

**THE EFFECTS OF OCCUPATIONAL EXPOSURE TO MATERNAL DEATHS ON THE  
WELL-BEING OF PROFESSIONAL MIDWIVES IN RURAL UGANDA**

by

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### DECLARATION

I declare that **THE EFFECTS OF OCCUPATIONAL EXPOSURE TO MATERNAL DEATHS ON THE WELL-BEING OF PROFESSIONAL MIDWIVES IN RURAL UGANDA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.



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**Rhoda Racheal Suubi Muliira**

1<sup>st</sup> October 2014

**Date**

# **THE EFFECTS OF OCCUPATIONAL EXPOSURE TO MATERNAL DEATHS ON THE WELL-BEING OF PROFESSIONAL MIDWIVES IN RURAL UGANDA**

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## **ABSTRACT**

The study described and analysed the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health care units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives. Quantitative research using an exploratory, descriptive, and correlation design was used to collect data from midwives working in two rural districts, Mubende and Mityana in Uganda. Data was collected using a self-administered questionnaire which comprised of three standardised scales, and permission was granted by the developers of the scales. The study population comprised of 238 midwives and a response rate of 95.2% was obtained. Simple random sampling was used to select the study sites and the whole target population was studied. Data was analysed using the SPSS version 20.

The findings revealed that occupational exposure to maternal death experienced by midwives working in rural districts of Uganda, may result into significant stress burden in the form of moderate to high death anxiety, mild to moderate death obsession and mild death depression. The respondents also experience physical un-wellness because of experiencing maternal death at the workplace, however, their psychological well-being was sustained. Although the midwives were using effective problem focused coping strategies to reduce their stress burden resulting from occupational exposure to maternal death, the study uncovered a number of factors that were non-modifiable that could be preventing this. However, midwifery educators, employers and managers should address the modifiable factors such as: midwives' education, involvement in other health care activities, lack of functional communication and ambulance services, support given at the work place after experiencing a maternal death, and professional

training on how to handle death situations which exaggerate the stress burden resulting from occupational exposure to maternal death.

Based on the key findings, proposed interventions, responsible persons and recommendations for practice to promote the coping mechanism and well-being of rural midwives in view of occupational exposure to maternal death were suggested.

**Key terms:**

Coping strategies of rural midwives; maternal deaths in Uganda; stress burden of Ugandan midwives; well-being of midwives.

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## *Dedication*

*To my husband, Joshua Mulira  
and  
our children, Destiny, Christian and Tristin*

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## **List of acronyms and abbreviations**

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AIDS	Acquired Immune Deficiency Syndrome
BSC	Brief COPE Scale
DHO	District Health Officer
DDS	Death Distress Scale
GoU	Government of Uganda
HC I	Health Centre I
HC II	Health Centre II
HC III	Health Centre III
HC IV	Health Centre IV
ICM	International Confederation of Midwives
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
NGO	Non-Government Organisation
PTSD	Post-Traumatic Stress Disorder
SSA	Sub-Saharan Africa
UNAIDS	The Joint United Nations Programme on HIV/AIDS
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic Health Survey
UNCST	Uganda National Council and Technology
UNFPA	United Nations Population Fund
UNICEF	The United Nations Children's Fund
UNMC	Uganda Nurses and Midwives Council
WHO	World Health Organization

## **List of annexures**

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Annexure B	Letter of ethical clearance from Mildmay Uganda Research Ethics Committee
Annexure C	Letter of ethical clearance from the Uganda National Council for Science and Technology
Annexure D	Letter of permission from the Office of the President of the Republic of Uganda
Annexure E	Letter of permission to collect data from Mubende District Local Government
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Annexure S	Correlation matrix between death distress scale domains and methods of coping domains

# CHAPTER 1

## INTRODUCTION AND ORIENTATION TO THE STUDY

### 1.1 INTRODUCTION

Worldwide about half a million mothers lose their lives every year due to childbirth and from related complications, and approximately 90% of these occur in developing countries (World Health Organisation [WHO], United Nations Population Fund [UNFPA], The United Nations Children's Fund [UNICEF] & the World Bank 2012:59; Mavalankar, Raman & Vora 2011:700; Prata, Passano, Sreenivas & Gerdt 2010:320). In response to this worldwide and persistent problem, various approaches and interventions, such as *safe motherhood, family planning, comprehensive abortion care, emergency and comprehensive obstetric care* have been implemented (UNFPA 2009a:12; WHO 2009:3; WHO et al 2012:59).

In developing countries, the current deliberate choice to focus research and related interventions on reducing maternal deaths and saving maternal lives has not brought about the expected reduction in the maternal mortality ratio (MMR) (Prata, Sreenivas, Vahidnia & Potts 2009:131-148; Lyengar & Lyengar 2009:9-20; Rosenfield & Schwartz 2005:272-274; Mbonye, Asimwe, Kabarangira, Nanda & Orinda 2007:220-225). Nonetheless, it is acknowledged that the cornerstone in implementing safe childbirth processes and related interventions to reduce maternal deaths is optimal midwifery skills (Ssengooba, Neema, Mbonye, Sentumbwe & Onama 2003:12; WHO 2006a:6). Proficient midwives therefore play a crucial role that could lead to a substantial reduction in the number of maternal deaths (Lyengar & Lyengar 2009:9; WHO 2006a:6).

An added consequence of childbirth-related health problems and mortality in developing countries is the effect that maternal deaths have on the midwives who provide childbirth services and take care of mothers during normal and abnormal births. Despite midwives' role in childbirth and their closeness to cases of maternal deaths, the concomitant emotional trauma experienced by midwives has received little attention and largely been neglected by researchers (Mander 2001:250; Pettersson 2007:470). The emotional trauma resulting from occupational exposure to maternal deaths may have

negative impacts on midwives' well-being and functioning, thereby disabling them from appropriately utilising their skills and competencies to reduce the MMR.

This study wished to analyse and describe the self-reported stress burden of occupational exposure to maternal deaths, its effects on physical and psychological well-being, and methods used to cope with occupational exposure to maternal death among professional midwives in Uganda, in order to suggest coping and support strategies for these midwives.

## **1.2 BACKGROUND TO THE RESEARCH PROBLEM**

Uganda is located in East Africa and lies across the equator (Ministry of Health [MoH] Uganda 2010a:30). It is a landlocked country that borders Kenya to the east, Tanzania to the south, Rwanda to the southwest, the Democratic Republic of Congo (DRC) to the west, and South Sudan to the north (MoH Uganda 2010a:30; 2010b:3). The country covers an area of 241,039 km<sup>2</sup> of which 197,323 km<sup>2</sup> is covered by land (MoH Uganda 2010a:30; UNFPA 2009b:10). In 2009, Uganda had an estimated population of 35,873,253 million with a growth rate of 3.6%, which means an increment of more than one million people annually (MoH Uganda 2010a:30; UNFPA 2009b:10). Of the population, approximately 49% consisted of persons under the age of 15 and it was estimated that within five years the Ugandan population would remain a young population with 18.5% of the total population being under five (MoH Uganda 2010a:30; MoH Uganda 2010b:3).

The country is administratively divided into 112 districts across four regions, namely central, western, eastern and northern (see figure 1.1) (Uganda Bureau of Statistics [UBOS] & Macro International 2011:2; UNFPA 2009b:16). The districts are further subdivided into lower administrative units, namely counties, sub-counties and parishes (MoH Uganda 2010a:31; UNFPA 2009b:16). Uganda has a decentralised system of governance and several functions have been given to the local government (MoH Uganda 2010b:3). However, the central government retains the role of formulating policies, setting and supervising standards, and providing national security (UBOS & Macro International 2011:2). Uganda's economy is predominantly agricultural, with the majority of the population dependent on subsistence farming and light agro-based industries (UBOS & Macro International 2011:2).



### **1.2.1 Source of the research problem**

The researcher was motivated to conduct this study after ten years' hands-on experience as a midwife working in a rural district and later as a midwifery tutor supervising students' practicum in rural health care units. During this period the researcher observed and experienced a number of difficulties facing midwives working in remote rural areas that necessitate further investigation. The difficulties included midwives often dealing with maternal death without being offered psychological support and being forced to work in non-conducive environments without essential supplies like gloves, drugs and blood products and still be expected to deliver care. Several press reports were released on maternal death distress, especially in rural areas, where women activists and families affected had sued the government of Uganda for neglecting the childbirth process as evidenced by the lack of basic equipment and supplies like medicines; having fewer midwives to attend to pregnant women, and lack of emergency services such as ambulances in many health care units (Akumu 2012:1-4; Muhumuza 2012:1; Nakazzi 2011:1; Nsubuga 2011:1; Webb 2011:1). In addition, following the court cases on maternal death, there were protests in Kampala, the capital city of Uganda, at the delay of a court ruling regarding the case of two women who were not attended to during child labour and bled to death in Ugandan hospitals (Akumu 2012:1-4; Nakazzi 2011:1). Maternal death is, therefore, still a real problem in Uganda claiming 438 women per 100 000 live births, with more than 60 per cent of all childbirths taking place in the rural areas, which are impoverished (MoH Uganda 2011:14; Pettersson 2007:470). Midwives working in rural areas are consequently closer to cases of maternal death, and the researcher considered it necessary to investigate the effect of occupational exposure to maternal deaths on the well-being of professional midwives in rural Uganda.

### **1.2.2 Background to the research problem**

One of the primary strategies to reduce maternal deaths in developing countries has been to ensure that every woman has ready access to a skilled birth attendant during delivery and emergency obstetric care in the case of complications (Prata et al 2009:131; UNFPA 2003:11). However, the quality of midwifery and obstetric care depends on many factors, including the health and work ability of health care

professionals (Knezevic, Milosevic, Golubic, Belosevic, Russo & Mustajbegovic 2011:147; UNFPA 2009a:82).

Developing countries face serious challenges that impede the attainment of set goals related to maternal deaths. These challenges include the severe shortage of human resources; lack of competent health care practitioners; lack of transportation or viable roads to reach high level care facilities in case of referrals; unpredictable availability of essential medicines; electricity outages, and lack of the necessary infrastructure (Prata et al 2009:132; Pettersson 2007:471). These challenges contribute significantly to the occurrence of maternal deaths in resource-poor settings, especially in rural areas of developing countries where resources are even more scarce and inaccessible (Prata et al 2009:134; Pettersson 2007:471). Besides the lack of resources in the rural areas, the increasing number of maternal deaths, from 435 in 2006 to 438 in 2011 per 100 000 live births, possibly add to the work stress burden experienced by professional midwives in Uganda. This escalation in stress burden may have adverse effects on the well-being of midwives and their ability to provide quality work-related inputs (Knezevic et al 2011:147; UNFPA 2009a:82).

Midwives play a critical role in emergency risk reduction, preparedness and response to obstetric complications (WHO 2006a:11; Ssengooba et al 2003:12). However, very few midwifery training programmes in developing countries incorporate obstetric emergency management in their curricula (WHO 2006a:11; Ssengooba et al 2003:12). Thus, when these midwives are faced with emergencies for which they are not prepared, and which result in complications such as maternal deaths, some might be incapable of personally handling this loss and responding appropriately to the emotional trauma resulting from this disturbing experience. These consequences could affect their physiological and psychological well-being and behavioural outcomes (Houtman, Jettinghoff & Cedillo 2007:9; Gardner & O'Driscoll 2007:248). Furthermore, De Silva, Hewage and Fonseka (2009:52) state that only 5-10% of workers in developing countries have access to occupational health services which could serve as a means of support for traumatised employees. Moreover, work-related psychosocial issues are rarely dealt with even where occupational health services are available (Houtman et al 2007:6; Gardner & O'Driscoll 2007:248).

One of the aspects that can moderate the impact of a stressful situation is the ability to cope. Coping with the stress burden of occupational exposure to maternal death might be problem-focused or emotion-focused (Chang, Daly, Hancock, Bidewell, Johnson, Lambert & Lambert 2006:31; Matthieu & Ivanoff 2006:344). At the same time, most of the stressors present in health care settings are not amenable to change by an individual, so changing one's attitude towards the stressors and managing personal emotional reactions may form an important part of coping (Chang et al 2006:31; Werner 2006:109).

### **1.2.2.1 Health service delivery in Uganda**

The Ministry of Health provides leadership for the health sector, but the provision and management of health services has been decentralised to districts and health sub-districts (MoH Uganda 2010a:2; 2010b:3). The delivery of health services is done by both public and private sectors, with the government of Uganda (GoU) being the owner of most facilities (MoH Uganda 2010a:5). Public health services are delivered through national and regional referral hospitals, general hospitals and health centres (HCs) at different levels, namely HC IV's, HC III's and HC II's (MoH Uganda 2010b:3; 2010a:5). The range of health services varies with the level of care provided at the different HCs (see table 1.1). In all public health facilities, whether curative, preventive, rehabilitative and promotive, health services are free as user fees were abolished in 2001 (MoH Uganda 2010b:3; 2010a:5). Because of the limited resources allocated to the health sector in Uganda, the Ministry of Health developed a minimum package of health services for all levels of health care for both the private and public sector and all health services provision is based on this package (MoH Uganda 2010a:5).

**Table 1.1 Levels of health care and services provided in Uganda**

<b>Infrastructure level</b>	<b>Administrative level</b>	<b>Target population</b>	<b>Services provided</b>
HC I or village health team	Village	1,000	Located within communities, provide community education, mobilisation for health interventions and refer to higher level health services
HC II	Parish	5,000	Preventive, promotive and outpatient curative health services, antenatal care, immunisation and outreach
HC III	Sub-county	20,000	All the services of HC II, plus inpatient care and basic emergency obstetric care
HC IV	County	100,000	All services of HC III, plus surgery, supervision of the lower-level HCs II and III, collection and analysis of data on health and planning for the health sub-district. In addition, HC IVs provide comprehensive emergency obstetric care
District	General Hospital	500,000	In addition to the services offered at HC IV, other general services are provided. It also provides in-service training, consultation and research for community-based health care programmes.
Regional	Regional Referral Hospital	2,000,000	In addition to services offered at the general hospital, specialist services are offered at this level, including psychiatry, ear, nose and throat, ophthalmology, dentistry, intensive care, radiology, pathology, and higher level surgical and medical services.
National	National Referral Hospital	24,000,000	These provide comprehensive specialist services. In addition, they are involved in teaching and research.

(Source: Ministry of Health Uganda 2010a:4)

### **1.2.2.2 Human resources for health in Uganda**

Uganda is among fifty-seven countries worldwide with a critical human resource shortage in terms of health service provision (WHO 2006b:196; UNFPA 2009b:23). The situation is worse at the lower levels of the health system where the burden of disease is high, such as HC II, III and IV (WHO 2006b:196; UNFPA 2009a:82). Although a wide range of health workers provide health services, nurses and midwives constitute the

largest group, delivering various services, such as promotive, preventive, curative, rehabilitative and supportive care to individuals, families and groups (WHO 2006a:6; UNFPA 2009a:34; UNFPA 2009b:21). For the purpose of this study the researcher considered midwives who are critical in the delivery of maternal health services (WHO 2006a:11; Ssengooba et al 2003:12). In the Ugandan health system, midwifery services may be provided by enrolled or registered midwives and enrolled or registered comprehensive nurse/midwives, who are registered officially by the Uganda Nurses and Midwives Council (Minca 2011; UNFPA 2009a:34). Enrolled midwives hold a certificate in midwifery training while enrolled comprehensive nurse/midwives hold a certificate in nursing and midwifery training. In addition, registered midwives hold a diploma in midwifery training while registered comprehensive nurse/midwives hold a diploma or degree in nursing (Minca 2011; UNFPA 2009a:34). The initial licence to practise nursing or midwifery must be renewed every three years following completion of the requisite number of continuing professional education credits (UNFPA 2009a:76; Minca 2011).

According to the *State of The World's Midwifery Report*, the in-depth analysis of Uganda shows that there are 3 475 registered midwives and 6 226 enrolled midwives, attending to 80% of births in urban areas and 37% of births overall (Minca 2011). Among the 667 registered comprehensive nurses and 2 235 enrolled comprehensive nurses, a few might assist in the birth process, however the exact number has not been established (Minca 2011; Rawe 2011:17).

Overall there is an estimated shortage of 1 961 (36%) midwives countrywide in Uganda's public health facilities, taking into consideration all the levels of health facilities from HC II to national referral hospitals (UNFPA 2009a:82; Rawe 2011:17). The shortage of midwives is higher in rural (42.8%) public facilities compared to (22.5%) urban facilities. Despite the acknowledged extreme shortage of midwives across the country, with the ratio of one midwife to 15 000 of the 17 244 861 female population, the GoU continues to employ a very limited number of midwives due to limited funds to fill the posts (UNFPA 2009a:82; Rawe 2011:17). Although the number of trained midwives in Uganda appears sufficient at 15 000, a big challenge resides in the uneven distribution of midwives in rural and urban areas (Rawe 2011:17; Minca 2011; Ssengooba et al 2003:30). The filling of midwifery vacancies is higher in urban than rural settings as well as those in referral health facilities, such as hospitals, than in lower level health centres (Minca 2011; Ssengooba et al 2003:30). The inequitable distribution

of midwives among districts, rural and urban areas and between public and private providers is attributed to factors such as insufficient training capacity, low remuneration, and poor working conditions (Ssengooba et al 2003:30; UNFPA 2009a:12; 2009b:23). These conditions make it difficult for the districts to recruit and retain health workers, especially in remote and hard-to-reach areas (Minca 2011; Roskam 2011; UNFPA 2009a:12; 2009b:23). It is critical that the GoU and key partners put in place mechanisms to attract and ensure retention of midwives in rural health care facilities where more than 80% of the communities live in order to contribute to reducing maternal mortality in Uganda (WHO et al 2012:19; Prata et al 2010:311; UNFPA 2009a:82).

### **1.2.2.3 Health financing in Uganda**

Although no user fees are paid in public health care institutions, households in Uganda constitute a major source of health financing (50%), followed by donors (35%), and central government (15%) (MoH Uganda 2010a:23; 2010b:29). This is attributed to the fact that most government-owned hospitals or health care units have limited, or lack basic medical supplies, equipment and drugs and patients consequently go to the private sector thereby incurring medical costs. In addition, when patients go to the public sector and find that medicines are not available, they buy from the private sector (MoH Uganda 2010a:23; 2010b:29). Furthermore, while public health services are largely free, many patients pay under-the-counter fees in public institutions to corrupt health care workers in order to get treatment and drugs and supplies stolen from stocks from public institutions (MoH Uganda 2010a:23; 2010b:29). Private health insurance is only subsidized by employers on behalf of employees for organisations who can afford it, such as private sector employers (MoH Uganda 2010a:23; 2010b:29). Therefore, nearly 5% of the households in Uganda have disastrous medical payments which are extremely high relative to average monthly household income (MoH Uganda 2010a:23; UBOS 2010:92)

### **1.2.2.4 Epidemiological profile of Uganda**

Communicable diseases account for 54% of the total burden of disease in Uganda, with HIV and AIDs, tuberculosis (TB) and malaria, being the leading causes of ill health (MoH Uganda 2010a:13; 2010b:14). The HIV/AIDS adult prevalence rate in Uganda

continues to decrease and is currently estimated at 6.5% (The Joint United Nations Programme on HIV/AIDS [UNAIDS] 2010:17; MoH Uganda 2010a:13). Success has been attributed to community mobilisation campaigns with the emphasis on abstinence, faithfulness and condom use, provision of HIV counselling and testing, prevention of mother-to-child transmission, antiretroviral therapy, safe blood transfusion, management of sexually transmitted infections (STIs), and home-based care management (UNAIDS 2010:27-39; MoH Uganda 2010a:13; 2010b:14-15).

The problem of TB in Uganda is still persistent and was ranked the sixteenth cause of morbidity in Uganda by the WHO's global tuberculosis report of 2008 (MoH Uganda 2010a:14). However, in 2010 the case detection rate increased from 50.3% to 57.4%, but treatment success rate improved from 68.4% to 75.1% (MoH Uganda 2010b:15). Since malaria is one of the leading causes of morbidity at 35.2%, and mortality at 21.5%, the goal of the malaria control programme is to control and prevent malaria morbidity and mortality, as well as minimize social effects and economic losses attributable to malaria (MoH Uganda 2010a:15; 2011:39-40).

Maternal and child health conditions account for 20.4% of the total disease burden in Uganda (MoH Uganda 2010a:11; 2010b:12). Although sexual and reproductive health care interventions have been rolled out at the lower level health care units (II, III & IV) and at the district general hospitals, the proportion of pregnant women delivering in government and private not-for-profit facilities stands at 32%, access to post natal care within the first week of delivery stands at 26% and the proportion of facilities providing appropriate emergency obstetric care is still low (MoH Uganda 2010a:11; 2010b:12). In Uganda about 15% of all pregnancies may develop into life-threatening complications and require emergency obstetric care especially those conceived too early, under 18 years or too late, above 35 years. In addition, only 11.7% of women deliver in fully functional comprehensive emergency obstetric care facilities (MoH Uganda 2010a:11; 2010b:12). Table 1.2 shows indicator trends for maternal and reproductive health in Uganda as indicated in the UDHS between 2000 and 2011.

The leading direct causes of maternal deaths in Uganda are haemorrhage (26%), sepsis (22%), obstructed labour (13%), unsafe abortion (8%) and hypertensive disorders in pregnancy (6%) (MoH Uganda 2010a:11; 2010b:12). The main factors responsible for maternal deaths in Uganda relate to the three delays, namely delay to

seek care, delay to reach facilities, and intra-institutional delay to provide timely and appropriate care. Slow progress in addressing maternal health problems in Uganda is due to a lack of human resources, medicines and supplies, appropriate buildings and equipment including transport and communication equipment for referral (MoH Uganda 2010a:11; 2010b:12).

**Table 1.2 Indicator trends for maternal and reproductive health in Uganda between 2000 and 2011**

Outcome indicators	Past trends		
	UDHS 2000/01	UDHS 2006	UDHS 2011
Maternal mortality rate (per 100,000 live births)	505	435	438
Neonatal mortality rate (per 1000 live births)	33.2	31	30
Total fertility rate (births per woman)	6.9	6.5	6.1
Infant mortality rate (deaths per 1000 live births)	89	75	54
<b>Process indicators</b>			
Proportion of women delivered by skilled birth attendant (%)	38	42	58
Antenatal care coverage (%)			
• At least once	91.9	94	94.9
• At least four times	41.9	47.2	47.6
Contraceptive prevalence rate (%)	18.6	24.4	30
Unmet need for family planning (%)	35	41	34.3

(Source: Ministry of Health Uganda 2010a:8-9)

### 1.3 RESEARCH PROBLEM

Midwives working in Uganda's rural health units are responsible for all deliveries, which include both normal and abnormal childbirths, due to the inaccessibility of specialised care should it be required. During the handling of abnormal childbirths, the circumstances may be difficult and complications leading to maternal deaths may occur. This means that the midwives are in charge of the delivery, despite their inability or unpreparedness to handle the complications effectively, leading to a sense of failure and severe distress. Having lived through the whole traumatic experience or stress burden of occupational exposure to maternal death, midwives have the additional obligation to inform and explain the situation to the affected family members, adding more stress.

When maternal deaths occur, the midwives often find themselves in conflicting roles. On the one hand, they must remain strong and give support to the affected family members, and on the other hand, they are affected by the loss of someone with whom they were intimately involved (Gerow, Conejo, Alonzo, Davis, Rodgers & Domian 2010:123; Borsche 2007:127). If these conflicting roles and emotions are not dealt with adequately, midwives may experience anxiety, difficulty in concentration, negative emotions, and depression and fatigue which affect their well-being and performance (Knezevic et al 2011:147; McFarlane 2010:6; Bisson 2009:290). Furthermore, the midwives may adopt ineffective coping methods, such as avoidance and compartmentalisation of the experience, that can result in burnout and other physical and emotional problems as opposed to healthy grieving (Gerow et al 2010:123; Huang, Chang, Sun & Ma 2010:2286; Bailey, Murphy & Porock 2011:3364; Kent, Anderson & Owens 2012:1255).

Research among nurses who experienced unexpected deaths found that such situations evoked reactions of intense fear, helplessness, grief, anxiety, apathy, moral distress and frustration (Asfour & Ramadan 2011:997; Yu & Chan 2010:1168; Wilson & Kirshbaum 2011:559; Chen & Hu 2013:88). When emotional turmoil is not recognised and addressed, the stress cascade begins and leads to maladaptive coping methods, emotional distancing, anger, decreased morale, and inefficient care provision (Brunelli 2005:124; Taubman-Ben-Ari & Weintraub 2008:624; Rice & Warland 2013:2; Mollart, Skinner, Newing & Foureur 2013:27). In addition, the trauma or stress burden caused by this distressing experience may cause post-traumatic stress (Asfour & Ramadan 2011:998; McFarlane 2010:6; Bisson 2009:290).

The problem, then, is that there is limited documented research available on midwives' occupational exposure to maternal deaths and the effects thereof on their well-being. Since negative consequences from regular exposure to maternal deaths can affect midwives' health and well-being, exploration of this phenomenon is necessary to gain a better understanding of its effect on midwives. This, in turn, would guide policy makers to develop strategies to enhance coping with stress resulting from occupational exposure to traumatic experiences, thereby improving professional midwives' well-being and subsequently the health of the women in their care, hence the following questions arise:

- What is the self-reported stress burden of occupational exposure to maternal deaths among professional midwives?
- What effect does the identified stress burden have on the physical and psychological well-being of professional midwives?
- What methods are used by midwives to cope with occupational exposure to maternal death?

## **1.4 AIM OF THE STUDY**

### **1.4.1 Research purpose**

The purpose of the study was to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives.

### **1.4.2 Research objectives**

The objectives of the study were to

- estimate the self-reported stress burden of occupational exposure to maternal deaths among professional midwives, using the *Death Distress Scale*
- determine the effect of the identified stress burden on the physical and psychological well-being of professional midwives, using the *Perceived Well-Being Scale*
- identify the methods used by professional midwives to cope with occupational exposure to maternal death, by means of the *Brief COPE Scale*
- propose interventions to promote the coping mechanisms and well-being of rural midwives in view of occupational exposure to maternal deaths

## **1.5 SIGNIFICANCE OF THE STUDY**

The researcher is of the opinion that the findings of this study will add to the existing body of knowledge and understanding of the subject of coping with stress stemming from occupational exposure to maternal deaths and its application in the health care system of Uganda. The results should be useful for health planners, policy makers, midwifery managers and other stakeholders by proposing interventions to promote the coping mechanisms and well-being of rural midwives in view of occupational exposure to maternal deaths. Consequently, the findings should be useful not only in Uganda but also in other developing countries with high maternal deaths.

This study will

- create awareness among midwifery educators in developing countries on the importance of incorporating emergency management in midwifery training curricula
- provide useful information on the importance of developing occupational health care policies and support services
- support and enrich theories on occupational stress that emphasise different coping methods in view of psychological well-being, somatic health and social functioning
- serve as a reference for researchers on the subject of coping with stress stemming from occupational exposure to maternal death

This study is important because no previous research has been documented in Uganda concerning the stress burden of occupational exposure to maternal death and its effect on the well-being of midwives.

## **1.6 THEORETICAL FOUNDATIONS OF THE STUDY**

This section presents the research paradigm and theoretical framework used to structure and to maintain the focus of the study.

### **1.6.1 Research paradigm**

A paradigm refers to ways of looking at natural phenomena that encompasses a set of philosophical assumptions that guide one's approach to inquiry (Polit & Beck 2010:562). The research paradigm for the study was quantitative and positivist (Johnson & Christensen 2012:33; Burns & Grove 2009:37). This study was done on a broad level and used well-established questionnaires. The main purpose of quantitative research is to measure concepts or variables objectively and to examine by numerical and statistical procedures the relationship between them (Parahoo 2006:50; Johnson & Christensen 2012:34). The positivist paradigm is aimed at understanding the underlying cause of the natural phenomena (Polit & Beck 2010:15; Johnson & Christensen 2012:33).

### **1.6.2 Theoretical framework**

Burns and Grove (2009:126) describe a theoretical framework as "an abstract, logical structure of meaning". It guides the development of the study and enables the researcher to link the findings to the different bodies of knowledge (Boswell & Cannon 2011:40). The researcher used Horowitz's (1986) *Stress Response Theory* and Lazarus and Folkman's (1984) *Transactional Model of Stress and Coping* in the study.

#### **1.6.2.1 Horowitz's Stress Response Theory**

Horowitz's theory emphasises the effect of trauma on individuals' lives and highlights the enormous readjustments that individuals need to make in order to integrate the traumatic experience into their own lives. By explaining this process, Horowitz is able to explain reactions to trauma, such as anger, anxiety, and depression, which often accompany the Post-Traumatic Stress Disorder (PTSD) (Brewin, Joseph & Dalgleish 1996:673; Dalrymple 2004; Brewin & Holmes 2003: 346). Chapter 2 discusses Horowitz's theory.

Horowitz's *Stress Responses Theory* indicates the way in which normal reactions to trauma can become chronic or pathological but does not explain the role of individual variations in trauma response (Brewin & Holmes 2003: 346; Brewin et al 1996:674). Individual differences in stress response are due in part to appraisal of the event and

coping methods as explained by Lazarus and Folkman's *Transactional Model of Stress and Coping* (Lazarus & Folkman 1984:7; Aitken & Crawford 2007:667).

### **1.6.2.2 Lazarus and Folkman's Transactional Model of Stress and Coping**

Lazarus and Folkman (1984:21) propose that coping is an interaction between a person and the environment and when an individual is faced with a situation, a cognitive appraisal process is begun to assess the level of the threat and the available coping resources (Aitken & Crawford 2007:667). Coping involves attempting to alter the troubled person-environment or regulating emotional distress (Edwards 1992:244; Lazarus & Folkman 1984:143). If the stressful encounter is successfully resolved, coping ceases and positive stress results. However, if not successfully resolved, negative stress and physiological disturbances result consequently damaging adaptation outcomes such as psychological well-being, somatic health and social functioning (Perrewe & Zellars 1999:740; Edwards 1992:244). Chapter 2 discusses Lazarus and Folkman's model.

## **1.7 RESEARCH DESIGN AND METHODOLOGY**

Research methodology refers to a technique used to structure a study and to gather and analyse information in a systematic fashion (Polit & Beck 2010:567). The research methodology describes the techniques and research procedures followed when conducting a study, including the population, sample and sampling, data collection and analysis, trustworthiness and ethical considerations (see chapter 3 for detailed discussion).

### **1.7.1 Research design**

The study followed a quantitative, non-experimental approach using an exploratory, descriptive and correlational design (Polit & Beck 2010:235; Zaccagnini & White 2011:78). **Quantitative** research may be descriptive, correlational, experimental and quasi-experimental and uses numerical data to obtain information (Parahoo 2006:50; Polit & Beck 2010:235). An **exploratory design** is used when little is known about the phenomenon under study (Nieswiadomy 2012:113; Wood & Ross-Kerr 2011:377). This design helps to probe phenomena existing in the present and link them to past

phenomena (Nieswiadomy 2012:113; Wood & Ross-Kerr 2011:377). **Descriptive** designs are important for acquiring knowledge in an area in which little research has been conducted (Burns & Grove 2009:237; Taylor, Kermode & Roberts 2006:173). Descriptive studies collect a wide range of data on the phenomenon being surveyed and can generate ideas that can be further explored or tested in other studies (Houser 2012:97; Taylor et al 2006:173). A **correlation design** is used to examine the relationships that exist in a situation without attempting to infer causal connections (Polit & Beck 2010:235; Burns & Grove 2009: 246).

Data was collected using a structured standardized questionnaire. Using a self-completion survey permits anonymity and may result in more honest responses; is less expensive than interview-administered surveys, and the researcher does not have to be present, which eliminates bias caused by rephrasing questions (Houser 2012: 231; Polit & Beck 2010:295).

### **1.7.2 Population and sample**

A research population refers to all the elements (individuals, objects or substances) that meet certain criteria for inclusion in a given universe (Burns & Grove 2007:327). Sampling is “the process of selecting a group of people, events, behaviours or other elements that are representative of the population being studied” (Burns & Grove 2007:327). The researcher used simple random sampling for the site target population and the complete target population was studied (Polit & Beck 2010:311).

The site population consisted of the health centres (HCs) II, III and IV from the districts of Mubende and Mityana. The two districts were randomly selected from the 21 rural districts of central Uganda as the site target population. The size of the site population comprised all 131 rural health care units (RHCUs), namely 62 RHCUs in Mubende district and 69 RHCUs in Mityana districts, thus ensuring total representation of the entire population (Polit & Beck 2010:113).

The 250 professional midwives (enrolled/registered midwives and enrolled/registered comprehensive nurse/midwives) directly involved in maternal health services, officially registered by the Uganda Nurses and Midwives Council and who had been employed at the rural health care units for six months or more in the Mubende and Mityana districts

were chosen as the target population. As no sample was drawn, the study population size was 250.

### 1.7.3 Data-collection instrument

Data-collection instruments are formal guidelines that researchers develop to direct the collection of data in a standardised fashion (Polit & Beck 2010:552). In this study the data-collection instrument was a questionnaire (Burns & Grove 2007:551; Parahoo 2006:283). The researcher selected a questionnaire because it was standardized, structured, predetermined, could not be varied in wording and order, and therefore was reliable (Saunders et al 2009:365; Polit & Beck 2010:345). The disadvantages of a questionnaire include not giving the respondents an opportunity to ask, elaborate, clarify or illustrate answers (Saunders et al 2009:365; Polit & Beck 2010:345).

Data was collected using a combined, structured self-administered questionnaire with the help of two field workers with experience in data collection, who were responsible for locating the respondents, and distributing and collecting the consent forms and completed questionnaires during the data-collection period. The field workers were given two days training prior to the data collection.

The **validity** of an instrument refers to the extent to which the instrument actually reflects the abstract construct being examined (Polit & Beck 2010:377). In this study, face and content validity were used to assess the validity of the questionnaire.

**Reliability** refers to the consistency of measure obtained in the use of a particular instrument and is an indication of the extent of random error in the measurement method (Burns & Grove 2007:365). In this study, internal consistency was tested using Cronbach's alpha coefficient, an appropriate statistical test for assessing the extent to which each item in a multiple item scale measures a given concept (Tappen 2011:131; Burns & Grove 2007:367).

The *Death Distress Scale* has demonstrated good reliability with Cronbach's alpha ranging from 0.83 to 0.93 (Abdel-Khalek 2011:175). The *Brief COPE Scale* has demonstrated good reliability with Cronbach's coefficients ranging from 0.71-0.96 (Tuncay, Musabak, Gok & Kutlu 2008:4; Yusoff, Low & Yip 2009:41). The *Perceived*

*Well-being Scale* has shown satisfactory coefficients ranging from 0.74 to 0.86 (Talbot 2002:242; Reker & Wong 1984:29).

#### **1.7.4 Data analysis**

Data analysis is conducted to reduce, organise and give meaning to data (Burns & Grove 2005:733). A statistician analysed the data, using the Statistical Package for Social Sciences (SPSS) 20.0 for Windows software. Descriptive statistics were used to synthesise and describe data while inferential statistics were used because the study had a representative sample, and indicated the relationships between variables. Non-parametric statistics were used for nominal and ordinal data. Parametric statistics were used for ordinal data derived from the Likert-type scale responses (Burns & Grove 2007:461; Polit & Beck 2010:412).

#### **1.7.5 Ethical considerations**

Ethics refer to a system of moral values concerned with the degree to which research procedures adhere to the professional, legal and social obligations of the participants (Polit & Beck 2010:553). Ethical guidelines serve as standards and a basis on which researchers evaluate their own research conduct. The researcher upheld the ethical principles of informed consent and voluntary participation, anonymity, confidentiality, fairness and honesty, protection from discomfort and harm, and the right to withdraw from the study at any stage (see chapter 3). Fieldworkers assisted the researcher with the data collection, a statistician analysed the data, and the researcher consulted the supervisor throughout the study.

##### **1.7.5.1 *Permission to conduct the study***

The researcher obtained permission to conduct the study from the Higher Degrees Committee of the Department of Health Studies at the University of South Africa (Annexure A). Then the proposal, ethical clearance certificate and data-collection instrument were submitted with a covering letter to the Uganda National Council for Science and Technology (UNCST) for their consent to conduct the study (Annexure C). Thereafter the district authorities and the rural health care units were approached for their cooperation and participation (Annexures E, F and G).

### **1.7.5.2 Protection of participants' rights**

The researcher upheld the ethical principles of informed consent and voluntary participation, anonymity, confidentiality, fairness and honesty, protection from discomfort and harm, and the right to withdraw from the study at any stage (see chapter 3).

## **1.8 SCOPE AND LIMITATION OF THE STUDY**

Scope refers to the degree to which the findings of a study can be generalized to other settings (Zaccagnini & White 2011:11). Limitations are restrictions and problems in a study that may decrease the generalisability of the findings (Burns & Grove 2005:39).

The study was conducted among professional midwives working in rural health care units in Mubende and Mityana districts in central Uganda. In the study, the complete respondent target population was studied. Since the study had a clear focus, using the complete target sample increased the number of respondents thereby ensuring representation of the target population.

Due to the isolation of certain rural health services and the workload of midwives, some questionnaires were not completed or returned. In addition, since a structured standardised questionnaire was used to collect data from the midwives, it did not permit asking follow-up questions in order to achieve an in-depth inquiry about the research problem.

## **1.9 DEFINITION OF TERMS**

For the purposes of this study, the following terms were used as defined below.

- **Coping methods**

Ways or strategies used to master, tolerate or reduce the external and internal stressors and demands that are appraised as taxing or exceeding the resources of the person (Lazarus 1991:112).

The coping method construct (*dependent variable*) was measured using the *Brief COPE Scale (BCS)*, which is a self-reported measure that assesses a broad range of coping responses and thoughts a person may have in response to a stressful situation (Carver 1997:92).

- **Maternal death**

The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO 2007:4).

The maternal death construct (*independent variable*) was measured using the self-administered questionnaire on midwives' experience of occupational exposure to maternal deaths.

- **Professional midwife**

A trained person who assists women during childbirth, provides prenatal care for pregnant women and birth education for women and their partners, and cares for mothers and newborn babies after the birth (WebMB 2009:274).

