-test allowed for measurement of the ICU nurse participants baseline level of prior stress. One hundred and fourteen (n = 114) participants in this study completed the pre-test measure.

Findings in this study revealed the "*workload*" domain was the most stressful situation for nurses practicing in the ICUs, followed closely by the domains of "*patients and families*" and "*uncertainty concerning treatment*". Within the ICU setting, these findings have implications for care of the patients in the physical environment, social relationships environment and psychological environment.

The finding that the workload domain was ranked in first place by the participants in the control (M = 28.7) and intervention (M = 27.2) groups in this study was expected. The nursing shortage in the ICUs is known from a previously published study conducted in South Africa (Klopper *et al.* 2012). The finding of high physical nursing workload has implications for patient safety, morbidity and mortality. In this study, the major portion of stress emerged

from not having enough staff to adequately cover the unit as a result of unpredictable staffing and scheduling in the control and intervention groups (M = 3.57 vs. M = 3.38), respectively. Studies have reported inappropriate nurse staffing levels are not only positively associated with missed patient opportunities, failure to rescue and adverse patient outcomes (McGahan, Kucjarski & Coyer, 2012), but also job satisfaction and poor coping strategies (Li & Lambert, 2008). The findings in this study are comparable with data from Chinese ICU nurses (Li & Lambert, 2008), whereby 102 nurses also reported workload as the most commonly cited stressor in their study. The finding is higher than one Serbian study by Milutinovic *et al.* (2012), which indicated that workload was ranked in sixth place (out of nine ENSS subscales) among their sample of 1000 ICU nurses.

In this study, shift work introduced hardships on nurses in both the control and intervention groups (M = 3.64 vs. M = 3.62) respectively, providing services in complex ICU environments and demanding interpersonal circumstances. Less experienced nurses in both the control and intervention groups were burdened with extra responsibilities, such as having too many non-nursing tasks (M = 3.37 vs. M = 3.25) and having to work through break periods (M = 3.17 vs. M = 2.91), and in some instances, having to make decisions under pressure (M = 3.31 vs. M = 3.15), respectively. These findings are also partly supported by the fact that most (50%) nurses in this current study had no additional training in ICU nursing and less than 5 years of ICU experience. Farnell and Dawson (2006) reported that ICU orientation programmes should adequately address inexperienced nurses educational and social needs, help them management their fear of the ICU environment and put in some controlling strategies to give them the confidence to care for their patients. Also providing nurses with the necessary support and organisational skills may be helpful to alleviate some of the stress experienced by ICU nurses.

The Canadian Centre for Occupational Health and Safety (CCOHS, 2012) states that an effective workload management is one factor that can influence an employees' mental health positively. The same authors conclude that the psychosocial work environment, which entails the organisational culture (respect, honesty, and transparency among employees and managers, justice, work-life balance) and organisation of work (communication, workload, workers and input, role clarity and recognition) should be managed. However, when these factors are absent or poorly managed in the workplace, they can become sources of stress or stressors for employees (CCOHS, 2012). Thus, from an occupational health and wellbeing perspective, the workload of nursing plays an important role.

In this current study, dealing with the "*patient and family*" domain was ranked as the second group of stressful situations for the participants in the control (M = 27.2) and intervention (M = 25.8) groups. The implications of these findings for patient care are that of isolation and separation of patients from their family members, restricted visiting hours and family exclusion from participation in patient care and decision making. This finding is comparable with a Serbian study (Milutinovic *et al.* 2012), which also reported dealing with patients and families was ranked as the second workplace stressor in their sample of nurses. Similar results were also reported in other Middle Eastern studies (AbuRuz, 2014; Hamaideh, Mrayyan, Faori & Khasawneh, 2008).

Other findings in both the control and intervention groups of this current study showed that the major portion of stress in this domain emerged whether the patient's family would report them for inadequate care delivery (M = 3.05 vs. M = 2.89), respectively.

Of concern to many participants in both the control and intervention population groups was the stress experienced when dealing with abusive patients (M = 3.20 vs. M = 3.29) or family members (M = 3.73 vs. M = 3.18), respectively. It is likely that the impact of such an experience would lead to psychological distress, self-doubt and loss of respect (Langley et al. 2014). A study by Lynch, Appelboam and McQuillan (2003) reported that abusive and violent behaviours in ICUs were mainly due to patient's illness and relatives' distress of the situation, with lesser proportions to alcohol, drugs and sociopathic behaviour. Having clear written policies as guidelines for dealing with abusive patients is highlighted by the findings of this study.

Workplace violence, as a psychosocial stressor, has recently received increased attention from occupational health and safety, human resources management and organisational psychological perspective. The healthcare industry in general experienced a high percentage of workplace violence due to the nature and complexity of the workplaces. The CCOHS (2012) concludes that various factors such as stigmatisation and discrimination, job demand, effort/reward relationship, burnout, violence, bullying and mobbing, substance use at work as risk factors for worker's mental health. According to the International Labour Organization (ILO) Solve (2012) programme, there is a close relationship between stress and violence and workplace violence entails both psychological and physical violence. Furthermore, the ILO SOLVE programme advocates for an integrated health and safety policy to address all psychosocial issues and health promotion.

The "*uncertainty concerning treatment*" domain was ranked as the third group of stressful situations for the participants in both, the control (M = 25.8) and intervention (M = 25.8) population groups. The implications of these findings on patient care are that ICU nurses may not be able to make individual judgments based on observed patient observations. In the absence of this ability, subtle changes in observed patient data may pass unnoticed and result in poor patient outcomes. These findings can be explained in part by the fact that most (50%) nurses in this study were not trained in ICU nursing and had less than 5 years of ICU nursing experience. In this study, the major portion of stress related to this domain in both the control and intervention groups emerged from fear of making a mistake in treating a patient (M = 3.22 vs. M = 2.89), being in charge without adequate experience (M = 3.35 vs. M 3.20) and fear that the physician would not be present during a medical emergency (M = 3.54 vs. M = 3.36). At these times, their lack of knowledge frustrated them because they were not able to give correct information.

Nurses in both the control and intervention groups respectively, rated feeling inadequately trained for what they have to do (M = 3.93 vs. M = 3.67) and being exposed to health and safety hazards as highly stressful events which frequently occur in the work environment (M = 3.42 vs. M = 3.76). This current study's finding is ranked higher than reported in the Milutinovic *et al.* (2012) study, which was ranked fourth amongst the nine ENSS domains, and similarly, in another cross-sectional survey (AbuRuz, 2014) between a sample of 150 nurses from a private hospital in Amman Jordan and 100 nurses from a self-operated hospital in Dammam in Saudi Arabia, it was also reported in fourth place. Findings of this current study are lower compared to those of a similar study conducted in China. For example, Li and Lambert (2008) reported that the second most intense stressor for practicing ICU nurses from four teaching hospitals was related to uncertainty concerning treatment. Providing less experienced nurses with the support they need to develop their knowledge and applying this to practice may be helpful.

The dealing with "*death and dying*" domain was ranked fourth as the group of stressful situations by the participants in the control (M = 23.2) and intervention (M = 21.6) groups. The implications of these findings for patient care are the withdrawal of emotional and comfort care as nurses struggle to cope with families of dying patients, which would also be considered unethical. This finding is lower than the findings reported in similar surveys (AbuRuz, 2014; Hamaideh *et al.* 2008) with Jordanian nurses and the results of other European studies. For example, Milutinovic *et al.* (2012) reported the most intense stressor for ICU nurses in their study (n = 1000) was related to their psychological environment, such as death and dying.

In this current study, the major portion of stress related to this domain in both the control and intervention groups respectively, emerged when watching a patient when they appeared to be suffering (M = 3.59 vs. M = 3.62) and the death of a patient with whom they have developed a close relationship (M = 3.47 vs. M = 3.31). These findings can be explained by the fact that the death of an ICU patient is usually preceded by a treatment withdrawal decision; the length of time between the withdrawal of life-sustaining treatment and subsequent death of a patient is relatively short. Studies have reported distress related to dealing with death and dying can persist for approximately a week after a patient's death (Escot, Artero, Gadubert, Boulenger & Richie, 2001; Gray-Toft & Anderson, 2003; Hamaideh *et al.* 2008).

The National Mental Health Commission (NMHC) and the Mentally Healthy Workplace Alliance (MHWA) identify exposure to trauma as a risk factor for stress and mental health problems for workers. The same authors define a mentally healthy workplace as a workplace that assesses and identifies mental health stressors and develops interventions to reduce the potential negative impact of those stressors, while simultaneously enhancing protective factors (MNHC & MHWA, 2014).

The "*problems with peers*" domain was ranked in the fifth place in the group of stressful situations by the participants in the control (M = 19.9) and intervention (M = 18.4) groups. The domains of "*problems with supervisors*" (M = 16.0 vs. M = 14.4) was ranked in sixth place and "*conflict with physicians*" (M = 14.9 vs. M = 14.1) in seventh place by the participants in the control and intervention groups, respectively. The implication of these findings in patient care is a risk of a breakdown in communication, teamwork and collaborative relationships with members of the multidisciplinary team, which ultimately will affect patient safety and patient outcomes such as morbidity and mortality.

In particular, many nurses in this current study, both in the control and intervention groups, reported it was hard to find themselves in this complex environment and to seek out opportunities to speak openly with colleagues because of concerns about rank and limited interaction with experienced nurses (M 3.14 vs. 3.09), respectively. Farnell and Dawson (2007) found that the support and role modelling of experienced nurses are required to shape the quality of practice to enable professional maturation of less experienced nurses. Other studies have reported similar results in this range (AbuRuz, 2014; Li & Lambert, 2008; Milutinovic *et al.* 2012; Rothmann *et al*. 2006).

Additionally, the major portion of stress related to supervisors in both, the control and intervention groups respectively. This emerged as nurses felt unsupported by nursing managers (M = 3.19 vs. M = 2.92), which created a sense of frustration as they were forced to accept accountability for things for which they had no control (M = 3.51 vs. M 3.40). Brunetto, Farr-Wharton and Shacklock (2010) suggest the manager/subordinate relationship is the most commonly reported stress within the nursing team, and this appears to be associated with a reduction in work performance.

Furthermore, the major portion of stress related to the conflict with physicians, in both the control and intervention groups respectively, emerged as disagreements over treatment decisions (M = 3.24 vs. M 2.95) and fear of making a mistake about treatment when the physician was not available (M = 3.39 vs. M = 2.98). Coombs and Ersser (2004) reported that ICU nurses' role in decision-making tends to be undervalued, as medical dominance renders nurses unable to influence decision making.

Most nurses in this current study, both the control and intervention groups respectively, rated having to organise "physicians work" as frequently to occasionally stressful (M = 3.17 vs. M 2.86). According to French *et al.* (2000), organisation of the physician's work was included in the ENSS to accommodate nurse's role expansion into advanced/specialist practice, which is said to emphasise increased responsibility and accountability towards delivering excellence in patient care (Albarran & Whittle, 1997). Another study by Bakker *et al.* (2009) emphasised role conflict ambiguity being positively correlated with job dissatisfaction and generating low organisational commitment and increasing psychological and physiological stress.

The National Mental Health Commission and the Mentally Healthy Workplace Alliance (NMHC & Mhwa, 2014) state that team group factors, such as support from colleagues and managers, quality of interpersonal relationships and leadership, can be protective factors in the workplace. These can become risk factors from an occupational health and safety perspective if there is no or little support, poor leadership, and non-quality interpersonal relationships.

The findings from this current study show that the participants in both the control and intervention groups respectively, ranked the domains of dealing with "*discrimination*" (M = 9.8 vs. M = 9.1) in eighth place. The implications of these findings in patient care are that nurses may be judgmental, lack sensitivity and understanding for patient circumstances and their healthcare practices. These findings are similar to studies conducted overseas, where

one study, by Milutinovic *et al.* (2012), reported dealing with discrimination in the seventh place amongst the nine ENSS domains. AbuRuz (2014) indicated in their study with Jordanian nurses that issues related to discrimination, and distress in this domain was reported to be least stressful.

"*Inadequate emotional preparation*" (M = 9.3 vs. M = 9.0) was in ninth place as the least stressful situations for ICU nurses. The implications of these findings in patient care are that of an emphasis on technical/technological care and a lack of emotional support and comfort care, which is also viewed as an imbalance in nursing care. Findings in this study, which included the control and intervention groups, showed the major portion of stress related to this domain emerged as nurses felt insufficiently prepared to assist with the emotional needs of patients (M = 2.54 vs. M = 2.97) and their relatives (M = 2.31 vs. M 3.18). Similarly, the domain of inadequate emotional preparation was also ranked lowest in the studies of Milutinovic *et al.* (2012) and AbuRuz (2014).

This section identified those domains that cause stress to ICU nurses in this specific setting.

Occupational health programmes are based on the hazard identification and risk assessment to manage the risks. Hazard control is the process and procedure applied to risks. According to the CCOHS (2012), a hazard control programme entails the steps required to protect workers from exposure to a substance or system, the training and the procedures required to monitor worker exposure and their health hazards, such as chemicals, materials or substances, or other types of hazards, such as noise and psychosocial hazards.

The main methods (also called the "hierarchy of control") to control a hazard include and should be considered in order as presented below:

Elimination (including substitution): remove the hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones. The WHO/ILO Healthy Workplace Framework and Model (2010) provides the following examples to eliminate or change psychosocial hazards: reallocate work to reduce workload, remove or retrain managers/supervisors in communication and leadership skills; enforce zero tolerance for harassment, bullying or discrimination in the workplace; apply all legal standards and laws regarding workplace conditions or put policies in place to supplement the laws (e.g. accommodation of nursing mothers).

Engineering Controls includes designs or modifications to plants, equipment, ventilation systems, and processes that reduce the source of exposure, for example, using monitors and ventilators that make less noise or are silent, provide safe needle systems and patient lifting devices in ICUs. Noise is hazard and risk that can have a psychological effect on nurses.

Administrative Controls pertains to changes to how the work is done, including the timing of work, policies and other rules, and **work practices,** such as standards and operating procedures (including training, housekeeping, and equipment maintenance, and personal hygiene practices). An example of an administrative control for ICU nurses is to use a rest work schedule that limits the length (duration) of shifts and working hours to contribute towards a healthy work-life balance. It is further evident that ICU nurses need education on and skills development in dealing with difficult patients and their families, effective and healthy communication and interpersonal skills, resilience and emotional intelligence enhancement, conflict management and assertiveness training. It is essential, based on stressors experienced by the ICU nurses, that some of them need education and skills development in nursing very ill patients.

Personal Protective Equipment: equipment worn by individuals to reduce exposure, such as contact with chemicals or exposure to noise (CCOHS 2012).

In addition the WHO/ILO Healthy Workplace Framework and Model (2010 79-80) concludes that the effect on the on the worker (the ICU nurse) can be decreased by allowing flexibility to deal with work-life conflict situations, provision of supervisor and co-worker support (resources and emotional support), allow workers to choose their shift schedules as much as possible and provide timely, open and honest communications about upcoming organisational changes. The WHO Healthy Workplace Framework and Model (2012) is of the opinion that education can protect workers from stress management techniques, including cognitive approaches and provide training for workers, for example, in the prevention of conflict or harassment situations.

To conclude this section the following excerpt is from the WHO Healthy Workplace Framework and Model (2012) and illustrates the importance of giving recognition to workers:

"It is important to tell them when they are doing well and to congratulate them and to say,' Well done, without you I could not have done that, without you, the work will not be done, so it is thank you very much.' Moreover, I think this is important - it is a key, key situation.

When people tell you that you are doing well after you feel very good". Interview #6, Switzerland, Public Health Engineer

5.5 STRATEGIES FOR STRESS MANAGEMENT INTERVENTIONS

This open-ended question allowed nurse participants to participate in identifying stress management interventions that are contextually relevant (see *Appendix D*).

Findings of this study revealed ***"positive interpersonal relations"*** could assist in the reduction of stress in the ICU environment. Segrin and Taylor (2007) found positive relationships with others mediate the association between social skills and all measures of psychological well-being. While other studies have demonstrated positive associations between teamwork and job environments, autonomy, independent, work discretion and control over practice (Kalisch & Lee, 2010; Kovner, Brewer, Wu, Chen, Suzuki, 2006). According to nurse participants in this study, positive interpersonal relations also include enhancement and improvement of "*communication skills*" between nurses, medical practitioners and management, and "*teamwork.*" In another study, Ajeigbe, McNeese-Smith, Leach and Phillips (2013) demonstrated active teamwork practice was associated with perceptions of a positive job environment, autonomy, and control over the practice of both nurses and physicians.

Another finding that can assist the reduction of stress in the ICU environment is a "*supportive environment in the unit*." The participants maintained this includes providing "*emotional support*" in the form of "*debriefing*" and "*counselling*" sessions in the ICU environment. The risks of developing psychological problems and stress are much higher in an ICU due to numerous continuous burdens they have to bear (Elkonin *et al.,* 2011; Mason *et al.,* 2014; Maiden *et al.,* 2011). Compassion fatigue is commonly found in staff who are regularly faced with critical illness, death and assisting families to deal with grief. According to Elpern *et al.* (2005) and Papathanassoglou *et al.* (2012), some nurses have reported that the distress affects them professionally, resulting in a reluctance to interact with patient's families. In one South African study, Langley *et al.* (2014) recommend support should be based on non-directive story-telling format and allow for debriefing and affirming in a group context. Also, nurses' self-reflection and self-awareness should be encouraged (Klatt, Steinberg & Duchemin, 2015), and assertiveness education and training could be addressed and skills practised in a safe, supportive group environment (Langley *et al.,* 2014).

In this study, "*good management*" was also identified as a strategy to assist in the reduction of stress in the ICU environment, which included "*fair delegation, good listening skills, constructive feedback and leadership skills*". Hartung and Miller (2013), found workplace processes either promoted or hindered manager's abilities to set a positive tone and to stay connected to their staff, ensuring effective communication while meeting multiple unit and institutional challenges. According to Smith, Hood, Waldman and Smith (2005), nurse supervisors, job characteristics and management style and service quality are emphasised as key factors associated with a positive practice milieu. While ineffective communication and the lack of teamwork is associated with poor patient outcomes and non-productive organisation cultures (Hartung & Miller, 2013), nurses in this study identified high "*workload*" as another important factor. Happell, Dwyer, Reid-Searl, Burke, Caperchione and Gaskin (2013) identified workload modification as an important strategy to assist in the reduction of stress in the ICU environment.