The professional midwife construct (*dependent variable*) was described using the self-administered questionnaire on midwives' biographic information such as age, midwifery qualification, years of experience, and current unit of work. In Uganda, all midwives must be registered with the Uganda Nurses and Midwives Council (UNMC). Midwifery services in Uganda are provided by:

*Enrolled midwives.* Competent midwives who provide preventive, curative, promotive and rehabilitative services and hold a certificate in midwifery practice in Uganda (UNFPA 2009a:34).

*Registered midwives.* Competent midwives who provide preventive, curative, promotive and rehabilitative services and hold a diploma in midwifery training in Uganda (UNFPA 2009a:34).

*Enrolled comprehensive nurse/midwives.* Multi-skilled nurse/midwives, who provide promotive, curative and rehabilitative services in the minimum health care package and hold a certificate in nursing and midwifery training in Uganda (UNFPA 2009a:34).

*Registered comprehensive nurse/midwives.* Multi-skilled nurse/midwives who provide promotive, curative and rehabilitative services in the minimum health care package and can get involved in research, education and administration, and hold a diploma or degree in nursing in Uganda (UNFPA 2009a:34).

- **Occupational exposure**

Workplace hazards attributed to all forms of environmental contamination, and physical, ergonomic, psychological and social stress (EPH 2008, sv “occupation and environmental health”).

The occupational exposure construct (*dependent variable*) was measured using the self-administered questionnaire on midwives’ occupational exposure to maternal death.

- **Rural**

Rural areas are remote scattered areas throughout the country characterized by high levels of poverty, low levels of economic activity, poor infrastructure and lack of essential services (International Fund for Agricultural Development 2007:2).

- **Rural health care units**

These units are Government or private health care facilities located in the rural communities where primary health care (PHC) services are delivered (Adeyemo 2005:1). In Uganda, the health care system in rural areas has a tiered level of services which include Health Centres (HC) I, HC II, HC III and HC IV (MoH Uganda 2010a:3):

*Health Centre I (HC I).* These are located at the village level, headed by a village health team, to provide community education, mobilization for health interventions such as immunization, malaria control, sanitation and promoting health seeking behaviour and referral. These services are provided in the homes of clients or at a village school or church (MoH Uganda 2010a:4; 2010b:5).

*Health Centre II (HC II)*. These are located at the parish level to provide preventive, promotive, and curative services. It provides only outpatient care, community outreach services and linkages with the village health teams (MoH Uganda 2010a:4; 2010b:5).

*Health Centre III (HC III)*. These are located at the sub-county level to offer preventive, promotive, curative, and maternity and in-patient services. They offer basic emergency obstetric care and support supervision of the community and HC IIs (MoH Uganda 2010a:4).

*Health Centre IV (HC IV)*. These are located at the county or health sub-district headquarters to provide all services of HC III, plus surgery, supervision of the lower-level HCs II and III, collection and analysis of data on health, and provide comprehensive emergency obstetric care (MoH Uganda 2010a:4).

- **Stress burden**

The perception of psychological distress, anxiety or demoralisation, and the subsequent physiological, emotional, cognitive and behavioural reactions to some extremely taxing aspects of work content, organisation or environment (Houtman et al 2007:4).

In the study the stress burden construct (*Independent variable*) relates to the effects of exposure to death and dying as measured using the *Death Distress Scale (DDS)*, which is a self-reported measure of death anxiety, death depression and death obsession (Abdel-Khalek 2011:171). The stress burden resulting from occupational exposure to maternal death relates to reactions to trauma as explained by *Horowitz Stress Response Theory* (Horowitz 1986:95).

- **Support supervision**

Support supervision is an approach used to improve services by focusing on meeting staff need, logistics, training and continuing education causing a positive effect on assuming responsibility for one's own actions and behaviour as well as for those of others (Severinsson, Haruna & Friberg 2010:402).

- **Well-being**

Well-being is the absence of ill health, satisfaction with life as a whole and with different aspects of life such as work, family, community, health, the presence of positive effect such as joy, contentment, happiness, pride and the relative absence of negative effect such as guilt, sadness, anxiety and depression (Diener, Sub, Lucas & Smith 1999:276).

Well-being (*dependent variable*) was conceptualised as physical and psychological wellness, and was measured using the *Perceived Well-being Scale (PWB)*, a self-reported tool that measures psychological and physical well-being (Reker & Wong 1984:23).

## **1.10 LAYOUT OF THE STUDY**

The study consists of six chapters:

- Chapter 1 introduces the research problem, aim, objectives and significance of the study and briefly describes the research design and methodology, ethical considerations, scope and limitations.
- Chapter 2 discusses the two theoretical frameworks.
- Chapter 3 presents the literature review on the subject of professional midwives' occupational exposure to maternal death.
- Chapter 4 covers the research design and methodology.
- Chapter 5 discusses the data analysis, interpretation and research findings.
- Chapter 6 presents the conclusions and limitations of the study, and makes recommendations for practice and future research. The proposed interventions to promote the coping mechanisms and well-being of rural midwives in view of occupational exposure to maternal deaths are also presented.

## **1.11 CONCLUSION**

This chapter outlined the research problem and how the researcher planned to approach and investigate the problem. The purpose, objectives and significance of the study to the health care system of Uganda, the theoretical framework, and the research design and methodology were also briefly described.

It is hoped that the study and findings will serve as a future reference for research on the subject of coping with stress stemming from occupational exposure to maternal death.

Chapter 2 discusses the theoretical framework of the study.

## CHAPTER 2

### THEORETICAL FRAMEWORK

#### 2.1 INTRODUCTION

A theoretical framework is “a collection of ideas, concept maps or conceptual models that display a theory to be examined as the basis for a study” (Houser 2012:23). Rocco and Hatcher (2011:119) describe a theoretical framework as a set of assumptions that describe the relationships among phenomena, resulting from logical research findings. Creswell (2009:49) suggests that a theoretical framework is dependent on the researcher’s worldview and this leads to the selection of the research paradigm to be used in the study. In quantitative research, theoretical frameworks establish relationships between concepts that sometimes need to be tested (Houser 2012:23; Hoskin & Mariano 2004:24).

The link between the theoretical framework and the study should always be emphasised in order to determine the reliability of the study design, the applicability of the findings and implications to practice (Houser 2012:24; Boswell & Cannon 2012:66). The researcher should always consider the following links with the theoretical framework (Boswell & Cannon 2012:66; Houser 2012:23-25; Hoskin & Mariano 2004:24):

- The theoretical framework should be consistent with the research questions and study variables.
- The literature review should focus on defining the concepts within the theoretical framework and supporting the relationships among the concepts.
- The research design should logically flow from the theoretical foundation and the relationships that are expected.
- Concepts, construct and operational definitions should be consistent with the theoretical framework.
- The researcher should refer to the theoretical framework when interpreting the results of the study.

## **2.2 THEORETICAL FRAMEWORKS**

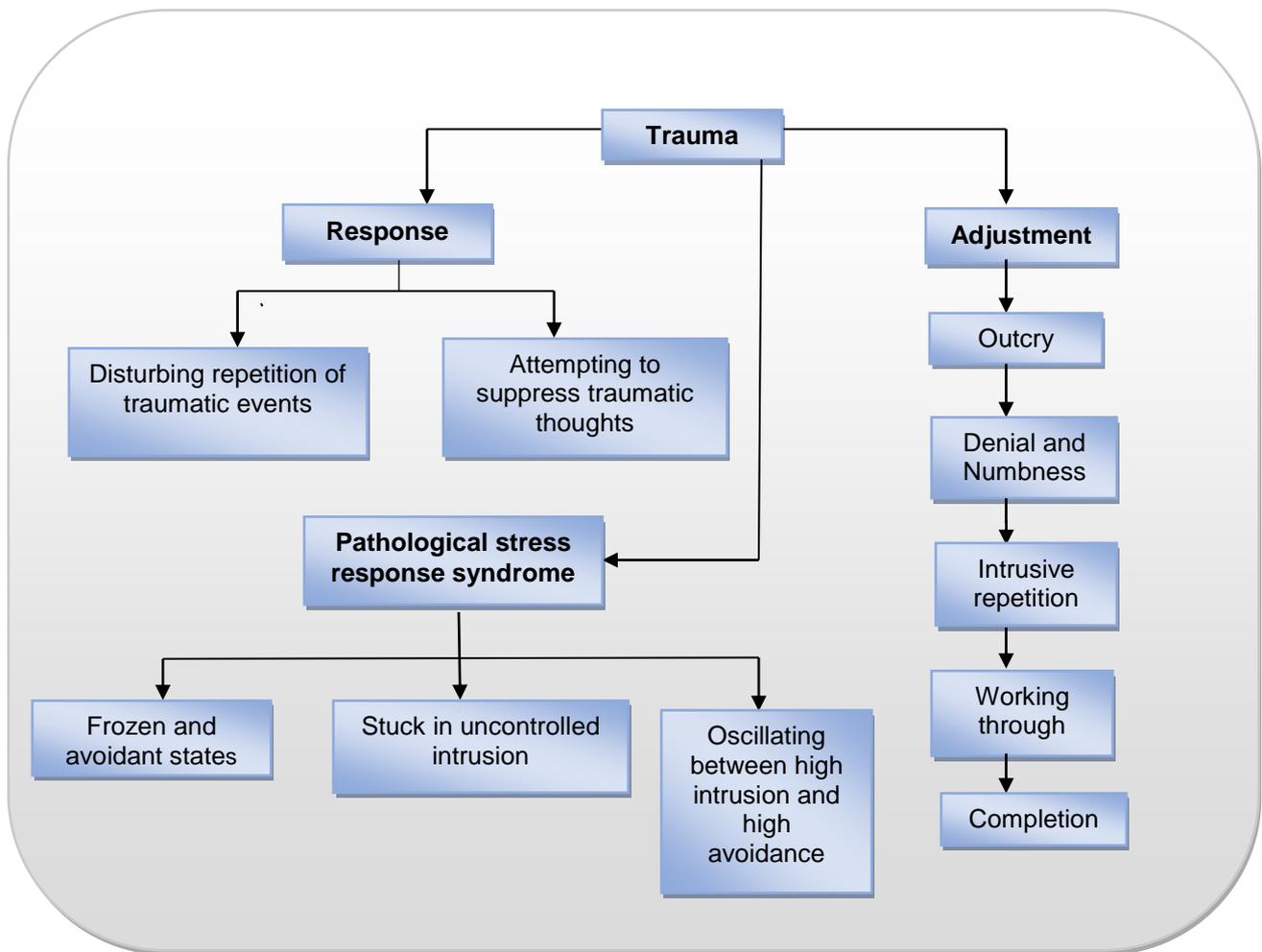
Two theoretical frameworks were chosen to guide this study, namely Horowitz's (1986:95) *Stress Response Theory*, which explains the process in adaptation to trauma, and Lazarus and Folkman's (1984:21) *Transactional Model of Stress and Coping* used to explain the individual differences to trauma responses in understanding the appraisal of the traumatic event and coping with the resulting stress.

### **2.2.1 Horowitz's *Stress Response Theory***

In Horowitz's *Stress Response Theory*, trauma is the central aspect and Horowitz postulates that there could be a response which either leads to repetitive intrusion or an attempt to suppress the incident (Horowitz 1986:95; Brewin & Holmes 2003:346). Secondly, adjustment can occur through a process of five stages, or a pathological stress response could take place (Brewin & Holmes 2003: 346; Brewin et al 1996:673). The processes of adjusting to trauma according to Horowitz's *Stress Response Theory* are discussed next and illustrated in figure 2.1.

#### **2.2.1.1 *Trauma in Horowitz's theory***

Trauma is used to describe situations that can occur suddenly or unexpectedly, resulting in emotional pain and distress, overwhelming individuals' ability to cope, leaving them helpless and powerless (Adriaenssens, de Gucht & Maes 2012:1412; Van der Kolk, Roth, Pelcovitz, Sunday & Spinazzola 2005:393; Herman 1992:33). Adriaenssens et al (2012:1412) and Van der Kolk et al (2005:389) postulate that when traumatic events occur, they can quickly become incorporated into the mind and may result in behavioural, emotional, physiological and neuro-endocrinologic responses that may negatively affect health and psychological well-being. Severe traumatisation may occur when individuals fail to cope with the trauma and are not supported, resulting in depression, anxiety or physical illness and changing the way individuals interact with others (McFarlane 2010:3; Van der Kolk et al 2005:393). Figure 2.1 illustrates Horowitz's stress response theory.



**Figure 2.1 Horowitz's *Stress Response Theory***

(Source: Horowitz 1986:95)

Cooper (2005:299) and Linley (2003:602) maintain that the distress caused by a traumatic event can fluctuate from mild to severe thus often necessitating interventions to help the individual attain adaptive functioning through treatment of symptoms of acute distress and restoration of a steady state of psychological functioning.

### **2.2.1.2 Response in Horowitz's theory**

According to Horowitz's *Impact of Events Scale*, the stress responses following a traumatic event are mainly **intrusions** and **avoidance** (Gustafsson, Windahl & Blomberg 2012:129; Andrews, Shevlin, Troop & Joseph 2004:432). Figure 2.1 illustrates that the first response mode involves disturbing repetition of traumatic events also called **intrusive repetition** of the trauma in thought, imagery, emotion or behaviour (Sundin & Horowitz 2002:206; Horowitz 1986:95). Because states of intrusion are often

painful, a second response mode also called **avoidance** develops, which involves attempts to suppress traumatic thoughts, using strategies such as denial, emotional numbing and deliberate avoidance of reminders (Gustafsson, Windahl & Blomberg 2012:129; Sundin & Horowitz 2002:206; Horowitz 1986:95).

#### *2.2.1.2.1 Intrusive repetition*

Intrusions are natural memory recollections of a traumatic event that occur spontaneously in an individual's mind (Holmes & Bourne 2008:553). Intrusions can occur when an individual is awake or asleep and may take the form of visual images, sounds, smells, tastes or bodily sensations, such as pain, which may differ among individuals (Holmes & Bourne 2008:553; Michael, Ehlers, Halligan & Clark 2005:614). In addition, intrusions can involve intruding thoughts and images, troubled dreams, flash backs, strong pangs or waves of feelings, and repetitive behaviour (Sundin & Horowitz 2002:206; VanOyen 1997:511). They can also be accompanied by physiological reactivity evidenced by increased heart rate, blood pressure, and sweat activity (Maercker, Einsle & Köllner 2007:138; Regehr, LeBlanc, Jelley, Barath, Daciuk 2007:679). Joseph, Dalgleish, Thrasher, Yule, Williams and Hodgkinson (1996:357) emphasise that trauma-relevant intrusions are indicative of intense fear causing emotional distress and hence the need to resolve them. Thus the distress caused by intrusive memories can provoke the individual to engage in a range of behaviours that are intended to control the intrusions but maintain the problem (Michael et al 2005:615).

When individuals fail to process the trauma internally, they may have recurrent traumatic experiences, characterised by unbidden, unpredictable and uncontrollable intrusions thus leaving them helpless and out of control (VanOyen 1997:511; Joseph et al 1996:359). Intrusive repetitions occurring after a traumatic event can also be described as intense and clear; appear despite repeated attempts to suppress them; have no apparent connection to the previous train of thought, and involve resurrection of painful emotions experienced during the trauma (Wang, Zhang, Shi, Zhou, Huang & Liu 2011:369; Follette & Ruzek 2006:151). Wang et al (2011:374) and McFarlane (1988:35) add that intrusive repetition of traumatic experiences can result from an essential need to master the trauma and a more instinctive force to repeat the trauma. At the same time, McFarlane (2010:6) and Horowitz (1988:175) postulate that intrusive recollections can have positive outcomes, such as experiencing psychological adaptation;

substitution of new ways of thinking; reviewing of relevant information contained in the trauma; resolution of conflicting interpretations of the trauma, and generation of new solutions that address problems posed by changed circumstances.

#### *2.2.1.2.2 Attempting to suppress or avoid traumatic thoughts*

Attempting to suppress or avoid traumatic thoughts is conceptualised as a coping method resulting from the discomfort that arises from intrusive memories (Andrews et al 2004:432; Joseph et al 1996:357). It is characterised by ideational narrowing, denial of meanings and consequences of the event, blunted sensation, behavioural inhibition and awareness of emotional numbness (Gustafsson et al 2012:130; Andrews et al 2004:433). In addition, Maercker et al (2007:138) and Sundin and Horowitz (2002:206) suggest that the victims may try to avoid certain activities which may arouse recollection of the stressors but often this is not possible because various aspects of life keep reminding them of the traumatic event.

Since avoidance behaviour often occurs unconsciously, restoring emotional stability is crucial in order to prevent any negative outcomes such as emotional flooding (Sundin & Horowitz 2002:206; Joseph et al 1996:357). Although avoidance minimises immediate distress caused by intrusion, excessive dependence on this approach may cause maladaptive behaviour among individuals because it reduces fear provocation and thus reduces the resolution processing of trauma adaptation (Sundin & Horowitz 2002:206; Joseph et al 1996:357; McFarlane 1988:35). In addition, it can prevent emotional processing and exaggerate anxiety response if used for a long time, indicating one's failure to integrate the traumatic experience (Joseph et al 1996:358; McFarlane 1988:35).

#### **2.2.1.3 Adjustment in Horowitz's theory**

Horowitz (1986:95) proposes five phases of adjusting to trauma as shown in figure 2.1. Following an experience of trauma, there is an initial **outcry** or astounded reaction, such as panic, fear, shock, anger, sadness and grief followed by a period of **information overload**, in which the thoughts, memories and images of the trauma cannot be understood by the individual (Sundin & Horowitz 2002:206; Brewin et al 1996:673). As a result, psychological defence mechanisms come into play to keep the

traumatic information unconscious after which the individual experiences a period of **avoidance or denial** and **numbness** where one does not want to think or talk about what happened (Sundin & Horowitz 2002:206; Brewin et al 1996:673).

The avoidance response prevents one from feelings of fright, hurt or pain and when used for a long time can prevent emotional resolution and produce **intrusive repetition** with unwanted thoughts, images or distress (Holmes & Bourne 2008:553; Michael et al 2005:614; VanOyen 1997:511). The intrusive repetition phase is followed by the **working through** and **completion** phases (Holmes & Bourne 2008:553; Michael et al 2005:614). During the working through phase, the individual may begin reflecting and thinking about what happened in order to understand its painful reality and this eventually leads to the completion phase, which involves healthy coping (Heaps 2009). Completion happens when a person is able to internalise the traumatic event into their mind. However, previous events may bring back original traumas causing the cycle to be repeated. The sequence of adaptation phases differs among individuals because one may skip certain phases or demonstrate alternative sequences of phasic responses depending on how individuals carry their problems (Heaps 2009; Dalrymple 2004; Horowitz 1986:95).

#### **2.2.1.4 The pathological stress response**

The adaption process of traumatic events differs among individuals, where sometimes, the normal sequence of traumatic processing is disrupted or not completed causing pathological responses (Horowitz 1986:95; Horowitz & Kaltreider 1980:67). Pathological responses can cause severe distress so that the person may require help in order to progress towards adaptive completion (Hersen & Rosqvist 2008:270; Zilberg, Weiss & Horowitz 1982:407; Horowitz & Kaltreider 1980:67). Horowitz (1986:95) identifies three different forms of pathological stress response syndromes, namely **frozen and avoidant states**, **stuck in uncontrolled intrusion** and **oscillating between states of high intrusion and high avoidance** (see figure 2.1).

According to Wagner and Maercker (2007:625) and Andrews et al (2004:433), individuals frozen in the avoidant state have exaggerated symptoms of ideational narrowing, denial of meanings and consequences of the event, blunted sensation,

behavioural inhibition and awareness of emotional numbness, blocking effective responding to emotional balance, thereby obstructing the working through process.

People stuck in uncontrolled intrusion cannot control or organize the flow of distressing information about the trauma, which consequently results in severe suffering (Zilberg et al 1982:407; Horowitz & Kaltreider 1980:68). Other individuals oscillating between the state of high intrusion and high avoidance prevent traumatic information from being worked through, and as this happens, the intensity of each phase increases (Maercker et al 2007:137; Dalrymple 2004; Brewin & Holmes 2003:346).

The long-term effects of traumatic exposure may be reflected by behavioural and personality changes, such as substance abuse, decreased performance, difficult concentration, increased health risks, changes of how one interacts with friends and family, and failure to adjust with intrusions and avoidance symptoms may result into complicated grief (Regehr et al 2007:676; Maercker et al 2007:137; Cooper 2005:299). Any triggers of traumatic memories that may occur as a result of fear, may arouse the symptoms of PTSD (McFarlane 2010:6; Bisson 2009:290). Post-traumatic stress disorder may result from a failure to recover from emotions and reactions of a traumatic situation and is typically manifested as distressing memories or nightmares, attempts to avoid reminders of the trauma, and a heightened state of physiological arousal (Yehuda 2002:109; Bisson 2009:290).

### ***2.2.1.5 Critique of Horowitz's Stress Response Theory***

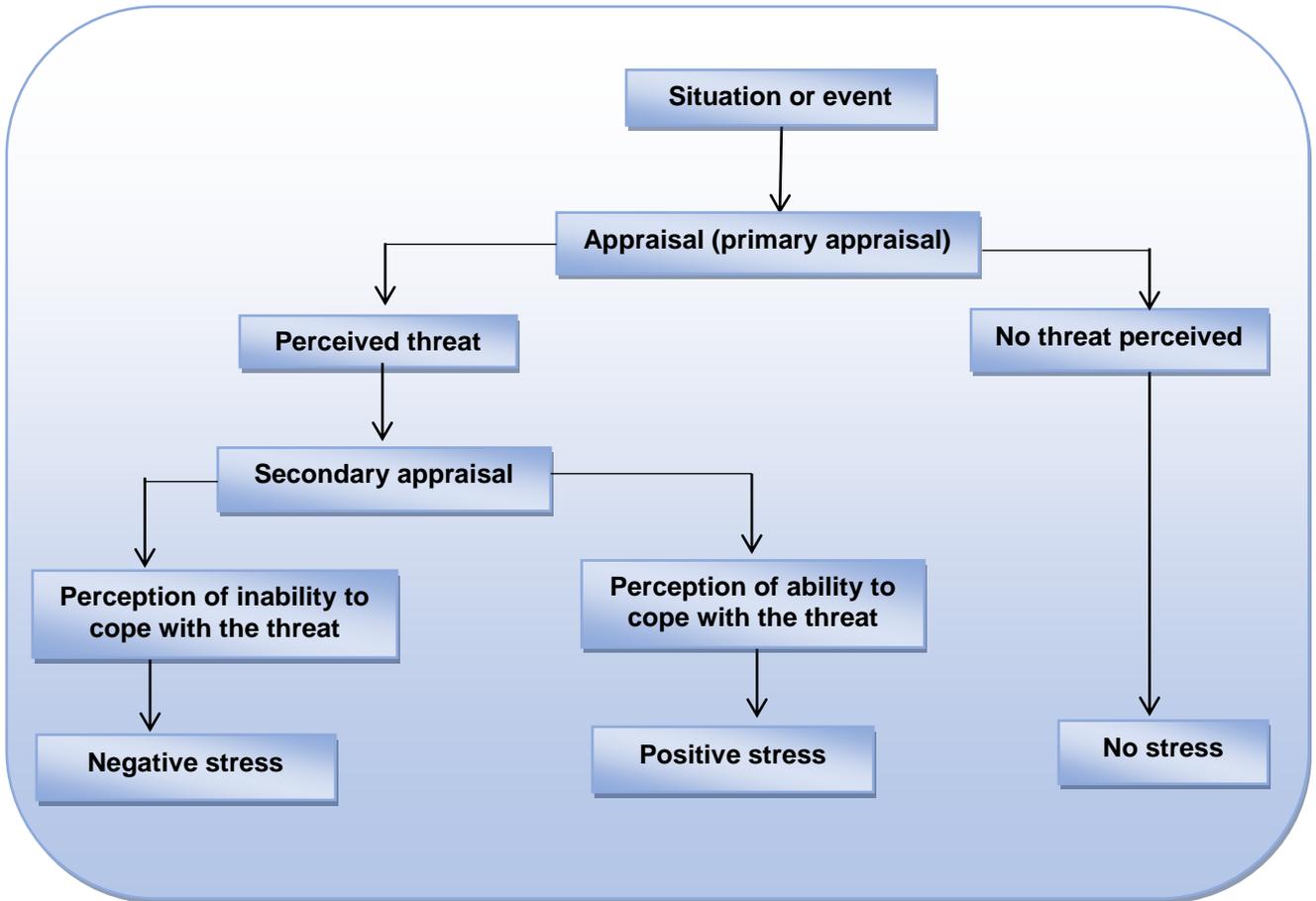
Horowitz's theory describes the cognitive processing of traumatic information and gives a detailed account and influential explanation of PTSD occurrence (Bernlsen, Rubin & Johansen 2008:1103; Langner & Maercker 2005:235). However, Brewin et al (1996:674) are of the opinion that: there is little discussion of why some individuals develop PTSD, whereas others after similar traumatic experiences show little or no symptoms at all; Horowitz's theory does not clearly describe epidemiological data regarding the frequency of late onset, although this could be ascribed to a long period of denial that later breaks down; it is far from certain that all individuals do experience an initial period of denial or later oscillations between denial and intrusions; although Horowitz highlights processes, such as social support, there is little explanation in the theory of how such factors might operate, and there is minimal acknowledging of

individuals' attributions and interpretations of the traumatic experience and the effect that these have on outcome.

Maercker et al (2007:137); Bernlsen et al (2008:1103); Bisson (2009: 290); Allen (2003: 213), and Langner and Maercker (2005:235) regard Horowitz's theory as the most comprehensive and influential social-cognitive theory of PTSD in that: responses to traumatic stressful events are not dependent on individual characteristics but on environmental stressors which are crucial in diagnosis of PTSD; Horowitz's *Stress Response Theory* can be used to explain a wide range of emotions and beliefs that occur as a result of trauma; Horowitz was able to identify intrusive repetition and avoidance responses which are arousal symptoms of PTSD diagnosis; Horowitz was able to link spontaneous remembering of traumatic recollections to processing of traumatic material that laid the foundation for developing PTSD theories; and thus Horowitz's theory can be used to explain complicated grief as a result of failure to adjust to intrusion or avoidance stress responses.

### **2.2.2 Lazarus and Folkman's *Transactional Model of Stress and Coping***

In Lazarus and Folkman's (1984:234) *Transactional Model of Stress and Coping*, when a situation or event occurs it is either perceived as a threat or no threat. If a situation is perceived as no threat, no stress occurs, or if it is threatening, secondary appraisal occurs, and when one has the ability to cope with the threat, positive stress follows. If, however, one cannot cope with the threat, negative stress occurs. Figure 2.2 illustrates Lazarus and Folkman's model.



**Figure 2.2 Transactional Model of Stress and Coping**

(Source: Lazarus & Folkman 1984:234)

### **2.2.2.1 Situation or event in Lazarus and Folkman's model**

An interaction between the person and the environment influences the individual's situation to determine outcome and well-being through cognitive appraisal and coping (Aldwin & Werner 2012:8; Lazarus & Folkman 1984:234). According to Lazarus (1999:70) and LeSergent and Haney (2005:316), the situation may become a threat or stressful if the individual's environment is influenced by stresses that they cannot cope with. The individual's characteristics, such as goals, beliefs, interpersonal skills, education, social support, health and energy, may play a role in shaping the appraisal process (Lazarus 1999:70-71; Aldwin & Werner 2012:8).

### **2.2.2.2 *Appraisal in Lazarus and Folkman's model***

When a person is faced with a situation or event, a primary appraisal is made (Lazarus & Folkman 1984:234) (see figure 2.2). This involves assessing the significance of a situation or event for the individual's well-being (Matthieu & Ivanoff 2006:340; Perrewe et al 1999:740). According to Lazarus and Folkman's (1984:234) model, an individual's decision to engage in coping is driven by the outcome of the cognitive appraisal processes, namely primary and secondary appraisals.

#### **2.2.2.2.1 *Primary appraisal***

Duhachek and Kelting (2009:474) and Matthieu and Ivanoff (2006:340) state that primary appraisal is the first step in assessing whether a situation or event has any personal implication, possessing a threat or a challenge to the individual. Lazarus and Folkman (1984:32) and Matthieu and Ivanoff (2006:342) point out that there are three types of primary appraisal; irrelevant, where the individual has no assigned interest in the transaction or result; benign positive, in which the individual assumes that the situation is positive with no potential negative results to their well-being, and stressful, where the individual only perceives negative results or that the circumstances are detrimental to their well-being. When an event is appraised as benign-positive or irrelevant, no coping response is stimulated. However, when an event is appraised as stressful, harmful or threatening, coping is activated and secondary appraisal is engaged (Lazarus & Folkman 1984:33; Matthieu & Ivanoff 2006:342; Skinner & Brewer 2002:679).

#### **2.2.2.2.2 *Secondary appraisal***

Following primary appraisal, secondary appraisal is made, which is the process of examining available coping options and resources to determine which coping method will reduce the threat or harm and assess their suitability and chances of success (Aitken & Crawford 2007:667; Matthieu & Ivanoff 2006:342). Furthermore, Aitken and Crawford (2007:667) and Duhachek and Iacobucci (2005:53) explain that secondary appraisal also reflects the degree of confidence that individuals think they have to reduce perceived stress, in order to result in more effective decision making and adaptive coping. Thus, the secondary appraisal process is crucial in linking perceptions

of stress to emotional reactions and coping behaviours (Skinner & Brewer 2002:680; Duhachek & Kelting 2009:474).

### **2.2.2.3 Coping**

Coping refers to "constantly changing cognitive and behavioural efforts to manage specific internal/external demands that are appraised as exceeding the resources of the person" (Lazarus & Folkman 1984:141). The coping process is initiated in response to the individual's appraisal that the situation is a threat or harmful and is characterised by negative emotions that are often intense (Duhachek & Kelting 2009:4747; Folkman & Moskowitz 2004:74). Coping response are thus initiated in an emotional environment, and often the individual strives to eliminate negative emotions that are stressful (Edwards 1992:244; Lazarus & Folkman 1984:147).

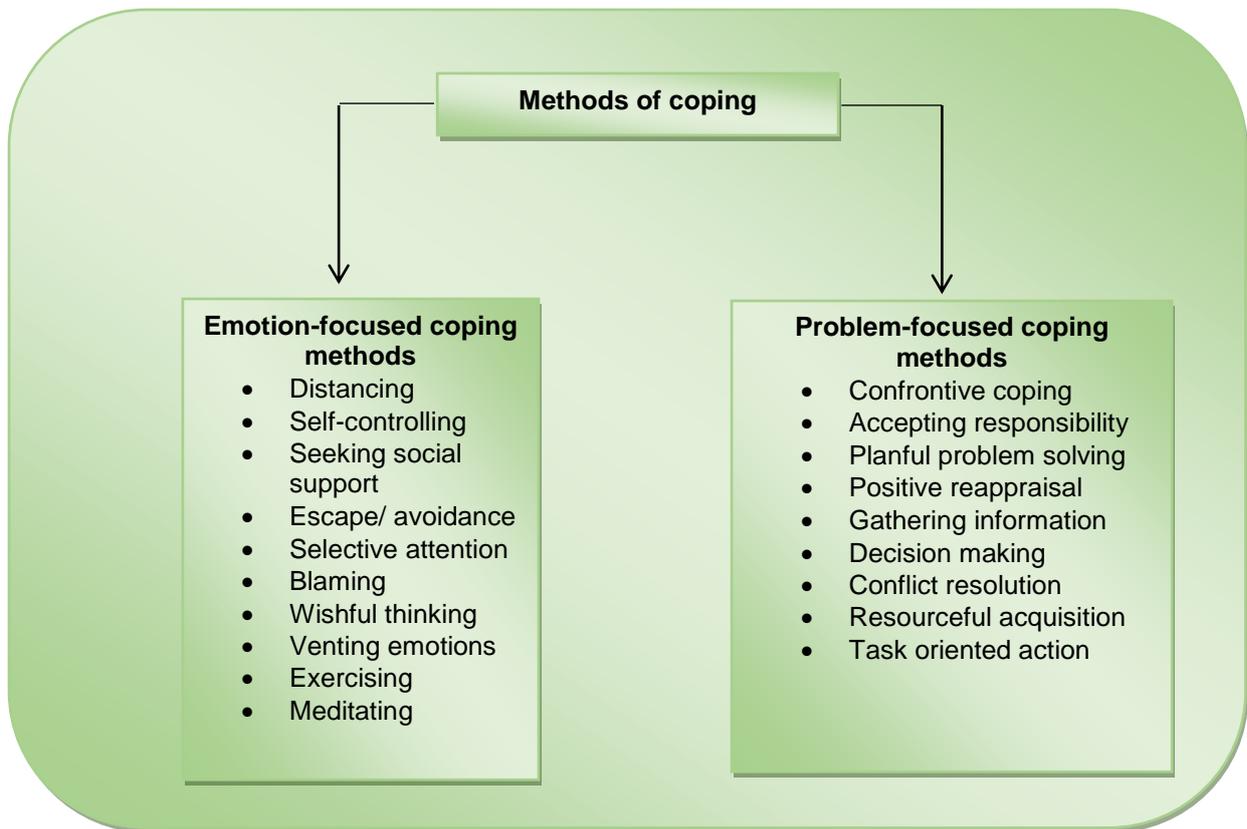
In their *Ways of Coping Questionnaire*, Folkman and Lazarus (1988:13) identify eight methods of coping, namely: **confrontive coping**, which describes destructive efforts to change the situation and suggest some degree of aggression and risk taking; **distancing**, which involves one's efforts to disengage oneself and to minimise the significance of the situation; **self-controlling**, involves regulating one's feelings and actions; **seeking social support**, involves seeking help from other people such as friends, colleagues and family which could support in the form of information, and physical or emotional support; **accepting responsibility**, which involves accepting ones role in the problem and trying to get a suitable solution; **escape-avoidance**, which involves using behavioural efforts to escape or avoid the problem; **planful problem solving**, which involves analysis and plans to alter or solve the situation; and **positive reappraisal**, which involves efforts to create positive meaning by focusing on personal growth. However, Lazarus and Folkman (1984:150) and Werner (2006:109) state that coping has two widely recognised functions: regulating stressful emotions, called **emotional-focused coping**, and altering the situation causing distress, called **problem-focused coping**. Problem-focused coping methods are thus directed at managing or altering the problem causing the distress, and emotion-focused coping is directed at regulating emotional response to the problem.

According to Folkman and Lazarus' (1988:13) coping methods, confrontive coping, accepting responsibility, planful problem-solving and positive reappraisal are examples

of problem-focused coping, while distancing, self-control, seeking social support, escape-avoidance are examples of emotion-focused coping (see figure 2.3).

**Problem-focused coping methods** are similar to problem-solving tactics and may include gathering information, decision making, conflict resolution, resource acquisition, situation-specific goals or task-oriented actions (Matthieu & Ivanoff 2006:343; Lazarus & Folkman 1984:145) (see figure 2.3). Matthieu and Ivanoff (2006:343) add further that problem-focused coping methods allow the individual to focus attention on situation-specific goals and for a sense of mastery and control in working toward attaining that specific goal. Problem-focused coping can be directed outward to alter some aspect of the environment or inward to alter some aspect of self and is consistently related to positive health outcomes and general well-being (Kelso et al 2005:4). Positive health outcomes may result in positive social support and may function through obtaining assistance, supporting self-esteem, receipt of advice or information, and/or presence of a confidant (Werner 2006:109).

**Emotion-focused coping** is a process of cognitively reframing difficult thoughts in a positive manner that impacts deeply held values that become apparent when certain conditions occur and are needed to assist in coping (Matthieu & Ivanoff 2006:343; Folkman & Moskowitz 2004:751). Werner (2006:109) and Moskowitz (2004:751) state that although emotion-focused strategies can be beneficial in situations where there are few options, they are often associated with more negative outcomes. The tactics include efforts such as distancing, avoidance, selective attention, blaming, minimizing, wishful thinking, venting emotions, seeking social support, exercising, and meditating. Some individuals may even engage in distracting activities, using alcohol or drugs (Folkman & Moskowitz 2004:751; Werner 2006:109) (see figure 2.3). Emotion-focused strategies do not change the meaning of the situation directly. For example, doing vigorous exercise or meditating may help an individual reappraise the meaning of a situation, but the activity does not directly change the meaning of the situation (Lazarus & Folkman 1984:154).



**Figure 2.3 Methods of coping**

(Source: Folkman & Lazarus 1998:13; Folkman & Moskowitz 2004:751; Matthieu & Ivanoff 2006:343)

#### **2.2.2.4 Stress outcomes**

According to Dimiceli, Steinhard and Smith (2009:354), the control of a stressful situation or event may play a vital role in the relationship between coping methods and outcomes. When a stressful situation occurs and the resulting coping methods correspond to the situation, then no stress or positive stress results which may be measured by functional health outcomes; for example, physical health, psychological well-being and social functioning (Dimiceli et al 2009:355; Perrewe & Zellars 1999:740; Lazarus 1993:237). In addition, Folkman et al (1986:993) emphasise that even if the problem causing distress, was not solved successfully, an outcome can be assessed positively if the person feels that the demands of the situations were managed as well as could be expected. When the situation is uncontrollable or overwhelming, and the resulting coping methods do not correspond to the situation, then negative stress occurs which may result in dysfunctional health outcomes, such as ill-health, psychological

disturbances and social dysfunctioning (Dimiceli et al 2009:355; Perrewe & Zellars 1999:740; Edwards 1992:244).

### **2.2.2.5 Critique of the Transactional Model of Stress and Coping**

Lazarus and Folkman's model emphasises the role of cognitive appraisal in determining the individual's emotional response to a distressed environment and to ways in which they coped with the appraised situation (Folkman & Moskowitz 2004:746; Matthieu & Ivanoff 2006:341). However, Perrewe and Zellars (1999:741) and Zeidner and Endler (1996:227) maintain that: the model neglects that coping may be the consequence not only of situational demands but also life goals; there is inadequate attention to the importance of social support on coping and adjustment; the model does not adequately account for the impact of different emotions that arise during a stressful situation that are linked to different causal dimensions.

Although the *Transactional Model of Stress and Coping* has some weaknesses, Lazarus (1966), Lazarus (1968), and Lazarus and Folkman (1987) support the *Transactional Model of Stress and Coping* by stressing that people assess a situation with respect to how it will affect them either positively or negatively and this influences how they cope and the intensity of the stress that will result (Lazarus 1993b:6; Perrewe & Zellars 1999:741; Healy & McKay 2000:618; LeSergent & Haney 2005:315).

### **2.2.3 Relevance of the Horowitz's theory and Lazarus and Folkman's model to this study**

The researcher used Horowitz's *Stress Response Theory* (1986) and Lazarus and Folkman's *Transactional Model of Stress and Coping* (1984) to explain the emotional reactions midwives go through while working in rural health units when they experience occupational exposure to maternal deaths and how this traumatic experience may affect them. Horowitz's theory and Lazarus and Folkman's model defined the variables examined by this study; were helpful in organising the literature review and constructing the data-collection instrument, presentation of data, discussion of findings and proposing interventions to promote the coping mechanism and well-being of rural midwives in view of occupational exposure to maternal death, and were best suited to achieve the study objectives.

In this study the occupational exposure to maternal death is seen as the stress burden which relates to the concept of trauma as described by Horowitz's theory. The effect of stress caused by trauma or stress burden to occupational exposure to maternal death may cause negative emotional, physiological, cognitive, spiritual, physical and psychological effects (Kelso, French & Fernandez 2005:3; Afolayan & Dairo 2009:1). According to Horowitz's theory when trauma occurs there is initial outcry such as panic, fear, anxiety, and sadness (Horowitz 1986:95). If these reactions do not go away or if they get worse one may suffer from post-traumatic stress disorder (PTSD) (McFarlane 2010:6). Stress and stress burden caused by trauma can cause one to worry and compromise their ability to cope with the trauma which could result into major illnesses such as cardiovascular disease, cancer, endocrine and metabolic disease, skin disorders, mental problems and psychological difficulties such as anxiety and depression (McFarlane 2010:6; Bisson 2009:290). The anxiety and depression which could occur because of trauma or stress burden of occupational exposure to maternal death was measured on the death distress scale in the study.

Horowitz's theory explains that following traumatic exposure individuals may adapt by using avoidance, denial and numbness which minimise immediate distress caused by intrusions but cause maladaptation behaviour (Horowitz 1986:95). Avoidance is comparable to the coping scale which measures escape/avoidance coping explained by Lazarus and Folkman's *Transactional Model*. Lazarus and Folkman *Transactional Model of Stress and Coping* emphasise that the decision to engage in coping is driven by the outcome of the cognitive appraisal process, in order to reduce any harm caused by the trauma. Coping with trauma is thus initiated in an emotional environment and often one of the first coping tasks is to suppress negative emotions that are often intense and stressful, thus making use of emotional-focused coping such as denial, avoidance, blaming, venting (Folkman & Moskowitz 2004:747). If a traumatic encounter is successfully resolved, positive emotions will predominate, but if the trauma is not successfully resolved negative emotions will prevail (Bailey et al 2011:3364; Gerow et al 2010:127). Hence coping with trauma can either involve addressing the problem causing the trauma or eliminating negative emotions associated with the trauma (Button 2008:500; Lowe & Bennett 2003:394; Folkman & Moskowitz 2004:747).

Horowitz' theory further explains that if avoidance, denial or numbness is overused it causes one to experience intrusive repetition of the trauma event which could be in the

form of thoughts, imagery, emotions and behaviour and this could relate to the death obsession (in the death distress scale). In order to adapt to trauma Horowitz's theory uses the adjustment process which involves using healthy coping methods. Seeking social support coping may relate to outcry phase of Horowitz's theory, planning, positive reframing coping may relate to working through phase, and acceptance/problem-solving may relate to completion phase of Horowitz's theory. These coping methods are discussed by the Lazarus and Folkman's model as problem-focused coping methods aimed at managing the problem leading to positive health outcomes such as physical and psychological well-being measured by the Perceived Well-being Scale in the study.

### **2.3 CONCLUSION**

This chapter discussed Horowitz's *Stress and Coping Theory* and Lazarus and Folkman's *Transactional Model of Stress and Coping* in detail. The components of Horowitz's theory and of Lazarus and Folkman's model were discussed in detail together with critique on both. Lastly, the researcher explained the relevance of Horowitz's theory and Lazarus and Folkman's model to the study.

## CHAPTER 3

### LITERATURE REVIEW

#### 3.1 INTRODUCTION

Midwives are key persons for the improvement and protection of the health of mothers and children, and for providing prenatal, natal and postpartum health care (Alparslan & Dogane 2009:19). In order to provide quality midwifery care, midwives depend on a conducive environment, including a well-structured labour ward, appropriate and adequate equipment, medical supplies, sufficient human resources as well as a supportive organisation (Pettersson 2007:471). One of the major challenges faced by midwives in developing countries is the difficulty of facing and dealing with maternal death caused by working in a non-conducive environment (Pettersson 2007:471). Maternal death can have adverse effects on the midwives' health and yet when it occurs, midwives help comfort the bereaved family and they never stop to think about the meaning of it all. It is therefore critical to analyse and describe the effects of work-related exposure to maternal deaths on the well-being of professional midwives in rural Uganda.

The aim of the study was to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives.

This chapter presents a review of existing literature relevant to the study. The researcher wished to identify the influence of occupational exposure to maternal deaths on the physical and psychological well-being of professional midwives, as well as what is already known about midwives' work-related exposure to maternal death in order to assist in identifying a gap or problem that could be addressed by this study.

The researcher identified and discussed various aspects affecting maternal health that influence midwives' occupational exposure to maternal death. Since there is insufficient

information about professional midwives' exposure to maternal deaths in Uganda and other regions, this review focused on the following main areas:

- The concept of maternal health
- The concept of maternal death
- Occupational exposure to maternal death
- Response to traumatic exposure
- Well-being of professional midwives

### **3.2 MATERNAL HEALTH**

Maternal health refers to “the health of women during pregnancy, childbirth, and the postpartum period which encompasses the health care dimensions of family planning, preconception, prenatal and postnatal care in order to reduce maternal morbidity and mortality” (WHO 2011:5).

#### **3.2.1 The concept of maternal health**

Maternal health is important for the survival and health of the mother and the baby (WHO 2011:5; Pollock & King 2009:670). Poor maternal health is measured by high maternal mortality ratio (MMR), and low MMR indicates improving maternal health factors (WHO 2011:5). Globally, MMR was reported at 210 per 100 000 live births in 2010, of which more than half of the deaths occurred in developing countries (WHO UNICEF, UNFPA & World Bank 2012:19; Jabeen, Zaman, Ahmed & Bhatti 2010:679). In many developing countries, maternal deaths among women of reproductive age occur as a result of complications of pregnancy and childbirth, such as postpartum haemorrhage (WHO UNICEF, UNFPA & World Bank 2012:19; Prata et al 2009:132). According to the WHO UNICEF, UNFPA and World Bank (2012:59), the most important intervention in promoting and improving maternal health is the *safe motherhood* principles which ensure that a trained provider with midwifery skills is present at every birth; transport is available to referral services, and quality emergency obstetric care is available.

### 3.2.2 Approaches to maternal health

Maternal health is related to both maternal and child health care factors, including *preconception* and *family planning services*, *prenatal or antenatal care*, *maternity or delivery care*, *postnatal care*, *newborn care*, *basic essential obstetric care* and *emergency obstetric care* (WHO 2011:5; Prata et al 2010:312; MoH 2010a:4; Pollock & King 2009:670). These factors focus on decreasing maternal morbidity and mortality as follows:

- *Preconception* emphasises education, health promotion and screening of women to reduce risk factors that might affect future pregnancies, while effective *family planning programmes* address the largely unmet need for contraception by providing information, counselling and a range of temporary and preventive contraceptive methods (Prata et al 2010: 312; MoH 2010a:4).
- *Prenatal care* and *antenatal care* emphasise early detection of any potential complications of pregnancy, so they can be prevented and to direct the woman to appropriate specialist medical services (Prata et al 2010:312).
- *Maternity or delivery care* emphasises promotion of the use of skilled birth attendants and to ensure that all women have access to life-saving emergency interventions at the time of labour and delivery (Ssengooba et al 2003:3).
- *Postnatal care* emphasises ensuring that women receive postnatal care after delivery for early diagnosis of postpartum complications.
- *Newborn care* emphasises an increased awareness of the need to discourage some common practices that are detrimental to newborn health and to promote good practices that contribute to newborn health (Prata et al 2010:314; MoH 2010a:4).
- *Basic essential obstetric care* includes preventive services as well as medical interventions and procedures that can be provided by skilled birth attendants, such as antenatal care with preventive interventions, early detection and treatment of common problems of pregnancy, the ability to manage simple problems of pregnancy and early management of complications of pregnancy and labour to minimize the need for emergency interventions (Prata et al 2009:134; UNFPA 2003:11).

- *Emergency obstetric care* specifically covers life-saving interventions of blood transfusion and surgery (Prata et al 2009:134; UNFPA 2003:11).

### **3.2.3 Main goals of maternal health**

The WHO (1999) considers goals as essential in the formulation of rationales for implementing health policies, programmes and services. The goals of maternal health are to improve maternal health by reducing the maternal mortality rate and achieving universal access to reproductive health care (WHO UNICEF, UNFPA & World Bank 2012:19; Prata et al 2010:311). Success is measured by maternal health indicators such as the MMR, the proportion of births attended by skilled health workers, contraceptive prevalence rates, unmet needs for family planning, adolescent birth rates and antenatal care coverage (WHO UNICEF, UNFPA & World Bank 2012:19; Prata et al 2010:311).

The 1994 *International Conference on Population and Development* in Cairo, Egypt coordinated by the United Nations made a commitment to improve reproductive health with the focus on reducing maternal mortality (WHO et al 2012:19; Prata et al 2010:311). Following the 1994 *International Conference on Population and Development*, reduction of maternal mortality became the fifth millennium goal with a target of reducing MMR by three quarters (75%) by 2015 (WHO et al 2012:19; Homer et al 2009a:98; Obaid 2009:103). Even though the MMR has nearly halved since 1990 with a decline of 47%, levels are still far below the 2015 target of reducing the MMR by three quarters (75%) (WHO et al 2012:19). According to the WHO et al (2012:19), currently, less than 50% of deliveries are attended by a skilled attendant in low-income countries and 12% of married women aged 15-49 wanting to avoid a pregnancy do not have access to, or are not using an effective method of contraception.

### **3.2.4 Structure of the maternal health system in Uganda**

The maternal health care system in Uganda comprises maternal health policies, maternal health infrastructure, and financing of maternal health services.

### **3.2.4.1 Maternal health policies**

The *National Safe Motherhood Programme* is one of the major interventions for the promotion of maternal health in Uganda (MoH Uganda 2009a:13). As part of the *Safe Motherhood Programme*, a supportive community network of traditional birth attendants has been established as a back-up for a modern maternal health system (MoH Uganda 2009a:13). This intervention is aimed at forecasting high-risk obstetric cases and strengthens referral systems (MoH Uganda 2009a:13). In addition, AbouZahr (2003:14) highlights that the *Safe Motherhood Programme* has been included as a key element of the *Uganda Minimum Health Care Package* and is incorporated into the training curriculum of midwives and nurses as an initiative of improving maternal health service delivery.

According to Ssenkooba et al (2003:6), the Health Sub-Districts have further adopted a policy strategy for increased decentralisation of service delivery and the expansion of access to essential obstetric care at the community level. In response to a shortage of anaesthetic skills at hospital and health sub-districts level, there is accelerated training of available staff such as nurses and midwives to ensure the functionality of operating theatres (Ssenkooba et al 2003:12; Minca 2011). Furthermore, maternal death audits are being conducted as an awareness-raising strategy among health providers and the community. The audit seeks to highlight the factors at the health facility and community level that could help reduce maternal mortality and morbidity (MoH Uganda 2011:15; Ssenkooba et al 2003:7).

Other reproductive health policies have also been adopted such as a *National Policy* that seeks to reduce fertility and maternal morbidity and mortality by promoting informed choice, service accessibility and improved quality of care (MoH Uganda 2009a:13). In addition, due to the lower status of women in many parts of the society, the GoU adopted a *National Gender Policy* in 1997 with the goal of integrating gender into community and national development (Mugambe 2007:14).

### **3.2.4.2 Maternal health infrastructure**

The maternal health services in Uganda are delivered through HC IIs, HC IIIs, HC IVs, general hospitals, regional referral hospitals and national referral hospitals. The range of

health services delivered varies with the level of care (see table 1.1) (MoH Uganda 2010a:4; MoH Uganda 2010b:5). The government of Uganda committed resources to build 230 HC IVs which provide comprehensive emergency obstetric care to help reduce maternal death, however, only 23% of these health centres IV are fully functioning to provide emergency obstetric care (Minca 2011; MoH Uganda 2010a:4). Modern family planning services are available in 79% of all health care facilities. Normal deliveries can take place in 53% of all health care facilities, while emergency services are not widely available. Approximately two in ten facilities (HC III's) provide basic emergency obstetric care (17%), while three in ten facilities (HC IV's & Hospitals) provide comprehensive emergency obstetric care (5%) (MoH Uganda 2011:21). Only 47% of all health care facilities can transport a patient to a referral site for maternal emergencies (UNFPA 2009a:8; Minca 2011).

### **3.2.4.3 Financing maternal health services**

The Government of Uganda's priority interventions in the health sector are those that address the burden of disease (Manyire 2010:17). The major contributors to the burden of disease in Uganda include malaria, HIV/AIDS, tuberculosis, diarrhoeal diseases, acute respiratory tract infections, prenatal and maternal conditions attributable to high fertility and poorly spaced births, vaccine preventable childhood illness, malnutrition, injuries and physical and mental disability. Health interventions that address the major causes of the burden of disease constitute the *Uganda Minimum Health Care Package*, which is the criterion used in determining the allocation of public funds and other essential inputs. Government allocates the greater portion of its budget to the package in such a way that health spending gradually matches the magnitude of priorities within the burden of disease (Manyire 2010:12; MoH Uganda 2010a:23).

Interventions for promoting and achieving maternal health cut across all four clusters of the *Uganda Minimum Health Care Package*. The clusters are:

- **Health promotion, disease prevention and community health initiatives:**  
The central strategy here is the establishment of Village Health Teams and the use of media to mobilize and empower the communities to promote reproductive health and utilise available services. Community empowerment and mobilisation to utilise contraception would be a significant way of minimising levels of

unwanted pregnancies amongst adults and adolescents (Manyire 2010:12; MoH Uganda 2010a:23).

- **Maternal and child health:** This aims at reducing maternal morbidity and mortality by addressing issues related to sexual health and reproductive rights. It also aims at improving the scope and quality of reproductive health service delivery; building capacity in areas of life saving skills particularly *essential new born care, management of malaria in pregnancy, emergency obstetric care, post abortion care and adolescents health* (MoH Uganda 2010a:23).
- **Prevention and control of communicable diseases:** It targets sexually transmitted infections, such as HIV/AIDS, and tuberculosis especially among expectant mothers (Manyire 2010:12; MoH Uganda 2010a:23).
- **Prevention and control of non-communicable diseases:** this intends to reduce morbidity and mortality attributable to non-communicable diseases, such as injuries, disabilities and rehabilitative health, gender based violence, mental health and control of substance abuse, integrated essential and clinical care, oral health, palliative care, diabetes, cardiovascular diseases, cancers, hypertension, all of which may have implications for *safe motherhood* (Manyire 2010:12; MoH Uganda 2010a:23).

According to the *Health Sector Strategic Plan III*, there is no funding to increase the number of health staff, yet it is acknowledged that staffing is low including that of midwives (MoH Uganda 2010a:23). In addition, no funds are allocated for promoting adolescent reproductive health and for facilitating advocacy and lobby work undertaken singularly or in conjunction with civil society organisations, donors and partners to promote *safe motherhood* (MoH Uganda 2010a:23). Yet, addressing *safe motherhood* requires multiple approaches and partnerships given its diverse manifestation and consequences (MoH Uganda 2010a:23; Manyire 2010:54). The MoH Uganda and district health services have continued to talk about budgetary allocation for reproductive health, adolescent pregnancy, safe motherhood and gender based violence and yet have done little to oversee the budgetary allocations to these services (MoH Uganda 2010a:23).

Donor support has been biased towards primary health care activities and less has been given to the hospital sector despite the current outstanding role played by hospitals in emergency obstetric care and referral systems (Ssengooba et al 2003:10). Although private-not-for-profit NGO providers charge fees for their services, they only recover about 50% of the total service costs. They charge higher fees for maternal complications and emergencies such as caesarean sections and post abortion care (Ssengooba et al 2003:12).

### 3.2.5 Maternal health indicators

Health indicators refer to a number, proportion, percentage or rate that helps measure the extent to which planned activities have been conducted and programme achievements completed (WHO 2011:11). According to the WHO et al (2012:19), maternal health indicators are the key determinants of the health status of the population used for monitoring progress towards achieving the maternal health goals. In addition, these indicators also reflect the future directions of maternal health programmes (WHO 2011:11; WHO 1999). When monitoring maternal health progress, one makes a comparison of maternal health indicators, over time and across populations (WHO 2011:11).

Donabedian's (1988:1743) quality of care framework describes three dimensions, namely input, process, and output indicators. **Input indicators** in health programmes refer to resources needed for the implementation of an activity or intervention (Donabedian 1988:1743). In maternal health care, input indicators may include maternal health policies, human resources essential for maternal health care, materials, financial resources of maternal health services, equipment and supplies essential for maternal health care, maternal health infrastructure (WHO 2011:11; MoH Uganda 2011:237). The **outcome indicators** refer more specifically to the objectives of an intervention (Donabedian 1988:1743). In maternal health care, outcome indicators are measured using maternal mortality rate, neonatal mortality rate, total fertility rate and infant mortality rate and these relate to impact or health outcomes of maternal health programmes (WHO et al 2012:19; WHO 2011:11; MoH Uganda 2011:237). **Process indicators** measure whether planned activities took place successfully to improve service accessibility, utilisation or quality (Donabedian 1988:1743). In maternal health care, process indicators are measured by the proportion of women delivered by skilled

attendants, antenatal care coverage, contraception prevalence rate and unmet need for family planning (WHO 2011:16; MoH Uganda 2011:237) (see Table 1.2).

### **3.3 MATERNAL DEATH**

Maternal death is defined as "... deaths that occur during pregnancy, within 42 days after pregnancy termination, regardless of pregnancy duration and site, from any cause related to or aggravated by the pregnancy, but not incidental causes" (WHO 2007:4).

#### **3.3.1 The concept of maternal death**

Mander (2001:248) states that the death of a mother may be termed as 'forbidden death' which means that health care professionals would do everything possible to protect themselves from the unpalatable, even intolerable, reality of a mother's death. Maternal death is rare in developed countries but is a common experience for developing countries (Pettersson 2007:470). A woman in a developing country has a 97% greater chance of dying as a result of pregnancy and child labour than a woman in a developed country (WHO et al 2012:12; Hunt & Mezquita 2010:4). Therefore maternal death is known to be a major health and social problem in developing countries (WHO et al 2012:12; Cook 2002:107).

Globally, around 80% of maternal deaths are due to obstetric complications; mainly haemorrhage, sepsis, unsafe abortion, pre-eclampsia and eclampsia and prolonged or obstructed labour (Prata et al 2010:314; Homer et al 2009a:98). Timely initiation of medical interventions, such as having a skilled birth attendant caring for the pregnant woman before, during and after childbirth, is essential for reducing maternal deaths (WHO et al 2012:12; Cook 2002:108). If women in developing countries had access to emergency obstetric care, an estimated 74% of maternal deaths could be prevented (Prata et al 2010:314; Homer et al 2009a:98; Hunt & Mezquita 2010:4).

#### **3.3.2 Incidence of maternal death**

Maternal death is measured by the maternal mortality ratio (MMR) that predicts the risk of death to pregnant women (WHO et al 2012:13; Cook 2002:108). Maternal mortality is defined as the number of recorded (or estimated) maternal deaths during a given time

period per 100 000 live births during the same time period (WHO 2011:11). In addition, the WHO (2011:11) emphasises that maternal mortality is a sensitive measure of health system strength, access to quality care and coverage of effective interventions to prevent maternal deaths. Furthermore, the MMR represents the risks associated with each pregnancy and is also a useful gauge of social and economic conditions such as women's and girls' access to education, equality and political commitment to health and development (WHO 2011:11).

The global MMR in 2010 was estimated to be 210 maternal deaths per 100 000 live births, which translates into 287 000 maternal deaths worldwide in 2010, of which developed countries had an estimated MMR of 16 per 100 000 live births (2 200 maternal deaths in 2010) and developing countries had an estimated MMR of 240 per 100 000 live births (284 000 maternal deaths in 2010) (WHO et al 2012:24). In 2008 an estimated 358 000 women died worldwide due to pregnancy-related complications, with low income countries accounting for 99% of these deaths, most of these women delivered alone without a skilled birth attendant (SBA) (Prata et al 2009:132; Homer et al 2009a:98).

The Sub-Saharan African (SSA) region alone accounted for nearly three fifths of the pregnancy-related deaths - 500 per 100 000 live births in 2010 (162 000 maternal deaths) (WHO et al 2012:24). In SSA women have a higher risk of dying (250 times higher) before, during and after pregnancy than other women in industrialised countries (Mavalankar et al 2011:700). For every woman who dies, an estimated 15 to 30 women suffer from chronic illness or injuries as a result of their pregnancies due to fistulas, infertility and incontinence (Homer et al 2009a:98; Prata et al 2009:132). In Uganda the maternal mortality remains high with an estimated MMR of 438 maternal deaths per 100 000 live births, and a life time risk of maternal death of 1 in 10 women (MoH Uganda 2011:14; Orinda, Kakande, Kabarangira, Nanda & Mbonye 2005: 286). Maternal deaths are highest in the most difficult to access areas such as rural areas where women are unable to reach a skilled birth attendant or appropriate health facility in time (Homer et al 2009a:98; Prata et al 2010:314; Jabeen et al 2010:680).

### **3.3.3 Maternal death situation in Uganda**

Uganda has agreed to the United Nation's MDG 5 to improve maternal health which targets the reduction of maternal mortality by three quarters (75%) by 2015 (MoH Uganda 2011:14). However, the UDHS 2011 findings show a one per cent increase in MMR from 435 in 2006 to 438 per 100 000 live births in 2011 (MoH Uganda 2011:14; Orinda, et al 2005:286). An emergency obstetric care assessment study carried out by the MoH Uganda noted that the availability of midwives had the highest protective effect on maternal deaths and reducing the case fatality rate at health units by 80% (Mbonye, Asiiimwe, Kabarangira, Nanda & Orinda 2007:221; UNFPA 2009a:12). However, only 58% of the women in Uganda deliver with the help of a skilled birth attendant (UNFPA 2009a:12; Minca 2011).

In Uganda, as in many other countries, more than 60% of all childbirths take place in the community and community maternal deaths are grossly underreported (MoH Uganda 2011:14; Petterson 2007:470). The prevailing high rates of fertility (6.7 births per woman), in an environment of poor access to quality maternal health care have continued to expose Ugandan mothers to a high risk of death from pregnancy related causes (MoH Uganda 2011:14). There is little reliable and accurate data on maternal deaths available pertaining to Uganda as a country (Ssengooba et al 2003:4; Cook 2002:108). According to the *Annual Health Sector Performance Report* (MoH Uganda 2011:14), the MoH Uganda mandated all health care facilities to report deaths and conduct auditing of maternal deaths. In addition, the *National Maternal Perinatal Death Review* and health unit audit committees have been formed to notify of maternal and perinatal deaths and report to the MoH Uganda resource centre (MoH Uganda 2011:14). However, according to the *Uganda Health Management Information System* at the MoH, very few maternal deaths 13% were reported. A bigger number of maternal deaths (87%) are not reported to MoH Uganda by the health units. This could be due to weakness on the part of the health care unit managers and/or lack of knowledge on how to notify (MoH Uganda 2011:14).

#### **3.3.3.1 Maternal death in Mubende and Mityana districts**

There is scant literature available on maternal death and related factors pertaining to specifically the Mubende and Mityana districts. However, a report released by the

Mubende district local government health department in May, 2012 stated that in 2010 Mubende district had an MMR of 435 per 100 000 live births, total fertility rate of 7.3 births per woman and contraceptive prevalence rate of 30.7% (Mubiru 2012:2). Although some of the district health indicators are better than the national average (see table 1.2), such as the MMR, the status of maternal health in the district is still far from the desired target level of achieving the fifth MDG goal.

According to the *Mityana District Baseline/Needs Assessment Report* (2009:12-13) the district reported better health indicators than the national averages, such as total fertility rate of 6.3, contraceptive prevalence rate of 30%, unmet need for family planning at 36%. However there was no data on the maternal mortality rate and yet Mityana district has recently been reported in Uganda's media for having several maternal death tragedies (Akumu 2012:1-4; Nakazzi 2011:1; Nsubuga 2011:1).

### **3.3.4 Causes of maternal death worldwide**

According to the WHO (2011:11), nearly two thirds of maternal deaths worldwide are caused by five direct causes, namely haemorrhage (24%), sepsis (15%), unsafe abortion (13%), eclampsia (pregnancy-induced hypertension) (12%), and obstructed labour (8%). Hunt and Mezquita (2010:4) found that globally 80% of maternal deaths are due to obstetric complications: mainly haemorrhage, sepsis, unsafe abortion, pre-eclampsia and eclampsia, and prolonged or obstructed labour. Homer et al (2009a:98) state that maternal death causes are classified into direct, indirect and incidental deaths. The direct causes result from obstetric complications, such as haemorrhage and eclampsia, and indirect causes result from an illness or condition that was in some way exacerbated by the pregnancy state, such as cardiac disease (Homer et al 2009a:98).

The WHO (2011:11) classifies maternal death causes as direct, indirect and incidental. Furthermore the WHO (2011:11) highlights other direct causes (8%) of maternal deaths, such as ectopic pregnancies, embolism, and anaesthesia-related risks. Other indirect causes (20%) include an existing medical condition that is worsened by pregnancy or delivery such as malaria, diabetes, anaemia, hepatitis and sexually transmitted infections (WHO 2011:11). These findings are similar to the leading causes of maternal deaths in Uganda which are ante-partum haemorrhage, postpartum haemorrhage,

abortion and hypertensive disorders of pregnancy (MoH Uganda 2011:15) (see table 3.1).

Lewis (2008: 449) and Visvanathan (2011:252) are of the view that the vast majority of the women die because they do not receive the timely healthcare that they need. This might be due to lack of basic healthcare provision; inability to access the local health service; failure to get services from a skilled birth attendant; denied access to care because of cultural beliefs and practices, and because responsibility for decision making falls to other family members. These barriers, which might be at the family level, community level or the health care system, are interlinked and are explained by using the three 'delays' concept;

- a delay associated with the decision to seek care
- a delay in arriving at a place of care
- a delay in the provision of appropriate care

The first two delays relate directly to the issue of access to care encompassing factors in the family and the community, including transport. The third delay relates to factors in the health facility, including the quality of care (Lewis 2008: 449; Visvanathan 2011: 252). In order to have a successful *Safe Motherhood Programme*, all three delays must be addressed.

**Table 3.1 Primary causes of maternal deaths in Uganda reviewed from 2009-2011 with MMR of 438 per 100 000 live births**

<b>Cause of maternal death in Uganda</b>	<b>Percentage (%)</b>
Ante partum haemorrhage	20
Post-partum haemorrhage	19
Abortion	13
Hypertensive disorders of pregnancy	10
Uterine rupture	8
Pregnancy related sepsis	8
Acute collapse/unknown cause	7
HIV/AIDS	4
Malaria	4
Pre-existing maternal condition	4
Others (ectopic pregnancy, meningitis, embolism)	1
Non obstetrical causes	1
Anaesthetic complications	1
<b>Total</b>	<b>100</b>

(Source: Ministry of Health Uganda 2011:15)

### **3.3.4.1 The three delays concept**

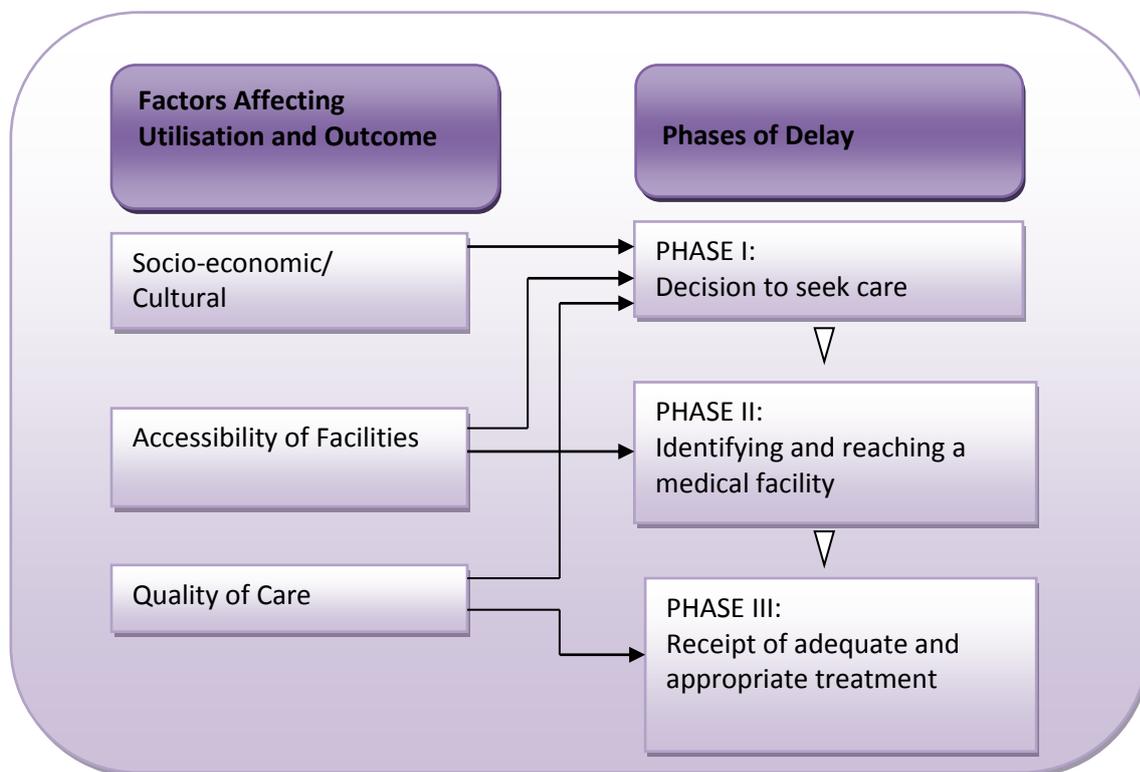
According to Lewis (2008:449), effective timing is critical in preventing maternal mortality and disability. The "three delays" concept (Thaddeus & Maine 1994:1091) illustrated in figure 3.1 is a useful tool to identify the points at which delays can occur in the management of obstetric complications. This concept is also used to explain the social factors responsible for maternal death, to design programmes to address these delays and help health care professionals target interventions that prevent maternal mortality at every stage (Thaddeus & Maine 1994:1091). In most instances, women who die in childbirth experience at least one of the three delays (UNFPA 2003:8; Lewis 2008:449).

- **Delay in deciding to seek care for an obstetric complication** which may occur for several reasons: late recognition that there is a problem; fear of the hospital or of the costs that will be incurred there, or lack of an available decision maker (Hunt & Mezquita 2010:8; Lewis 2008:449). These women or their families may have been unaware of the need for care or of the warning signs of problems in pregnancy, or financial, family or social-cultural barriers prevented this (UNFPA 2003:8; Lewis 2008:449). Social-cultural factors may primarily influence decision making on whether to seek care, rather than affect whether women reach a health care facility in time (Gabrysch & Campbell 2009:5). Social-cultural factors include maternal age, education level, marital status, ethnicity, religion, family composition, husband's level of education, and the woman's autonomy (Gabrysch & Campbell 2009:5).
- Secondly, after the decision to seek care has been made, the **delay in actually reaching the care facility** is usually caused by limited transportation options and poor roads (Lewis 2008:449; Hunt & Mezquita 2010:8). This delay may be caused by the service not existing or being too far away; a lack of transport, or the cost of transport (UNFPA 2003:8; Lewis 2008:449; Hunt & Mezquita 2010:8). The physical distance and difficulty with locating transport connote aspects of remoteness, such as poor road infrastructure, poor communication between communities, poverty, limited access to information, and strong adherence to traditional values (Gabrysch & Campbell 2009:5). Solutions must be devised that

either bring services closer to communities or make public transport readily available and affordable (Gabrysch & Campbell 2009:5).

- Thirdly, the **delay in obtaining care at the facility** (Lewis 2008:449; Hunt & Mezquita 2010:8). Often women will wait for hours at the referral centre because of poor staffing, prepayment policies, and/or difficulties in obtaining blood supplies, equipment or an operating theatre (Hunt & Mezquita 2010:8). This delay could be due to the facility not being appropriately equipped and staffed and/or was the care received being inadequate or actually harmful (UNFPA 2003:8; Lewis 2008:449). The third delay is typically indicative of suboptimal quality of care (Combs Thorsen et al 2012:8). These factors have led to inadequate monitoring, missed and incorrect diagnoses, delayed or incorrect treatment, delayed referrals, patients not being stabilized before referring, premature discharges and outright negligence (Combs Thorsen et al 2012:9).

These three reasons for delay in receiving appropriate quality obstetric care are not necessarily interdependent on each other; a delay in one phase may or may not exacerbate or prolong a delay in another (Combs Thorsen et al 2012:9). A maternal death is usually due to a combination of factors across the three phases and putting the pieces together can give a better understanding of what actually happened (Hunt & Mezquita 2010:8; Combs Thorsen et al 2012:9). The clues from the various delay phases can assist healthcare management with adapting or developing interventions that improve the healthcare system and the quality of care rendered (UNFPA 2003:8; Lewis 2008:449; Combs Thorsen et al 2012:9).



**Figure 3.1 The three delays concept of maternal mortality**

(Source: Thaddeus & Maine 1994:1093)

### **3.3.4.2 Underlying factors leading to maternal death in Uganda**

The underlying factors leading to maternal deaths in Uganda for the year 2011/12 can be classified into four categories: personal factors, logistic systems, health service factors, and health personnel problems (see table 3.4) (MoH Uganda 2011:16). Table 3.4 indicates that the major underlying factors leading to maternal death in Uganda were delay of the women seeking help (112 maternal deaths), lack of blood products, supplies and consumables (69 maternal deaths), health care professionals not taking action (62 maternal deaths), and health care professionals' oversight (60 maternal deaths) (MoH Uganda 2011:16). Table 3.2 summarises the underlying factors leading to maternal deaths in Uganda, 2011/12.

**Table 3.2 Underlying factors leading to maternal deaths in Uganda, 2011/12**

Underlying factors		Frequency	
A. Personal/Family/ Woman factors	• Delay of the woman seeking help	112	=164
	• Lack of partner support	19	
	• Herbal medication	17	
	• Refusal of treatment or admission	8	
	• Refused transfer to higher facility	8	
B. Logistical systems	• Lack of transport from home to health facilities	13	
	• Lack of transport between health facilities	11	
C. Health service	• Health service communication breakdown	54	=134
	• Lack of blood products, supplies and consumables	69	
D. Health personnel problems	• Staff non-action	62	=194
	• Staff oversight	60	
	• Staff misguided action	32	
	• Staff lack of expertise	22	
	• Absence of critical human resources	11	
	• Inadequate number of staff	7	

(Source: Ministry of Health Uganda 2011:16)

### 3.3.5 Strategies to reduce maternal death

There are a number of strategies used to reduce maternal morbidity and mortality. Most of these strategies are directed at treating the five primary obstetric causes of maternal death, namely haemorrhage, puerperal sepsis, unsafe abortion, hypertensive disorders of pregnancy, and prolonged or obstructed labour (Prata et al 2010:312; WHO 2011:12; Hunt & Mesquita 2010:10). These strategies include *effective family planning programmes* to address the largely unmet need for contraception; *prevention of sexually transmitted infections and HIV infections*; *comprehensive abortion care*; *antenatal care*; *management of antepartum haemorrhage*; *management of puerperal sepsis*; *management of eclampsia*; *management of obstructed/prolonged labour*; *management of postpartum haemorrhage*, and *postpartum care* (Prata et al 2010:312; WHO et al

2012:59). The primary strategies to reduce MMR by the international community have been to aim at ensuring that every woman has ready access to a skilled birth attendant during delivery and emergency obstetric care in case of complications (Prata et al 2009:132).

### **3.3.5.1 Emergency obstetric care**

Emergency obstetric care refers to care given to complications that threaten the lives of the mother and newborn (UNFPA 2009a:12; WHO 2009:3). The WHO (2009:3) emphasises two categories of emergency obstetric care functions, namely **basic emergency obstetric care**, which can be provided at health centres III and IV by the midwife or doctor in the case of Uganda, and **comprehensive emergency obstetric care**, which is provided at health centre IVs and hospitals by the midwife, doctor and anaesthetist in Uganda. Basic emergency obstetric care includes interventions such as administration of antibiotics, oxytocins and anticonvulsants, manual removal of placenta or other retained products of pregnancy and an assisted vaginal delivery but which does not require an operating theatre (Prata et al 2009:134; Mbonye et al 2007:221). While comprehensive emergency obstetric care requires an operating theatre, it is often performed in the district hospital and its interventions include all services provided by basic emergency obstetric care as well as caesarean section and safe blood transfusion (Prata et al 2009:134; Mbonye et al 2007:221; Paxton, Bailey, Lobis & Fry 2006: 301).

#### **3.3.5.1.1 Emergency obstetric care in Uganda**

The health care delivery system in Uganda includes national referral hospitals (public), district/rural hospitals (both public and private), as well as health centres (both public and private) (MoH Uganda 2010:2; Mbonye et al 2007:221). In addition, the MoH Uganda (2010:2) stipulates that the health centres are graded as II, III or IV according to the administrative zone and type of services provided. HC IIs serve a parish and provide outpatient care, antenatal care, immunization and community outreach programmes. HC IIIs serve a sub-county and provide all the services of HC II, plus inpatient care and environmental health. HC IVs serve a health sub-district, provide all services of HC III, plus surgery, supervise the lower HC IIs and HC IIIs, collect and analyse data on health and plan for the health sub-district (MoH Uganda 2010:2; Orinda, Kakande, Kabarangira, Nanda & Mbonye 2005:287). Although HC IIIs should be able to provide

basic emergency obstetric care and HC IVs comprehensive emergency obstetric care, the staffing levels and services provided at these health facilities are insufficient to meet the emergency obstetric care criteria (Mbonye et al 2007:221; Orinda et al 2005:288).