The study also revealed "*training and education in handling difficult situations"* could assist in the reduction of stress in the ICU environment. Studies have found the mindfulness-based programmes have proven to be a promising intervention in reducing the stress experienced by nurses (Botha, Gwin & Purpora, 2015; Klatt *et al.,* 2015). In a more recent study, McVicar (2016) found dealing with death and dying was the most consistent issue related to emotional demands in early studies, but later the literature (2007-2013) has demonstrated interactions with patients and relatives and responsibility associated with care as increasing the scope of emotional demands. Some participants in this study emphasised a need for training when "*handling difficult patients and relatives."* In one South African study, Brysiewicz and Bhengu (2010) showed that nurses experience patients and their families as being a cause of stress because they are not adequately trained to offer support for critically ill and injured patients and relatives.

Studies have also revealed interventions at the level of organisation (including mindfulness) have been effective at reducing stress for personnel in various work environments, including ICU nursing (Klatt *et al.,* 2015). In one study, Mealer, Conrad, Evans, Jooste, Solyntjes, Rothbaum and Moss (2014) investigated the effectiveness of a multimodal resilience training programme for ICU nurses. The intervention included a two-day workshop, written exposure sessions, event triggered counselling sessions, mindfulness-based stress reduction exercises and protocolled aerobic exercise regimen over a 12-week period. The study found a significant decrease in post-traumatic stress symptom scores after the intervention, and concluded that the programme was feasible and acceptable to ICU nurses (Mealer *et al.,* 2014).

5.6 POST-TEST

The *second* research question was to determine the **effect of the stress management intervention on nurse's level of stress in the short term**. The post-test allowed for measurement of the ICU nurse participant's stress level at four weeks after the stress management intervention. One hundred and three nurse participants (n=103) in this study completed the post-test measure.

Overall findings in this study revealed there was a clear evidence of differences emerging in all nine domains on the ENSS on stress. This provided evidence that the intervention had an effect on the stress levels of the participants. Thus, the efficacy of the stress management intervention was established.

No studies were found that specifically addressed the use of the ENSS after implementation of a stress management intervention. Mimura and Griffiths (2002), Happell *et al.* (2013) and McVicar (2016) found there was more evidence for the effectiveness of programmes based on providing personal support than environmental management to reduce stressors.

The largest effect within the intervention group in this study was observed in the domains of "*workload*", "*patients and families" and "uncertainty concerning treatment*". This suggested the stress management intervention had an effect on the physical, social relationships and psychological domains, thus supporting the findings of the studies by Mimura and Griffiths (2002) and Happell *et al.* (2013).

In this study, the "*workload*" relationships domain was ranked as the first group of stressful situations between the intervention (M = 22.2) and control (M = 28.7) groups post-tests, showing the mean score in the intervention group was a lower 6.5-unit difference compared to the control group. The major portion of stress reduction in this domain was observed in not having adequate staffing to cover the unit as a result of unpredictable staffing and scheduling (M = 2.82 vs. M = 3.37) in the intervention and control groups, respectively. Similarly, nurses in the intervention group compared to the control group were less burdened with extra responsibilities such as non-nursing duties (M = 2.89 vs. M = 3.25), having to make decisions under pressure (M = 2.50 vs. M = 3.22) and having to work through breaks (M = 2.54 vs. M = 3.00). Findings within the intervention groups comparison revealed a statistically significantly difference in the total mean stress scores by pre- and post-tests (t = 5.08; p = 0.000). In the control group, there was evidence of no difference in the total mean stress scores by pre-and post-tests (t= 0.87; p = 0.39). This means the stress

management intervention had an effect on the intervention group of participants in the "*workload*" relationships domain. These findings are supported in the suggestions put forward by Milliken *et al.* (2007), whereby it was stated that nurses should practice self-management of work related stress and engage in stress reduction techniques.

The dealing with "*patient and families*" domain was ranked as the second group of stressful situations for the participants in the intervention (M = 20.8) and control (M = 28.5) groups, showing that the mean score in the intervention group was a lower 7.7-unit difference than the control group. The major portion of stress reduction in this domain was observed in the intervention group compared to the control group, when nurses felt less stressful in being blamed for everything that goes wrong (M = 2.69 vs. M = 3.59), and having to deal with abusive patients (M = 2.30 vs. M = 3.27) or families (M = 1.91 vs. M = 3.22), respectively. Findings within the intervention group comparison revealed a statistically significantly difference in the total means stress scores by pre- and post-tests (t = 6.41; p = 0.000). In the control group, there was no difference in the total mean stress scores by pre- and post-tests (t = -1.33; p = 0.19). This means the stress management intervention had an effect on the intervention group of participants in the dealing with "*patients and families*" domain. These findings are supported by the studies of Sarafis *et al.* (2016) and Takma and Severinsson (2004), whereby it was reported that specific occupational health education and specific training programmes should be followed to improve nurses' knowledge and skills to handle stress, which will lead to better psychosocial support for families and patients in the Intensive Care setting.

The "*uncertainty concerning treatment*" psychological domain was ranked as the third group of the most stressful situation in the intervention (M = 19.3) and control (M = 25.1) groups post-tests, showing the mean score in the intervention group was a lower 5.8 unit difference compared to the control group. The major portion of stress reduction in this domain was observed in the intervention group compared to the control group respectively, less fearful of making a mistake when treating a patient (M = 2.44 vs. M = 3.37), being in charge without adequate experience (M = 3.09 vs. M = 3.12) and fear that the physician would not be present during a medical emergency (M = 2.63 vs. M = 3.47). In addition, nurses in the intervention group compared to the control group felt less stressful in feeling inadequately trained for what they have to do (M = 2.57 vs. M = 3.10), respectively. Findings within the intervention group comparison revealed a statistically significantly difference in the total mean stress scores by pre- and post-tests (t = 4.42; p = 0.000). In the control group there was evidence of no difference in the total mean stress scores by pre- and post-tests (t = 0.79; p = 0.43). This means the stress management had an effect on intervention group

participants in the "*inadequate emotional preparation*" domain. These findings are consistent with the suggestions put forward by Milutinovic *et al.* (2012), whereby it was reported that providing nurses with stress management interventions would enhance nurses' confidence and help them to develop skills to manage stress.

The least effect within the intervention group in this study was observed in the domains of "*discrimination*" and "*problems with supervisors.*" This suggests the stress management intervention had little effect in these two social relationships domains.

The "*discrimination*" domain was ranked as the eighth group of stressful situations for the participants in the intervention (M = 7.7) and control (M = 10.0) groups post-test, showing the mean score in the intervention group was a lower 2.3-unit difference compared to the control group. The major portion of stress reduction in this domain was observed in the intervention group compared to the control group respectively, experiencing discrimination by gender as less stressful (M = 2.07 vs. M = 3.31). Findings within the intervention group comparison revealed a statistically significantly difference in the total mean stress scores by pre- and post-tests (t = 3.04; p = 0.000), whereas, in the control group there was no difference in the total mean stress scores by pre- and post-tests (t = 0.61; p = 0.55). This means the stress management intervention had less effect on the intervention group of participants in the "*discrimination*" domain. This was most probably related to the fact that the sample of participants in this study was predominantly female and from the same cultural population.

Similarly, the "*problems with supervisors*" domain was ranked as the sixth group of stressful situations for the participants in the intervention (M = 12.5) and control (M = 15.9) groups post-test, showing the mean score in the intervention group was a lower 3.4-unit difference compared to the control group. The major portion of stress reduction in this domain was observed in participants in the intervention group compared to the control group as feeling less unsupported by nursing managers (M = 2.26 vs. M = 3.44), and less forced to accept responsibility for things over which they had no control (M = 2.26 vs. M = 3.37), respectively. Findings within the intervention group comparison revealed a statistically significantly difference for the participants in the intervention groups pre- and post- tests (t = 2.92; p = 0.004), whereas in the control group there was no difference in the total mean stress scores (t = 0.16; p = 0.87). This means the stress management intervention had less effect on the intervention group of participants in the "*problems with supervisors*" domain. This was most probably related to the fact that the 4-week follow-up period was not long enough for participants to develop confidence in skills to demonstrate a change in social relationships

with supervisors. This finding is supported in suggestions put forward by Milutinovic *et al*. (2012), whereby it was stated that nurses should be assisted through stress management skills to become more confident in developing skills to identify and manage work related stress over a period of time.

This section identified those domains that had the largest effect and least effect from the stress management intervention.

5.7 LIMITATIONS OF THE STUDY

There were several limitations to this study, and these relate to sampling, reliability and data collection procedures.

First, limitation of this study was the restricted ability to generalise the findings to the entire population of ICU nurses, due to participant selection criteria and the single study site. The selection criteria included only those nurses practising in the ICUs, and therefore findings must be evaluated and discussed from the perspective of the public hospital.

Secondly, to the fact ICU nurses were assigned to the intervention group by non-randomised methods may have led to selection bias. The intervention group also constituted professional nurses who were interested in participating in the stress management intervention, which may have introduced a biased sample because those nurses were interested in the topic meaning they started with a positive outlook.