In Uganda, the unmet need for basic emergency obstetric care (83%) and comprehensive emergency obstetric care (95%) is high and consequently maternal deaths that occur in health facilities are mainly due to inadequate care and supplies, especially lack of blood transfusion, inadequate skills to perform assisted vaginal deliveries and removal of retained products (MoH Uganda 2011:20-22; Mbonye et al 2007:224). Therefore emergency obstetric care requires skilled staff, a reliable transport system, adequate supply of blood, drugs and functioning equipment which are difficult to provide in poor resource-limited settings (Pearson & Shoo 2005: 211; Paxton et al 2006: 304). Mbonye et al (2007:221) and Homer et al (2009a:98) found that the main obstacles to providing quality emergency obstetric care services in Uganda were lack of basic infrastructure, such as the unavailability of electricity, water, communication services, means of referrals, and adequate staff quarters, and midwives' incompetency in handling obstetric complications.

### **3.4 SKILLED BIRTH ATTENDANTS**

Although maternal deaths remain unacceptably high in many parts of the world, some progress was made in increasing the proportion of births attended to by skilled health care personnel in developing countries from 55% to 65% between 1990 and 2009 (United Nations 2011:67; WHO 2011:11). Moreover, the worldwide MMR has fallen by 47% since 1990 and this is probably related to improved access to skilled birth attendants and *antenatal care* (WHO et al 2012:59). Having a skilled attendant at all births is considered the single most critical intervention for ensuring *safe motherhood*, because it hastens the timely delivery of emergency obstetric and newborn care when life-threatening complications arise (Adegoke & Van den Broek 2009:34; Prata et al 2009:314). Skilled birth attendance consists of two essential components, namely skilled health personnel and an enabling environment (Adegoke & Van den Broek 2009:34; Prata et al 2009:314). The proportion of births attended to by a skilled birth attendant has become a process indicator for maternal health and is used to monitor progress towards the fifth MDG (Cook 2002:108; Ronsman, Qomariyah, Achadi, Braunholtz, Marshall, Pambudi & Witten 2009:416).

Ronsman et al (2009:416) and Prata et al (2009:314) define the term skilled birth attendance as a process by which a woman is provided with adequate care during delivery and the early post-partum period. This requires skilled personnel to attend to the delivery and an 'enabling environment', which includes having adequate supplies and equipment, transport and effective communication systems, political will, policy and social-cultural influences, education and training of skilled attendants at pre- and in-service levels and following that supervision and deployment (Graham, Bell, Bullough 2001:97; Adegoke & Van den Broek 2009:34).

In order to ensure adequate human resources for skilled birth attendance in developing countries, it is crucial that countries take key steps, such as having a national consensus on the cadres of health care providers that will be developed as skilled birth attendants (Adegoke & Van den Broek 2009:395). This decision should be made after a comprehensive review of the curriculum; increasing the recruitment and production of skilled birth attendants; having a policy for equitable distribution of skilled attendants, and addressing issues that affect the morale and motivation of skilled attendants (Prata et al 2009:314; Adegoke & Van den Broek 2009:395).

### **3.4.1 Skilled birth attendants/midwives as essential human resource for reducing maternal death**

A skilled birth attendant is a professional midwife, nurse or doctor who is able to supervise normal deliveries, quickly recognise and manage complications, perform interventions, start treatment and supervise the referral of mother and baby for interventions not possible in the particular setting (Adegoke & Van den Broek 2009:35). The description of a skilled birth attendant identifies the skills and abilities required of skilled birth attendants, and does not include traditional birth attendants, although countries are encouraged to work with traditional birth attendants to define new roles for them and ensure good working relations between traditional birth attendants, skilled birth attendants, and staff in referral facilities (Izugbara, Ezeh & Fotso 2009:36; Cook 2002:108). Adegoke and Van den Broek (2009:35) maintain that although the traditional birth attendants may be more available and accessible in the community, their inability to acquire life-saving skills, lack of supervision, lack of integration into the health care system and absence of back-up systems are reasons for their incompetence. However, in order to achieve drastic improvements in maternal health outcomes, professionally

trained midwives have been a key to success in reducing maternal deaths and saving maternal lives (Ssengooba et al 2003:12; WHO 2006a:6).

Midwives are members of a profession, which they have intentionally chosen as a career, and wish to be of service to other people (Roskam, Pariyo, Hounton & Aiga 2011). Eliasson, Kainz and von Post (2008:501) postulate that professional midwives must possess the knowledge and competences required by the midwifery profession and are governed by a code of ethics that demands the safeguarding of patients' dignity and alleviation of suffering. Following graduation from a particular training programme, all midwives in Uganda from government, private, faith-based and NGO sectors are required to register with the Uganda Nurses and Midwives Council (UNMC) (Minca 2011). This initial licence to practise midwifery must be renewed every three years following the completion of the requisite number of continuing professional education credits (Minca 2011).

According to Masterson (2010:4) and Larsson, Aldegarmann and Aarts (2009:374), midwives play a unique role in promoting the health of mothers, infants and families by showing respect for human dignity and for women as persons with full human rights; advocating for women so that their voices are heard; being sensitive to cultural diversity, and working with women and health care providers to overcome those cultural practices that harm women and babies. Severinsson, Haruna and Friberg (2010:402) state that midwives focus on health promotion and disease prevention which views pregnancy as a normal life event. Therefore the core role of being a midwife is to assist women during childbirth while providing competent and safe physical care, without sacrificing emotional and spiritual aspects of pregnancy and birth (Masterson 2010:5).

### **3.4.2 Midwifery practices**

Midwifery practice includes independent supervision, care and advice for women during pregnancy, labour and the postpartum period, conducting deliveries on her own and caring for the newborn child (UNFPA 2009a:17; ICM 2002:2). The midwife is also responsible for providing primary health care (PHC) services within the community, such as counselling and education for women, preparation for parenthood for the family and community, the provision of family planning, the detection of abnormal conditions of

mother and child, referrals and the execution of primary and secondary emergency measures in the absence of medical help (Masterson 2010:4; Larsson et al 2009:374).

Severinsson et al (2010:402) stress that midwives believe that no woman should be harmed by pregnancy or labour. Thus midwives always respond to the psychological, physical, emotional and spiritual needs of women seeking health care, regardless of their circumstances in order to promote health and prevent harm during pregnancy and labour (Masterson 2010:4). Therefore it is crucial that all midwives continuously seek personal, intellectual and professional growth throughout their midwifery career, integrating this growth into their practice in order to protect the health of women, infants and their families (UNFPA 2009a:17; Masterson 2010:4).

### **3.4.3 Expanding the role of the midwife**

According to *Midwifery 2020*, a UK-based (England, Northern Ireland, Scotland and Wales) collaborative programme, the way midwives are providing care has evolved over time depending on social and demographic factors and this has led to midwives expanding their role beyond what has traditionally been seen as the core role (Masterson 2010:9). Expanding midwives' roles is still debated by the profession and some midwives feel that doing this would dilute the emphasis on their fundamental reason for being a midwife (Masterson 2010:9; Larsson et al 2009:374). This may be because there has been limited research into the expanding role of the midwife thus causing much confusion (Homer, Passant, Brodie, Kildea, Leap, Pincombe & Thorogood 2009b:673). However, Larsson et al (2009:374) and Watson, Turnbull and Mills (2002:258) highlight that expanding the role of midwives is inevitable and necessary for the development of the midwifery profession. Homer et al (2009:674) also stress that midwives' role development causes them to further develop their skills in order to take responsibility and work to their full potential while embracing the changing need of pregnant women in society.

According to Masterson (2010:10), expanding the roles of midwives may be developed locally depending on the needs of the women and the setting in which care is given. In some circumstances it may be necessary for midwives to gain more skills and experience in a specific area. For example, some midwives may need to develop additional skills when working in rural and remote areas, such as dating scans,

ventouse extraction, arranging for epidurals, oxytocin administration, post-abortion care and the management of hyperemesis (Larsson et al 2009:374; Watson et al 2002:259; Htay, Sauvarin & Khan 2003:32). In order to acknowledge the expanded role of midwives, there is need for flexible adaptation to new challenges and post registration education which must be available to all midwives, based on their local needs (Masterson 2010:10; Htay et al 2003:32).

The MoH Uganda recognised the importance of midwives in improving maternal health, therefore their professional scope was expanded to include responsibilities previously reserved for medical doctors (Ssengooba et al 2003:12; Minca 2011). The administration of intravenous fluids, prescription of antibiotics, manual removal of the placenta and the use of manual vacuum aspiration machines in post-abortion management are some of the new responsibilities that have been transferred to Ugandan midwives (Ssengooba et al 2003:12; Minca 2011).

#### **3.4.4 The midwifery workforce worldwide**

The midwifery workforce requires an enabling environment to maximise their contribution to health, which goes beyond having the necessary drugs and supplies to including adequate infrastructure, communication tools and functioning referral systems (Campbell, Fauveau, Hoop-Bender, Matthews, & McManus 2011:5; Pettersson 2007:471). Campbell et al (2011:5) and Rawe (2011:19) emphasise that the enabling environment should also include midwifery supervision, professional collaboration, appropriate remuneration and a policy framework that allows them to perform life-saving skills.

There is a worldwide estimated shortage of 350 000 midwives, who are part of the 4.3 million health worker shortage (Rawe 2011:16; Roskam et al 2011). The WHO (2006b:21) recommends that on average one midwife attend to 175 births during one year. According to Campbell et al (2011:17), this target may be more easily conceptualised as six midwives are required to provide care at 1000 births in one year. In many of the developing countries, the midwife to birth ratio is either lower than this benchmark or very close to it, suggesting that the midwifery workforce are straining to cope with the volume of births (Campbell et al 2011:18; Rawe 2011:16). In developing

countries only 40 per cent of births are assisted by properly skilled birth attendants (Rosskam et al 2011; Fauveau, Sherratt & De Bernis 2009:49).

According to the WHO an additional 334 000 midwives are required to fill the midwifery shortage worldwide, which is estimated at 350 000 midwives (Fauveau et al 2009:49; WHO 2006b:12). Most countries are aware that the midwifery shortage situation is unacceptable and are striving to address contributory factors, such as heavy workloads, high attrition rates and the steady flow of migrating midwives (Campbell et al 2011:18; Fauveau et al 2009:50; Rawe 2011:16). Exacerbating the widely acknowledged shortfall in midwifery staff is the lack of deployment in the neediest areas (Rosskam et al 2011; Campbell et al 2011:18). The unequal distribution of health care/midwifery providers is a problem linked with difficulties in recruitment and retention of midwives in remote towns and villages (Rawe 2011:19). For many midwives there are simply too few incentives to practise in villages or towns with few services (Rosskam et al 2011; Campbell et al 2011:18; Rawe 2011:19). The geographically unequal distribution of midwives is not only between rural and urban areas but also between district preferences leading to difficulty in accessing midwifery care for many pregnant women (Campbell et al 2011:18; Rosskam et al 2011).

### **3.4.5 Midwifery training/education worldwide**

Midwifery training and education are vital in the preparation of a functional midwife at all levels of health care (Campbell et al 2011:21; UNFPA 2009a:15). Campbell et al (2011:21) add that there are three main pathways that prepare and maintain a well-educated midwifery workforce, namely the direct entry pathway, a combination with nursing pathway, and post-nursing education pathway. These educational pathways may vary widely in nature and between countries, depending on entry requirements, length of training, curricula, faculty capacity and quality, tutor/student ratios and time spent in the clinical practice (Campbell et al 2011:6; UNFPA 2009a:15).

The ICM (2011b) has developed global standards for midwifery regulations that are specific to midwifery education where a fully qualified midwife has a formal education based on ICM essential competencies which include:

- Entry level of students is completion of secondary education.

- Minimum length of a direct-entry midwifery education programme is three years.
- Minimum length of a post-nursing/health care provider programme is eighteen months.
- Midwifery curriculum should include both theory and practice elements with a minimum of 40% theory and a minimum of 50% practice.

The ICM competency model is currently considered the international standard for provision of skilled, safe and professional care to childbearing women and their families (ICM 2011b). The model stipulates the essential knowledge, skills and behaviour expected during antepartum, intrapartum, postpartum and neonatal care (Adegoke & Van den Broek 2009:36; ICM 2011b; ICM 2002:4-11). Furthermore, the ICM competency model stresses acquiring theoretical knowledge as well as tailored, supervised, hands-on practice in a variety of clinical settings, problem solving, critical thinking, and skills in decision making (ICM 2011b; ICM 2002:4-11). These skills should be taught using student-centred and facilitative approaches to teaching, such as problem-based learning, inquiry methods, inductive methods, simulations, and cooperative learning (Stanton, Blanc, Croft & Choi 2007:110). The education of midwives should also be of good quality at both pre- and in-service levels with a system for supportive supervision (Campbell et al 2011:6; Adegoke & Van den Broek 2009:36).

According to the *State of The World's Midwifery Report*, the situation in midwifery schools worldwide shows that there are not enough midwifery tutors for both public and private midwifery training schools. The tutor to student ratio ranges from 1:10 to 1:60. Some countries do report smaller ratios of 1:6 to 1:12 for clinical supervision and practical sessions (Campbell et al 2011:21). Campbell et al (2011:7) stress that a benchmark ratio of 1:2 students during clinical practice is appropriate. Furthermore the *State of The World's Midwifery Report* also emphasises that maintenance of midwifery competences through continuing education and in-service training is important and essential for public safety and professional responsibility (Campbell et al 2011:7).

#### **3.4.5.1 Midwifery training/education in Uganda**

The curricula for nursing and midwifery in Uganda have evolved from an enrolled certificate course to a degree programme. According to the *State Of The World's Midwifery Report*, the in-depth country analysis for Uganda, shows that the content of

the curricula in the training programmes were gradually amended to encompass content that would answer to the emerging health needs of the Uganda population (Minca 2011).

Midwifery training in Uganda is based on two pathways: a comprehensive training programme that produces nurse-midwife generalists, and the traditional enrolled and registered midwifery pathway (see table 3.3) (Minca 2011; UNFPA 2009a:30). The aim of the comprehensive course is to train a multi-skilled person capable of providing a range of services, including curative, preventive and promotive services, while the conventional midwifery programme is aimed at training persons skilled in midwifery competencies (UNFPA 2009a:30; Minca 2011). Midwifery is best covered in the courses for Enrolled Midwives, Registered Midwives and Bachelor of Science in Nursing and least covered in the Enrolled Comprehensive Nursing Course and Diploma in Comprehensive Nursing Course (see table 3.3).

Midwifery training in Uganda takes place in both public and private midwifery training schools. According to the UNFPA (2009a:33), about 75.2% of the trainees are enrolled for the comprehensive course, followed by the diploma in comprehensive nursing (12%). Only 3.7% trainees are enrolled for the registered midwifery course and 2.5% are taking the traditional enrolled midwifery course. This is because of the GoU's national policy shifting towards comprehensive nursing training as opposed to conventional midwifery education programmes, despite midwifery being better covered in the Registered Midwives course (UNFPA 2009a:33).

Minca (2011) and UNFPA (2009a:40) highlight that midwifery training in Uganda is faced with a number of challenges, namely inadequate training materials and equipment in practicum sites of many training schools and hospitals linked to midwifery training; few or no training models available required for practical teaching; high student intake coupled with few tutors, 2 817 students for 64 midwifery tutors, which makes effective interaction between students and tutors impossible; the tutor to student ratio is very high at 1:60 and a ratio of clinical instructors to student at 1:37 for private midwifery training schools and 1:47 in public training institutions. These ratios are very high compared to the international ratio of one tutor to ten midwifery students. This may be contributing to the low quality of midwifery training in Uganda (UNFPA 2009a:40).

**Table 3.3 Midwifery training pathways in Uganda**

Criteria	Enrolled Comprehensive Nursing	Enrolled Midwife	Registered Midwife	Diploma in Midwifery	Diploma in Comprehensive Nursing	Bachelor of Science in Nursing
<b>Aim</b>	To train a multi-skilled nurse	To train a competent midwife	To train a competent midwife	To train a multi-skilled midwife	To train a multi-skilled nurse	To train a multi-skilled nurse/midwife
<b>Competencies</b>	Promotive, curative & rehabilitative services in the minimum health care package	Preventive, curative, promotive & rehabilitative services	Preventive, curative, promotive & rehabilitative services	Obstetric, preventive, curative & rehabilitative services in the minimum health care package at maternity centre	Promotive, curative & rehabilitative services in the minimum health care package	Public health care nurse-midwifery, research, education and administration
<b>Duration of maternal health modules</b>	-Midwifery:7.8 weeks -Reproductive health:11.3 weeks	-Midwifery:29 weeks -Reproductive health:4 weeks	-Midwifery:23 weeks -Reproductive health:4 weeks	-Midwifery:19 weeks -Reproductive health:6.75 weeks	-Midwifery:5.5 weeks -Reproductive health:4.8 weeks	-Midwifery:14 weeks -Reproductive health:5 weeks
<b>Quality assurance mechanism</b>	Pass mark is 50%.  A candidate who fails a course three times is discontinued.  A candidate who fails the practical examination repeats the whole course.  Awarding body is Uganda Nurse and Midwives Examination Board	Pass mark is 50%.  Board of examiners appointed by Uganda Nurse and Midwives Council	Pass mark is 50%.  Board of examiners appointed by Uganda Nurse and Midwives Council	Pass mark is 50%.  A candidate must meet at least 75% of contact hours. A candidate who fails a paper three times is discontinued.  A candidate who fails three subjects during an examination period is discontinued.  Awarding body is Uganda Nurse and Midwives Examination Board	Pass mark is 50%.  A candidate who fails a course three times is discontinued.  A candidate who fails three subjects during an examination period is discontinued.  Awarding body is Uganda Nurse and Midwives Examination Board	Pass mark is 50%.  Successful candidates awarded a degree.  Awarding body University

(Source: UNFPA 2009a:34-35)

### 3.5 RESPONSE TO TRAUMATIC EXPOSURE

Adriaenssens et al (2012:1412) state that when individuals experience a traumatic event, they may experience emotional, physical, behavioural and cognitive symptoms of stress which may affect their body and mind.

#### 3.5.1 The concept of trauma

A traumatic event is a threatening occurrence that one may witness or experience (Adriaenssens et al 2012:1412; Slatcher & Pennebaker 2005:299). Individuals react to traumatic events differently: some may respond immediately, some may take months to react, others may take years, others recover quickly but some suffer from long-term adverse effects (Adriaenssens et al 2012:1412). Lerner and Shelton (2005) identify the most common reactions to traumatic exposure as:

- **Emotional responses**, such as shock where the individual is highly anxious; denial in which there is inability to acknowledge the impact of the situation, and dissociation in which the individual may feel apathetic, panic, fear, intense feelings of aloneness, hopelessness, helplessness, emptiness, uncertainty, horror, terror, anger, hostility, irritability, depression, grief and guilty.
- **Cognitive responses**, which are often reflected in impaired concentration, confusion, disorientation, difficulty in making a decision, a short attention span, vulnerability, forgetfulness, self-blame, thoughts of losing control, hyper vigilance and preservative thought of the traumatic event.
- **Behavioural responses**, such as withdrawal, non-communication, changes in speech patterns, regressive behaviours, erratic movements, pacing, an inability to sit still and antisocial behaviour.
- **Physiological responses**, which may include rapid heartbeat, elevated blood pressure, difficulty in breathing, shock symptoms, chest pains, cardiac palpitations, muscle tension and pains, fatigue, fainting, flushed face, pale appearance, chills, cold clammy skin, increased sweating, thirst, dizziness, vertigo, hyperventilation, headache, grinding of teeth, twitches and gastrointestinal upset.

- **Spiritual responses**, which often include anger and distancing from God and withdrawal from attending religious services. Others respond by suddenly turning to God through religious practices such as prayer, reading scriptures and singing hymns.

### **3.5.2 Coping with trauma**

An understanding of typical reactions to traumatic events helps individuals to better cope with their feelings, thoughts and behaviours in order to process the trauma in the healthiest way possible (Moore et al 2007:942; Huang et al 2010:2286; Bailey et al 2011:3364). Furthermore, Bailey et al (2011:3364) emphasise that active coping with the trauma makes one to feel in control of the situation which involves accepting the impact of trauma on one's life and taking direct action to improve things.

## **3.6 OCCUPATIONAL EXPOSURE TO MATERNAL DEATH**

Death occurring in obstetric wards is traumatic to health care providers involved in the mother's care due to its unexpected nature (Taubman-Ben-Ari & Weintroub 2008:621; Smith 2009:504). Mander (2001:249) adds that the shock of maternal death is more marked than other deaths because of the generally happy assumptions about maternity and the feeling that sudden death does not happen during childbearing.

### **3.6.1 The concept of occupational exposure to maternal death**

Goker, Civi, Bayturan and Kuscu (2012:1) stress that maternal death can be a sorrowful experience for the woman's family and all the medical staff involved in her care. Death is an ever-present reality for health care professionals despite increasing technologically advanced health systems, longer patient survival and cure from life-threatening conditions (Lehto & Stein 2009:24). In developing countries campaigns have encouraged pregnant women to seek timely maternal health care in health care facilities. However, evidence exists that many mothers delay in deciding to seek care for an obstetric complication, or, may delay in reaching the care facility because of transportation problems, and or a delay in obtaining appropriate care at the facility may occur, which has increased maternal deaths occurring in health care facilities (Huang, Chang, Sun & Ma 2010:2281; Larsson et al 2009:374).

Besides increasing occupational exposure to maternal death in health care units of developing countries, removal of death from ordinary everyday life to sanitized hospital settings has created a mystique which exacerbates anxiety and other emotional reactions associated with death among health care providers (Bryan 2007:80; Peters, Cant, Payne, O'Connor, McDermott, Hood, Morphet & Shimoinaba 2013:14). This may be one of the reasons why patient death is often regarded as a failure of medical treatment and nursing care, and a source of guilt feelings for health care professionals (Huang et al 2010:2280; Yu & Chan 2010:1167). As a result, this has created a reluctance to speak about patient death especially in hospitals, where the intention is to sustain life (Bryan 2007:80; Yu & Chan 2010:1168).

Huang et al (2009:2281) point out that another reason for a reluctance to talk about death may be lack of knowledge and skills to handle death situations. Many health care providers in practice did not receive specific training or preparation in dealing with death situations (Huang et al 2009:2281; Ellershaw et al 2010:4; Bloomer, Morphet, O'Connor, Lee & Griffiths 2013:23). Insufficient knowledge and skills related to death and dying not only increases anxiety levels and emotional discomfort, but also makes health care providers unable to effectively cope with their own feelings and care for others in situations of patient death (Polat et al 2013:9). The risk and impact of occupational exposure to maternal death and other patient deaths is the main rationale for increased calling for adequate training of all health care professionals to equip them with appropriate skills and knowledge to provide optimum care for patients and their relatives (Ellershaw et al 2010:4; Hinderer 2012:252; Polat et al 2012:9).

### **3.6.2 Facing the moment of occupational exposure to maternal death**

Witnessing patient death may affect the level of anxiety experienced by the health care provider (Bryan 2007:82). When maternal death occurs, the midwives are faced with the difficult task of informing the relatives, dealing with the body, and at the same time continued care of the other women without considering their own emotions (Mander 2001:248). Smith (2009:505) and Bloomer et al (2013:24) found that when a patient death occurs, nurses are expected to help and comfort the family members and to continue caring for the other patients at the same time. In fact, during death situations, most nurses never have time to stop and think about the meaning of it all (Borsche

2007:21; Gerow et al 2010:124). This may also be the case for many midwives working in resource-poor settings, especially in rural areas of developing countries, who experience frequent maternal deaths (Prata et al 2009:134).

The combination of role expectations, lack of time to ponder about death, and lack of training on how to deal with death or family members of a dead patient, can create internal conflict and stress in the health care provider's mind (Gerow et al 2010:125). Usually the generated internal conflicts and stress are not immediately resolved, because when maternal death occurs, midwives are expected to remain strong and give support, whether affected or not by the death of the woman whom they were caring for (Gerow et al 2010:125; Bloomer et al 2013:24).

### **3.6.3 Appraisal process of occupational exposure to maternal death**

A stressful event such as maternal death occurring in the workplace can become a psychological stressor for health care professionals involved in care if they react to this stressful event or condition based on cognition that the maternal death will adversely affect their well-being (Matthieu & Ivanoff 2006:340). **Primary appraisal** is determined when midwives appraise occupational exposure to maternal death as a potential hazard, threat, or challenge depending in part on individual differences emanating from past death experiences, demographic factors, personal aspects and social support systems available for these midwives (Lazarus 1999:50; Ben-Zur & Michael 2008:66).

**Secondary appraisal** is the midwives' perception that they have the resources (inner and outer) to cope with occupational exposure to maternal deaths (Lazarus 1999:50; Ben-Zur & Michael 2008:66). Depending on the type of primary appraisal of harm or loss, threat or challenge, secondary appraisal can be influenced by contextual factors such as demands, constraints and opportunities (Lazarus 1999:50). The resulting appraisal then generates an emotion or meaning attributed to occupational exposure to maternal death and the midwife is then able to take action through coping (Matthieu & Ivanoff 2006:342). According to Lazarus and Folkman (1984:141), coping involves constantly changing cognitive and behavioural efforts to manage specific demands that are appraised as potentially taxing or exceeding a person's resources.

### 3.6.4 Coping with maternal death

Experiencing death can result into stress and to keep this stress from developing into burnout necessitates effective coping methods (Peterson et al 2010:434; Hinderer 2012:252). Health care professionals must recognize their grief reactions and symptoms and employ self-care strategies to revitalize themselves physically, emotionally, mentally and spiritually in order to deal with their various grief issues and reactions (Shimoinaba, O'connor, Lee & Greaves 2009:246). The types of deaths nurses experience sometimes shape how they cope and respond to other death situations (Gerow et al 2010:127). Borsche (2007:127) stresses that most nurses encountering patient death and dying at work do not realise their own need to grieve, but instead utilize coping mechanisms such as suppression, distancing, trying to keep busy and avoidance to cope (Huang et al 2010:2286; Kent et al 2012:1255). Distancing and avoidance are mostly common among nurses working in cultures where emotions are not expressed openly and these strategies serve as a shield from confronting their own vulnerability and distressing emotions elicited by patient death and death situations (Yu & Chan 2010:1168).

Other strategies used by nurses to cope with occupational exposure to death and death situations are seeking support from peers with whom they can discuss the death experience, crying in front of family members of the patient, seeking support from religious resources and prayer (Shorter & Stayt 2010:161; Gerow et al 2010:126; Peterson et al 2010:434). Ways of coping include distancing, avoidance, selective attention, blaming, minimizing, wishful thinking, venting emotions, distracting activities (alcohol or drugs), seeking social support, exercising and meditating are referred to as emotion-focused strategies (Button 2008:500; Lowe & Bennett 2003:394; Folkman & Moskowitz 2004:747). Although **emotion-focused coping** can be beneficial in situations where there are few options, it is often associated with more negative outcomes (Werner 2006:109). Therefore employers of midwives need to increase options for coping with occupational exposure to maternal death such as, providing mandatory respite time, allowing time for grieving and debriefing, thus providing midwives with opportunities to directly address their emotions and distress caused by maternal death or death situations.

Some nurses use caring rituals such as attending funerals, providing food, facial tissues and beverages to the family members to afford them with a sense of security, regularity and control in the midst of emotional disorder (Gerow et al 2010:126). These activities assisted nurses to detach themselves from the exposure to patients' death and to get some closure. Other nurses use a fatalistic perspective to approach exposure to patients' death, by choosing to think of life and death as a matter of fate which they could not control and this helps in reducing self blame (Wong & Chan 2007:2358; Yu & Chan 2010:1169). The latter coping methods are similar to problem-focused coping.

**Problem-focused coping** involves strategies directed at managing or altering the problem causing the distress and this category of coping is associated with positive health outcomes and general well-being (Kelso et al 2005:4; Lazarus & Folkman 1984:145). Examples of problem-focused coping methods include channelling efforts to behaviourally handle distressing situations; gathering information; decision making; conflict resolution; resource acquisition, and situation-specific goals or task-oriented actions (Button 2008:500; Matthieu & Ivanoff 2006:343). The benefits of problem-focused coping methods in contrast with the over-use of emotion-focused coping by health care professionals when faced with occupational exposure to patients' death seem to suggest that deliberate education, training, coaching, and mentoring can be of benefit. Midwifery educators and employers can play a central role in integrating these strategies in their services because they may empower midwives to cope and adapt to occupational exposure to maternal death.

### **3.6.5 Impact of occupational exposure to maternal death**

The impact of occupational exposure to maternal death can be associated with either positive or negative outcomes. Positive outcomes may be correlated with improved psychological health, whereas negative outcomes are associated with diminished psychological health (Dirkzwager, Bramsen & Van der Ploeg 2003:501; Button 2008:501). Therefore impact may be appraised as positive if it enhances some aspects of midwifery or nursing practice or negative if it impacts negatively on midwives' emotional, behavioural, physical, cognitive, or spiritual outcomes (Maloney & Chaiken 1999:6).

### **3.6.5.1 Positive impact of occupational exposure to maternal death**

When dealing with potentially traumatic events such as maternal death, one should focus on adversarial growth (Matthieu & Ivanoff 2006:343). Occupational exposure to death can be appraised as "healthy" when it is perceived as a challenge, which can thereby influence health care professionals to be more flexible and adaptive in their response to this stressor (Esch 2002:74).

When increasing individual stress reactions reach crisis level, any additional stressor can stimulate the onset of a physiological process that can lead to disorder or disease (Everly & Lating 2002:50; Matthieu & Ivanoff 2006:343). Every midwife has the potential to experience positive or negative reactions to occupational exposure to maternal death.

The positive impact of occupational exposure to maternal death can occur when midwives experience adaptational significance of their own and coping processes that generate and sustain a positive affect after a maternal death encounter (Folkman & Moskowitz 2000: 648). In addition, a positive impact can also occur when health care providers exert control over the death process and are less negatively impacted (Costello 2006:595; Sinclair 2011:180). Health care providers' exertion of control over the death process may involve reliance on supportive structures when caring for dying patients such as personal experience, reflection and coping with individual situations, facilitating effective functioning within the organization, and respecting individual dignity and autonomy (Hopkinson, Hallet & Lucker 2005:126; Kehl 2006: 278; Shorter & Stayt 2009:161).

Some of the interventions that health care providers may apply to promote a positive impact after a difficult encounter may include bonding with a deceased patient's family using the empathetic approach in order to determine the needs and reactions of patient families in every communication situation (Polat et al 2013:10; Peterson et al 2010:434); professionalism in the form of caring, warmth, support, having the right attitude and good communication skills (Halldorsdottir & Karlsdottir 2011:807); devotion to patient care; self-confidence; teamwork; ability to handle ethical problems, and emphasis on supporting the patient's relatives (Peterson et al 2010:434; Parry 2011:450; Shorter & Stayl 2010:162). Using these positive impact interventions following occupational exposure to death may mitigate psychological distress, emotional discomfort, and social

dysfunctioning, which can be a relief for health care providers (Manser & Staender 2005:729). This, in turn, can lead to positive emotions, a sense of doing meaningful work, positive perception of one's own health, better decision making, job satisfaction, stress-related growth and meaning-making among health care professionals (Gardner & O'Driscoll 2007:249).

Therefore managers or supervisors of midwives may consider incorporating assessment of midwives' level of coping methods and the potential for positive growth following the traumatic experience of maternal death. This can be done by using cognitive appraisal and coping variables (e.g., positive affect, problem-focused coping) associated with adversarial growth in order to incorporate an awareness of the perceived benefits that can result from handling extreme distress effectively (Matthieu & Ivanoff 2006:344).

### ***3.6.5.2 Negative impact of occupational exposure to maternal death***

Occupational exposure to death among health care professions with ineffective ways of coping or resources may result in short-term negative consequences, such as emotional outcry, denial, numbness, and intrusive thoughts, which could cascade into long-term negative consequences, such as chronic and pathological posttraumatic reactions like depression, PTSD, acute response disorders (McFarlane 2010:6; Bisson 2009:290); occupational stress; compassionate fatigue; burnout, and withdrawal from clinical practice (Peterson et al 2010:434; Yu & Chan 2010:1168; Wilson & Kirshbaum 2011:559).

Short-term negative outcomes experienced following occupational exposure to death include emotional symptoms, such as feeling sad, fatigue, sleep disturbance, fear, guilt, sorrow, and restlessness (Peterson et al 2010:434; Yu & Chan 2010:1168; Chen & Hu 2013:88). Mander (2001:249) states that midwives' emotional experience of maternal death included intrusive thoughts and feelings of unpreparedness. These experiences are comparable to emergency personnel encountering a large-scale disaster (McCool et al 2009:1005). The emotional expressions are a sign of grieving response over the loss of their patients and the special relationship they had established during the caring process (Yu & Chan 2010:1168). Furthermore, the emotional impact of a patient's death can vary from one provider to another and health care professionals who have had closer and longer relationships with the patient experienced more emotional-related

symptoms (Rickerson, Somers, Allen, Strumpf, Lewis & Casarett 2005:227; Gerow et al 2010:127). Younger nurses with less experience in the profession often report stronger fear of death and anxiety and may even be less comfortable providing nursing care for dying patients (Peters et al 2013:16; Gerow et al 2010:127).

The emotional reactions are more intense in situations involving a bad death experience where the health care profession fails to exert control over the death process (Loiselle & Sterling 2011:254; Zambrano & Barton 2011:842) and among newly qualified nurses (Yang & Mcilpatrick 2001:435). Costello (2006:595) points out that bad death is associated with staff shortage and severe distress among nurses and other health care professionals. The notion of bad death involves a crisis for dying people and causes "trauma" to patients, families and health care providers (Kent et al 2012:1262; Shorter & Stayt 2009:164).

Failure to acknowledge and deal with the emotions that arise from experiencing death is associated with symptoms of post-traumatic stress disorder (PTSD) such as intrusive memories, confusion, lack of concentration, addictions, and minimal care for other patients through decreased interactions (Brunelli 2005:124; Taubman-Ben-Ari & Weintroub 2008:624; Rice & Warland 2013:2). PTSD is known to lead to significant life impairment and occupational dysfunction by reducing the individual's capacity to interact with others, decreasing self-esteem and self-efficacy, and causing physical and mental fatigue and exhaustion (Leinweber & Rowe 2010:77).

Situations associated with dying patients, such as intense treatment, empathy and emotional involvement with a dying patient, can cause increased stress and preoccupation with the individual patient's suffering or collective trauma, and subsequently secondary traumatic stress disorder (Shimoinaba et al 2009:246; Taubman-Ben-Ari & Weintroub 2008:622; Rice & Warland 2013:2). Furthermore, compassion fatigue expressed as exhaustion, loss of compassion, empathy and reduced vitality and energy may occur due to the strain and stress that caring professionals may experience from dealing with trauma, illness and death in their day-to-day work (Rice & Warland 2013:2; Leinweber & Rowe 2010:83).

If these chronic and pathological symptoms are not dealt with adequately, they can lead to increased emotional and psychological distancing between health care providers and

their patients (Peterson et al 2010:434). Gardner and O'Driscoll (2007:249) state that health care providers may suffer from burnout to potentially harmful addictions, such as alcohol and drugs or events of suicide. Burnout comprises three features, namely emotional exhaustion or the depletion of emotional resources; depersonalization or negative cynical perception of clients, and decreased feelings of personal accomplishment (Gardner & O'Driscoll 2007:249; Ben-Zur & Michael 2013:64). Furthermore, burnout in health care is also associated with decreased patient satisfaction, suboptimal self-reported patient care, diminished health care professionals' abilities to communicate effectively, to convey empathy and to establish meaningful relationships with patients, and may cause fatigue-related accidents (Irving et al 2009:61; Aloulou et al 2013:46).

Besides the emotional and psychological impact, occupational exposure to death and death situations can also lead to physical ill-health and withdrawal from clinical practice, both of which subsequently can lead to high turnover, decreased patient service and satisfaction (Brunelli 2005:124). Physical ill-health may present in form of somatisation such as medically unexplained pain, fibromyalgia, irritable bowel, and chronic fatigue, insomnia, heart disease, depression, obesity, hypertension, infection, carcinogenesis, diabetes and premature aging, all which have a strong relationship with PTSD (Irving, Dobkin & Park 2009:61; Aloulou, Damak, Masmoudi, Sidhom & Amami 2013:45; Adreski et al 1998:133). There could also be increased risk of cardiovascular diseases, compromised immune functioning, and musculoskeletal disorders (Gardner & O'Driscoll 2007:249). Therefore occupational exposure to maternal death can significantly impact on midwives' quality of professional life and well-being. There is a need for all midwives and managers of nursing human resources to have a clear understanding of the impact of occupational exposure to maternal death in order to initiate relevant research; facilitate effective support mechanisms, and promote healthy work environments and enhance midwives' quality of professional life.

### **3.6.6 Interventions to address trauma resulting from occupational exposure to maternal death**

Education about death, training, coaching and mentoring are effective interventions that can help in addressing the stress stemming from occupational exposure to death (Gerow et al 2010:127; Huang et al 2009:2286). When health providers are faced with

death situations, they are expected to provide support for patients and families and help maintain the emotional well-being of all involved (Rice & Warland 2013:2). This is only possible if they are well educated, trained, coached and mentored in matters of death and dying to empower them to communicate bad news, cope with patient death, provide optimal care for dying patients and their families without significant detriment to their own well-being (Gerow et al 2010:127; Huang et al 2010:2286; Mok, Lee & Wong 2002:320).

Biswas-Diener (2009:547) emphasises that personal coaching is aimed at helping individuals set and achieve goals, overcome obstacles and maintain motivation. Furthermore, health care providers who undergo frequent coaching practices might be better protected from occupational stress and burnout (Biswas-Diener 2009:544). Nurses who have not had training or education focusing on death and dying often use past death experiences to cope when faced with a patient's death (Bloomer et al 2013:24; Gerow et al 2010:129; Peterson et al 2010:434). However, Gerow et al (2010:129) and Huang et al (2010:2286) maintain that health care providers who are supported and mentored during death experiences are able to learn and emotionally cope with death, and this provides a healthy basis for handling future death experiences.

### **3.7 WELL-BEING OF MIDWIVES**

Diener et al (1999:276) define well-being as the absence of ill health, satisfaction with life as a whole and with different aspects of life such as work, family, community, health, the presence of positive effect such as joy, contentment, happiness, pride and the relative absence of negative effect such as guilt, sadness, anxiety and depression. Leddy (2006:175) identifies the difference between psychological and physical well-being and defines psychological well-being as the expression of positive feelings and the absence of negative feelings, whereas physical well-being is defined as physical fitness and strength and the absence of physical ill-health.

#### **3.7.1 The concept of well-being of midwives**

Well-being can be defined as a person's perceived health, happiness and prosperity, as well as experiencing life as meaningful, comprehensive and manageable (Bégat &

Severinsson 2006:611). According to Lyon (1990:268), well-being is characterised as the experience of somatic comfort (emotional and physical) and a functional ability level at or near the person's perceived capability level. In relation to Lyon's (1990) definition, **functional ability** is midwives' subjective evaluation of a comparison between what they believe is their capability level to deliver quality midwifery care and what they are actually able to do (Lyon 1990:268). Therefore well-being should be a broader and more-encompassing concept that takes into consideration the 'whole person' beyond specific physical and/or psychological symptoms or diagnoses related to health (Danna & Griffin 1999:364).

### **3.7.2 Moderators of midwives' well-being**

Moderators of midwives' well-being are mediators such as personality traits that define a midwife's character and resources that can support the effective management of work demands including appropriate levels of control at work, social support and a supportive organisational culture (Gardner & O'Driscoll 2007:248).

#### **3.7.2.1 *Personality trait moderators of midwives' well-being***

When midwives possess traits such as emotional stability, openness to experience, conscientiousness, extraversion characterised by sociability, assertiveness and excitability, optimism, self-efficacy and hardiness, they may possess better levels of well-being (Clark & Singh 2004:2; Karademas & Kalantzi-Aziz 2004:1033). Managers should therefore identify individual differences among midwives related to stress and well-being in the workplace in order to help them manage occupational exposure to stress and encourage positive coping and well-being (Gardner & O'Driscoll 2007:248). Therefore in order to improve midwives' well-being and care of patients, organisations need to select and place them in positions appropriate to their abilities and experience, as well as provide appropriate training and professional development (Gardner & O'Driscoll 2007:248).

#### **3.7.2.2 *Situational moderators of midwives' well-being***

According to Gardner and O'Driscoll (2007:248), high demand jobs such as health care jobs are associated with poor physical and psychological well-being. The negative

effects of high-demand jobs may be more severe with low social support in the workplace (Sonnentage & Frese 2003:454). Therefore health care professionals, such as midwives, who receive social support, emotional support, information and practical help in the workplace are better able to cope with occupational stress and to manage their well-being (Morrison 2004:115; Sonnentag & Frese 2003:454). Furthermore establishing professional relationships at work can be an important source of social support and this may be associated with job satisfaction and intention to remain with the organisation and thus promote well-being (Morrison 2004:115).

### 3.7.3 Improving and enhancing the well-being of midwives

Enhancing midwives' well-being involves **managing occupational stress** at three levels: primary interventions or prevention, secondary interventions or timely action and tertiary interventions or rehabilitation (Gardner & O'Driscoll 2007:253; Leka, Hassard & Yanagida 2012:129). These initiatives or interventions include combinations of educational, organisational and environmental activities aimed at facilitating the health of employees and their families through lifestyle and behavioural change (Danna & Griffin 1999:377; Leka et al 2012:129). The benefits of such interventions include improving the midwives' health and fitness, decreasing medical and disability costs, reducing absenteeism and turnover, and improving midwives' mental alertness, morale and job satisfaction (Danna & Griffin 1999:377).

- **Primary interventions.** This approach includes strategies to reduce the causes of stress and increase those factors at work that are associated with well-being. This involves ensuring that tasks, technologies and work environments are appropriate, clarifying what is expected, developing flexible work schedules, providing constructive feedback, social support and equitable reward systems, and increasing the control that staff have over their work (Gardner & O'Driscoll 2007:253; Leka et al 2012:129).
- **Secondary interventions.** These initiatives are aimed at helping individuals to cope with stress. This may include strategies such as talking to therapists, participation in a professional support network, exercising and talking to peers (Gardner & O'Driscoll 2007:254; Leka et al 2012:129). Support networks can help with building self-awareness, managing workloads, and sharing skills. Time

spent on personal as well as professional priorities is essential for a balanced life (Gardner & O'Driscoll 2007:254). Ensuring that individuals have appropriate levels of competence and skills is important to enable people to deal with demands and to build self-efficacy (Gardner & O'Driscoll 2007:254; Leka et al 2012:129).

- **Tertiary interventions.** These strategies aim to provide support to those who are stressed (Gardner & O'Driscoll 2007:253). Managers should ensure that their staff know that confidential and relevant support resources are available and should keep such contact numbers, and website information on display. Managers may also want to consider developing procedures for debriefing staff after particularly stressful experiences. Successful management of stress requires intervention at both the individual and organisational levels (Gardner & O'Driscoll 2007:255; Manser & Staender 2005:729; Leka et al 2012:129).

**Motivation** is another important factor for enhancing midwives' performance and may prevent despondent midwives from leaving the midwifery profession (Campbell et al 2011:12; Rosskam 2011). Factors that could activate motivation for midwives to enter and remain in the midwifery workforce can be either financial such as an increase in salary and/or providing allowances, or, non- financial such as a pleasant working environment, flexible working hours, the availability of tools and supplies, constructive supervision, facilitation of a career path, and recognition and rewards for quality and outstanding performance (Campbell et al 2011:12; Rosskam 2011).

**Support supervision** an approach focusing on meeting staff need, logistics, training and continuing education causing a positive effect on assuming responsibility for one's own actions and behaviour as well as for those of others can contribute to well-being of midwives (Severinsson, Haruna & Friberg 2010:402). Furthermore having a satisfactory psychosocial work environment, described as the positive conditions and circumstances under which midwives live and work, can also contribute to the well-being of professional midwives (Jönsson 2012:237; Campbell et al 2011:13; Rosskam 2011). Working in teams in health care units or the community requires coordination and cooperation among all cadres and across all levels of care which is an essential part of supervision to ensure effective consultation, co-management and referral according to the health needs of women and newborns (Campbell et al 2011:13). It is important that

supervision is conducted in a way that builds capacity, fosters team spirit and empowers midwives and others with midwifery competencies (Campbell et al 2011:13; Rosskam 2011). Support supervision should be undertaken by someone with midwifery knowledge and experience, who is supportive, allow free and open discussion of clinical practice, give midwives an opportunity to acknowledge their weaknesses and need for further support or training, and empower midwives to work to the full extent of their role (Rosskam 2011; Fauveau et al 2009:50).

In order to improve retention and services of midwives, especially in remote and rural areas, some low-income countries use the **bonding mechanism**. Under this scheme midwives agree to provide services in remote areas for a minimum duration of time in exchange for scholarships for higher degrees, career path and monetary incentives (Rosskam 2011). This bonding strategy has been very effective with middle-income countries where the implementers insist on using unbiased application of rules and regulations regarding this strategy (Rosskam 2011; Henderson & Tulloch 2008:2). **Peer support** and **networking**, especially those working in isolated areas where there is little professional support, can improve both retention and quality of care (Rosskam 2011).

In addition midwives should be encouraged to engage in **strategies used for maintaining psychological health and well-being**, such as self-awareness or self-monitoring activities, personal values reviews, preserving a balance between personal and professional lives, maintaining meaningful relationships with spouse, family and friends, taking vacations, and participating in personal therapy (Irving et al 2009:62). Health care providers who engage in wellness promotion practices are likely to have high scores of well-being (Irving et al 2009:62).

#### **3.7.4 Factors affecting well-being of midwives in Uganda**

According to the *State of The World's Midwifery Report*, midwifery in Uganda is not an attractive profession and is increasingly taken up as a last resort by the younger generation (Minca 2011; Rosskam 2011). This may be because midwives work in harsh non-conducive environments owing to several factors, such as poor remuneration, lack of adequate equipment and supplies especially in public health facilities, high work overload due to understaffing, inadequate protection from infections, lack of accommodation in the health facility where they work thus making the midwives very

insecure by the nature of their work where they can be called out at any time (UNFPA 2009a:81; Campbell et al 2011:12).

UNFPA (2009a:70) states that the well-being of midwives in Uganda is also affected by factors such as the midwives in clinical setting having to teach and supervise midwifery students who are too many for the few midwives; having fewer opportunities for continuing professional education; fewer employment avenues, and lack of support supervision and allowances (UNFPA 2009a:70; Roskam 2011). Furthermore, the unsupportive work environment in which midwives function has translated into what most people term midwives having a negative attitude or who are portrayed as being rude (UNFPA 2009a:70). Pettersson (2007:472) postulates that midwives have also been restrained especially by doctors who consider them as assistants and not respected colleagues having the knowledge and skills who can contribute to the professional management of patients.

Other factors affecting midwives' well-being in rural areas in Uganda include organisational constraints, such as transport limitations and poor communication for making referrals; indirect financial costs which may be related to transportation, and limited access to life-saving drugs (UNFPA 2009a:81; Roskam 2011).

#### **3.7.4.1 Positive steps taken to enhance the well-being of midwives in Uganda**

In 2011, the GoU introduced incentives to deploy and retain midwives working in rural areas (UNFPA 2009a:80). These incentives included a 30% increase in salary for all cadres of health workers, construction of staff housing, and midwifery career promotions. Through the MoH and the national medical stores, the GoU plan to implement a 'zero tolerance' policy regarding the prevention of not having essential medicines in public health facilities for a given period of time (Minca 2011; UNFPA 2009a:80).

Some NGOs have attempted to improve Uganda's midwives' well-being. For example, the *United Nations Population Fund (UNFPA)* is training midwives working in rural areas in Uganda at no cost (UNFPA 2009a:80). This is done with the intention of bonding these midwives for three years with their place of deployment in order to increase the coverage and availability of midwives and midwifery services (UNFPA 2009a:80).

Although the GoU has taken positive steps towards improving professional midwives' well-being in Uganda, more needs to be done to improve maternal health services in Uganda.

### **3.8 CONCLUSION**

This chapter discussed the literature review conducted on maternal health, maternal death, occupational exposure to maternal death, response to traumatic exposure and its effect on the well-being of professional midwives. The researcher discussed the concepts, approaches, goals, indicators and human resource for maternal health as well as the link between maternal health and maternal death.

The literature review focused on maternal death issues such as incidence, causes, and strategies used to reduce it; occupational exposure to maternal death; midwives' appraisal of maternal death experience, how they cope with maternal death, impact of maternal death on physical and psychological well-being, and interventions to address the trauma resulting from occupational exposure to maternal death.

The well-being of professional midwives was also covered, including concepts and factors affecting the well-being of professional midwives in Uganda, moderators of well-being and enhancing well-being of professional midwives, and positive steps taken by the Uganda government to improve midwives' well-being.

The literature review substantiated the assumption that professional midwives working in rural areas may have their physical and psychological well-being affected by frequent exposure to maternal death.

Chapter 4 describes the research design and methodology of the study.

## CHAPTER 4

### RESEARCH DESIGN AND METHODOLOGY

#### 4.1 INTRODUCTION

This chapter describes the research design and methodology, including the population universum, target population, accessible population, sample frame and sampling, data collection and analysis, and ethical considerations.

#### 4.2 RESEARCH DESIGN

Saunders et al (2009:136) define a research design as “the detailed plan of how the study is to be conducted with full advantage of control over factors that could interfere with the desired outcome”. Houser (2008:183) defines a research design as “an overall approach to the study grounded in a set of beliefs about knowledge and questions that must be answered”. Burns and Grove (2007:38) state that a research design guides the researcher in planning and implementing the study in a way that is most likely to achieve the intended goal. Research designs also indicate how often data will be collected and what types of comparisons will be made (Nieswiadomy 2008:145; Burns & Grove 2007:38). This study adopted a quantitative, non-experimental approach, using an exploratory, descriptive and correlation design (Polit & Beck 2010:235; Zaccagnini & White 2011:78).

- **Quantitative**

In quantitative studies, research designs tend to be highly structured and controlled (Polit & Beck 2010:74; Houser 2008:183). There are three types of quantitative research designs, namely experimental, quasi-experiment and non-experimental designs (Polit & Beck 2010:74; Nieswiadomy 2008:147).

Experimental designs examine and establish causal links between variables (Polit & Beck 2010:225). Houser (2008:183) states that the three attributes of experimental designs are manipulation of the independent variables in order to observe whether this

has an effect on the dependent variable; control over one or more experimental variables, and randomisation of subjects in a control or research group which prevents the researcher from distorting results through systematic bias.

In quasi-experimental designs, the researcher has less control over certain variables than in a true experiment and lacks either randomised or control group characteristics (Polit & Beck 2010:232; Nieswiadomy 2008:155).

Nieswiadomy (2008:158) and Polit and Beck (2010:235) describe non-experimental designs as investigations of situations and relationships of variables without manipulation of independent variables. Nieswiadomy (2008:158) adds that in this design, the researcher must attempt to control extraneous variables through careful selection of the study sample. Non-experimental studies can be broadly classified into descriptive, correlation, comparative, methodological and exploratory research (Polit & Beck 2010:235; Nieswiadomy 2008:158).

Quantitative studies have precise measurement methods; structured treatment; representative samples; tightly controlled study designs; logical reasoning and deductive reasoning; stating in advance the research questions or hypothesis; selecting in advance the methods of data collection and analysis, and presenting findings in numerical and statistical language (Johnson & Christensen 2012:34; Polit & Beck 2010:16).

- **Exploratory**

Exploratory designs explore and describe a given phenomenon and generate new knowledge (Houser 2008:188). Nieswiadomy (2012:113) states that an exploratory design allows the researcher to investigate a current outcome by attempting to determine previous factors that caused it. In exploratory studies, participants give their own responses on facts related to the field of study (Wood & Ross-Kerr 2011:122; Nieswiadomy 2008:145). This design was suitable for increasing knowledge about the perceived stress burden of occupational exposure to maternal death among professional midwives and how they cope with this situation. It was also appropriate because little is known about the stress burden caused in midwives after occupational exposure to maternal deaths in developing countries like Uganda.

- **Descriptive**

Descriptive designs may be used to confirm that a phenomenon exists in a population (Houser 2008:193; Nieswiadomy 2008:145). Polit and Beck (2010:236) state that descriptive designs are used to describe and document aspects of a situation. Descriptive designs do not attempt to establish causality since no manipulation of variables is involved, but can identify relationships among variables and this clarifies the overall picture of the phenomenon being studied (Burns & Grove 2009:237; Nieswiadomy 2008:145; Houser 2008:192).

Protection against bias when using the descriptive design can be achieved through linkages between conceptual and operational definitions of variables; sample selection and size, and the use of valid and reliable instruments, such as the *Death Distress Scale*, *Brief COPE Scale* and the *Perceived Well-being Scale* (which were used in this study), and data-collection procedures that achieved some environmental control (Burns & Grove 2009:220; Houser 2008:192). The reason for selecting this design was that no research has been done on this phenomenon in Uganda. Therefore there was a need to describe its magnitude and associated factors as they occur in the real situation.

- **Correlation**

Correlation designs can describe the relationships between two or more variables in a situation without knowing the reason for the existing relationship (Boswell & Cannon 2011:175). In addition, the researcher may use the correlation design when there is uncertainty about whether and how the variables are related (Houser 2008:193; Burns & Grove 2009:246). The correlation design was suitable for this study because the study was examining interrelationships in a situation where there was no control or manipulation of variables, such as the stress burden due to occupational exposure to maternal death, coping methods and well-being of midwives working in rural health care units (Houser 2012:98; Boswell & Cannon 2011:175). This design was also effective in generating results in a relatively short period and this may help to establish a theoretical foundation for further midwifery studies about occupational exposure to maternal deaths and its effect on the well-being of midwives (Houser 2012:98; Polit & Beck 2010:235).

## **4.2.1 Validity of the research design**

Validity of the research design is important in making causal inferences in studies in order to know how to improve a situation or solve a problem. Validity is determined from both internal and external approaches. Choosing a research design that satisfies both internal and external validity is sometimes difficult, but researchers can use sound sampling strategies and accurate measurements to determine the validity of a research study (Polit & Beck 2010:378).

### **4.2.1.1 Internal validity**

Internal validity is “the extent to which any causal difference in the dependent variable can be attributed to the independent variable” (Parahoo 2006:469). Burns and Grove (2007:215) refer to internal validity as “the extent to which the effects detected in the study are a true reflection of reality rather than the result of extraneous variables”. Quantitative experimental studies tend to have a higher degree of internal validity than non-experimental studies (Polit & Beck 2010:246; Houser 2008:293). Threats to internal validity include temporal ambiguity, selection, history, maturation and mortality (Polit & Beck 2010:247; Houser 2008:302).

Selection bias is the most challenging threat to the internal validity of non-experimental studies (Polit & Beck 2010:246; Houser 2008:293). However, this was minimised because selection of sites in this study employed probabilistic (random) sampling and the total respondent population was studied. In this study, internal validity was also ensured through construction of a structured questionnaire in line with study objectives, and voluntary participation of respondents.

### **4.2.1.2 External validity**

External validity refers to the extent to which the results of a study apply to other people, groups, time and places (Polit & Beck 2010:248; Houser 2008:294; Parahoo 2006:241). Burns and Grove (2007:287) refer to external validity as the extent to which study findings can be generalised beyond the sample used in the study. In this study, external validity was enhanced through the following (Burns & Grove 2007:287):

- All respondents who met the inclusion criteria were approached to participate in the study.
- The site sample was randomly selected so findings can be generalised to other settings.
- The questionnaire was pre-tested for validity of the questions.
- A statistician conducted the statistical analysis, using the SPSS version 20 program.
- The recommendations from this study may be utilised by policy makers to improve the well-being of professional midwives.

### **4.3 RESEARCH METHODOLOGY**

Research methods are techniques used to structure a study and to gather and analyse information in a systematic fashion (Polit & Beck 2010:566). The methodology included the study population, target and accessible population; sample and sampling; data collection and the data-collection instrument, reliability and validity and pre-testing of the instrument; data collection and analysis, and ethical considerations.

#### **4.3.1 Population**

A population is the entire aggregate of cases in which a researcher is interested (Houser 2008:211; Polit & Beck 2010:306). Nieswiadomy (2008:188) defines a population as “a complete set of persons that possess some common characteristic of interest to the researcher”. The types of population in a quantitative study include the population universum, target population, and accessible population (Nieswiadomy 2012:146; Houser 2008:213). In this study, the population consisted of a site and respondent populations.

##### **4.3.1.1 Population universum**

A population universum is the whole set of objects, events or a group of people about which the researcher wants to determine some characteristics (Bless & Higson-Smith 1995:85). Strydom and Venter (2002:198) identify a difference between a universum and a population and define universum as all potential subjects who possess the

attributes in which the researcher is interested whereas population is a term that sets boundaries on the study units.

- **Site population**

The site population for the study were the health centres (HCs) II, III and IV providing curative, preventive, rehabilitative and promotive health services in the 21 rural districts in central Uganda (MoH Uganda 2010a:5).

- **Respondent population**

The respondent population were the 1,533 professional midwives (enrolled/registered midwives and enrolled/registered comprehensive nurse/midwives) currently working in the health units of the 21 rural districts in central Uganda (MoH Uganda 2010a:5; Rawe 2011:17).

#### ***4.3.1.2 Target population***

A target population is the entire set of individuals who meet the inclusion criteria (Burns & Grove 2007:324). Polit and Beck (2010:569) define a target population as “the aggregate of cases about which the researcher would like to make generalisations”.

- **Site target population**

The site target population consisted of two rural districts selected randomly from the available 21 rural districts in central Uganda.

- **Respondent target population**

The target population for the study consisted of the 250 professional midwives (enrolled/registered midwives and enrolled/registered comprehensive nurse/midwives), officially registered by the Uganda Nurses and Midwives Council, directly involved in maternal health services and who had been employed at the rural health units (HC II, HC III and HC IV) for at least six months in the Mubende and Mityana districts in Uganda (Health worker's registers at Mubende and Mityana districts DHO's offices August 2012).

### 4.3.1.3 Sample frame

A sample frame is a list of all members of the target population (Nieswiadomy 2008:189; Burns & Grove 2007:324). Therefore the sample frame contains the same number of units as the target population (Nieswiadomy 2008:189). Parahoo (2006:258) emphasises that sample frames are essential when the researcher seeks to draw representative samples and thereafter generalise the findings to other settings. Levy and Lemeshow (2008:20) stress that in a sampling frame every element in the population should have the same chance of being selected in the sample by whatever method is used to select elements.

- **Site sample frame.** A list was drawn up of the 131 rural health care units (RHCUs) HCs II, III and IV providing midwifery services in the two selected districts: 62 from the Mubende district and 69 from the Mityana district (see table 4.1).
- **Respondent sample frame.** The respondent sample frame for this study consisted of a list of the 250 professional midwives, namely enrolled midwives, registered midwives, enrolled comprehensive midwives and registered comprehensive midwives, who met the inclusion criteria.

**Table 4.1 Distribution of midwives by type of RHCU and number of RHCUs in each district**

District	Distribution of midwives by RHCU per district			Total	Distribution of RHCUs per district			Total
	HC IV	HC III	HC II		HC IV	HC III	HC II	
Mubende	25	43	56	124 (49.6%)	3	15	44	62 (47.3%)
Mityana	18	48	60	126 (50.4%)	2	23	44	69 (52.7%)
<b>Total</b>	43 (17.2%)	91 (36.4%)	116 (46.4%)	250 (100%)	5 (3.8%)	38 (29%)	88 (67.2%)	131 (100%)

(Source: Mubiru 2012:2; *Mityana District Baseline/Needs Assessment Report* 2009:12)

#### **4.3.1.4 Accessible population**

An accessible population is the portion of the target population to which the researcher has reasonable access (Nieswiadomy 2008:188; Burns & Grove 2007:324). Nieswiadomy (2008:188) emphasises that researchers use accessible populations to draw their samples from and apply their conclusions. The selection of an accessible population may depend on the researcher's time, budget and workforce (Nieswiadomy 2012:147; Castillo 2009).

- **Site accessible population.** The 131 rural health care units situated in the Mubende and Mityana districts were accessible to the researcher.
- **Respondent accessible population.** Two hundred and fifty professional midwives working in the 62 RHCUs in Mubende and 69 RHCUs in Mityana, who met the inclusion criteria and who were available at the rural health units during time of data collection formed this population. The accessible population excluded those midwives on vacation, sick leave or study leave, or who were unavailable for other reasons, during data collection.

#### **4.3.2 Sampling**

Sampling is the process of selecting a portion of the population to represent the entire population (Nieswiadomy 2012:147; Houser 2008:216). Sampling is done to save time, money and effort while conducting research (Burns & Grove 2007:327). Therefore a sample is a carefully selected subset of the population that represents the composition of the population (Polit & Beck 2010:311; Nieswiadomy 2012:147).

A representative sample consists of subsets of the elements of a population and this allows for the study findings to be generalised to the population (Nieswiadomy 2012:148; Burns & Grove 2005:528). Generalising findings refers to extending implications of the findings from the sample studied to a larger population or from the situation studied to a larger situation (Zaccagnini & White 2011:79; Burns & Grove 2009:220). Generalisation of findings can only be made if the sample was randomly selected (Zaccagnini & White 2011:79).

Sampling or inclusion criteria are the list of attributes essential to the study (Polit & Beck 2010:306). In quantitative research, researchers have to specify the characteristics that define the study population by stating the sampling or inclusion criteria (Houser 2008:217). The main purpose of sampling criteria is to reduce the magnitude of selection bias by objectively selecting only participants who can be considered relevant to the subject (Polit & Beck 2010:306; Houser 2008:217). To be included in this study, the respondents had to be midwives

- officially registered by the Uganda Nurses and Midwives Council as midwives
- employed and directly involved in maternal health services in the respective health units included in the study
- employed at the rural health unit for six months or more.

#### **4.3.2.1 Types of sampling**

There are two types of sampling: probability (random) sampling, used mostly in quantitative research, and non-probability (non-random) sampling, used in both quantitative and qualitative research (Burns & Grove 2007:327; Saunders et al 2009:228).

In **quantitative research**, researchers tend to use larger, probability (random) **samples** (Burns & Grove 2007:327; Houser 2008:219). A **sample** is a subset of a population, selected to participate in a study (Polit & Beck 2010:567). In quantitative studies, all decisions about sampling are based on maximizing the representativeness of the sample (Boswell & Cannon 2011:184; Nieswiadomy 2008:213). The larger the sample, the more representative it can be and the smaller the sampling error (Polit & Beck 2010:316; Houser 2008:213). Polit and Beck (2010:316) stress that the number of subjects in a sample is vital in conducting and evaluating quantitative research.

In **probability (random) sampling**, the sample selected must be representative of the population, because each member of the population has a probability greater than zero of being selected for a study (Burns & Grove 2007:327). Therefore probability (random) sampling methods require greater researcher control and rigor (Houser 2008:219; Parahoo 2006:262). There are four types of probability (random) sampling, namely

simple random sampling, stratified random sampling, cluster sampling, and systematic sampling (Polit & Beck 2010:313; Houser 2008:219; Burns & Grove 2007:327).

The study employed simple random sampling for the site target population (Polit & Beck 2010:311; Houser 2008:221) and the complete respondent target population was studied.

**Simple random sampling** is a type of probability sampling that ensures each member of the population has an equal and independent chance of being chosen (Nieswiadomy 2012:148; Polit & Beck 2010:568). In simple random sampling, a researcher establishes a sampling frame and lists the names of all the population elements and then selects a method to choose the sample (Nieswiadomy 2012:148). Slips of paper representing each element in the population could be placed in a hat or bowl and the sample selected by reaching in and drawing out as many slips of paper as the desired size of the sample. The most commonly used and accurate method is through the use of a table of random numbers to draw at random in order to obtain a sample of the desired size (Polit & Beck 2010:313; Nieswiadomy 2012:148). A table of random numbers consists of a group of random numbers generated in such a manner that there is no order or sequencing of the numbers and each number has an equal chance of following any other number (Nieswiadomy 2012:148; Polit & Beck 2010:313).

The advantages of simple random sampling are that it is the most unbiased of all probability methods; requires little knowledge of the population, and permits easy analysis of data and computation of errors. The disadvantages are that it requires a complete list of the population, which may not be possible in a large population, and it is time consuming and expensive (Nieswiadomy 2012:148; Polit & Beck 2010:313; Houser 2008:221).

- **Site sampling.** In this study, the 21 rural districts in central Uganda were numbered 1 to 21 and the numbers put in a hat and mixed thoroughly. The researcher was blindfolded and picked two numbers from the hat. The districts corresponding to the numbers picked were chosen as the site target population. The districts of Mubende and Mityana were thus randomly selected from the 21 rural districts of central Uganda as the site target population.

- **Respondent sampling.** The total respondent population of 250 professional midwives was included in the study, no sample was therefore drawn. The entire population was thus represented.
- **Site sample size.** The size of the site population comprised all 131 RHCUs, 62 RHCUs in Mubende district and 69 RHCUs in Mityana districts, thus ensuring total representation of the entire site population (Polit & Beck 2010:113).
- **Respondent sample size.** According to the district health officers (DHO) registers there are 250 midwives in Mubende and Mityana districts (Health worker's registers at Mubende and Mityana districts DHO offices, August 2012). As no sample was drawn, the study population size was 250.

### 4.3.3 Data collection

Data collection is “the precise, systematic gathering of information relevant to the research purpose or the specific objectives, questions or hypotheses of a study” (Burns & Grove 2007:536). Saunders et al (2009:256) define data collection as “the gathering of information required to address the research problem”. Data collection may be structured or unstructured (Wood & Ross-Kerr 2011:250; Polit & Beck 2010:340).

A structured data-collection approach was suitable for this study because it yields data that is more easily quantified; it shows results numerically; the data is easily analysed; the study instruments are structured before the data is collected, and it is suitable for exploratory and pilot studies (Wood & Ross-Kerr 2011:250; Polit & Beck 2010:340). Its main disadvantage is that participants cannot express themselves precisely about an issue. This can be minimised, however, by including open ended questions in the data-collection instrument (Wood & Ross-Kerr 2011:250; Howitt & Cramer 2000:30).

#### 4.3.3.1 Data-collection approach and method

Data-collection methods are used to gather information in a systematic way (Houser 2012:247). In quantitative studies researchers should decide on the data-collection method upfront before any data is collected (Polit & Beck 2010:339). Three types of data-collection methods are most frequently used in nursing research: self-report, observation, and physiological measures (Polit & Beck 2010:339; Nieswiadomy 2008:231; Houser 2008:274).

The study adopted the self-report data-collection method, using the survey method (Polit & Beck 2010: 343; Holland & Rees 2010:185). A structured approach to collecting self-reported data is appropriate when the researcher knows and can frame appropriate questions to obtain the needed information (Polit & Beck 2010:343).

Burns and Grove (2007:551) define surveys as “data-collection techniques in which questionnaires or personal interviews are used to gather data about an identified population”. Surveys are used to obtain information about people’s actions, knowledge, intentions, opinions and attitude by means of self-reports (Polit & Beck 2010:294; Houser 2008:274). The survey method was suitable for the study because it can be used in many populations; can focus on a wide range of topics; can be used for many purposes, and numeric surveys allow for quantitative analysis of reliable, valid and statistical conclusions (Houser 2012:231; Polit & Beck 2010:295). However, the survey method tends to be relatively superficial thus they are better suited to extensive rather than intensive analysis (Houser 2012:231).

#### **4.3.3.2 Development of the data-collection instrument**

Data was gathered using a structured self-administered questionnaire consisting of six sections (see Annexure J). The first three sections of the questionnaire covered biographical characteristics, organisational characteristics, and occupational exposure to maternal death, and were based on the literature review, research objectives and the theoretical models. The researcher used three existing and tested questionnaires, namely the *Death Distress Scale*, *Brief COPE Scale*, and *Perceived Well-being Scale* to construct the data-collection instrument for this study. The researcher obtained permission to use these questionnaires from the developers (see Annexures K, L and M).

Almost all the questions were closed and worded in such a way that the respondents were limited to specific mutually exclusive response options. The researcher opted to use the questionnaire in the study because of its advantages: data collected from respondents are in the same form and comparisons can easily be made between them; closed questions can be pre-coded and thereafter easily and quickly analysed; self-administered questionnaires ensure respondents’ anonymity; allow respondents to answer in their own time and at their own convenience and time to check records

especially when they answer factual questions (Polit & Beck 2010:345; Saunders et al 2009:365; Nieswiadomy 2008:233).

#### **4.3.3.3 Characteristics of the data-collection instrument**

The combined self-administered questionnaire (see Annexure J) was divided into six sections (A-F) (see table 4.2). The questions were designed to elicit information about occupational exposure to maternal death affecting the well-being of professional midwives in rural Uganda. With the exception of questions 11.1 and 22.1, which were open-ended, all the questions were closed. Questions 1-26 required the respondents to select items/responses regarding biographical information, organisational characteristics, and their occupational exposure to maternal death.

A Likert rating scale with four, five or seven response alternatives, respectively, was used for questions 27-29 to measure respondents' opinions, reaction and attitude in relation to the statements given on death distress, coping methods, and well-being (Polit & Beck 2010:330; Nieswiadomy 2008:249).

**Section A: Biographical information** consisted of nine items on the respondents' gender, age, marital status, qualifications, length of service as registered midwife, ward where they worked, length of time of working there, type of RHCU they were currently working in and maternal health services provided at their current RHCU.

**Section B: Organisational characteristics** consisted of four items on the organisational characteristics namely; maternal health unit capacity at RHCU, whether midwives were required to work in other health care services, provision of functional communication services and ambulance services at the RHCU.

**Section C: Occupational exposure to maternal death** consisted of thirteen items about the respondents' direct occupational exposure to maternal death as follows: witnessing a maternal death; number of maternal deaths witnessed; how many times they were in charge of the case when the mother died; obligation after a mother's death; how often they had experienced maternal death in the current clinical practice; for how many of the cases they requested emergency assistance; who they requested emergency assistance from; reason for mother's death; support offered after a maternal

death; last time they experienced a maternal death, and how well professional training prepared them to handle maternal death. These questions were interpreted as indirectly leading to occupational exposure to maternal death.

**Section D: *Death Distress Scale*** (Abdel-Khalek 2011:179-184) measured respondents' death anxiety, death depression and death obsession. The scale contains 24 items, with 8 items per subscale, and the total score could range from 8 to 40. It is rated by a five-point Likert scale ranging from "No", "Little", "Moderate", "Much" to "Very much". The respondents had to read each statement and decide to what extent each one described their feelings, behaviour and opinion on self-reported level of stress due to exposure to death. The alpha reliability scores reported by previous users for the *Death Distress Scale* ranged from 0.83 to 0.93 demonstrating high internal consistency. The test-retest reliability scores were also high, ranging from 0.83 to 0.93 (Abdel-Khalek 2011:179). The higher the score in any of the subscales, the higher is death anxiety, death obsession, and death depression. However, the scoring key of the death anxiety construct on the following items: "it does not make me nervous when people talk about death", "I am not at all afraid to die", "I am not particularly afraid of dying during childbirth", and "the thought of death never bothers me" is reversed. The alpha coefficients for the *Death Distress subscales* reported by previous users are death anxiety ( $\alpha=0.87$ ), death depression ( $\alpha=0.92$ ) and death obsession ( $\alpha=0.91$ ) (Abdel-Khalek 2011:179).

**Section E: *Brief COPE Scale*** (Carver 1997:92-100) is a self-reported questionnaire used to assess different coping behaviours and thoughts a person may have in response to a specific situation. It contains 26 items and is rated by a four-point Likert scale, ranging from "I haven't been doing this at all" (score 1) to "I have been doing this a lot" (score 4). The higher the score, the greater the coping methods, used by the respondents. The respondents had to choose the response applicable to them personally. In total, 14 dimensions are covered by this scale; namely self-distraction, active coping, denial, substance abuse, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, religion, and self-blame (Carver 1997:95; Yusoff, Low & Hip 2010:41). Every dimension has two items. However for this study, only 13 dimensions were covered as the humour dimension was considered inappropriate in this circumstance.

The reliability and validity of the scale reported by previous users indicated acceptable levels of Cronbach's alpha values: religion ( $\alpha=0.77$ ), substance abuse ( $\alpha=0.92$ ), active coping ( $\alpha=0.83$ ), planning ( $\alpha=0.75$ ), positive reframing ( $\alpha=0.87$ ), acceptance ( $\alpha=0.82$ ), humour ( $\alpha=0.89$ ), use of emotional support ( $\alpha=0.71$ ), using instrumental support ( $\alpha=0.76$ ), self-distraction ( $\alpha=0.73$ ), denial ( $\alpha=0.96$ ), venting ( $\alpha=0.84$ ), behavioural disengagement ( $\alpha=0.81$ ) and self-blame ( $\alpha=0.92$ ) (Carver 1997:96). The *Brief COPE Scale* was initially validated with an ethnically diverse sample (40% non-Hispanic White, 34% African-American, 17% Hispanics, 5% Asians) of 168 survivors of Hurricane Andrew in the United States (Carver 1997:95). Test-retest reliability analyses of three administrations of the *Brief COPE Scale* yielded nine factors with *eigen* values greater than 1, and these were used in deciding how many factors to extract in the overall factor analysis collectively accounting for more than 72% of the variance (Kimemia, Asner-Self & Daire 2011:152; Carver 1997:95).

**Section F: *Perceived Well-being Scale*** (Reker & Wong 1984:23-32) is a self-reported measure of mental and physical well-being. It contains 14 items and is rated by a seven-point Likert scale ranging from "strongly agree (SA)", "agree (A)", "moderately agree (MA)", "undecided (U)", "moderately disagree (MD)", "disagree (D)" to "strongly disagree (SD)". The respondents had to read each statement and indicate the extent to which they agreed or disagreed with it. Psychological well-being has 8 items measuring the presence of positive emotions, such as happiness, joy and peace of mind, and the absence of negative emotions, such as fear, anxiety and depression. Physical well-being is a 6-item measure of self-rated physical health and vitality coupled with the perceived absence of physical discomfort.

When scoring the *Perceived Well-Being Scale* for items 2, 5, 7, 8, 11, 12 and 13 the scores on the Likert scale are rated SA=7....SD=1 and the interpretation gives a reversed outcome while items 1, 3, 4, 6, 9, 10 and 14 are rated SA=1....SD=7. A composite index of psychological and physical well-being is a measure of general well-being (Reker & Wong 1984:25). The reliability and validity reported by previous users of the *Perceived Well-being Scale* indicate high Cronbach's alpha values of the domains: psychological well-being ( $\alpha=0.80$ ), physical well-being ( $\alpha=0.79$ ), and general well-being ( $\alpha=0.85$ ). The initial validation was based on a sample of 368 young people (18-29 years old), 214 middle-aged persons (30-59) and 121 elderly persons (60-98) (Reker & Wong 1984:27).

#### **4.3.3.4 Validity and reliability of data-gathering instrument**

Validity and reliability are the most important criteria for evaluating quantitative data-collecting instruments. Data-collecting instruments are said to be valid when they measure what they are designed to measure and they are reliable if repeating a measurement within a short time produces the same result (Polit & Beck 2010:377). It is therefore the researcher's responsibility to provide information on the validity and reliability of the instruments used for data collection in a study.

##### **4.3.3.4.1 Validity**

Validity is an indication of completeness of the research design and methods (Polit & Beck: 2010:377; Houser 2008:295). Validity in data collection means that one's findings truly represent the phenomenon they claim to measure (Burns & Grove 2007:365). In quantitative studies, the validity of an instrument is assessed by face, content, criterion-related, and construct validity (Polit & Beck 2010:337; Houser 2008:295; Nieswiadomy 2008:228).