Thirdly, although a power sample was calculated, the study did not achieve the desired sample size (130 in total) despite numerous attempts by the researcher to recruit more participants to the study. Redundancy in the recruitment of participants was reached at 114 nurses. Additionally, 10% of the participants in the control group dropped out after the pre-test, which could have affected the accuracy of the study findings as it occurred in one group.

Fourthly, the instrument used in the study was selected as relevant to the present study and was reported to have high reliability and validity; it had not been used previously as a Stress Management Intervention Post-test Measure from the data in Phase Four. The researcher developed the stress management intervention for the purpose of this study by using the literature and data from the participants in Phase Two. Further validity and reliability are an important consideration should the content of the stress management programme be used in other populations.

Fifthly, the hospital did not employ the researcher. Although this could be a strength in the area of consistency in data collection methods, it may have influenced participant's responses, as they perceive the researcher to be removed from the hospital experience.

Finally, no previous studies similar to this study were found, where interventions had been tested, limiting the comparisons and contrasts with the current study and therefore replication of the study is required.

5.8 SUMMARY

This chapter provided a discussion of the results and findings of the study. The sample characteristics, pre-test, development and implementation of the intervention and post-test have been described. Notable findings arising from the study have been discussed and limitations described.

The next chapter summarises the main findings from the study and discusses implications for the future. These will be divided into the area of further research, education and clinical practice.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The purpose of this study was to measure the stress levels of ICU nurses and to develop and pilot test a stress management intervention for professional nurses practicing in the ICU. In this chapter, the conclusions are presented linked to the research outcomes and questions. In the light of the findings and conclusions reached by the researcher, specific recommendations are made about nursing practice, education and research. Recommendations for future research are also suggested. A conclusion ends this chapter.

6.2 SUMMARY OF THE STUDY

The purpose of this study was to develop and pilot test a stress management intervention for professional nurses practicing in ICUs.

6.2.1 The Primary Outcome of this Study was:

***To enhance the use of healthy and effective occupational stress management coping skills and decreased levels of stress intensity*.** The outcome is linked to this question, to what extent does a stress management intervention assist professional ICU nurses in the effective management of stress in the short term?
A structured educational stress management intervention was developed and implemented to assist nurses to manage stress effectively and to implement skills to decrease the levels of the stress intensity in the ICU.

6.2.2 The Secondary Outcomes of this study was:

To measure the stress levels pre- and post-intervention in the short term. This outcome was linked to the question, What are the stress levels of ICU professional nurses? The stress levels of the ICU nurses were determined according to the ENSS's nine subcategories for pre- and post-intervention. The pre-test stress levels of the intervention and the control group were more or less similar when measured on the ENSS. In the four-week post-test, the control group stress levels were statistically significantly higher than the intervention group, meaning the outcome of the intervention was positive.

To describe the strategies, according to the ICU nurses, that could reduce their stress levels. This outcome was linked to one open-ended question (*Appendix D*), "How can stress be reduced in the ICU settings, according to the professional nurses?"

The nurses' practicing in ICU were of the opinion that stress could be reduced and managed in the units by positive communication and interpersonal relations, as this would improve the respect for each other and will be evident in the teamwork. The factor that consistently emerged in the findings of the above question was communication, which is a big problem in the working lives of the ICU nurses. The lack of communication has the potential to lead to conflict in the unit, and the nurses are of the opinion that to lower conflict and stress in the unit better communication between the team members is necessary. This means the creation of a supportive environment in which people can talk to each other about their concerns, debriefing after incidents, group sessions and support groups, including counselling opportunities and management support. All these suggestions could lower the stress in the ICU environment. This enhancement of communication is very important for the collaboration between all healthcare providers, for example, the doctors, nurses and managers.

Another suggestion was to improve the working conditions by making sure there were sufficient numbers of nursing staff to lower the workload and also sufficient functioning equipment.

Conclusions drawn from the ICU nurses evaluations were: The nurses experienced the stress management intervention as positive and very informative, they also felt that attendance of the stress management workshop should be made compulsory and be done during working hours so that everyone could attend.

To conclude, a structured educational stress management intervention has the potential to change the intensity of stress levels for practicing ICU nurses in the short term.

6.3 FUTURE DIRECTIONS AND RECOMMENDATIONS

The following recommendations are made based on the results and conclusions of the research.

6.3.1 Recommendations for Nurses Practising in ICU

The ICUs are known to be highly stressful environments, therefore the importance of maintaining an adequate work-life balance is highly recommended as this has implications on patient outcomes. Based on the recognition that stress cannot be eliminated entirely; people can only learn to manage it better. The following recommendations for nurses practicing in ICU are made.

- On-going regular stress management workshops should be introduced into the ICU's to improve the nurse's knowledge of stress, to identify and to manage the stress effectively.
- To facilitate the reinforcement of the techniques taught in the stress management intervention, these techniques need to be consciously applied on a daily basis.
- Support groups need to be established in the ICUs.

6.3.2 Recommendations for Occupational Health Nursing Practice

The occupational health nurse is usually the first line of support for employees, and for this reason, the role of the occupational health nurse must become more important to help identify, measure and prevent stress in the ICU.

- It is recommended that OHNP's advocate for a comprehensive workplace health promotion/wellness, with stress as an important aspect integrated within the occupational health programme.
- To do the assessment and management of psychosocial stressors.
- To develop, implement and evaluate a health promotion/wellness programme for the ICU nurses.
- To drive health and safety policy development in the setting that will encompass comprehensive health and safety aspects putting the ICU nurse, other professionals and workers at centre stage.
- The occupational health nurse is usually the first line of support for employees, and for this reason, the role of the occupational health nurse must become more important to help identify, measure and prevent stress in the ICU.

6.3.3 Recommendations for Nursing Management, Human Resources and Executive Hospital Management.

This study shows there is a need for nurse managers and occupational health nurses to work together and include the development and improvement of stress-management training programmes for ICU nurses. To enhance quality of work life, and create and

maintain a positive practice environment, therefore management should take cognisance of the following:

- Stress can only be managed successfully within a dedicated comprehensive workplace health promotion/wellness programme based on the needs of healthcare professionals and workers integrated within the occupational health programme and an organisational culture that promotes health and safety.
- Commitment and leadership from management are required to promote and sustain a health and safety culture in the organisation.
- Organisational level and culture transformation are needed to address work overload and a shortage of nurses. Managers should place a high emphasis on nurse-to-patient ratios and other types of staff related problems in the workplace to improve the quality of work-life for nurses.
- The first prevention programmes could include redesigning jobs to modify workplace stressors; secondly, attempt to reduce the severe stress symptoms before they lead to serious health problems; thirdly, implement employee assistant programmes that are designed to treat the employees' health condition and include confidential access to a qualified mental health professional; lastly arrange communication and interpersonal skills education workshops for all staff members.

6.3.4 Recommendations for Nursing Research

Based on the findings of this study more research should be undertaken by focusing on the effectiveness of promoting well-being for the ICU nurses to develop a comprehensive model specifically designed for nurses practising in an ICU. The following recommendations are made for nursing research:

- This study was only conducted in a single central public hospital in one province in South Africa therefore replication of this study in different settings is recommended to provide additional evidence. It is also recommended that a larger sample size and other hospital settings be used, as this would be worthwhile to see if findings arising from this study can be generalised.
- Multi-cultural comparisons would greatly enhance the validity of findings regarding the multi-cultural South-African context.
- A longitudinal study that will do follow-ups of stress levels over time and even a study conducted in different hospitals and that can be extended to other provinces in South Africa. Longer-term stress management interventions with refresher or

booster sessions may have more sustained positive effects, but this needs to be evaluated in further trials.

- Studies such as randomised controlled trials would provide stronger evidence for or against the efficacy of stress management interventions. Future research should employ randomised, controlled designs with a sample size that has been analysed for adequate power. Statistical power calculations should be performed before data collection.

6.4 CONCLUSIONS

This chapter outlined the conclusions from the results of the research questions. Recommendations were made for self-care enhancement of ICU nurses and for OHN to develop, implement and evaluate a health promotion programme for the nurses practicing in the ICUs.

The study recorded the stress management intervention in nurses practicing in ICUs for the first time. This provided baseline data for future study comparisons, as the research method incorporated a control group, which experienced ad hoc stress management and an intervention group, which had a structured intervention programme.

The study demonstrates that stress scores can be reduced. Nurses are a valuable asset in healthcare and patient outcomes, thus it is vital that we address the need to assist nurses in caring for themselves and finding the best tools to assist in this matter.

This stress management workshop showed improved ability of the ICU nurses to apply coping techniques (communication skills, self-care skills and social connectedness/relational skills) to handle stress and improved the interpersonal relationships between health workers working in the ICU.

Based on the findings presented here, hospitals might be encouraged to increase their efforts to support nurses' stress management habits and encourage the use of the interventions activities. For the hospital management to improve the work environment, it is necessary to intervene early. Since a culture change is required for this programme to succeed, a change in beliefs is necessary.

The findings of this study will inform occupational health nurse practitioners on how to manage stress as an occupational health matter in a hospital's Intensive Care Units.