In this study, face and content validity were used to assess the validity of the research instrument. Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured and adequately covers the construct domain (Polit & Beck 2010:377; Nieswiadomy 2008:228). Content validity may depend on established theories for support. In this study, content validity was ensured through sampling and good formulation of the research instrument items. This ensured that the items in the questionnaire are relevant to the study. In addition, the research instrument was submitted to a panel of judges with experience and knowledge of the topic such as the supervisor, midwifery managers, lecturers, who made suggestions for the adequacy and relevance of the questions (Polit & Beck 2010:377; Parahoo 2006:305). Corrections were made as recommended by the panel of judges. Face validity is a subtype of content validity and is not a practical validation. It only establishes that the tool appears to measure the variables in the content (Polit & Beck 2010:377; Nieswiadomy 2008:228). Face validity was enhanced by asking midwifery managers who were not involved in data collection to evaluate the questionnaire

according to specified criteria. The criteria related to technical aspects, clarity and relevance of items. Changes were then made again where problems existed.

#### 4.3.3.4.2 Reliability

Reliability plays an important role in the selection of scales for use in and enhances the power of a study to detect significant differences or relationships occurring in the population under study (Polit & Beck 2010:374; Nieswiadomy 2012:169). Since all measurement techniques contain some random error, reliability exists in degrees and is usually expressed as a form of correlation coefficient (Burns & Grove 2007:365; Nieswiadomy 2012:169).

Reliability can be estimated in four ways, namely internal consistency, split-half reliability, test-retest reliability, and inter-rater reliability (Polit & Beck 2010:373; Nieswiadomy 2012:169). In this study reliability was equated to clarity, quality, stability, consistency, adequacy and accuracy of the structured questionnaire. Reliability was also ensured through pre-testing of the questionnaire to ensure clarity of the test items. In addition, internal consistency reliability was tested using Cronbach's alpha coefficient, an appropriate statistical test for assessing the extent to which each item in a multiple-choice scale measures a given concept (Tappen 2011:131; Burns & Grove 2007:367). Cronbach's alpha of 0.70 is acceptable for new measures and 0.80 is expected for established measures (Burns & Grove 2007:365). Cronbach's alpha coefficient was used to assess consistency of the *Death Distress Scale*, *Brief COPE Scale* and *Perceived Well-being Scale*. For most of the items in this study the reliability test was found to be adequate having Cronbach's alpha of 0.70 and above except for one subscale of the Death Distress Scale (question 27) which had an alpha of 0.636 (see detailed Cronbach's alpha computation in Annexure O).

In this study, the *Death Distress Scale* demonstrated good reliability with a Cronbach's alpha of 0.710 and the Death Distress domains reported a Cronbach's alpha for death anxiety ( $\alpha=0.752$ ), death obsession ( $\alpha=0.636$ ) and death depression ( $\alpha=0.741$ ). The *Brief COPE Scale* also had good reliability with a Cronbach's alpha of 0.793 and the domains reported the following Cronbach's alpha: self-distraction ( $\alpha=0.795$ ); active coping ( $\alpha=0.789$ ); denial ( $\alpha=0.799$ ); substance abuse ( $\alpha=0.804$ ); emotional support ( $\alpha=0.785$ ); instrumental support ( $\alpha=0.786$ ); behavioural disengagement ( $\alpha=0.800$ );

venting ( $\alpha=0.788$ ); positive reframing ( $\alpha=0.790$ ); planning ( $\alpha=0.790$ ); acceptance ( $\alpha=0.790$ ); religion ( $\alpha=0.799$ ); and self-blame ( $\alpha=0.799$ ). The *Perceived Well-being Scale* had good reliability with a Cronbach's alpha coefficient of 0.848 and the domains had the following Cronbach's alpha coefficients: physical well-being ( $\alpha=0.816$ ) and psychological well-being ( $\alpha=0.880$ ).

#### **4.3.3.5 Pre-testing of data-collection instrument**

A pre-test is a “trial demonstration of a newly developed instrument to identify flaws or assess time requirements” (Polit & Beck 2010:345). Wood and Ross-Kerr (2011:182) stress that pre-testing should be done to ensure that questions are understandable by respondents, so that the questionnaire is not discarded when questions are not understood during data collection. According to Polit and Beck (2010:345), Saunders et al (2009:394) and Nieswiadomy (2008:356), the pre-testing of a questionnaire offers an opportunity for

- estimating the time and accuracy of the data collection instrument
- testing whether there are any omissions in the questionnaire
- testing if items in the questionnaire are ambiguous
- clarifying the instructions
- identifying potential confounding variables that may necessitate control

In this study, pre-testing of the questionnaire was done at two levels: with experts in the field of study, and with professional midwives in a neighbouring district, who were not included in the study.

##### **4.3.3.5.1 Pre-testing of data-collection instrument with experts**

Following designing and combining the standardised structured questionnaire, the researcher requested cooperation and sent the data-collection tool to 6 experts (two experienced professional midwives, one psychologist, one statistician, one academic expert in midwifery, and the supervisor) to assess relevancy and content of the questions.

Pre-testing allowed for rephrasing and modification of questions, sensitivity of language, and estimation of the time required for completing the questionnaire (Grove, Burns & Gray 2013:424; Wood & Kerr 2011:182). There was consensus among the experts that the data-collection tool was comprehensive enough to cover all the variables indicated in the study. They also agreed that all the items in the questionnaire were relevant to the study, duration of 45-60 minutes for completion of the questionnaire was acceptable, and the instrument was considered valid allowing data collection to commence. The following were the recommendations from the experts and supervisor for improvement on the questionnaire:

- In section A, question 6 (option 4) it was suggested that district hospital be removed as one of the options since it was not considered to be rural.
- Section C, question 18, it was recommended to list the possible people from whom the midwives requested emergency assistance in a table form rather than leave it as an open ended question.
- Section D, question 27, on the Death Distress Scale the section heading should read “This section deals with your self-reported level of stress due to exposure to death ...” and not due to exposure to maternal death since death in general could have the same effect.
- Section E, question 28, on the Brief COPE Scale to add the statement to the section heading. “Apply the questions to you personally”.
- Section E, question 28, on the Brief COPE Scale, the third likert option ‘I’ve been doing this a medium amount’ changed to ‘I’ve been doing this a moderate amount’.

All these suggestions were incorporated in the final draft of the self-administered questionnaire (see Annexure J).

#### *4.3.3.5.2 Pre-testing of data-collection instrument with professional midwives*

Following incorporation of the suggestions of the experts and seeking permission from the relevant authorities, pre-testing was carried out with ten midwives in a rural health care unit in another district. These respondents were selected from Kiboga, a neighbouring district, using convenience sampling. The questionnaire (see Annexure J) was delivered by the researcher together with a letter (see Annexure H) indicating the

title, purpose and objectives of the study. The respondents were asked to give constructive feedback with regard to comprehension, clarity of questions and time necessary to complete the questionnaire.

The respondents indicated that the questions were clear and could easily be answered since almost all were closed. However, they commented about the length of the questionnaire but agreed that the study was worth undertaking. They also indicated that the questionnaire took them between 45 and 60 minutes to complete.

**Table 4.2 Characteristics of the data-collection instrument**

Section	Variable	Tool name	Sub-scale	Cronbach's Alpha	Total number of items
A	Biographical information	N/A	N/A	N/A	9
B	Organisational variables	N/A	N/A	N/A	4
C	Occupational exposure to maternal death	N/A	N/A	N/A	13
D	Death distress	Death distress scale	Death anxiety	0.87	24
			Death depression	0.92	
			Death obsession	0.91	
E	Methods of coping	Brief COPE scale	Acceptance	0.82	26
			Religion	0.77	
			Planning	0.75	
			Positive reframing	0.87	
			Instrumental support	0.76	
			Active coping	0.83	
			Emotional support	0.71	
			Self-distraction	0.73	
			Venting	0.84	
			Self-blame	0.92	
			Behavioural disengagement	0.81	
			Denial	0.96	
F	Well-being	Perceived well-being Scale	Physical well-being	0.79	14
			Psychological well-being	0.80	
			General well-being	0.85	

#### **4.3.3.6 Data collection process**

The researcher selected two fieldworkers to assist her in data collection. The fieldworkers had to have a degree in nursing as they would then be knowledgeable about nursing and have at least a basic knowledge of research. An advert was put on the notice board in one of the teaching hospitals and possible candidates were requested to submit copies of their CV, which were reviewed and two fieldworkers selected. The fieldworkers selected underwent two days' training offered by the researcher and an expert in data collection. The first day covered training in the consent process and data-collection tools, and the second day covered training in ethical considerations and the data-collection process. The researcher and the fieldworkers then pre-tested the data collection instrument. The necessary adjustments were made to the questionnaire. Copies of the final data-collection instruments were made and added to the research pack ready for data collection in the selected districts.

Data collection in the selected two rural districts occurred over a period of three months. The researcher and fieldworkers visited the rural health facilities to meet the health facility manager and explain the purpose of the study. They also requested the managers to encourage the midwives to participate, taking into account some of the problems associated with data collection, such as the possibility of not completing the questionnaires, misunderstanding questions/items and not returning the questionnaires (Polit & Beck 2010:270; Houser 2008: 276).

In order to minimise possible anticipated data-collection problems, the researcher personally delivered the questionnaire, approval letters, consent form and a return envelope to the rural health care units in each district. During this visit the researcher and fieldworkers also noted the duty roster of the individual midwives, thereby enabling a personal visit to their unit or ward when they were on duty (during day, evening, and night shifts) to explain the purpose of the study. The midwives who agreed to participate in the study were taken to a private room and the procedure for consent explained to them. The consent form was then given to the respondents to sign before giving them the self-administered questionnaire. The consent form was collected separately from the completed questionnaire by the fieldworkers to ensure that no signed consent form could be linked to any completed questionnaire, thus ensuring anonymity of the respondents. The respondents were given 60 minutes to complete the questionnaire, put

it in the return envelope and drop it off in a receiving box in the office of the health care unit manager. The researcher or a fieldworker made daily contact with the respondents to encourage them to participate and complete the questionnaire.

#### **4.3.4 Data analysis**

The purpose of data analysis is to provide answers to the research objectives, the research design, methods of data collection and the levels of measurement (Houser 2008:431; Wood & Ross-Kerr 2006:243). Quantitative analyses are generally grouped in two categories, namely **parametric tests** based on normal distribution of data and **non-parametric tests** where data is not normally distributed (Houser 2008:431; Nieswiadomy 2008:308). Non-parametric tests are more common in health care where occurrences and variables are not normally distributed (Houser 2008:431). Quantitative analyses may also be classified as **descriptive** (describing the characteristics of a sample) or **inferential** (determining if results can be applied to a population) (Houser 2008:431; Polit & Beck 2010:412).

A total of 238 completed questionnaires were received and captured before and up to the final date. Each questionnaire was analysed by the researcher to examine the response pattern and identify any irregularities in the completion of the questionnaires.

The researcher collaborated with the statistician to capture and analyse the data using the statistical analysis program SPSS version 20.0.

In this study, descriptive data that described the characteristics of the respondents was presented in tables, graphs and histograms and the researcher discussed the results. Descriptive and inferential statistics (Spearman's *rho* rank order correlation statistics) were used for closed questions and analysed data was presented in the form of frequency tables, figures and texts. For the open-ended questions, data were organised under thematic categories and used to support results from the closed questions (Polit & Beck 2010:486; Burns & Grove 2007:461).

#### **4.3.5 Ethical considerations**

Ethics refer to “a system of moral values concerned with the degree to which research procedures adhere to professional, legal and social obligations of the participants” (Polit

& Beck 2010:553). Ethical principles in research are essential in generating sound knowledge for practice (Houser 2008:70; Wood & Ross-Kerr 2011:244). The main ethical principles to adhere to when conducting research include respect for persons, beneficence and justice (Nieswiadomy 2008:30; Polit & Beck 2010:553). In this study the guiding ethical principles were autonomy, justice, beneficence and non-maleficence (Wood & Ross-Kerr 2011:244; Nieswiadomy 2008:30). Ethical considerations in research should sustain fairness and honesty, protect from discomfort and harm, and maximise benefits (Wood & Ross-Kerr 2011:244; Nieswiadomy 2008:30). In this study the researcher upheld the ethical principles of the rights of the institution and the respondents:

#### ***4.3.5.1 Protecting the rights of the institution***

The researcher obtained ethical clearance for the study from the Higher Degrees Committee in the Department of Health Studies at the University of South Africa (see Annexure A). The researcher then presented the certificate of ethical clearance from the University of South Africa (UNISA) to the institutional review board of Mildmay Uganda, the Uganda National Council for Science and Technology (UNCST) and the office of the President of the Republic of Uganda and obtained clearance to collect data in Uganda (see Annexure B, C and D). The researcher then sought and obtained permission from the district authorities and rural health care facilities (see Annexure E, F and G). In addition, the rural health care units from which the respondents were drawn were identified by type of ownership and not by name, thereby ensuring confidentiality.

#### ***4.3.5.2 Protecting the rights of the respondents***

Every person should be treated fairly and should receive what he or she is due or owed (Houser 2008:80; Burns & Grove 2005:189). During the study the researcher respected and sought the respondents' cooperation through an informed consent letter (see Annexure I). The respondents were informed of the purpose and significance of the study and then allowed to voluntarily choose to participate (Houser 2008:80; Polit & Beck 2010:123). The researcher also ensured that the respondents' identities were protected so that the information collected would not cause them harm in any way (Polit & Beck 2010:129). The data-collection instrument did not require the respondents' name, thus ensuring anonymity (Houser 2008:80; Polit & Beck 2010:129). Respondents

who declined to participate in the study were not coerced (Polit & Beck 2008:172). This study did not involve any direct interventions with patients, therefore the risk level of respondents was low (Polit & Beck 2008:172; Burns & Grove 2005:192).

#### **4.3.5.3 *Scientific integrity of the research***

The researcher was not involved in any research misconduct, such as fabrication, which involves making up results and reporting them; falsification, which involves manipulating research data or results, and plagiarism, which involves use of other people's ideas, processes, results or words without giving appropriate credit (Houser 2008:87; Polit & Beck 2010:134). The researcher maintained integrity, honesty and openness throughout the study. The researcher acknowledged other people's words or processes included in the study through proper referencing, thus avoiding plagiarism (Houser 2008:87; Polit & Beck 2010:134). The accuracy of the reporting and analysis was also ensured. This was achieved by constantly consulting with the supervisor to verify research processes and procedures, and involving a statistician for data analysis, fieldworkers for data collection and entry, and a professional editor for editing the research report.

#### **4.4 CONCLUSION**

This chapter discussed the research design and methodology, including internal and external validity of design, research method which included the population universum, target and accessible population, sample and sampling, data collection and development of the data-collection instrument, pre-testing, validity and reliability of the data-collection instrument, and data collection. Data analysis and ethical considerations were also briefly discussed.

Chapter 5 presents the data analysis and interpretation, and the findings.

## CHAPTER 5

### DATA ANALYSIS AND INTERPRETATION, AND FINDINGS

#### 5.1 INTRODUCTION

This chapter discusses the data analysis and interpretation and the findings. Researchers can use quantitative analysis to interpret raw data and quantify the value of variables by counting and measuring them in order to provide answers to research objectives and draw conclusions from the data (Houser 2008:430).

The study wished to answer the following questions:

- What is the self-reported stress burden of occupational exposure to maternal deaths among professional midwives?
- What effect does the identified stress burden have on the physical and psychological well-being of professional midwives?
- What methods are used by midwives to cope with occupational exposure to maternal death?

The purpose of the study was to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives. The objectives of the study were to

- estimate the self-reported stress burden of occupational exposure to maternal deaths among professional midwives, using the *Death Distress Scale*
- determine the effect of the identified stress burden on the physical and psychological well-being of professional midwives, using the *Perceived Well-Being Scale*
- identify the methods used by professional midwives to cope with occupational exposure to maternal death, by means of the *Brief COPE Scale*

- propose interventions to promote the coping mechanisms and well-being of rural midwives in view of occupational exposure to maternal deaths

This chapter discusses the data management and analysis, which includes data coding, data entry, data cleaning and missing data, research results, and an overview of the findings and conclusion. The research results are organised according to the sections of the structured questionnaire and the objectives of the study. Descriptive and inferential statistics are discussed. Descriptive characteristics include biographical information, organisational variables, midwives' occupational exposure to maternal death, and the responses to the *Death Distress Scale*, *Brief COPE Scale* and *Perceived Well-Being Scales*.

## 5.2 RESPONSE RATE

A response rate is the rate of participation in a study, calculated by dividing the number of persons participating by the number of persons sampled (Polit & Beck 2010:567). Table 4.1 shows the response rate for the study in terms of the two selected districts.

**Table 5.1 Response rate for the study (n=238)**

Questionnaires	Number of questionnaires sent		Number of questionnaires returned	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Group 1 Questionnaires for professional midwives in Mubende district	124	49.6	118	95.2
Group 2 Questionnaires for professional midwives in Mityana district	126	50.4	120	95.2
<b>Total</b>	<b>250</b>	<b>100.0</b>	<b>238</b>	<b>95.2</b>

The high response rate of 95.2% could have resulted from the researcher and fieldworkers' vigilant daily contact with the respondents during the data-collection period, encouraging them to participate in the study by completing the questionnaires.

### 5.3 DATA MANAGEMENT AND ANALYSIS

Data management is the process of controlling information generated during a research project and data analysis is the systematic organisation and synthesis of research data (Polit & Beck 2010:552).

#### 5.3.1 Data management

In order to manage the data, the researcher developed a codebook based on the SPSS program for data definitions, abbreviations and a range of possible numerical values for the different variables. The researcher also kept a file containing one copy each of the questionnaire and consent form used in the study. After data collection, all the questionnaires were checked for completeness, unanswered questions or incorrectly answered questions. The following processes were followed in managing the data.

**Data coding:** Data collected from each respondent was labelled with a specific four digit number representing the order, day and month the respondents' data was collected. This helped to keep track of number of respondents' data collected on each day.

**Data entry/capturing:** The researcher captured data directly from the questionnaire and entered all the data from each respondent into a SPSS data file developed for this study. A backup file was maintained at all times for the SPSS data file. The responses entered in the SPSS data file were identified by numerical values for each response on the items in the questionnaire.

**Data cleaning:** To assess the accuracy of the data entered, the researcher performed random checks on data entered for every ten respondents and on data entered for each day (Houser 2008:389). Errors found during random checks were corrected before continuing with the data entry process for the next ten respondents and each time before exiting the data file. Extreme values (outliers) due to inherent variability were analysed further and reported on as part of the findings. Outliers caused by error in execution of data management were corrected when identified (Houser 2008:289-290).

**Missing data:** Missing data in self-reported instruments is a common problem and may limit the generalisability of the results (El-Masri & Fox-Wasylyshyn 2005:156). The amount of missing data as well as the pattern of missing data is important in determining how to treat it (Tabachnick & Fidell 2007:79). All the variables in the data set were assessed for the extent and pattern of missing data. The missing data in the study was found to be at the item level and was considered small since it was less than 10% for the values or cases (Houser 2008:390). Since the extent of missing data was small, mean substitution was used. Mean substitution replaces the missing values on a variable with the mean value of the observed values (Rubin, Witkiewitz, St. Andre & Reilly 2007:A74).

### **5.3.2 Data analysis**

Data analysis is the process of breaking down and organising data to clarify the nature of the factors and the relationships between them (Saunders et al 2009:587). The main purpose of data analysis is to provide answers to the research objectives. Wood and Ross-Kerr (2011:248) emphasise that in order to complete data analysis, one has to consider the research objectives, research design, methods of data collection and the level of measurements of data.

#### **5.3.2.1 *Statistical analysis programme***

The findings of the study were analysed using the SPSS version 20 software program. Data analysis used both descriptive and inferential statistics and the researcher collaborated with the statistician to analyse the data. The p-value of less than or equal to 0.05 at 95% level was considered statistically significant for the tests done.

#### **5.3.2.2 *Testing for the normal distribution of data***

The researcher and the statistician assessed for normal distribution of data using the SPSS program in order to determine suitable statistical tests for analysis. Statistical tests have the advantage of making an objective judgment for normal distribution of data, but are sometimes not sensitive enough at small sample sizes, or are over sensitive to larger sample sizes (Wood & Ross-Kerr 2011:248). The research data was tested for normal distribution, using the Kolmogorov-Smirnov test and Shapiro-Wilk test.

These tests revealed that all the data had p-value less than 0.05, which means that the data was not normally distributed therefore non-parametric statistical tests were used (Stewart 2010:57) (see Annexure N).

### 5.3.2.3 Reliability of data-collection scale

Reliability is concerned with the extent to which the instrument yields the same results in repeated trials (Burns & Grove 2007:367). Reliability of a data-collection scale is important in measuring how consistent the respondents' were in answering group related questions. Cronbach's alpha coefficient is often used to measure the reliability of a group of items. Cronbach's alpha values range from 0 to 1, where values at or above 0.7 are desirable for new instruments (Tappen 2011:131; Burns & Grove 2007:367).

This study used three standardised tools, namely the *Death Distress Scale*, *Brief COPE Scale* and *Perceived Well-Being Scale* in combination. The Cronbach's alpha coefficient for the three tools as applied in this study was reported at 0.710, 0.793 and 0.848, respectively (see table 5.2) (see detailed Cronbach's alpha computation in Annexure O).

**Table 5.2 Reliability scores for the components of the questionnaire**

Scale	Cronbach's alpha	Mean	Standard deviation
<b>Death Distress Scale</b>			
Death Distress Scale	0.710	56.92	22.45
Death obsession subscale	0.636	19.10	10.00
Death anxiety subscale	0.752	22.25	7.89
Death depression subscale	0.741	15.55	8.70
<b>Brief COPE Scale</b>			
Brief COPE Scale	0.793	49.79	8.90
Self-distraction subscale	0.795	3.93	1.14
Active coping subscale	0.789	4.35	1.18
Denial subscale	0.799	3.55	1.30
Substance abuse subscale	0.804	2.42	1.25
Emotional support subscale	0.785	3.96	1.25
Instrumental support subscale	0.786	4.37	1.27
Behavioural disengagement subscale	0.800	3.16	1.37
Venting subscale	0.788	3.48	1.18
Positive reframing subscale	0.790	3.59	1.12
Planning subscale	0.790	4.35	1.37

Scale	Cronbach's alpha	Mean	Standard deviation
Acceptance subscale	0.790	4.41	1.30
Religion subscale	0.799	4.37	1.27
Self-blame subscale	0.799	3.13	1.24
<b>Perceived Well-Being Scale</b>			
Perceived Well-Being Scale	0.848	19.12	5.42
Physical well-being subscale	0.816	7.89	2.37
Psychological well-being subscale	0.880	11.24	3.27

#### **5.3.2.4 Descriptive statistics**

Descriptive statistics are methods of describing and summarising numeric data using measures of central tendency, such as mean, median and mode (Wood & Ross-Kerr 2011:248). In this study, the researcher presented categorical data in tables, pie charts and bar charts using frequencies and percentages. The respondents had to select a response option as per instruction from a list of options provided. Some responses needed multiple answers. All percentages are rounded to one decimal point and expressed as such in the text and in the graphical presentations.

#### **5.3.2.5 Inferential statistics**

Inferential statistics permit implications about whether results observed in a sample are likely to occur in the larger population (Polit & Beck 2010:556). In this study, inferential statistics could be used to determine and assess the relationship between variables because the study had a representative sample. Since the data was not normally distributed, a non-parametric test was used for nominal and ordinal data. The non-parametric test used was Spearman's *rho* rank order correlation coefficient, which was used to measure the magnitude and the direction of a relationship between two variables measured on nominal or ordinal scales (Polit & Beck 2010: 412). Correlation coefficients can range from value -1.0 (perfect negative correlation) to +1.0 (perfect positive correlation) (Polit & Beck 2010:432). In this study, Spearman's *rho* correlation coefficient was interpreted using the rule of thumb for interpreting the size of a correlation coefficient (see table 5.3).

**Table 5.3 Rule of thumb for interpreting the size of a correlation coefficient**

Size of correlation	Interpretation
.90 to 1.00 (-.90 to -1.00)	Very high positive (negative) correlation
.70 to .89 (-.70 to -.89)	High positive (negative) correlation
.50 to .69 (-.50 to -.69)	Moderate positive (negative) correlation
.26 to .49 (-.26 to -.49)	Low positive (negative) correlation
.00 to .25 (.00 to -.25)	Little if any correlation

(Source: Munro 2005:249)

## **5.4 RESEARCH RESULTS**

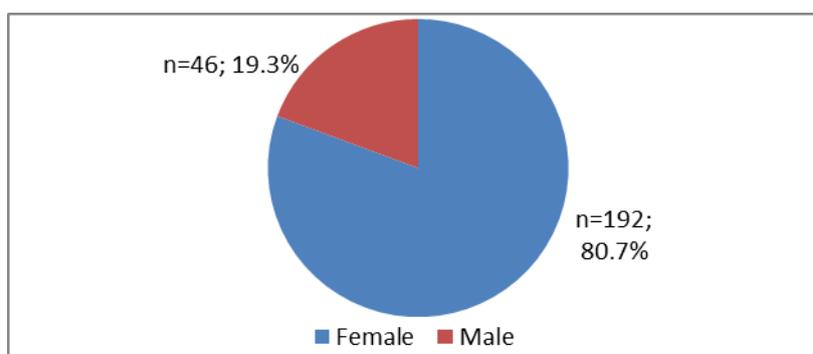
The respondents were professional midwives employed in rural health care units II, III and IV. The research results were derived from data collected with a structured self-administered questionnaire (see Annexure J). The questionnaire had six sections: biographical characteristics, relevant organisational variables, respondents' occupational exposure to maternal death, and sections for the *Death Distress Scale*, *Brief COPE Scale* and the *Perceived Well-Being Scale*.

### **5.4.1 Respondents' biographical data**

The respondents' biographical information included gender, age, marital status, highest midwifery qualification, length of time as a registered midwife, type of health facility in which employed, ward currently working in, length of time working in that ward, and maternal health services provided at the rural health care unit.

#### **5.4.1.1 Gender**

Of the respondents, 80.7% (n=192) were female and 19.3% (n=46) were male (see figure 4.1). Midwives have traditionally been female but it is important to note possible differences in the views of female and male midwives.



**Figure 5.1 Respondents' gender (n=238)**

#### **5.4.1.2 Age**

Of the respondents, 91.6% (n=218) were between 21 and 50 years old; 44.5% (n=106) were between 31 and 40, and 37.0% (n=88) were younger than 30, which meant that they were fairly young midwives (see table 5.4).

**Table 5.4 Respondents' age (n=238)**

<b>Age category</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
18-20 years	7	2.9
21-30 years	81	34.0
31-40 years	106	44.5
41-50 years	31	13.0
51-60 years	13	5.6
<b>Total</b>	<b>238</b>	<b>100.0</b>

#### **5.4.1.3 Marital status**

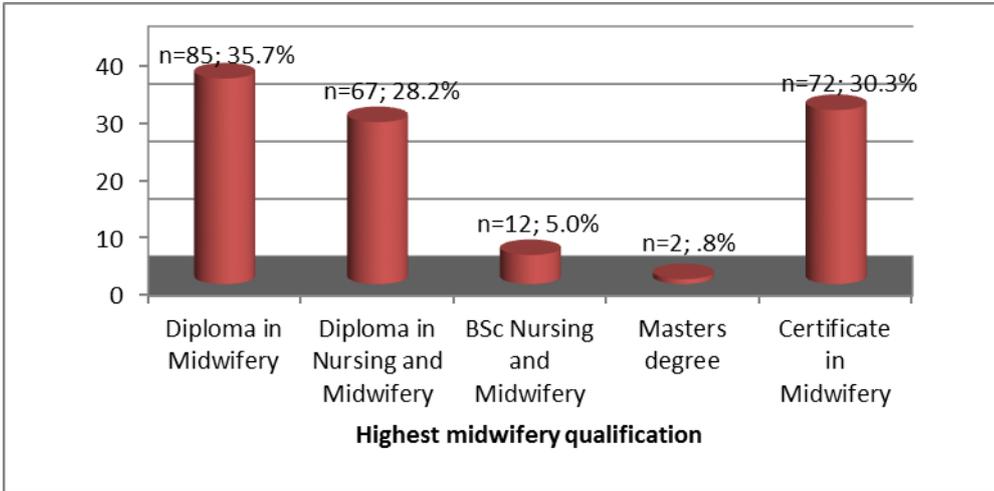
Of the respondents, 51.7% (n=123) were married or partnered (see table 5.5). Marital status is an important variable to consider in the midwifery profession in Uganda because it is one of the factors that affects the distribution of midwives in the country (UNFPA 2009a:61). Most midwives would like to work in their home areas so that they can stay with their families.

**Table 5.5 Respondents’ marital status (n=238)**

Marital status	Frequency (n)	Percentage (%)
Single	99	41.6
Married or living with a partner	123	51.7
Separated/divorced	16	6.7
<b>Total</b>	<b>238</b>	<b>100.0</b>

**5.4.1.4 Highest midwifery qualification**

In order to ascertain the respondents’ academic qualifications and hence their skill base, they were requested to indicate their highest midwifery qualification (see figure 5.2). Of the respondents, 63.9% (n=152) had a diploma in midwifery; 30.3% (n=72) had a certificate in midwifery; 5.0% (n=12) had a BSc in nursing and midwifery, and 8.0% (n=2) had a master’s degree. The respondents who were comprehensively trained nurses (Diploma in Nursing and Midwifery) were not so proficient in midwifery as those with a Diploma in Midwifery, because they spent less time in midwifery training (UNFPA 2009a:35). Midwives with a diploma in midwifery are multi-skilled midwives who can provide obstetric, preventive, curative and rehabilitative services in the minimum health care package at maternity centres while midwives with a certificate in midwifery can only provide preventive, curative, promotive and rehabilitative service (UNFPA 2009a:34).



**Figure 5.2 Respondents’ highest midwifery qualification (n=238)**

#### 5.4.1.5 Years registered as a professional midwife

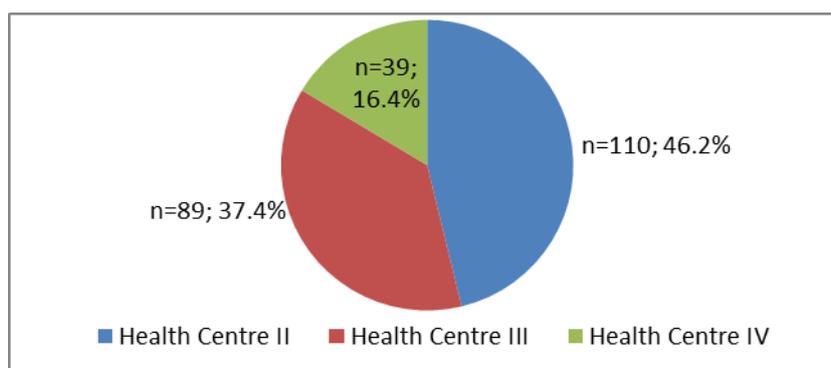
Of the respondents, 33.6% (n=80) had been registered midwives for 6 years and longer; 32.8% (n=78) had been for 2 to 3 years; 25.2% (n=60) for 4 to 5 years, and 8.4% (n=20) for 0 to 1 year (see table 5.6). An increased number of years as a professional midwife do not necessarily mean providing quality midwifery care, especially if they had only worked in an obstetric ward for a limited time span, which would provide less experience than the number of years registered as a midwife.

**Table 5.6 Respondents' years as professional midwives (n=238)**

Years as a professional midwife	Frequency (n)	Percentage (%)
0-1 years	20	8.4
2-3 years	78	32.8
4-5 years	60	25.2
6 years and longer	80	33.6
<b>Total</b>	<b>238</b>	<b>100.0</b>

#### 5.4.1.6 Type of health facility in which currently employed

Of the respondents, 46.2% (n=110) were employed in HC IIs; 37.4% (n=89) were employed in HC IIIs, and 16.4% (n=39) were in HC IVs (see figure 5.3). HC IIs are located at the parish level to provide preventive, promotive, and curative services. They are the first level of interaction between the formal health sector and the community (MoH 2010:4). HC IIIs are located at the sub-county level and provide basic emergency obstetric care and support supervision of the community and HC IIs (MoH 2010:4).



**Figure 5.3 Respondents' current type of health facility (n=238)**

#### 5.4.1.7 Type of clinic or ward in which currently working

Only midwives directly involved in maternal health services participated in the study. Of the respondents, 40.8% (n=97) worked in the antenatal clinic; 35.5% (n=84) were in delivery wards; 15.5% (n=37) were in post-natal wards, and 8.4% (n=20) were in gynaecology ward (see figure 5.4). These findings correlate with the data in figure 4.3 where the number of respondents employed in HC IIIs correlates well with the 35.5% in delivery wards. Delivery services are provided at HC IIIs, which are at the sub-county level (MoH Uganda 2010a:4).

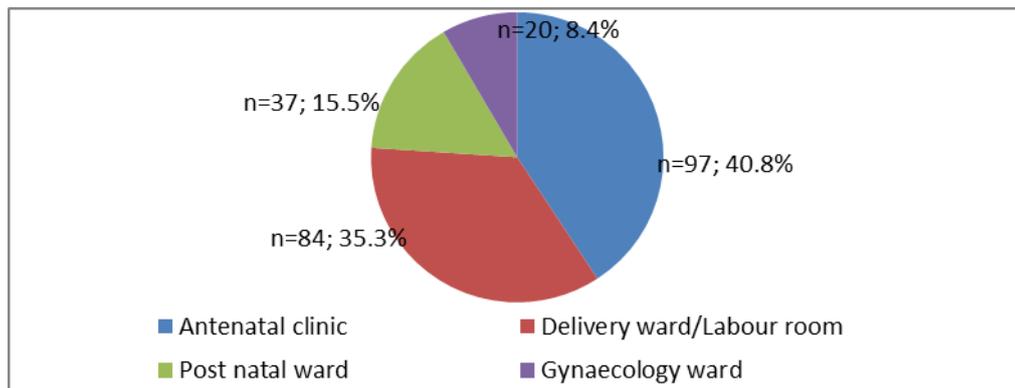


Figure 5.4 Respondents' current type of clinic or ward (n=238)

#### 5.4.1.8 Years of working as a professional midwife in the obstetric clinic/ward

Of the respondents, 35.7% (n=85) had worked in these obstetric clinics/wards for 1-2 years; 23.5% (n=56) indicated for 3-4 years; 22.3% (n=53) indicated for over 7 years; 12.6% (n=30) indicated for less than 1 year, and 5.9% (n=14) indicated 5-6 years (see table 5.7). Midwives in Uganda keep rotating from one ward to another in order to gain experience of managing the women at different stages of pregnancy. In some cases, they are also transferred to other health care units depending on the service need in the districts. Of the respondents, 51.7% (n=123) had been working in their clinic or ward for 3-7 years and longer thus creating a stable staffing pattern with experience gained in a specific discipline of midwifery care.

**Table 5.7 Respondents' years in the obstetric/midwifery clinic/ward (n=238)**

<b>Years of working on clinic/ward</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Less than one year	30	12.6
1-2 years	85	35.7
3-4 years	56	23.5
5-6 years	14	5.9
7 years or longer	53	22.3
<b>Total</b>	<b>238</b>	<b>100.0</b>

#### **5.4.1.9 Maternal health services provided at the health care units**

The respondents were asked to identify all the maternal health services provided at the health care units where they worked. The respondents had to circle all applicable services they provided and this yielded multiple answers (see table 5.8). Of the respondents, 94.5% (n=225) provided antenatal care; 81.1% (n=193) provided delivery services; 81.1% (n=193) provided family planning services; 51.3% (n=122) delivered emergency obstetric care, and 48.7% (n=116) did not deliver emergency obstetric services at all. Over one third of the respondents were employed in HCIIIs, which provide preventive, promotive, curative, maternity and in-patient care (MoH 2010:4).

In Uganda, Orinda, Kakande, Kabarangira, Nanda and Mbonye (2005:288) and Mbonye, Asimwe, Kabarangira, Nanda and Orinda (2007:221) found that while HC IIIs should be able to provide basic emergency obstetric care and HC IVs comprehensive emergency obstetric care, the low staffing levels and inadequate services provided at these health facilities were insufficient to meet the emergency obstetric care criteria.

**Table 5.8 Maternal health services provided at the respondents' health care units (n=238)**

Responses	Yes		No		Total	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	(n)	%
Antenatal care services	225	94.5	13	5.5	238	100
Delivery services	193	81.1	45	18.9	238	100
Newborn care services	174	73.1	64	26.9	238	100
Family planning services	193	81.1	45	18.9	238	100
Emergency obstetric care services	122	51.3	116	48.7	238	100

#### **5.4.2 Relevant organisational variables**

Section B of the questionnaire examined the relevant organisational variables, including bed capacity in the maternal health care unit, involvement in other health care services, availability of functional communication services and adequate functional ambulance services at the RHCUs.

##### **5.4.2.1 Maternal health care bed capacity**

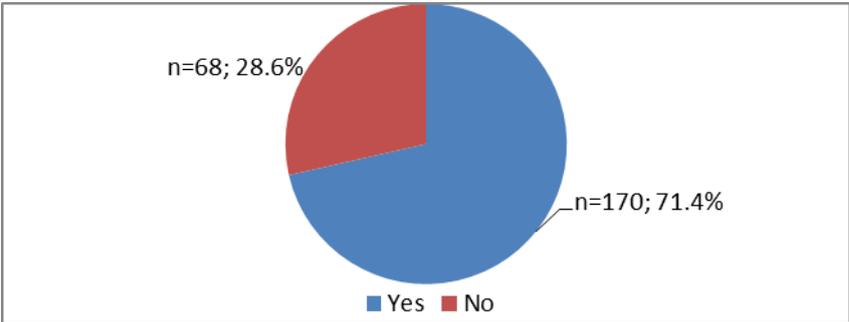
Of the respondents, 44.1% (n=105) reported 11 to 40 beds; 31.1% (n=74) reported 1 to 10 beds; 15.1% (n=36) reported 31 to 40 beds; 11.8% (n=28) reported 51 and more beds; 11.8% (n=28) reported 21 to 30 beds; 9.7% (n=23) reported 41 to 50 beds, and 3.4% (n=8) reported 0 beds at the RHCUs (see table 5.9). According to the Ministry of Health Uganda (2010a:4), the target population for people utilising HC IIs services is 5 000, HC IIIs is 20 000, and HC IVs is 100 000. Although the actual number of beds per HC service category is not specified by MoH Uganda, most HCs have more beds than the target capacity for people utilising them, which implied that many patients seek hospitalization but the few corresponding health workers do not match the real demand (MoH 2011:34). The HC IIs provide preventive, promotive, curative, antenatal care, immunisation and outpatient services and should not admit in-patients (MoH Uganda 2010a:4) yet all the HC IIs visited during the study had beds for in-patients.

**Table 5.9** Number of beds in respondents' maternal RHCUs (n=238)

Number of beds at the unit	Frequency (n)	Percentage (%)
None	8	3.4
10 or less beds	74	31.1
11-20 beds	41	17.2
21-30 beds	28	11.8
31-40 beds	36	15.1
41-50 beds	23	9.7
51 or more beds	28	11.8
<b>Total</b>	<b>238</b>	<b>100.0</b>

**5.4.2.2 Respondents' involvement in other health care services**

The need for midwives to provide health care in other services or units may compromise the provision of quality maternal health care services. Of the respondents, 71.4% (n=170) provided health care services in other units in addition to the maternal health care services whereas 28.6% (n=68) did not (see figure 5.5). This could have been necessitated by the shortage of health care workers deployed in RHCUs, and also the presence of patients other than obstetric patients, which could exacerbate nurses/midwives' workload and thus lead to eventual burnout (Rawe 2011:17).



**Figure 5.5** Respondents' involvement in other health care services (n=238)

**5.4.2.3 Other types of health care services respondents' provided**

Of the respondents, 38.8% (n=66) provided general nursing care; 24.7% (n=42) provided immunisation services; 21.8% (n=37) provided community outreach services; 11.8% (n=20) offered health education, and 2.9% (n=5) offered counselling services

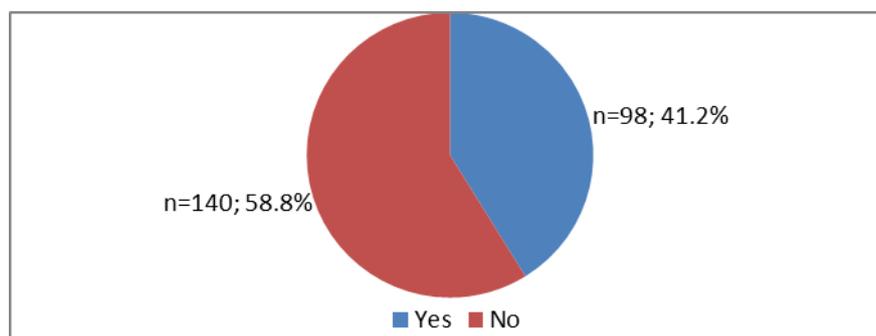
(see table 5.10). Some of the respondents had comprehensive nursing education and were consequently involved in other health care services whenever the need arose.

**Table 5.10 Other health care services respondents provided (n=170)**

Other health services provided by respondents	Frequency (n)	Percentage (%)
General nursing care	66	38.8
Immunization	42	24.7
Community outreach services	37	21.8
Health education	20	11.8
Counselling services	5	2.9
<b>Total</b>	<b>170</b>	<b>100.0</b>

#### **5.4.2.4 Availability of functional communication services at the health care unit**

Of the respondents 58.8% (n=140) reported having no functional communication services while 41.2% (n=98) did (see figure 5.6). The lack of or breakdown in communication services, such as a lack of telephone services, is an underlying factor leading to maternal death in Uganda because communication services are vital in seeking guidance, assistance or making referrals when emergency situations occur (MoH Uganda 2011:16).

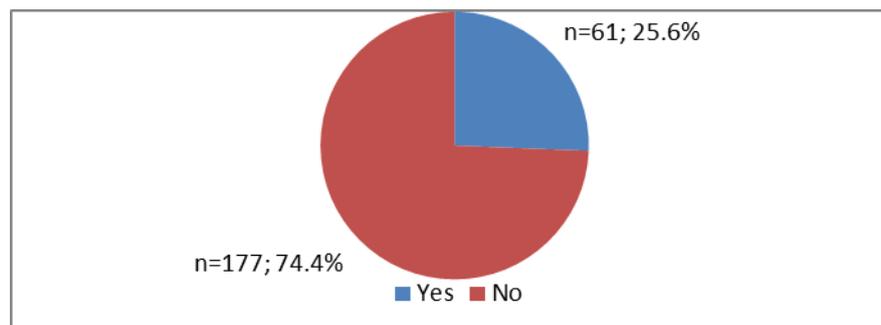


**Figure 5.6 Availability of functional communication services at the health care unit (n=238)**

#### **5.4.2.5 Availability of functional ambulance services at the health care unit**

Of the respondents, 74.4% (n=177) reported having no adequate functional ambulance services, whereas 25.6% (n=61) did have these services (see figure 5.7). Lack of transport services between health facilities and from home to health facilities may cause

a delay in reaching health care facilities in cases of emergency, and lead to maternal death in Uganda (MoH Uganda 2011:16).



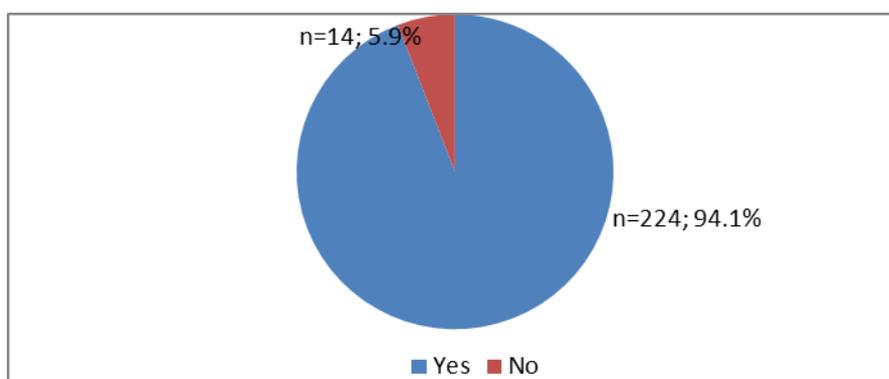
**Figure 5.7 Availability of functional ambulance services at the health care unit (n=238)**

### **5.4.3 Respondents' occupational exposure to maternal death**

This section consisted of thirteen items pertaining to the respondents' occupational exposure to maternal death. The questions covered the respondents' direct occupational exposure to maternal death which was measured by the following items: witnessing a mother dying during child labour; number of maternal deaths witnessed; number of times respondents were in charge of the case of a mother who died; obligations after a mother's death occurred; frequency of experiencing maternal death in current clinical practice; number of cases for which respondents requested emergency assistance; from whom they requested emergency assistance; reason for mother's death; support received in the workplace after a maternal death; the last time they experienced a maternal death at their workplace, and how well professional training prepared them to handle maternal death.

#### **5.4.3.1 Witnessing a mother dying during child labour**

Of the respondents, 94.1% (n=224) had witnessed a mother dying during child labour, and 5.9% (n=14) had not (figure 5.8). Witnessing a maternal death may impact negatively on midwives' physical, psychological, emotional, social and spiritual well-being (Gerow et al 2010:125). Bryan (2007:80) states further that witnessing a patient's death can affect the anxiety level experienced by health care providers.



**Figure 5.8 Witnessed a mother dying during child labour (n=224)**

#### **5.4.3.2 Number of maternal deaths witnessed**

Of the respondents, 38.0% (n=85) had witnessed two to three maternal deaths, 20.9% (n=47) had witnessed six or more, and 13.4% (n=30) had witnessed four to five maternal deaths. The number of maternal deaths witnessed may exaggerate the distress experienced by health professionals causing severe trauma (Adriaenssens et al 2012:1412).

**Table 5.11 Number of maternal deaths the respondents had witnessed (n=224)**

Maternal deaths witnessed	Frequency (n)	Percentage (%)
One death	62	27.7
2-3 deaths	85	38.0
4-5 deaths	30	13.4
6 deaths and more	47	20.9
<b>Total</b>	<b>224</b>	<b>100.0</b>

#### **5.4.3.3 Number of times the respondents were in charge of a mother who died**

Of the respondents, 67.0% (n=150) had been in charge of one to three patients when maternal death occurred; 20.0% (n=45) had been in charge of four and more patients, and 13.0% (n=29) had not been in charge of a mother who died during childbirth (see table 5.12). Midwives working in the rural health care units are usually in charge of all the mothers seeking maternal health care services at the rural health care units in Uganda, with a midwives to pregnant mothers ratio of 1:5000 (UNFPA 2009a:82). It was therefore not unexpected that most of the respondents had been in charge when maternal death occurred.

**Table 5.12 Number of times respondents were in charge of patients when the mother died (n=224)**

<b>Number of times midwife one was in charge of patient</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
None	29	13.0
One patient	86	38.4
2-3 patients	64	28.6
4-5 patients	18	8.0
6 and more patients	27	12.0
<b>Total</b>	<b>224</b>	<b>100.0</b>

#### **5.4.3.4 Number of times respondents requested emergency assistance**

The respondents were asked to state how many patients they had requested emergency assistance in order to save the mother's life. Of the respondents, 76.3% (n=171) had requested emergency assistance for one to three patients; 19.6% (n=44) for four and more patients, and 4.1% (n=9) had not requested emergency assistance (see table 5.13).

**Table 5.13 Number of times respondents requested emergency assistance (n=224)**

<b>Number of times a respondent requested emergency assistance</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
None	9	4.1
One patient	91	40.6
2-3 patients	80	35.7
4-5 patients	22	9.8
6 patients and more	22	9.8
<b>Total</b>	<b>224</b>	<b>100.0</b>

#### **5.4.3.5 People from whom respondents requested emergency assistance**

The respondents were asked to identify the people from whom they requested emergency assistance for a woman dying during child labour. The respondents had to circle all applicable choices and this yielded multiple answers. Table 5.14 shows that of the respondents, 70.5% (n=158) requested emergency assistance from doctors; 63.4%

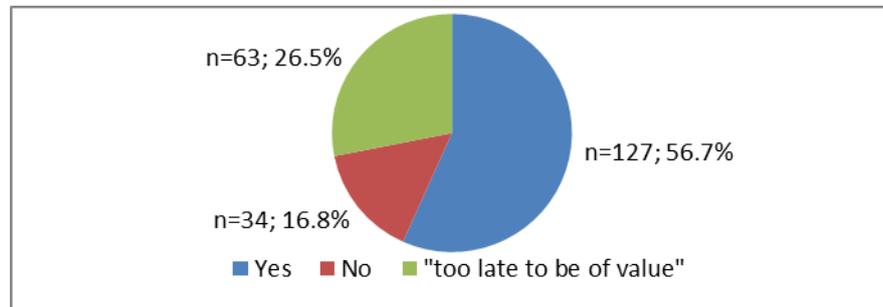
(n=142) from other midwives; 25.9% (n=58) from health care unit managers; 21.9% (n=49) from anaesthetists, and 21.0% (n=47) from the midwifery supervisor. The choice of person from whom to request emergency assistance may depend on factors like having the knowledge in managing obstetric emergencies, being in charge of patient, working in the same health care unit, and dependability and availability of the person. The people from whom emergency assistance was sought worked in the same health care units as the respondents or in the health care units to which referrals were made.

**Table 5.14 People from whom respondents requested emergency assistance (n=224)**

Persons from whom emergency assistance was sought	Yes		No		Total	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)	(n)	%
Health care unit manager	58	25.9	166	74.1	224	100
Midwifery supervisor	47	21.0	177	79.1	224	100
Ambulance driver	43	19.2	181	80.8	224	100
Doctor	158	70.5	66	29.5	224	100
Clinical officer/medical assistant	32	14.3	192	85.1	224	100
Midwife	142	63.4	82	36.6	224	100
Nurse	34	15.2	190	84.8	224	100
Anaesthetist	49	21.9	175	78.1	224	100
Pharmacist	24	10.7	200	89.3	224	100
Others included: - Laboratory technician - Mother's relative	7	3.1	217	96.9	224	100

#### **5.4.3.6 Whether the respondents received emergency assistance**

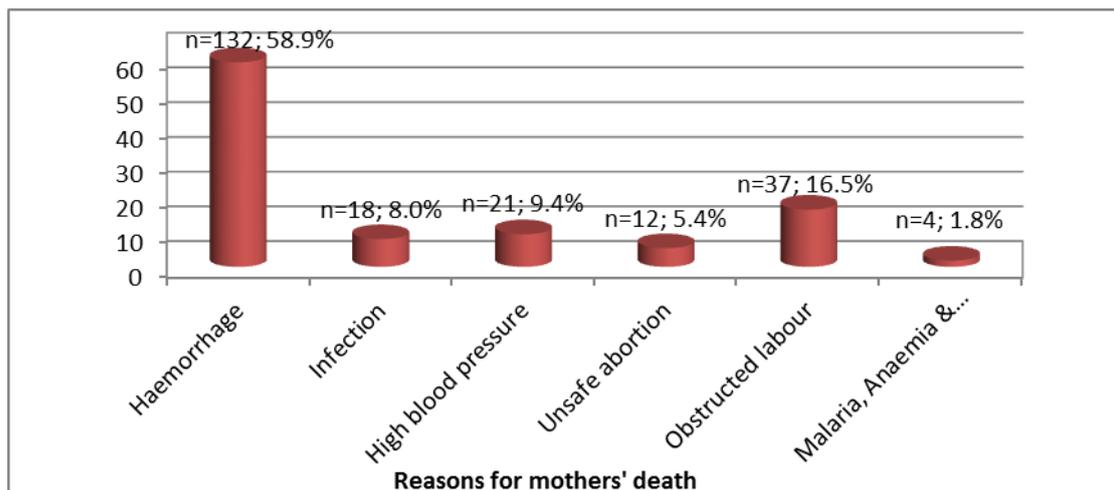
Of the respondents, 56.7% (n=127) stated that they received the emergency assistance when requested, while 26.5% (n=63) reported that the emergency assistance was "too late to be of value" (see figure 5.9).



**Figure 5.9 Whether respondents received the emergency assistance (n=224)**

#### 5.4.3.7 Reasons for the mother's death

Of the respondents, 58.9% (n=132) reported that the mothers had died due to haemorrhage; 16.5% (n=37) reported obstructed labour; 9.4% (n=21) reported high blood pressure; 8.0% (n=18) reported infection, and 5.4% (n=12) reported unsafe abortion (see figure 5.10). The WHO (2011:11) reported that maternal deaths worldwide are caused by five direct causes, namely haemorrhage, obstructed labour, eclampsia (high blood pressure), sepsis (infection), and unsafe abortion.



**Figure 5.10 Reasons for the mother's death (n=224)**

#### 5.4.3.8 Obligations after the mother's death

The respondents were asked to indicate the obligations they had to fulfil after the mother's death. The respondents had to choose all applicable choices and this yielded multiple answers. Table 5.15 shows that the respondents' main obligations after a

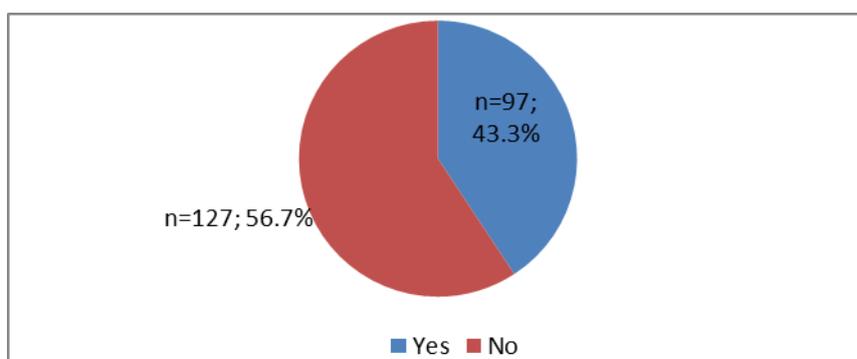
maternal death were: informing the mother's relatives (80.3%; n=180); writing a report about the incident (76.8%; n=172); preparing the corpse before transfer to the mortuary (61.6%; n=138); providing support to the relatives (50.9%; n=114), and taking care of the newborn if alive (35.7%; n=80). According to Gerow et al (2010:123), the combination of role expectations and lack of time to ponder about the death of a patient can create internal conflict and stress in the health care provider's mind, further exacerbating stress and anxiety. In addition, following a death, communication with the family can be very difficult if the health provider is anxious and lacks communication skills (Deffner & Bell 2005:20).

**Table 5.15 Respondents' obligations after the mother's death (n=224)**

Respondents' obligations	Yes		No		Total	
	Frequency (n)	Percentage (%)	Frequency (f)	Percentage (%)	(n)	%
Inform the relatives	180	80.3	44	19.6	224	100
Support the relatives	114	50.9	110	49.1	224	100
Take care of the baby	80	35.7	144	64.3	224	100
Prepare the corpse for the mortuary	138	61.6	88	38.4	224	100
Write a report on the incident	172	76.8	52	23.2	224	100
Others included: - death auditing - inform doctor	6	2.7	218	97.3	224	100

#### **5.4.3.9 Support in the workplace after a maternal death**

Of the respondents, 56.7% (n=127) did not receive any support in their workplace after experiencing maternal death, and 43.3% (n=97) indicated that they did receive support (see figure 5.11). Lack of support for midwives in the workplace may stem from managers' lack of education, training, coaching and mentoring in matters of death and dying (Gerow et al 2010:127; Huang et al 2010). This deducts from midwives' ability to cope with a patient's death and the provision of quality maternal health which can be harmful to their personal well-being.



**Figure 5.11 Respondents' reception of support in the workplace after witnessing a maternal death (n=224)**

#### **5.4.3.10 Support given to respondents in the workplace after a maternal death**

Of the respondents, 43.3% (n=97) had received support from someone in the workplace as follows: 31.0% (n=30) received emotional support from colleagues; 29.9% (n=29) received consolation from relatives of the deceased after certifying death; 26.8% (n=26) received consolation from maternal death auditing meetings, and 12.3% (n=12) took courses on managing obstetric emergencies (see table 5.16). The type of support given to the respondents included emotional support, and taking courses on managing obstetric emergencies. This support was only aimed at building the respondents' skills and helping them to grieve, but not to explore their psychological reaction to the situation. It is thus debatable whether the support received was truly beneficial in helping them work through the traumatic event.

**Table 5.16 Support given to respondents in the workplace after a maternal death (n=97)**

<b>Support given in workplace</b>	<b>Frequency (f)</b>	<b>Percentage (%)</b>
Emotional support from colleagues	30	31.0
Consolation from relatives of mother after certifying death	29	29.9
Maternal death auditing meeting	26	26.8
Take on courses of managing obstetric emergencies	12	12.3
<b>Total</b>	<b>97</b>	<b>100.0</b>

#### **5.4.3.11 Last time the respondents experienced a maternal death at work**

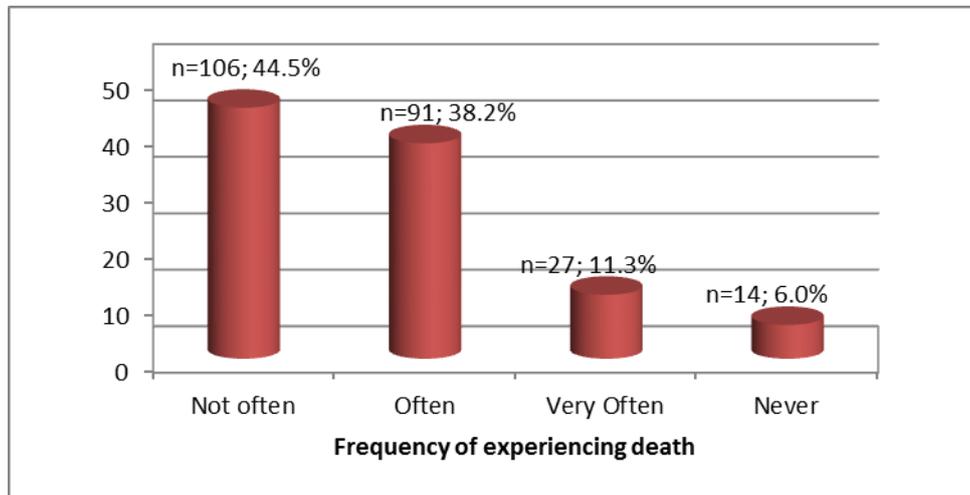
Results in table 5.17 show that of the midwives, 48.2% (n=108) had last experienced maternal death during the previous one to twelve months; 32.2% (n=72) a year or longer ago, and 19.6% (n=44) less than a week to three weeks ago. Experiencing multiple maternal deaths is a common occurrence in rural areas of developing countries because of the general shortage and inequitable distribution of human and other resources needed for maternal health services (Pettersson 2007:471).

**Table 5.17 Last time the respondents experienced maternal death at work (n=224)**

<b>Last time respondents experienced maternal death at work</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Less than one week ago	9	4.0
1-3 weeks ago	35	15.6
1-6 months ago	56	25.0
7-12 months ago	52	23.2
More than a year or longer	72	32.2
<b>Total</b>	<b>224</b>	<b>100.0</b>

#### **5.4.3.12 Respondents' frequency of experiencing maternal death situations as a professional midwife**

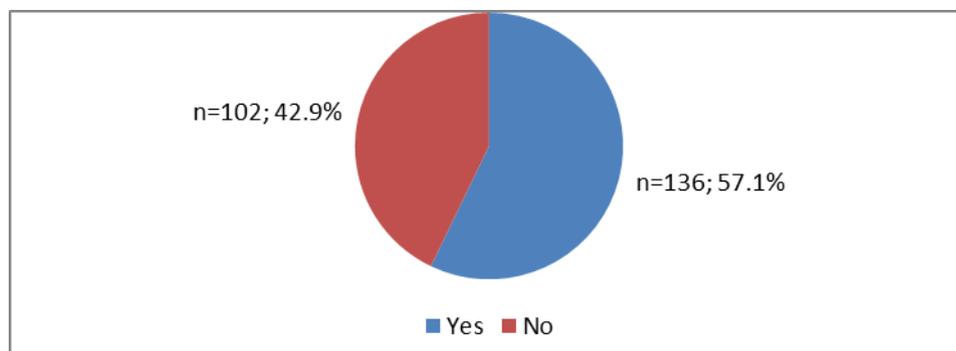
Of the respondents, 44.3% (106) rated the frequency of maternal death experiences at the workplace as 'not often'; 38.2% (n=91) as 'often', and 11.3% (n=27) as 'very often' (see figure 5.12). The respondents' ratings of the frequency of maternal death experiences could have been affected by the last time such an incident took place.



**Figure 5.12 Respondents' rate of occurrence of maternal death (n=238)**

#### **5.4.3.13 Respondents' views on whether professional training prepared them to handle maternal death situations**

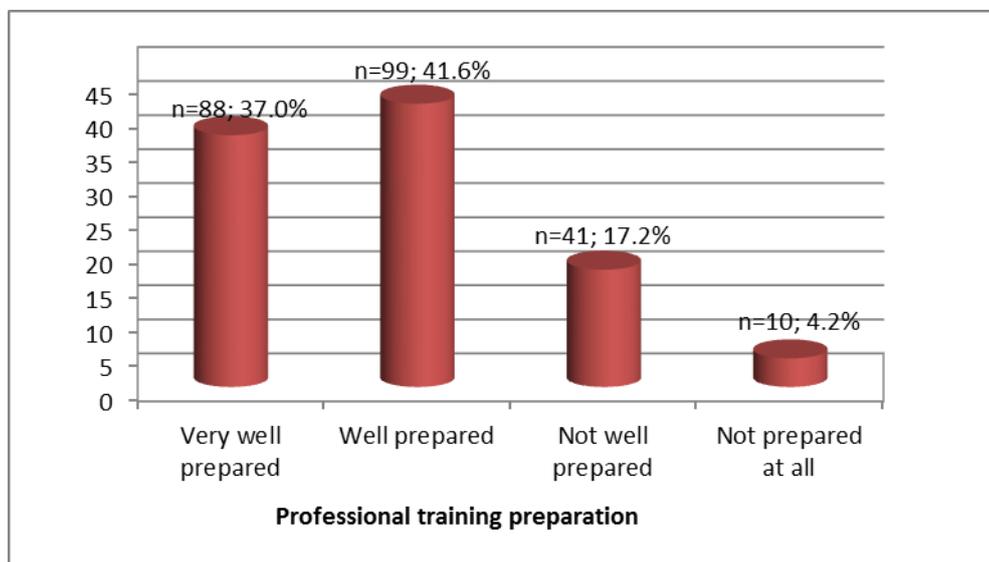
Of the respondents, 57.1% (n=136) reported that their professional training had prepared them to handle maternal death situations while 42.9% (n=102) indicated that they had not been properly prepared professionally to handle the occurrence of maternal deaths during the course of their work obligations (see figure 5.13). According to UNFPA (2009a:17), most midwives are taught practical skills during their professional training. With this knowledge base on how to handle death, the midwives working in rural areas in Uganda should be able to manage maternal death situations.



**Figure 5.13 Respondents' views on whether professional training prepared them to handle maternal death situations (n=238)**

### 5.4.3.14 How well professional training prepared respondents to handle maternal death situations

Of the respondents, 41.6% (n=99) indicated that they had been *well prepared* to handle maternal death situations; 37.0% (n=88) were *very well prepared*; 17.2% (n=41) were *not well prepared*, and only 4.2% (n=10) were *not prepared at all* (see figure 5.14). Training in matters of death and dying is crucial in assisting health providers to cope with anxiety brought about by the experience of a maternal death, facilitate the breaking of bad news and supporting the bereaved families (Gerow et al 2010:127; Huang et al 2010). Of the respondents in this study, 78.6% (n=187) had either been *very well prepared* or *well prepared* to handle death situations. However, due to the different educational programmes, especially that of the comprehensively trained nurses, training in matters of death and dying pertaining to the obstetric field may not have been sufficiently covered as they spend only 5.5 weeks in midwifery training (UNFPA 2009a:34-35).



**Figure 5.14 How well professional training prepared respondents to handle maternal death situations (n=238)**

### 5.4.4 Objective 1 findings

Objective 1 for the study was to estimate the self-reported stress burden of occupational exposure to maternal deaths among professional midwives using the *Death Distress Scale*. The researcher estimated the stress burden by looking at the respondents'

responses and scores on the *Death Distress Scale*. The descriptive statistics are presented first followed by the inferential statistics (Spearman's *rho* rank order correlation coefficient).

#### **5.4.4.1 Respondents' responses to the stress burden of occupational exposure to maternal death as scored on the *Death Distress Scale***

The *Death Distress Scale* measures death distress under the three domains of death anxiety, death depression, and death obsession (Abdel-Khalek 2011:172). The respondents were asked to respond to each item on a five-point Likert scale ("No"=1, "Little"=2, "Moderate"=3, "Much"=4 to "Very much"=5). After reading each statement, the respondents had to decide the extent to which it described their feelings, behaviour and opinion on their level of stress due to exposure to maternal death. The higher the score in each domain or subscale, the higher the level of that particular distress (Abdel-Khalek 2011:179). Table 5.18 presents the respondents' responses on the death obsession, death anxiety and death depression scales. For the purposes of analysis and reporting, the "little" and "moderate" scores were combined at the lower end of the scale and the "much" and "very much" at the top end of the scale.

##### **5.4.4.1.1 *Death obsession scale***

On the death obsession scale, each item on the five-point Likert scale reflects higher scores of death obsession ("No"=1 to "Very much"=5). Table 5.18 indicates that of the respondents, between 24.1% (n=54) and 46.9% (n=105) indicated a *no* response to the eight items; 32.6% (n=73) to 43.3% (n=97) indicated a *little* or *moderate* response, thus indicating that the majority of the respondents did not rate themselves high on the death obsession scale. At the same time, however, 34.0% (n=76) were dominated by the idea that they would die; 33.5% (n=75) were overwhelmed by the idea of death; 30.0% (n=67) could not dismiss the notion of death from their minds and felt that thinking about death pre-occupied their minds, and 29.0% (n=65) had an exaggerated concern with the idea of death. In other words, about one third of the respondents experienced death obsession as 34, 33.5, 30 and 29% (n=65) responded positively to the statement in this scale.

#### 5.4.4.1.2 *Death anxiety scale*

On the death anxiety scale, higher scores on the four positively stated questions reflect higher death anxiety ("No"=1 to "Very much"=5). Of the respondents, between 7.6% (n=17) and 29.5% (n=66) gave a *no* response to a positively stated question in the four items; 28.1% (n=63) to 48.6% (n=109) indicated a *little* or *moderate*; and 26.3% (n=59) to 61.2% (n=137) indicated *much* or *very much*, which showed that the majority of the respondents rated themselves moderately to high on the positive statements in this scale (see table 5.18). This was supported by the fact that of the respondents, 61.2% (n=137) feared dying a painful death; 55.0% (n=123) were really scared of having a heart attack; 32.6% (n=73) were horrified by the sight of a dead body, and 26.3% (n=59) were very much afraid to die.

On the death anxiety scale for the four negatively stated questions, the opposite of the scale was applicable ("No"=5 to "Very much"=1) as the items were negatively stated. According to table 5.18, between 9.8% (n=22) and 30.0% (n=67) respondents indicated a *much* or *very much* response to a negatively stated question; 30.3% (n=68) to 56.7% (n=127) indicated a *little* or *moderate* response. Furthermore 33.5% (n=75) and 39.7% (n=89) indicated *no* to the four statements: 'am not particularly afraid of dying during childbirth'; 'the thought of death never bothers me'; 'I am not at all afraid to die', and 'it does not make me nervous when people talk about death', which implied that the respondents did not agree with the statements. Of the respondents, 39.7% (n=89) were particularly afraid of dying during childbirth; 33.9% (n=76) were bothered by the thought of death; 34.4% (n=77) were afraid to die, and 33.5% (n=75) became nervous when people talk about death, further exaggerating midwives' death anxiety. The findings indicate that most of the respondents experienced death anxiety as 39.7%, 34.4%, 33.9% and 33.5% responded negatively to the statements in this scale, suggesting moderate death anxiety among the respondents. Therefore the respondents rated themselves moderately to high in the eight items on the death anxiety scale.

#### 5.4.4.1.3 *Death depression scale*

On the death depression scale, each item on the five-point Likert scale reflects higher scores of death depression ("No"=1 to "Very much"=5). Of the respondents, 37.1%

(n=83) and 58.5% (n=131) indicated a *no* in the eight items. In addition, 30.5% (n=68) and 43.3% (n=97) indicated a *little* or *moderate* thus indicating that most of the respondents did not rate themselves high on the death depression scale. Of the respondents, 20.1% (n=45) indicated that the thought of death saps their energy; 19.6% (n=44) found it hard to concentrate when death was on their mind and their bodies seemed to lose energy and slow down; 18.3% (n=41) found the easiest of tasks difficult when they thought about death; 17.4% (n=39) lost interest in activities of life when they thought about death; 15.6% (n=35) lost interest in caring for themselves when they thought about death; 15.2% (n=34) felt death made them discouraged about the future, and 11.6% (n=26) felt death made them hopeless.

**Table 5.18 Respondents' responses on the *Death Distress Scale* (n=224)**

Item description	Responses (on a five-point Likert scale 1-5)						Total
		No	Little	Moderate	Much	Very much	
<b>Death obsession scale</b>							
The idea that I will die dominates me.	n	75.0	38.0	35.0	24.0	52.0	224.0
	%	33.5	17.0	15.6	10.7	23.2	100.0
I fail to dismiss the notion of death from my mind.	n	71.0	40.0	46.0	50.0	17.0	224.0
	%	31.7	17.9	20.5	22.3	7.6	100.0
Thinking about death preoccupies me.	n	61.0	55.0	41.0	33.0	34.0	224.0
	%	27.2	24.6	18.3	14.7	15.2	100.0
I find it very difficult to get rid of thoughts about death.	n	71.0	45.0	49.0	35.0	24.0	224.0
	%	31.7	20.1	21.9	15.6	10.7	100.0
The idea of death overwhelms me.	n	54.0	48.0	47.0	29.0	46.0	224.0
	%	24.1	21.4	21.0	13.0	20.5	100.0
I have exaggerated concern with the idea of death	n	70.0	32.0	57.0	33.0	32.0	224.0
	%	31.3	14.3	25.4	14.7	14.3	100.0
I find myself rushing to think about death.	n	83.0	46.0	51.0	29.0	15.0	224.0
	%	37.0	20.5	22.8	13.0	6.7	100.0
I think about death continuously.	n	105.0	37.0	50.0	17.0	15.0	224.0
	%	46.9	16.5	22.3	7.6	6.7	100.0
<b>Death anxiety scale</b>							
I am very afraid to die.	n	66.0	48.0	51.0	14.0	45.0	224.0
	%	29.5	21.4	22.8	6.2	20.1	100.0
It does not make me nervous when people talk about death.	n	75.0	63.0	64.0	10.0	12.0	224.0
	%	33.5	28.1	28.6	4.5	5.3	100.0
I am not at all afraid to die.	n	77.0	48.0	56.0	17.0	26.0	224.0
	%	34.4	21.4	25.0	7.6	11.6	100.0
I am not particularly afraid of dying during childbirth.	n	89.0	24.0	44.0	40.0	27.0	224.0
	%	39.7	10.7	19.6	17.9	12.1	100.0
The thought of death never bothers me.	n	76.0	43.0	61.0	27.0	17.0	224.0
	%	33.9	19.2	27.2	12.0	7.6	100.0

Item description	Responses (on a five-point Likert scale 1-5)						Total
		No	Little	Moderate	Much	Very much	
I fear dying a painful death.	n	24.0	22.0	41.0	22.0	115.0	224.0
	%	10.7	9.8	18.3	9.8	51.4	100.0
I am really scared of having a heart attack.	n	17.0	25.0	59.0	38.0	85.0	224.0
	%	7.6	11.0	26.4	17.0	38.0	100.0
The sight of a dead body is horrifying to me.	n	42.0	33.0	76.0	41.0	32.0	224.0
	%	18.8	14.7	33.9	18.3	14.3	100.0
<b>Death depression scale</b>							
When I think about death I lose interest in activities of life.	n	100.0	38.0	47.0	21.0	18.0	224.0
	%	44.6	17.0	21.0	9.4	8.0	100.0
I lose interest in caring for myself when I think about death.	n	114.0	30.0	45.0	19.0	16.0	224.0
	%	50.9	13.4	20.1	8.5	7.1	100.0
When death is on my mind, my body seems to lose energy and slows down.	n	83.0	47.0	50.0	26.0	18.0	224.0
	%	37.1	20.1	22.3	12.5	8.0	100.0
The thought of death saps my energy.	n	96.0	43.0	40.0	21.0	24.0	224.0
	%	42.9	19.2	17.8	9.4	10.7	100.0
It is hard to concentrate when death is on my mind.	n	83.0	53.0	44.0	30.0	14.0	224.0
	%	37.1	23.7	19.6	13.4	6.2	100.0
When I think about death, even the easiest of tasks becomes difficult.	n	102.0	41.0	40.0	25.0	16.0	224.0
	%	45.5	18.3	17.9	11.2	7.1	100.0
Death makes me feel discouraged about the future.	n	110.0	44.0	36.0	18.0	16.0	224.0
	%	49.1	19.6	16.2	8.0	7.1	100.0
Death makes me feel hopeless.	n	131.0	32.0	36.0	15.0	11.0	224.0
	%	58.5	14.3	16.2	6.7	4.3	100.0

#### **5.4.4.2 Respondents' scores on the Death Distress Scale attributed to occupational exposure to maternal death**

All the respondents (n=224) had a score of between 8 and 40 on each of the three subscales of the *Death Distress Scale*: death obsession, death anxiety and death depression. The scores were categorised into mild distress (score 8-18), moderate distress (score 19-29), and high distress (score 30-40). Before computing the respondents' total scores and conducting analysis, the negatively stated questions in the death anxiety scale were reverse scored ("No"=5 to "Very Much"=1) (DeVellis 2003:97). Reverse scoring the negatively stated questions ensured that all the questions (negatively and positively stated) were consistent with each other in terms of what is mild, moderate or high death anxiety. Once the reverse scoring of all negatively stated questions was done, analysis using SPSS was done and a computation of total

scores (positive and negative responses) was made. This was helpful in obtaining a single score reflecting the intensity in a single direction which is usually a high overall score to reflect a positive outcome or a low overall score to indicate a negative outcome (Carifio & Perla 2007:107).

The results from the respondents' scores on the *Death Distress Scale* revealed that of the respondents, 93.3% (n=209) experienced moderate to high death anxiety; 71.0% (n=159) experienced mild to moderate death obsession, and 59.8% (n=134) experienced mild death depression because of experiencing maternal death at work (see table 5.19). According to Peters et al (2013:14), emotional reactions following death experience are influenced by personal, cultural, social and philosophical beliefs that shape people's behaviour and actions taken towards the death situation. The respondents' high death anxiety resulting from experiencing maternal death could have been caused by consciousness or fear of their own death giving rise to anxiety and uneasiness (Peters et al 2013:14; Strote et al 2011:256).

The moderate to high death anxiety experienced by the respondents may also have been caused by witnessing more than one woman die in the past 12 months, their young age and limited experience of, or, lack of deliberate support, counselling and respite care for them. According to Bryan (2007:79), witnessing patient death can affect the anxiety level experienced by health care providers. Some studies suggest that women may be more strongly affected by death than men (Strote et al 2011:256; Redinbaugh, Sullivan, Block, Gadmer, Lakoma, Mitchell, Seltzer, Wolford & Arnold 2003:185). Most of the respondents in the current study were women and this may explain the mild to moderate level of death anxiety and death obsession reported.

**Table 5.19 Summary scores of the *Death Distress Scale* (n=224)**

<i>Death Distress Scale</i>	Mild (Score 8-18)		Moderate (Score 19-29)		High (Score 30-40)		Total	
	n	%	n	%	n	%	n	%
Death obsession scale	93	41.5	66	29.5	65	29.0	224	100.0
Death anxiety scale	15	6.7	155	69.2	54	24.1	224	100.0
Death depression scale	134	59.2	61	27.2	29	12.9	224	100.0

### 5.4.4.3 Inferential statistics

Correlation statistics were used to assess whether there was any association between the respondents' stress burden and their biographical information, occupational exposure to death and some organisational variables (see table 5.20). Since the data was ordinal and not normally distributed, the researcher computed the correlations using Spearman's *rho* rank order correlation ( $r_s$  statistics) (Stewart 2010:57). The interpretation of the strength of the correlation coefficient ( $r_s$  statistics) is shown in table 4.3.