By mitigating measures that could be implemented by employers, such as the stress management workshop, nurses and employers could benefit – ICU nurses will be able to handle stress better and ultimately lead to better patient outcomes in the nursing practice. It is also possible that future nursing programmes and hospital employees could be proactive and consider these research findings, then implement the stress management workshops to prevent stress and burnout in the ICU nurse. Finally, these findings should lead to a change of policies in all healthcare institutions.

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APPENDIX A

EFFECTS OF A STRESS MANAGEMENT INTERVENTION AMONGST INTENSIVE CARE NURSES IN GAUTENG PUBLIC HOSPITALS

PARTICIPANTS INFORMATION LETTER

My name is Marlise Haarde and I am currently registered as a student at the University of the Witwatersrand, in the Department of Nursing Education for the Degree of Master of Science in Nursing. Research is a process to learn the answer to a question. In this study, I want to learn about the stress and burnout levels of professional nurses working in Intensive Care Units in a Gauteng central public hospital. In addition, I (the researcher) aim to develop and test an intervention to manage stress more effectively.

Stress and burnout levels have been researched, as evidenced by international and national the literature. Mental health promotion needs have researched as evidenced in the literature. However, there is little information on the efficacy of workplace stress interventions nationally

I hereby invite you to take part in the research study.
The study will consist of a control and experimental group with a pre-test, intervention and post-test, you will be randomly allocated to either the control or experimental group. Your involvement will entail the completion of the attached questionnaires by which means information is collected for the study. The questionnaire contains questions on and should take about 20 to 25 minutes for you to complete. Your involvement will also entail the attendance of the stress management intervention as well as the completion of two questionnaires one week after completion and at four weeks.

There are no benefits or risks to you by participating in the study.
Your participation is entirely voluntary and you are free to decline the invitation altogether or to withdraw at any time without having to give any explanation. By completing the questionnaire, you signify you consent to participating in this study.

Anonymity and confidentiality will be ensured, as research codes will be used. All information you volunteer will be treated with the strictest of confidence. You will not be required to sign anything. Publication of results will only show grouped information. No personal or company names or any identifying information will be published. If you are interested, results will be made available after the study is completed.
Please complete the attached questionnaire and place it in the unmarked sealed boxes.

Those of you who do not want to participate please deposit the blank questionnaire into the unmarked sealed boxes.

Thank you for taking the time to read this information letter. Should you require any further information regarding the study, or your rights as a study participant you are free to contact me on the following telephone number (0833864029) or email me using the following address: mhaarde@gmail.com

Yours faithfully,
Marlise Haarde

APPENDIX B

Expanded Nursing Stress Scale (ENSS)

Below is a list of situations that commonly occur in a work setting. For each situation, you have encountered in your PRESENT WORK SETTING, would you indicate HOW STRESSFUL it has been for you:

(Enter the number in the right-hand column that best applies to you. If you have not encountered the situation, write '0'.)

Never Stressful	Occasionally Stressful	Frequently Stressful	Extremely Stressful	Does Not Apply
1	**2**	**3**	**4**	5

		Answer
1.	Performing procedures that patients experience as painful	
2.	Criticism by a physician	
3.	Feeling inadequately prepared to help with the emotional needs of a patient's family	
4.	Lack of opportunity to talk openly with other personnel about problems in the work setting	
5.	Conflict with a supervisor	
6.	Inadequate information from a physician regarding the medical condition of a patient	
7.	Patients making unreasonable demands	
8.	Being sexually harassed	
9.	Feeling helpless in the case of a patient who fails to improve	
10.	Conflict with a physician	
11.	Being asked a question by a patient for which I do not have a satisfactory answer	
12.	Lack of opportunity to share experiences and feelings with other personnel in the work setting	
13.	Unpredictable staffing and scheduling	
14.	A physician ordering what appears to be inappropriate treatment for a patient	
15.	Patients' families making unreasonable demands	
16.	Experiencing discrimination because of race or ethnicity	
17.	Listening or talking to a patient about his/her approaching death	
18.	Fear of making a mistake in treating a patient	
19.	Feeling inadequately prepared to help with the emotional needs of a patient	
20.	Lack of an opportunity to express to other personnel on the unit my negative feelings towards patients	
21.	Difficulty in working with a particular nurse (or nurses) in my ***immediate*** work setting	
22.	Difficulty in working with a particular nurse (or nurses) **outside** my immediate work setting	
23.	Not enough time to provide emotional support to the patient	

24.	A physician not being present in a medical emergency	
25.	Being blamed for anything that goes wrong	
26.	Experiencing discrimination on the basis of sex	
27.	The death of a patient	
28.	Disagreement concerning the treatment of a patient	
29.	Feeling inadequately trained for what I have to do	
30.	Lack of support of my immediate supervisor	
31.	Criticism by a supervisor	
32.	Not enough time to complete all of my nursing tasks	
33.	Not knowing what a patient or a patient's family ought to be told about the patient's condition and its treatment	
34.	Being the one that has to deal with the patients' families	
35.	Having to deal with violent patients	
36.	Being exposed to health and safety hazards	
37.	The death of a patient with whom you developed a close relationship	
38.	Making a decision concerning a patient when the physician is unavailable	
39.	Being in charge with inadequate experience	
40.	Lack of support by nursing administration	
41.	Too many non-nursing tasks required, such as clerical work	
42.	Not enough staff to adequately cover the unit	
43.	Uncertainty regarding the operation and functioning of specialized equipment	
44.	Having to deal with abusive patients	
45.	Not enough time to respond to the needs of patients' families	
46.	Being held accountable for things over which I have no control	
47.	Physician(s) not being present when a patient dies	
48.	Having to organize doctors' work	
49.	Lack of support from other health care administrators	
50.	Difficulty in working with nurses of the opposite sex	
51.	Demands of patient classification system	
52.	Having to deal with abuse from patients' families	
53.	Watching a patient suffer	
54.	Criticism from nursing administration	
55.	Having to work through breaks	
56.	Not knowing whether patients' families will report you for inadequate care	
57.	Having to make decisions under pressure	

APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

The purpose of this questionnaire is to identify biographical data as well as determine your interest in attending a stress management intervention.

SECTION ONE: DEMOGRAPHIC INFORMATION

Please enter your response to the following questions by marking the answer/code of your choice with an "X".

SECTION 1: PERSONAL INFORMATION

58. Please indicate your unit of work		
Cardiothoracic ICU	1	
Neuro- surgery	2	
Main	3	
Trauma	4	
Coronary care	5	
59. Please indicate your highest academic qualification.		
Diploma	1	
Higher/Advanced diploma	2	
Bachelor's degree	3	
Honours degree	4	
Master's degree	5	
Doctoral degree	6	

60. Please indicate your professional qualifications by answering the following 3 questions.			
	Yes	No	
60.1Have you got a qualification in Intensive Care nursing	1	2	
60.2 Psychiatric Nursing	1	2	
61 Other(please specify)			
62 Gender			

Female	1	
Male	2	
63 Which age category do you belong to?		
20 to 29 years	1	
30 to 39 years	2	
40 to 49 years	3	
50 to 59 years	4	
60 and older	5	
64 How many years of Intensive Care nursing experience do you have?		
More than 6 months - less than one year	1	
1 to 5 years	2	
6 to 10 years	3	
More than 10 years	4	

APPENDIX D

STRESS MANAGEMENT INTERVENTION INTEREST

66. Are you interested in attending a stress management intervention? Indicate your answer by making an X in the appropriate block.

Yes	No

If you answered yes to question no 8 want to take part…please provide reasons for your decision

You can tick as many as is applicable to you

	Tick
67 Reduce my stress	
68 Prevent burnout	
69 Want to learn more about stress management	
70 To enhance my self-care practices	
71 To enhance my health and wellbeing	
72 To enhance my work satisfaction	
73 To improve the quality of my nursing care	
74 Others – please specify	

If you answered NO to question no 8 do not want to take part....please provide reasons for your decision

You can tick as many as is applicable to you

	Tick
75 Too time consuming	
76 It does not work	
77 Don't want to come in on my day off	
78 Too tired	
79 It won't change my working conditions	
80 Others – please specify	

81 Do you think you would like to participate in: (Mark only 1)

One (1) day workshop,	Two (2) half day workshops	One (1) Half day workshop

82. In your opinion how can stress be reduced in your workplace?

83. In your opinion will soft music in the unit assist with stress management?

Yes	**No**

Thank you for your participation.

APPENDIX E

DETAILED LAYOUT OF STRESS MANAGEMENT WORKSHOP

Welcome

Ice breaker

(An icebreaker is an exercise proposed to help a group of people to begin the process of establishing these people into a team. Icebreakers are commonly presented as a game to "warm up" the group of people by assisting the members to get to acquainted with each other. This often focuses on sharing personal information such as names, hobbies, etc.)
Divide participants into groups and hand out ice breaker cards (*Appendix F*). Each participant then gets a turn to draw a card, read the question out loud and give an answer.

Convey your praise to the participants for trying their best to participate and for using their imagination to help with the game and to bond and have fun with their co-workers.

Ground rules – what do we expect from each other.

- Conserving confidentiality
- Pay attention to what people are saying.
- No use of cell phones
- Let everybody finish what they are saying before you add or give a comment.
- Everybody must please take part in the workshop.

Expectations

Facilitator
The facilitator ask-What do you expect of today's stress management training
What do you want to achieve by attending today?
Write answers on a black board or flip chart:

What Is Stress?

Facilitator
Discussion on how to describe and define stress?
Write the relevant answers and ideas of the attendees regarding their definition of stress on the black board or flip.

Power point
Definitions of Stress
Facilitator says –There are quite a few definitions on what is stress, we all know what it feels like to experience stress. Discuss the older (1956) definitions from Hans Selye who is known as the founder of stress research.
You get eustress (good stress) and distress (bad stress) it all depends on the persons perception and experience.
However stress is mostly seen as a bad thing that has numerous long term side effects and negative implications on a person's body.
Lately the best know negative definition is from Richard. S. Lazarus- when the demands on person's resources are depleted on a personal and social level and the individual experience this condition as negative. To rephrase stress is experienced when a situation develops when a person feels they cannot handle or control, and this is seen as a threat. This could potentially have a big influence on an individual's life on an emotional, physical, and psychological level and most of the time it influences our personal life and also in our work/professional life.

Facilitator
Clarify that everyone understands stress as described by Richard Lazarus. Ask if anybody wants to add anything?
Start with explaining positive sides of stress and then the negative sides of stress and how to alleviate and solve the causes and feelings of stress.
Facilitator: Write on black board or flip chart the how you will identify the features of positive stress and negative stress.
Group Discussion of Positive Aspects of Pressure or Stress

Facilitator
Ask questions to group of times when stress had a positive effect on them- ask them to name a few and write it down on the black board or flip chart. Mention these and other instances (if not already mentioned by participants):

- Set deadlines that you have to achieve, which helps you reach your planed targets or set objectives otherwise you might procrastinate.
- Getting married
- Changing jobs

Group conversation to discuss the negative effects of stress

Facilitator
Ask about times when stress had a negative effect on them?
Write all the relevant answers given by the participants down on the black board or flip chart page headed "negative stress."

Facilitator
External factors (work environment and where you stay) stress and internal factors (physical sickness, strain, worries, passing of a patient, conflict with colleagues) can cause stress some of the factors is controllable and others not.

Power point
Environmental Stressors

- Political issues in the country
- Lack or poor housing environments
- Pollution and noise

Family-related stressors

- Separation of close family – relocation or divorce or other
- Conflict between a married couple or in a relationship
- A Relatives death or sever illness
- Childrearing and child care challenges

Workplace Stressors

- Conflict among co-workers
- Change of work location wanted or not wanted
- No facilities or resources to transport high risk patients to other hospitals
- Poor communication between health care workers and patients
- Supervisor not giving enough or no support
- No discussion groups to raise issues or concerns for the HCW
- Lack of working equipment and facilities to help with proper care of the patients

Physical Stressors

- Illness such as HIV, Zika or malaria
- Body injuries such lower back pain
- Headaches, tiredness, dyspepsia and bad indigestion

Close this part by summarising that people can experience stress on many levels and the outcome of a situation will be determined by the way you handle the stress, be it with good or bad coping skills and if you choose to ignore the stress when we feel overwhelmed or face it head on.

** Break (10 minutes or as needed) **

How Do We React To Stress?

Facilitator
Bad stress can be observed in a few different ways. Our bodies release the hormone cortisol when we are exposed to bad stress, and bad stress can affect our brains sometimes cause depression.

Facilitator
Ask questions to the attendees on what they think the consequences and effects are on their bodies when they experience bad stress,
Group discussion among attendees on their understanding of stress and cortisol on behaviours and the effect on their brains.

Facilitator
Power point
Discuss the flight of fight response, show release of cortisol in brain and effect on nervous system. Discuss when the stress hormone is beneficial when you have to run away when your life is in danger. Show flow chart with increase heart rate, increased respiration rate, muscle tension, increase blood flow all to increase the energy to help you run away.

However this can also happen when you have stress and increased pressure at work or at home even when your life is not in danger.
This has a negative effect on the immune system causing stress related illnesses.
It lowers your ability to make informed and clear decisions.
Causing you to make accidents and it makes you less productive at work.
Stress steals the joy you experience in your daily life making you experience life as negative.
You should not need to activate the above response besides when your life is in danger.

Facilitator
In order to keep the flight and fight reaction of our bodies at bay you need to know how to identify, control, manage and prevent the stress response that happens when we are exposed to stress as in the long run continuous stress will lead to burnout.

Facilitator
Group discussion on the attendee's positive and negative reactions to ways to handle stress in our daily lives.

Facilitator summarizes
All the positive and negative effects stress has on our lives and our performance in our personal and professional life's. Everyone respond to positive and negative stress in their own unique way. Your response will be determined by you type of personality and your resources available to support you.
For some people it happens quite often that situations occur that cause "stress" and then these situations is experienced as "out of control"

Power point
- Discuss the mind (thinking, awareness and feeling)
- Discuss behaviour (how we act)
- Discuss the body (physical response)
- Discuss spiritually

- Discuss stress in the occupational setting and the culture in the workplace

In the mind
- What happens and how do you feel- anxious, flabbergasted, short-tempered, angry, upset, depressed, vigilant and scared
- You can have bad dreams, obsessive thinking and outbursts
- Lack of concentration, bad memory and poor decision making ability.

In behaviour
- Asocial behaviour, not mingling with your co-workers, overworking, or to much resting and sometimes talking excessively, or change in verbal communication habits.
- Impatience with co-workers and or patients, no attention span, cannot focus.
- Excessive intake of alcohol, binge eating or loss of appetite.

In the body
- Physical changes- being lethargic, chronic headaches, nausea, bad digestion, muscle stiffness (neck, shoulders, jaw)
- Excessive perspiration, shallow breathing, tachycardia, clenching your teeth, etc.

Spiritually
- Have loss all purpose and direction in life feeling alone and empty.
- Feelings of being victimised, tortured and that nobody cares- not even God.

In the workplace
- Little or no communication between you and your colleagues, low motivation, morale and don't want to be part of any team.
- Productivity decrease, always in a bad mood, blame culture arises, high rates of absenteeism due to stress and illness, abuse of alcohol or other drugs.

Stress can affect individuals on all the above levels with very negative consequences.

Facilitator
Does stress in the work environment have any effect on you? What signs do you notice when you are experiencing stress? Do you notice any negative outcomes when you experience stress at work?

Journal

Facilitator hands out personal journal for self-care and to be used as preventative maintenance.

Power point
Focus on your most recent stressors. To put your feelings down on paper and how you feel about stress helps you to be objective and look at alternative ways to handle a situation.
You should write down in your journal exactly what happened -the fine details about the situation and what you have experienced.
Thereafter you must write how you felt and if the feelings changed later or stayed the same as a few minutes passed.
You can write whatever you feel and you think. Get everything out of your system. Continue writing for a good 5-10 minutes until you feel that you have written everything that bothered you.
You don't have to sensor what you write down; it is for your eyes only.
Do not be concerned about the spelling and grammar. Try and get some joy out of this way of putting how you feel on paper.
Journaling is a form of preventative maintenance.

Individual Self-Assessment

Facilitator
We have now completed the definition of stress. We shall now look at how stress has an effect on our life's and also the things that cause stress in our life's.
ACTIVITY 2 – Individual Self-Assessment
Introduce the activity by stating:
All of us experience stress one way or another, but we all experience stress differently.
We are now going to practice an individual exercise to see if we can understand what our stress levels are at this moment. This form for personal use only you will not hand this in.

Facilitator to hand out Personal Life events analysis (*Appendix G)*.

Power point
Explanation of the process and how to do the self-assessment personal life event questionnaire:

- Complete the Personal Life Events Analysis form by encircling relevant the numbers on the right hand side of the page, opposite the event that you have experienced in the past year (if an event has occurred on more than one occasion you should circle that number the amount of times that you have encountered that event it. For example, if you have moved three times, note that you circle the number three times). You will NOT be sharing the answers with the group so it is completely confidential. You can redo this questionnaire in a months' time to see if the scores are lower.
- Scoring the marks – Circle the answers you find relevant to you on the right hand side and add all your circled numbers together.
- Analysing the results – Take note that the lower your stress number the lower the stress you experience and the higher the number the more intense the stress you experience. With results that are over 150, it shows that your stress is perceived as high and it is suggested that it is essential for you to establish ways to manage your stress in order to prevent physical illness.

Each attendee should work silently completing the form (this should take about 5-10 minutes). When you have completed the form you should add up the numbers of your scores according to the instructions listed in Appendix K. The facilitator can walk around in the room to see if some of the attendees need some clarification or assistance when completing the form.

Facilitator
Ask how did they feel when they were completing the form?

- Ask if anybody want to share anything the experienced while doing the exercise?
- Ask if they found the self-assessment meaningful.
- Ask if they want to add or comment to anything the observed in this questionnaire?

Work-related Stress

Facilitator
Ask about the Employment related stressors that were also mentioned in the Personal life events analysis questionnaire- does anybody want to elaborate on this?

Facilitator
Only if the attendees want to, they can acknowledge if they circled work related issues on their Personal life events questionnaire by raising their hands. This can all be due to change of positions at work, more responsibilities, or conflict with the supervisors/ managers.

Some jobs like practising in an ICU will definitely be experienced as more stressful to some people, as this is a very stressful environment. Do you want to share what you find as stressful in your job? Share observation. Conditions can be difficult when there is lack of personnel, to little or no working equipment, conflict with other personnel and doctors and very demanding patients and their families.

Facilitator
Discuss with the group positive ways that a person can manage stress?
Ask the attendees to share some of their ideas on how they handle stress in the workplace in a positive way.
Make a list on the black board or flip chart.

Positive ways of handling stress could include (add if necessary):

- Mindfulness
- Religious practices
- Yoga, meditation
- Self-awareness
- Relaxation techniques

** Tea break (15 minutes) **

Stress Management Strategies

Facilitator
It is beneficial for people to establish methods to incorporate stress management practices into their everyday life. Life is stressful, we all need to be pro-active in order to identify and obtain ways to help us cope with stress better at work, at home, and in our personal lives. With repetition, we all can acquire ways to identify stress and stressors earlier and stay in calm, collected and in control when the pressure builds.

Let me remind you about the reactions that happen and the hormones that are released in our bodies when the "flight or fight" reaction starts. With good stress management techniques, we can obtain better ways to cope, be relaxed and approach these situations that cause stress meaningful, without causing a rise in heart rate, increase our blood pressure, respiration and prevent muscle strain.

In order for us to obtain the new skill of stress management, it takes time, practice, and commitment. A very important part of stress management is to build new pathways of thinking and to create better habits so that you can incorporate these skills in your daily life.

Facilitator
You have suggestion some positive and creative ways to deal with stress before we broke for tea. And we shall now continue to discuss a few other techniques.

Basic Stress Management Techniques

Facilitator
Here are some points that you should recognise when you want to better deal with stress:

Tip # 1: Identify the warning signs of excessive stress
To be self-aware is the cornerstone of positive stress management
It is so easy to feel overwhelmed with all the tasks of our daily life's that cause you to feel irritable, short tempered and sometimes you with draw. To some of us stress is so much part of or daily routine that it makes us feel normal. By being able to identify the stress is half the battle won, because then you can prevent this form turning your life upside down.

Become aware of your breath, the stiffness in your muscles in your shoulders, neck or jaw and an overall feeling of anxiousness. When you become aware of the above this is a clear sign that your body is trying to tell you something, you are under stress!
Abnormal breathing is a clear signal of stress; your breath is shallow and short and not deep and long.

Tip # 2: Decrease Stress through Self-Care
Facilitator says – In order to handle and confront stress you need to be strong and well equipped, this way you will not be overwhelmed. You have to take care of yourself by looking after your health physically and psychologically. This will help you feel more in control of the situation when it happens. Self-care concepts include:

Exercise
When need to elevate our heart rate and this helps to improve our feeling of well-being, increase the energy levels and help relax our brains and body. The best way is to exercise for at least 30 minutes a day, or to break the 30 minutes into shorter time fragments. Exercise can include walking, cycling, yoga, and stretching, dancing or any other way of exercise.

Mingle and connect and talk to other people
By verbalising your concerns, thoughts and feelings about your day to people that care about you and that you trust will help to lessen your stress. Support from your colleagues that have experience in the same situation can help shield you from the adverse outcomes of stress.

Get someone you can confine in and that you trust, someone you can use as soundboard.
Do not work continuously-take pauses, and get some time away
When you realize that you feel stress, take a break, go for a walk and get away from the situation that causes the stress. By changing your environment and doing something physical or to meditate and spend some time alone allows you to do some positive self-talk, giving you strength to face the situation and handle it better.

A lot of focus must be on creating healthy food and drink choices. Fresh fruit and vegetables should be consumed every day and make sure you stay hydrated by drinking enough water. Snacking between meals is important to prevent a drop in blood glucose levels that lead to a decrease in energy. Avoid foods that is high in salt and sugar, better suggestions are a protein (peanuts, cashews etc.) and fruit is healthy choices to fill the hunger in between meals.

It is better to eliminate talking tablets, smoking and drinking as a way to get some stress relieve.

Good sleeping habits and routines are essential. You deal better with any obstacle if your brain and body is well rested.
Getting the needed amount of sleep is critical. When you are refreshed you are better prepared to handle stressful situations in your everyday life. Make sure you have a routine like take a hot bath, not watch television, and avoid any electronic screens before you go to bed.

Religious or spiritual and social Activities
Get involved in the community. Take part in social activities like dancing or singing in the choir. Socialize with people in your neighbourhood and with your friends. Attending church, praying and meditation are all good ways to take care of your spiritual part of your being.

Find some humour
Laughing and humour is a fantastic way to relieve some stress. Watch a funny movie or share a joke, laughing excretes endorphins that make you feel better and happier. Laughing and having fun should also be part of your day in your work environment.

Identify your limits
Do not have more on your plate than what you can handle, and plan ahead and priorities your tasks, there is nothing worse than not being able to meet a deadline because you did not plan properly. If you feel snowed under you can ask for some assistance especially in your work environment.

Mindfulness exercise

Facilitator to hand out small containers for each participant containing raisins.

How to eat a raisin. Eating a raisin
Begin by placing the raisin in the palm of your hand, take a few seconds to just look at this raisin. Look at this raisin as if it is the first time in your life that you see a raisin, look at it in awe, wonder and admiration.
2. Carefully pick up the raisin between your thumb and fore finger and roll it gently between them. This raising feels soft, squashy and sticky. Think about the texture of the raisin. You may now close your eyes as you will be using your other senses for the rest of this exercise.
3. Roll it around your fingers – take the raisin to your ear- what do you hear?
4. Brush the raisin against your lips, and pay attention to what that this raisin feels like.
5. Bring the raisin to your nose. Does this raisin have any smell?
6. Now very carefully place the raisin on your tongue, close your mouth, but don't start chewing. Let the raisin lie on your tongue for a few seconds, and notice what this raisin feels like with your tongue.
7. When you are ready you can slowly start biting and chewing this raisin. Pay attention to the softness of the skin of the raisin, the sweet taste that is released when you chew it and extend this chewing for as long as possible ignore the urge to swallow it. Just notice this one raisin in your mouth. After a minute you can finally give in to the urge to swallow it.
This exercise was part of mindfulness, paying attention to what is happening in every second of your time spent with the "raisin", being in the moment and not thinking of anything else.

"Mindfulness is paying attention to the present moment with intention while letting go of judgement as if your life depends on it" – Dr Jon Kabat- Zinn.

Power point-
Discussion on what is mindfulness?
Have you ever eaten any snack or food and the next moment you will realise that what you have eaten is finished but you cannot remember eating it?
Or you will reach your destination when you drive but you cannot remember how you actually got there? This is when you go on "auto pilot" you don't pay attention to what you are actually doing. We are just mindlessly existing, because our brains are so occupied with our daily living, the demands on our lives and getting everything done in order to survive.

So many times we are "not present" in our own existence, we do not pay attention to anything that happens in our lives, the positive and good things go unnoticed.
We are overly critical on ourselves and we poison ourselves with negative self-talk.

It is so easy to be distracted a human being. We need to become fully conscious of what we feel and experience and not live in the past or in the future, but in the very moment. Self-criticism and judging ourselves will eventually destroy you. But if you talk and think of yourself in a positive way it will have an incredibly uplifting and positive impact on your life.

If you are mindful and paying attention in your life, it will help you see things more clearly and it will help you to respond to situations in a calmer more collected way.. Mindfulness cannot eliminate the stress in your life but it will help you deal with it in a better way. Being mindful is the one of the ways to help you improve your quality of life.

The advantages of Mindfulness include
Prevent habitual reactions and to slow down, help you handle and respond to a situation in a better way.
You will be able to see solutions and situations more clear.
Your creativity will increase.
It will be easier to regain your balance between work and home.
Ask the question "Do you think dwelling on the past will change anything?" and
Do you think you can control the future?

Exercise to reduce stress

Art Exercise
Facilitator
Hand out a Mandala colouring book with colouring pencils to each individual.

Play soft relaxing music and ask participants to choose a picture in the book that they want to colour in. Allow 20 minutes for the activity.

Power point-
The Mandala (Sanskrit for "circle" or "completion") has a very interesting past and is well known for its spiritual meaning and representation of wholeness.

Carl Jung the Psychoanalyst has called it "a representation of the unconscious self." The mandala therapy is enthusiastically acknowledged as an expressive way of realising who is the person/ artist that created it.
The purpose of Mandala therapy is therapeutic and symbolic.
The way you use the shapes and colours in your mandala art therapy will reflect you're a piece of your inner self at the time of creation.
The way you feel and your drive and feeling at that very moment must motivate and guide you to be creative.
At the end of the day, you will be creating a image of yourself as you were feeling when you were busy creating the mandala.
So your emotions and feelings will show in your creation this will represent your being at that very moment in time.

Ask the attendees how they felt after the Mandala colouring?

Power point
Draw up a task list for yourself.
Look at all your daily responsibilities and task you have to perform in your day.
Write down at minimum one activity every day that you enjoy doing on your new schedule.
You must try and find a balance between your work responsibilities and family commitments;
In order to prevent burnout a little "me time" is essential.

Facilitator
I would now like to show you another specific relaxation technique that has been practiced and confirmed to help relief stress. This includes a deep breathing exercise. In order to see good results with any exercise it needs to be done on a regular basis, it is also the care with stress management exercises.

Exercise in Deep breathing

Participants to sit comfortably,
Power point

Start deep breathing exercise show video.

Participants to should feel free to ask questions after completion of the exercise to make sure they understand what to do, however during the exercise they are not allowed to make any comments or ask questions, the exercise must be done without interruptions.

Power point

Deep breathing is a very ordinary but helpful way of to assist a person to relax. It can be used to "take a deep breath" to calm a person in a crisis situation.
This technique can be used together with other techniques like stretching (muscle relaxation) meditation (visualization) or prayer.

Facilitator

Ask the question – Do you think these techniques can be practiced in your occupational setting and in your home environment?
Ask the group to share and give feedback about their experiences with these relaxation excersises.

Personal Goal Setting

Facilitator

Introduction to the next activity – We shall do an activity that is focuses on you as a person next that will assist each of you on to start designing a self-care plan for yourself.

Self-Care Prescription

Please take a minute to think back to the new skills that you have acquired today and the new ways you can now approach and handle stress. Think about how to apply these techniques in your daily life.

This is your self-care prescription that you are prescribing to yourself (nobody will see it besides you)
Think of and write down concrete things (at least two things) that you would like to practice immediately to support yourself care in order to lower your stress levels.
You can put this prescription somewhere at home where you can be reminded of the commitment you have made to yourself.

Facilitator

Ask the attendees if anyone is wants to share a specific tool or activity they have committed to do from now on?

The participants should now be allowed to talk about their experiences when they were practising this exercise, and their ideas and thoughts on what they think will be doable when they leave. Give them reassurance that all of them have the will and skills now to complete their Self-Care Prescription. The facilitator should recommend that they should give each other support on a daily basis by reminding their co-workers to continue with the activities they have identified.

Wrap Up / Closing

Recap
Today we have discussed the following.

- The definition of stress (positive and negative stress).
- Responses we have on various levels, mind, body, spirit and physically on our bodies when we are exposed to stress.
- We looked at stressors in the workplace and ways to better handle them.

- We looked at basic stress management strategies and ways to lower stress by improving self-care.
- Stress reduction exercises were explained and taught; the attendees are now competent to practice these exercises at home (mindfulness, deep breathing and mandala -art therapy)
- You have finalised our own Self-Care Prescription to guide you to fulfil your self-care stress reduction commitment to yourself.

Facilitator
Ask if anybody wants to give feedback on anything else they feel is important to talk about or that was left out.

Facilitator
Clarify that all their expectations were met in the training?

Go back to the black board or the flip chart page where you wrote the expectations of the attendees.

Participants were asked to complete the stress management intervention assessment form.

Before you end the session ask that they attendees should acknowledge and be proud of the effort they have put in today and that they must continue with this journey of taking care of themselves, as it does not end here today. Reaffirm that supporting each other as Registered Nurses is very important and that they must remind each other on a regular basis to take care of themselves. Ask the attendees to please practice the stress management strategies as soon as they can in the coming week.

Closing words, Thanks.

APPENDIX F

ICE-BREAKER CARDS

If you could re-live any day in your life, what would you choose?	If you could live in any period of history, when would it be?
If you won $10,000, what would you spend it on?	If you could have any talent/gift, what would you choose?
If you could watch your favourite movie right now, what would it be?	If you could spend an entire day any way you wanted to, what would you do?
If you could talk to anyone in the world (living or dead), who would it be?	If you could opt out of any chore/job for the rest of your life, what would it be?
If you could trade places with any person (living or dead), who would you be?	If you could have anything you want for dinner tonight, what would it be?
If you could guest star on any TV show, what show would you choose?	If Jesus joined you for breakfast, what would you talk about?
If you could have any job in the world, what would you choose?	If money were no object, what one thing would you want to buy?
If you could create a new national holiday, what would it be?	If you could add an 11th Commandment, what would it be?
If you could spend the day with anyone from the Bible, who would you chose?	If you could take a mission trip anywhere in the world, where would you chose to go?
If you could have any one prayer answered, what would it be?	If all your fears were removed, what is something you'd like to do?

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APPENDIX G

CAPS Stress Management Training

The Community Association for Psychosocial Services (CAPS)

Personal Life Events Analysis

To learn the level of stress (distress) in your life, circle the value (number) at the right of each of the following events if it has occurred within the past 12 months:

Event Value	
Death of spouse	100
Violence at home	95
Divorce	73
Marital separation	65
Conflict or violence in the community	65
Death of family member	63
Personal injury or illness	53
Marriage	50
Fired from job	47
Marital reconciliation	45
Retirement from job	45
Change in family member's health	44
Pregnancy	40
Addition to family (for example new baby, relative moves in, etc.)	39
Significant change in job duties	39
Change in financial status	38
Death of close friend	37
Career change	36
Change in number of marital arguments	35
Loss of housing due to lack of finances	30
Physical relocation/housing changes to work requirements	29
Change in work responsibilities	29
Son or daughter leaving home	29
Trouble with in-laws	29
Outstanding personal achievement	28
Spouse begins or ceases working	26
Starting or finishing school	26
Change (decline) of living conditions	25
Revision of personal habits	24
Trouble with boss	23
Change in work hours or conditions	20
Change in residence	20
Change in schools	20
Change in recreational habits	19
Change in religious activities	19

Helping Health Workers Cope – Stress Management Manual	24
Change in social activities	18
Change in sleeping habits	16
Change in number of family gatherings	15
Change in eating habits	15
Vacation	13
Celebration of major holiday	12
Total	

How to analyse your score:

Add the circled values. If your total score is more than 150, find ways to reduce stress in your daily life so that your stress level doesn't increase.

The higher the score, the harder you need to work at staying physically well.

APPENDIX H

STRESS MANAGEMENT INTERVENTION EVALUATION QUESTIONNAIRE

Your input and feedback is very valuable for the assessment of the intervention, therefore I ask you to complete the evaluation form. Please indicate your rating in the appropriate block by means of a tick or cross and provide comments in the space under each aspect.

ASPECT	Excellent	Good	Average	Poor
1. Facilitator				
2. Venue				
3. Time allocation				
4. Learning materials				
5. Content of the intervention				
6. Overall impression and experience of the intervention				

What did you find the most meaningful?

What did you find the least meaningful?

Did the course meet your expectations?

What have you learned?

What are you going to do differently in future?

Recommendations for future interventions

THANK YOU FOR YOUR TIME, PARTICIPATION AND SUPPORT

APPENDIX I

Ethical Clearance Certificate

R14/49 Ms Marlise Haarde

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M150942

NAME: (Principal Investigator)	Ms Marlise Haarde
DEPARTMENT:	Nursing Education Charlotte Maxeke Johannesburg Academic Hospital
PROJECT TITLE:	Development and Pilot Testing of a Stress Management Intervention among Intensive Care Nurses in a Gauteng Public Hospital
DATE CONSIDERED:	02/10/2015
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Shelley Schmollgruber
APPROVED BY:	Professor P. Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	22/04/2016

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 10004,10th floor, Senate House/2nd floor, Phillip Tobias Building, Parktown, University of the Witwatersrand. I/We fully understand the the conditions under which I am/we are authorised to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated,from the research protocol as approved, I/we undertake to resubmit to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. in this case, the study was initially review in September and will therefore be due in the month of September each year.

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX J

Hospital Approval

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL

Enquiries:
Ms. G. Ngwenya
Office of the Nursing Director
Tell: (011): 488-4558
Fax: (011): 488-3786
09 November 2015

Ms. Marlise Haarde
Department of Nursing Education
Faculty of Health Sciences
University of Witwatersrand

Dear. Ms. Marlise Haarde

RE: "Development and pilot testing of a stress management intervention among intensive Care nurses in Gauteng Public Hospitals"

Permission is granted for you to conduct the above recruitment activities as described in your request provided:

1. Charlotte Maxeke Johannesburg Academic hospital will not in anyway incur or inherit costs as a result of the said study.
2. Your study shall not disrupt services at the study sites.
3. Strict confidentiality shall be observed at all times.
4. Informed consent shall be solicited from patients participating in your study.
5.

Please liaise with the Head of Department and Unit Manager or Sister in Charge to agree on the dates and time that would suit all parties.

Kindly forward this office with the results of your study on completion of the research.

Supported / not supported
Ms. M.M Pule
Nursing Director
Date:

Approved / not approved
Ms. G. Bogoshi
Chief Executive Officer
9.11.2015

Sign

APPENDIX K

Gill Smithies

Proofreading & Language Editing Services

59, Lewis Drive, Amanzimtoti, 4126, Kwazulu Natal

Cell: 071 352 5410 Email: moramist@vodamail.co.za

Work Certificate

To	Dr Shelley Schmollgruber
Address	Wits Dept of Nursing Education
Date	21/6/2017
Subject	Chapters 1 to 6 Development and pilot testing of a Stress Management Intervention amongst Intensive Care nurses in a Gauteng hospital, by M. Haarde
Ref	SS/GS/21

I, Gill Smithies, certify that I have proofread,
Chapters 1 to 6: Development and pilot testing of a Stress Management Intervention amongst Intensive Care Nurses in a Gauteng Hospital, by M Haarde,
to the standard as required by Wits Dept. of Nursing Education.

Gill Smithies
21/6/2017