#### 5.4.4.3.1 Correlation between respondents' stress burden as scored on the Death Distress Scale, biographical and organisational variables and occupational exposure to maternal death

Table 5.20 indicates that there was a significant but **low positive correlation** between death obsession and the respondents' age ( $r_s=.223$ ;  $p<.01$ ); length of time of working on the obstetric unit or ward ( $r_s=.145$ ;  $p<.01$ ); and frequency of experiencing maternal death in current practice ( $r_s=.169$ ;  $p<.01$ ), thus it can be said that as the respondents' age, length of work and frequency of experiencing maternal death increased so would their death obsession. In addition, there was a significant but **low negative correlation** between death obsession and witnessing a maternal death ( $r_s= -.305$ ;  $p<.01$ ) and number of maternal deaths witnessed ( $r_s= -.408$ ;  $p<.01$ ), which means that as the witnessing of maternal deaths went up respondents' death obsession would decrease. Nearly all factors associated with the respondents' death obsession were modifiable, apart from their age. Regulating these factors, such as length of work on obstetric ward or unit and frequency of experiencing maternal death, by addressing the underlying factors leading to maternal death in Uganda, such as having adequate medical supplies, personnel, functional transport and communication facilities, (MoH Uganda 2011:16) is crucial in order to reduce the mild to moderate death obsession experienced by midwives as a result of frequently experiencing maternal death.

There was also a significant but **low negative correlation** between death anxiety and the following variables: witnessing a maternal death ( $r_s= -.343$ ;  $p<.01$ ); number of maternal deaths witnessed ( $r_s= -.408$ ;  $p<.01$ ); professional training preparation to handle

death situations ( $r_s = -.198$ ;  $p < .05$ ), and how well professional training prepared the respondents to handle death situations ( $r_s = -.172$ ;  $p < .05$ ). It is thus evident that respondents' death anxiety would reduce if professional training to handle death situations and their' perceptions of training preparation to handle maternal deaths increased. Furthermore, death anxiety would seemingly be reduced as witnessing a maternal death and the number of maternal deaths witnessed, go up.

There was a significant but **low positive correlation** between death depression and the following variables: respondents' education ( $r_s = .225$ ;  $p < .01$ ); type of health facility the respondents are currently employed in ( $r_s = .136$ ;  $p < .05$ ), and involvement in other health care activities ( $r_s = .157$ ;  $p < .05$ ), hence it can be deduced that as the respondents' education increased so would their death depression, which could be because they had better insight into the implications of maternal death. Moreover, as the respondents' involvement in other health care activities (having to work in other units in addition to type of health facility the midwives are currently employed) increased, so would their death depression which could be because of exacerbated workload and burnout. Furthermore, midwives working in health facilities IV (HC IVs) are more likely to have increased death depression than those working in HC IIIs and HC IIs because they were likely to be handling more complicated cases in the higher order healthcare unit.

There was a significant but **low negative correlation** between death depression and the following variables: witnessing a maternal death ( $r_s = -.325$ ;  $p < .01$ ); number of maternal deaths witnessed ( $r_s = -.408$ ;  $p < .01$ ), and the last time respondents experienced death in the workplace ( $r_s = -.132$ ;  $p < .05$ ), thus it is evident that as the witnessing of maternal death and number of maternal death witnessed went up the respondents' level of depression would come down. In addition, respondents' death depression was reduced when the duration of the last time they experienced death at work increased (see detailed matrix annexure R).

**Table 5.20 Correlation between stress burden as scored on the *Death Distress Scale* and respondents' biographical and organisational variables and occupational exposure to maternal death (n=224)**

Spearman's rank order Non-parametric correlation		Death Distress Scale		
		Death obsession	Death anxiety	Death depression
<b>Biographical characteristics</b>				
Age	Correlation	.223**	-.059	.078
	Sig. (2 tailed)	.001	.364	.229
	N	224	224	224
Education	Correlation	.109	.017	.225**
	Sig. (2 tailed)	.093	.798	.000
	N	224	224	224
Type of health facility currently employed	Correlation	.093	-.017	.136*
	Sig. (2 tailed)	.151	.794	.035
	N	224	224	224
Length of time of working on the ward	Correlation	.145**	.064	.023
	Sig. (2 tailed)	.025	.328	.727
	N	224	224	224
<b>Organisational variables</b>				
Respondents' involvement in other care services	Correlation	.000	-.007	.157*
	Sig. (2 tailed)	.999	.918	.016
	N	224	224	224
<b>Respondents' occupational exposure</b>				
Ever witnessed maternal death	Correlation	-.305**	-.343**	-.325**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Number of deaths witnessed	Correlation	-.408**	-.408**	-.408**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Last time respondents experienced death at work place	Correlation	-.077	.047	-.132*
	Sig. (2 tailed)	.239	.468	.041
	N	224	224	224
Frequency of experiencing death in current practice	Correlation	.169**	.031	.069
	Sig. (2 tailed)	.009	.636	.286
	N	224	224	224
Professional training preparation to handle death situations	Correlation	-.073	-.198*	-.006
	Sig. (2 tailed)	.260	.002	.932
	N	224	224	224
How well professional training prepared them to handle death	Correlation	-.052	-.172*	.018
	Sig. (2 tailed)	.426	.008	.784
	N	224	224	224

\*\*Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

## 5.4.5 Objective 2 findings

Objective 2 of the study was to determine the effect of the identified stress burden on the physical and psychological well-being of the respondents. In order to ascribe the symptoms described on the *Perceived Well-Being Scale* to death experiences, the respondents were asked to read each statement and indicate the extent to which they agreed or disagreed with it in response to occupational exposure to maternal death experiences. However, the researcher also agrees that many people in general, often feel depressed, tired, and full of aches and pains, which does not mean these symptoms can only be ascribed to death experiences. This aspect was acknowledged as a limitation in the study. The descriptive statistics are presented first followed by the inferential statistics according to Spearman's *rho* rank order correlation.

### 5.4.5.1 Respondents' responses on the *Perceived Well-Being Scale*

The *Perceived Well-Being Scale* was rated on a 7-point Likert scale from "strongly agree" to "strongly disagree" as shown in table 5.21. This scale has two domains the psychological well-being scale and physical well-being scale and is used to measure psychological and physical well-being. The values attributed to *strongly agree*, *agree* and *moderately agree* were grouped together for ease of discussion. Likewise cumulative percentages were used for the values attributed to *strongly disagree*, *disagree* and *moderately disagree*.

#### 5.4.5.1.1 Physical well-being scale

The results of the *physical well-being scale* revealed that most of the respondents *strongly agreed*, *agreed* or *moderately agreed* ("Strongly Agree"=7 to "Strongly Disagree"=1) with the statements: I think my health is deteriorating (n=136; 60.8%) and I have aches and pains (n=98; 43.7%). Most of the respondents *strongly disagreed*, *disagreed* or *moderately disagreed* ("Strongly Agree"=1 to "Strongly Disagree"=7) with having physical wellness in view of the statements: 'am in good shape physically', 'I can stand a fair amount of physical strain', 'I have plenty of physical energy' and 'I don't get tired very easily' implying that the respondents disagreed with these statements. Thus it could be said that of the respondents, 83.6% (n=187) were not in good shape

physically; 76.4% (n=171) could not stand a fair amount of physical strain; 72.8% (n=163) did not have plenty of physical energy, and 65.2% (n=146) got tired very easily.

The results on the *physical well-being scale* showed that between 43.7% (n=98) and 60.8% (n=136) indicated *strongly agreed, agreed* or *moderately agreed* to having physical un-wellness, while between 65.2% (n=146) and 83.6% (n=187) indicated *strongly disagreed, disagreed* or *moderately disagreed* in the six items on having physical wellness. This indicates that the majority of the respondents rated themselves high to having physical un-wellness on the *Physical Well-Being Scale*. Between 5.4% (n=12) and 12.1% (n=27) were undecided about the above statements.

According to Brunelli (2005:123), occupational exposure to death can lead to physical ill-health which may present in the form of medically unexplained pain, fibromyalgia, irritable bowel syndrome, and chronic fatigue, which can result in health care professionals being absent more often, a decrease in quality of patient care and dissatisfaction, and subsequently a higher turnover.

#### 5.4.5.1.2 *Psychological well-being scale*

Table 5.21 reveals that on the *psychological well-being scale*, the majority of the respondents *strongly agreed, agreed* or *moderately agreed* ("Strongly Agree"=7 to "Strongly Disagree"=1) with: 'am excited to be alive' (n=185; 82.7%); 'I have peace of mind' (n=177; 79%), and 'life is worth living' (n=174; 77.7%).

However, as the following items were negatively stated, the majority of the respondents *strongly disagreed, disagreed* or *moderately disagreed* ("Strongly Agree"=1 to "Strongly Disagree"=7) with the statements: 'no one really cares whether I am dead or alive', 'I don't seem to care about what happens to me', 'I wish that I would never wake up', 'I often feel bored' and 'I am afraid of many things' thus implying that the respondents differed with these statements. Accordingly, it can be deduced that of the respondents, 73.2% (n=164) believed that someone cared whether they were dead or alive; 67.1% (n=150) seemed to care about what happened to them; 66.5% (n=149) did not wish that they would never wake up; 46.4% (n=104) were not afraid of many things, and 29.3% (n=66) did not often feel bored.

The results on the *psychological well-being scale* showed that between 77.7% (n=174) and 82.7% (n=185) *strongly agreed, agreed or moderately agreed* with having psychological well-being, while between 29.3% (n=66) and 73.2% (n=164) *strongly disagreed, disagreed or moderately disagreed* with the eight items on having psychological well-being.

This indicates that the majority of the respondents rated themselves high on having psychological well-being. Most of the respondents agreed with experiencing positive emotions such as excitement (82.7%; n=185); peace of mind (79%; n=177) and life being worthwhile (77.7%; n=174). However some respondents also indicated negative emotions, like fear (47.3%; n=106) and boredom (60.4%; n=135). Between 4.9% (n=11) and 10.3% (n=23) respondents were undecided about the above statements.

According to Sarquis (2009:701), fear is one of the emotions that health care workers experience following an occupational exposure to an accident in the workplace. The fear is often related to health workers' acquisition of work-related illness and injury, and this may lead to the development of stress situations in the workplace resulting in psychological un-wellness.

**Table 5.21 Respondents' responses on the *Perceived Well-Being Scale* (n=224)**

Item description	Responses on a seven-point Likert scale								Total
		Strongly agree	Agree	Moderately agree	Undecided	Moderately disagree	Disagree	Strongly disagree	
<b>Psychological well-being</b>									
No one really cares whether I am dead or alive.	n	16.0	23.0	10.0	11.0	22.0	31.0	111.0	224.0
	%	7.1	10.3	4.5	4.9	9.8	13.8	49.6	100.0
I often feel bored.	n	21.0	55.0	59.0	23.0	14.0	32.0	20.0	224.0
	%	9.4	24.6	26.4	10.3	6.1	14.3	8.9	100.0
It is exciting to be alive.	n	124.0	40.0	21.0	14.0	8.0	4.0	13.0	224.0
	%	55.4	17.9	9.4	6.1	3.6	1.8	5.8	100.0
Sometimes I wish that I never wake up.	n	9.0	34.0	16.0	16.0	15.0	33.0	101.0	224.0
	%	4.1	15.2	7.1	7.1	6.7	14.7	45.1	100.0
I feel that life is worth living.	n	99.0	47.0	28.0	15.0	7.0	6.0	22.0	224.0
	%	44.2	21.0	12.5	6.7	3.1	2.7	9.8	100.0
I don't seem to care about what happens to me	n	17.0	16.0	29.0	12.0	14.0	42.0	94.0	224.0
	%	7.4	7.1	13.0	5.4	6.3	18.8	42.0	100.0
I have peace of mind.	n	54.0	62.0	61.0	19.0	16.0	7.0	5.0	224.0
	%	24.1	27.7	27.2	8.4	7.1	3.1	2.4	100.0
I am afraid of many things.	n	24.0	32.0	50.0	15.0	32.0	50.0	22.0	224.0
	%	10.7	14.3	22.3	6.3	14.3	22.3	9.8	100.0
<b>Physical well-being</b>									
I have plenty of physical energy	n	12.0	17.0	18.0	14.0	71.0	65.0	27.0	224.0
	%	5.3	7.6	8.0	6.3	31.7	29.0	12.1	100.0
I have aches and pains	n	30.0	28.0	40.0	27.0	27.0	33.0	39.0	224.0
	%	13.3	12.5	17.9	12.1	12.1	14.7	17.4	100.0
I am in good shape physically	n	10.0	5.0	10.0	12.0	27.0	64.0	96.0	224.0
	%	4.5	2.0	4.5	5.4	12.1	28.6	42.9	100.0
I think my health is deteriorating.	n	81.0	40.0	15.0	20.0	19.0	20.0	29.0	224.0
	%	36.2	17.9	6.7	8.9	8.5	8.9	12.9	100.0
I don't get tired very easily.	n	9.0	25.0	28.0	16.0	49.0	61.0	36.0	224.0
	%	4.0	11.2	12.5	7.1	21.9	27.2	16.1	100.0
I can stand a fair amount of physical strain.	n	11.0	7.0	19.0	16.0	65.0	70.0	36.0	224.0
	%	4.9	3.1	8.5	7.1	29.0	31.3	16.1	100.0

### 5.4.5.2 Inferential statistics

Correlation statistics were used to assess whether there was any association between the respondents' stress burden as scored on the *Death Distress Scale* and their physical and psychological well-being as shown in table 5.22. Correlation statistics were also used to assess the relationship between perceived well-being and midwives' biographic information, organisational variables and occupational exposure to death. Since the data was ordinal and not normally distributed the researcher computed the correlations using Spearman's *rho* rank order correlation ( $r_s$  statistics) (Stewart 2010:57). Table 5.3 presents the interpretation of the strength of the correlation coefficient ( $r_s$  statistics).

#### 5.4.5.2.1 Correlation between stress burden as scored on the *Death Distress Scale* and *Perceived Well-Being Scale*

Table 5.22 shows that there was a significant but **low positive correlation** between; death obsession and physical ( $r_s=.238$ ;  $p<.01$ ) and psychological well-being ( $r_s=.231$ ;  $p<.01$ ). There was also a significant but **low positive correlation** between death anxiety and physical ( $r_s=.259$ ;  $p<.01$ ) and psychological well-being ( $r_s=.329$ ;  $p<.01$ ). Furthermore, there was a significant **low positive correlation** between death depression and physical well-being ( $r_s=.157$ ;  $p<.05$ ). In the study the respondents' rated themselves high to having physical un-wellness, thus it can be said that as respondents' death obsession, death anxiety and death depression went up and so did their physical un-wellness. A few of the respondents' also reported having experienced psychological un-wellness, thus it is evident that as respondents death obsession and death anxiety increased and so did their psychological un-wellness. However, the majority of the respondents rated themselves high to having psychological well-being thus explaining no significant relationship between death depression and psychological well-being (see detailed matrix – annexure P).

**Table 5.22 Correlation of stress burden as scored on the *Death Distress Scale and Perceived Well-Being* (n=224)**

Spearman's rank order Non parametric correlation		Death Distress Scale		
Scales		Death obsession	Death anxiety	Death depression
Physical well-being	Correlation	.238**	.259**	.157*
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Psychological Well-being	Correlation	.231**	.329**	.081
	Sig. (2 tailed)	.000	.000	.214
	N	224	224	224

\*\*Correlation is significant at the 0.01 level (2 tailed)

\* Correlation is significant at the 0.05 level (2 tailed)

#### 5.4.5.2.2 Correlation between perceived well-being and respondents' biographical and organisational variables and occupational exposure to maternal death

Table 5.23 shows that there was a significant but **low positive correlation** between physical well-being and the following variables: age ( $r_s=.145$ ;  $p<.05$ ), years of professional experience ( $r_s=.136$ ;  $p<.05$ ); obstetric ward or unit working in ( $r_s=.140$ ;  $p<.05$ ), and how often respondents' experienced maternal death in practice ( $r_s=.182$ ;  $p<.01$ ). This means that as the type of obstetric ward or unit they work in, and how often respondents experience maternal death in practice increased so did their physical wellness. However, the variables 'age' and 'years of professional experience' are not modifiable, therefore regulating modifiable factors 'length of working on the obstetric ward' and reducing frequency of maternal death experiences by addressing factors leading to maternal deaths such as having functional communication and transport facilities may increase respondents' physical well-being.

There was also a significant but **low positive correlation** between psychological well-being and the following variables: age ( $r_s=.151$ ;  $p<.05$ ); years of professional experience ( $r_s=.209$ ;  $p<.01$ ); length of time of working on obstetric ward or unit ( $r_s=.186$ ;  $p<.01$ ), and the last time respondents experienced maternal death in the workplace ( $r_s=.162$ ;  $p<.05$ ) as shown in table 5.23 (see detailed matrix - annexure Q). This means that as the respondents' age, years of professional experience and length of working on obstetric ward or unit, and last time they experienced maternal death, went up, so did their

physical wellness. However, the variables 'age' and 'years of professional experience' are not modifiable, therefore regulating 'length of working on the obstetric ward' and 'addressing maternal death causes' by means of having well-trained health workers, sufficient material supplies and medication, functional transport and communication systems which can reduce maternal death exposure, could improve respondents' psychological well-being.

Table 5.23 also shows a significant but **low negative correlation** between physical well-being, marital status ( $r_s = -.201$ ;  $p < .01$ ) and respondents' involvement with other health care activities ( $r_s = -.340$ ;  $p < .01$ ). There was also a significant but **low negative correlation** between psychological well-being, marital status ( $r_s = -.163$ ;  $p < .05$ ), support received from the workplace after experiencing maternal death ( $r_s = -.180$ ;  $p < .01$ ) and respondents' involvement with other health care activities ( $r_s = -.408$ ;  $p < .01$ ). It is thus evident that a reduction in respondents' modifiable variables, such as involvement in other health care activities and support received in the workplace after experiencing death, would increase respondents' physical and psychological un-wellness.

Enhancing midwives' physical and psychological well-being could only be possible if modifiable factors such as support systems were put in place at the workplace after experiencing maternal death. The support may be in the form of counselling, mentoring, coaching, respite care, and training in matters of death and dying (Huang 2010:2281; Kalbfleisch & Bach 2009:378; Biswas-Diener 2009: 544).

**Table 5.23 Correlation between perceived well-being and respondents' biographical, organisational variables and occupational exposure to maternal death (n=224)**

Spearman's rank order Non-parametric correlation		Perceived Well-Being Scale	
		Physical well-being	Psychological well-being
<b>Biographical information</b>			
Age	Correlation	.145*	.151*
	Sig. (2 tailed)	.030	.023
	N	224	224
Marital status	Correlation	-.201**	-.163*
	Sig. (2 tailed)	.003	.014
	N	224	224
Years of professional experience	Correlation	.136*	.209**
	Sig. (2 tailed)	.041	.002
	N	224	224
Obstetric ward unit currently working	Correlation	.140*	.057
	Sig. (2 tailed)	.037	.400
	N	224	224
Length of time of working on the ward	Correlation	.012	.186**
	Sig. (2 tailed)	.854	.005
	N	224	224
<b>Organisational variable</b>			
Respondents' involvement in other care services	Correlation	-.340**	-.408**
	Sig. (2 tailed)	.000	.000
	N	224	224
<b>Respondents' occupational exposure to death</b>			
Number of maternal deaths witnessed	Correlation	.137*	.086
	Sig. (2 tailed)	.041	.197
	N	224	224
Support received in the workplace after a maternal death	Correlation	-.077	-.180**
	Sig. (2 tailed)	.256	.007
	N	224	224
The last time the midwives experienced maternal death at the work place	Correlation	.121	.162*
	Sig. (2 tailed)	.071	.016
	N	224	224
How often respondents experience maternal death in practice	Correlation	.182**	.082
	Sig. (2 tailed)	.006	.220
	N	224	224

\*\*Correlation is significant at the 0.01 level (2 tailed)

\* Correlation is significant at the 0.05 level (2 tailed)

### 5.4.6 Objective 3 findings

Objective 3 of this study was to identify the methods used by the respondents to cope with occupational exposure to maternal death, using the *Brief COPE Scale*. The researcher looked at the respondents' responses on the *Brief COPE Scale* and the relationship between methods used for coping with maternal death and stress burden as scored on the *Death Distress Scale* using Spearman's rank correlation coefficients. The *Brief COPE Scale* used thirteen constructs, namely self-distraction; active coping; denial; substance abuse; emotional support; instrumental support; behavioural disengagement; venting; planning; acceptance; religion; self-blame and positive reframing.

#### 5.4.6.1 Respondents' responses on the Brief COPE Scale

The respondents' methods of coping with the stress burden of occupational exposure to maternal death was assessed on the *Brief COPE Scale* and was scored on a four-point Likert scale as shown in table 5.24 (*Haven't been doing this at all; I've been doing this a little bit; I've been doing this a moderate amount, and I've been doing this a lot*). Each of the thirteen subscales had two items that were used to describe that subscale.

According to table 5.24, the coping methods that indicated the highest response on the *I've been doing this a lot* were: planning (75.9%; n=170), acceptance (75.5%; n=169) and religion (67.4%; n=151), thus it can be said that planning, acceptance and religion were the methods mostly used by the respondents to cope with maternal death. These methods used to cope with maternal death were mostly **problem-focused coping** methods which are directed at managing or altering the problem causing the distress (Folkman & Moskowitz 2004:751; Matthieu & Ivanoff 2006:343).

The methods of coping that were used moderately and indicated the highest response on the Likert scale by *I've been doing this a moderate amount* were: instrumental support (78.6%; n=176); active coping (73.7%; n=165); self-distraction (72.3%; n=162); positive reframing (71.4%; n=160); denial and venting (68.3%; n=153), and emotional support (66.5%; n=149). The methods used moderately were both **problem-focused** and **emotion-focused coping methods** (Folkman & Moskowitz 2004:751; Matthieu & Ivanoff 2006:343).

The methods of coping that were least used by the respondents as indicated on the Likert scale *I haven't been doing this at all* were: self-blame (73.6%; n=165); behavioural disengagement (86.2%; n=193); and substance abuse (98.2%; n=220). The least used methods of coping (which are negative methods) were all **emotion-focused coping methods** (Werner 2006:109; Moskowitz 2004:751).

One of the aspects that can moderate the impact of a stressful situation is the ability to cope as explained by Lazarus and Folkman's *Transactional Model of Stress and Coping*. Coping with the maternal death stressor in such a way that it does not cause burnout, requires midwives to be skilled in effective coping methods to process the experience (Peterson et al 2010:432; Hinderer 2012:252). The respondents used both problem-focused and emotion-focused coping methods, where problem-focused coping methods are directed at dealing with the problem causing the distress, and emotion-focused coping is directed at regulating emotional response to the problem to cope with occupational exposure to maternal death.

**Table 5.24 Respondents' responses on the *Brief COPE Scale* (n=224)**

Item description	Responses (on a four-point Likert scale)					Total
		Haven't been doing this at all	I've been doing this a little bit	I've been doing this a moderate amount	I've been doing this a lot	
<b>Self-distraction</b>						
I've been turning to work or other activities to take my mind off things.	n	41.0	61.0	86.0	36.0	224.0
	%	18.3	27.2	38.4	16.1	100.0
I've been doing other things to think about it less, such as watching TV, reading, sleeping.	n	26.0	56.0	76.0	66.0	224.0
	%	11.6	25.0	33.9	29.5	100.0
<b>Active coping</b>						
I've been concentrating my efforts on doing something about the situation I'm in	n	17.0	55.0	86.0	66.0	224.0
	%	7.5	24.6	38.4	29.5	100.0
I've been taking action to try to make the situation better.	n	33.0	33.0	79.0	79.0	224.0
	%	14.7	14.7	35.3	35.3	100.0

Item description	Responses (on a four-point Likert scale)					Total
		Haven't been doing this at all	I've been doing this a little bit	I've been doing this a moderate amount	I've been doing this a lot	
<b>Denial</b>						
I've been saying to myself "this isn't real".	n	63.0	45.0	78.0	38.0	224.0
	%	28.1	20.1	34.8	17.0	100.0
I've been refusing to believe that it happened.	n	66.0	55.0	75.0	28.0	224.0
	%	29.5	24.6	33.5	12.4	100.0
<b>Substance use</b>						
I've been using alcohol or other drugs to make myself feel better.	n	134.0	35.0	43.0	12.0	224.0
	%	59.8	15.6	19.2	5.4	100.0
I've been using alcohol or other drugs to help me get through it.	n	86.0	57.0	51.0	30.0	224.0
	%	38.4	24.5	22.8	14.3	100.0
<b>Emotional support</b>						
I've been getting emotional support from others.	n	35.0	67.0	73.0	49.0	224.0
	%	15.6	29.9	32.6	21.9	100.0
I've been getting comfort and understanding from someone else.	n	44.0	41.0	76.0	63.0	224.0
	%	19.6	18.4	33.9	28.1	100.0
<b>Instrumental support</b>						
I've been getting help and advice from other people.	n	30.0	37.0	90.0	67.0	224.0
	%	13.4	16.5	40.2	29.9	100.0
I've been trying to get advice or help from other people about what to do.	n	25.0	30.0	86.0	83.0	224.0
	%	11.1	13.4	38.4	37.1	100.0
<b>Behavioural disengagement</b>						
I've given up trying to deal with the problem.	n	84.0	40.0	75.0	25.0	224.0
	%	37.5	17.9	33.5	11.1	100.0
I've given up the attempt to cope.	n	109.0	44.0	44.0	27.0	224.0
	%	48.7	19.6	19.6	12.1	100.0
<b>Venting</b>						
I've been saying things to let my unpleasant feelings escape.	n	65.0	55.0	78.0	26.0	224.0
	%	29.0	24.6	34.8	11.6	100.0
I've been expressing my negative feelings.	n	56.0	60.0	75.0	33.0	224.0
	%	25.0	26.8	33.5	14.7	100.0

Item description	Responses (on a four-point Likert scale)					Total
		Haven't been doing this at all	I've been doing this a little bit	I've been doing this a moderate amount	I've been doing this a lot	
<b>Planning</b>						
I've been trying to come up with a strategy about what to do.	n	38.0	39.0	68.0	87.0	224.0
	%	13.4	17.4	30.4	38.8	100.0
I've been thinking hard about what steps to take.	n	30.0	36.0	75.0	83.0	224.0
	%	13.3	16.1	33.5	37.1	100.0
<b>Acceptance</b>						
I've been accepting the reality of the fact that it happened.	n	28.0	41.0	70.0	85.0	224.0
	%	12.4	18.3	31.3	38.0	100.0
I've been learning to live with it.	n	26.0	49.0	65.0	84.0	224.0
	%	11.6	21.9	29.0	37.5	100.0
<b>Religion</b>						
I've been trying to find comfort in my religion or spiritual beliefs.	n	23.0	49.0	78.0	74.0	224.0
	%	10.3	21.9	34.8	33.0	100.0
I've been praying or meditating.	n	23.0	57.0	65.0	77.0	224.0
	%	10.3	26.3	29.0	34.4	100.0
<b>Self-blame</b>						
I've been criticizing myself.	n	91.0	53.0	61.0	19.0	224.0
	%	40.6	23.7	27.2	8.5	100.0
I've been blaming myself for what happened.	n	74.0	64.0	60.0	26.0	224.0
	%	33.0	28.6	26.8	11.6	100.0
<b>Positive reframing</b>						
I've been trying to see it in a different light, to make it seem more positive.	n	54.0	74.0	74.0	21.0	224.0
	%	24.1	33.0	33.0	9.9	100.0
I've been looking for something good in what happened.	n	36.0	56.0	86.0	46.0	224.0
	%	16.1	25.0	38.4	20.5	100.0

#### **5.4.6.2 Correlation between stress burden of occupational exposure to maternal death as scored on the Death Distress Scale and methods of coping as scored on the Brief COPE Scale**

Table 5.25 shows the correlation between stress burden as scored on the *Death Distress Scale* and respondents' methods of coping. There was a positive correlation at different levels with all the coping methods pertaining to the dimensions of death obsession, death anxiety and death depression.

There was a significant **moderately positive correlation** between death anxiety and active coping ( $r_s=.589$ ;  $p<.01$ ); and planning ( $r_s=.544$ ;  $p<.01$ ). There was also a significant **low positive correlation** between death anxiety and instrumental support ( $r_s=.479$ ;  $p<.01$ ), acceptance ( $r_s=.476$ ;  $p<.01$ ), and emotional support ( $r_s=.449$ ;  $p<.01$ ). This can be interpreted that as respondents' death anxiety increased so would their use of active coping, planning, instrumental support, acceptance and emotional support coping methods. These were all **problem-focused coping methods** which are directed at analyzing and solving the problem (Kelso et al 2005:4; Matthieu & Ivanoff 2006:343). Problem-focused coping is also associated with positive health outcomes and general well-being (Lazarus & Folkman 1984:141). However, it appeared that death anxiety experienced by the respondents was not well moderated by the problem-focused coping because they still experienced moderate to high death anxiety in view of occupational exposure to maternal death.

There was a significant **moderate positive correlation** between death obsession and venting ( $r_s=.589$ ;  $p<.01$ ); positive reframing ( $r_s=.559$ ;  $p<.01$ ); self-distraction ( $r_s=.548$ ;  $p<.01$ ); emotional support ( $r_s=.527$ ;  $p<.01$ ), and religion ( $r_s=.524$ ;  $p<.01$ ), which means that an increase in death obsession among respondents would increase the use of venting, positive reframing, self-distraction, emotional support and religious coping methods. These methods were a **mixture of problem- and emotional-focused coping methods** (Folkman & Moskowitz 2004:751; Matthieu & Ivanoff 2006:343). The respondents experienced mild to moderate death obsession and **emotional-focused coping** was used to down-regulate the negative stress caused by experiencing maternal death, while **problem-focused coping** was specifically tailored to solving the problem.

There was a significant **moderate positive correlation** between death depression and; behavioural disengagement ( $r_s=.542$ ;  $p<.01$ ); self-distraction ( $r_s=.533$ ;  $p<.01$ ); and self-blame ( $r_s=.520$ ;  $p<.01$ ). There was also a **low positive correlation** between death depression, denial ( $r_s=.499$ ;  $p<.01$ ) and venting ( $r_s=.491$ ;  $p<.01$ ). Therefore it can be said that any increase in death depression among the respondents would increase the use of behavioural disengagement, self-distraction, self-blame, denial and venting coping methods. All the methods of coping used for regulating death depression were **emotional-focused coping methods**. Emotional-focused coping is directed at regulating emotional response to the problem (Lazarus & Folkman 1984:150). The respondents experienced mild death depression and emotion-focused coping methods were utilised in coping with their death depression (see detailed matrix - annexure S).

**Table 5.25 Correlation of Death Distress and methods used for coping**

Spearman's rank order Non parametric correlation		Death Distress Scale		
		Death obsession	Death anxiety	Death depression
Self-distraction	Correlation	.548**	.328*	.533**
	Sig. (2 tailed)	.000	.008	.000
	N	224	224	224
Active coping	Correlation	.411**	.589**	.290**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Denial	Correlation	.482**	.393**	.499**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Substance abuse	Correlation	.449**	.204**	.373**
	Sig. (2 tailed)	.000	.002	.000
	N	224	224	224
Emotional support	Correlation	.527**	.449**	.468**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Instrumental support	Correlation	.467**	.479**	.372**
	Sig. (2 tailed)	.000	.000	.002
	N	224	224	224
Behavioural disengagement	Correlation	.462**	.289**	.542**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Venting	Correlation	.589**	.334**	.491**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224

Spearman's rank order Non parametric correlation		Death Distress Scale		
Brief COPE		Death obsession	Death anxiety	Death depression
Positive reframing	Correlation	.559**	.208**	.343**
	Sig. (2 tailed)	.000	.002	.000
	N	224	224	224
Planning	Correlation	.476**	.544**	.372**
	Sig. (2 tailed)	.000	.000	.006
	N	224	224	224
Acceptance	Correlation	.438**	.476**	.312**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224
Religion	Correlation	.524**	.408**	.345**
	Sig. (2 tailed)	.000	.000	.037
	N	224	224	224
Self-blame	Correlation	.456**	.262**	.520**
	Sig. (2 tailed)	.000	.000	.000
	N	224	224	224

\*\*Correlation is significant at the 0.01 level (2 tailed)

## 5.5 INTEGRATING THE RESULTS INTO THE THEORETICAL FRAMEWORKS

The concept of stress burden which relates to concept of trauma as described by Horowitz *Stress Response Theory*, coping and well-being described by Lazarus and Folkman's *Transactional Stress Model* where effective in describing the effects of occupational exposure to maternal death on the well-being of professional midwives in rural Uganda. In this study stress burden of occupational exposure to maternal death was measured death distress (anxiety, depression and obsession) on the *Death Distress Scale*.

Results reveal that majority of the respondents 93.3% experienced moderate to high death anxiety. Horowitz' theory explains that anxiety could result when an individual fails to resolve the trauma in this case stress burden of occupation exposure to maternal death leading to psychological difficulties such as anxiety and depression (Horowitz 1986:236). In addition, Horowitz's theory discusses the use of avoidance coping which individuals adapt following a traumatic event to help in minimising the immediate distress caused by the exposure to trauma. This causes maladaptive behaviour thus exaggerating the anxiety response and could prevent emotional resolution producing intrusive repetition of the traumatic event (Holmes & Borne 2008: 553).

In the study majority of the midwives (71.0%) also experienced mild to moderate death obsession. Death obsession may relate to the intrusive repetition of unwanted thoughts, images and distress as explained by Horowitz's theory. Intrusive repetition often follows the avoidance phase and is indicative of intense fear causing emotional distress (Maercker et al 2007:138). This is not surprising since the midwives were not getting any support at the workplace following the occupational exposure to maternal death.

Lazarus and Folkman's model describes avoidance as an emotion-focused coping method which involves using behavioural efforts to escape or avoid the problem. In the study 68.3% of the respondents were using avoidance/denial to regulate negative emotions but this is often associated with negative outcomes (Lazarus & Folkman 1984:150). The respondents were also mostly using other emotional focused coping methods such as self-distraction, and venting. It is therefore not surprising that respondents rated themselves high to having physical un-wellness.

Horowitz's theory emphasises the adjustment process to help one adapt to trauma which involves to the use of healthy coping strategies (Horowitz 1985:95). Lazarus and Folkman's model describes these coping strategies are problem-focused which are aimed at managing the problem resulting into healthy outcomes (Lazarus & Folkman 1984:150). In the study the problem-focused coping methods mostly used such as seeking instrumental (78.6%) and emotional support (66.5%) may relate to the outcry phase of Horowitz's theory, planning (75.9%) and positive reframing (71.4%) may relate to the working through phase of Horowitz's theory, while acceptance (75.5%) and active coping (73.7%) may relate to the completion phase of Horowitz's theory. Therefore it is not surprising that the respondents reported having only mild death depression since they were using effective coping strategies and also rated themselves high on having psychological well-being. However the problem-focused coping methods used were not effective in regulating death anxiety and death obsession experienced by the respondents.

## **5.6 CONCLUSION**

Chapter 5 presented the data analysis and interpretation. The response rate for this study was 95.2%. Data was tested for normal distribution before being analysed using

the SPSS version 20. Cronbach's alpha test was used to test the reliability of the data-collection instrument and to determine the consistency of the responses from the respondents. The data was summarised by means of frequencies and percentages. The relationship between variables was determined using a non-parametric test, namely Spearman's rank correlation coefficients ( $r_2$ ) for variables on ordinal and nominal scales.

The first objective of the study was to estimate the self-reported stress burden of occupational exposure to maternal deaths among professional midwives using the *Death Distress Scale*. The general findings revealed that the respondents mostly experienced moderate to high death anxiety, mild to moderate death obsession, and mild death depression.

Objective 2 determined the effect of the identified stress burden on the physical and psychological well-being of the respondents. The majority of the respondents agreed that their physical well-being had been affected by experiencing maternal death. However, they also reported that their psychological well-being was slightly affected by occupational exposure to maternal death. The outcome from the *Perceived Well-Being Scale* cannot be attributed to maternal death experiences only because many people may feel depressed, tired, and have aches and pains from other causes.

The third objective identified the methods used by respondents to cope with occupational exposure to maternal death by means of the *Brief COPE Scale*. The main methods used to cope with maternal deaths were problem-focused coping methods, such as planning, acceptance and religion, which helped in managing or altering the distress.

Chapter 6 concludes the study, summarises the findings and limitations, and makes recommendations for practice and further research.

## CHAPTER 6

### FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 INTRODUCTION

This chapter concludes the study and briefly outlines the study, which focused on the stress burden resulting from occupational exposure to maternal death among professional midwives. A quantitative approach, using an exploratory, descriptive and correlation design, was used to conduct the study. The population consisted of professional midwives working in rural health care units in two selected rural districts, Mubende and Mityana, in Uganda, and data was collected by means of a combined structured questionnaire. The study was conducted to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives. Conclusions were drawn and considered and recommendations made for interventions to promote the coping mechanism and well-being of rural midwives in view of occupational exposure to maternal death, and for further research. This chapter presents a summary of the findings, conclusions, and limitations, and makes recommendations for practice and further research.

#### 6.2 AIM AND OBJECTIVES OF THE STUDY

The purpose of the study was to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives. The objectives of the study were to

- estimate the self-reported stress burden of occupational exposure to maternal deaths among professional midwives, using the *Death Distress Scale*
- determine the effect of the identified stress burden on the physical and psychological well-being of professional midwives, using the *Perceived Well-Being Scale*

- identify the methods used by professional midwives to cope with occupational exposure to maternal death, by means of the *Brief COPE Scale*
- propose interventions to promote the coping mechanisms and well-being of rural midwives in view of occupational exposure to maternal deaths

Two theoretical frameworks were particularly chosen to describe variables in the study, Horowitz's (1986:95) *Stress Response Theory* which explains the cognitive process in adaptation to trauma and Lazarus and Folkman's (1984:21) *Transitional Model of Stress and Coping* that explains the individual differences to trauma responses as well as the role of personal and environmental factors.

The conclusions, based on the findings, are presented according to the aim and objectives of the study and the sections of the questionnaire.

### **6.3 FINDINGS**

Chapter 5 presented the data analysis and interpretation of the results. The findings will be presented according to the objectives of the study and sections of the questionnaire, under the following headings: biographical information, organisational variables, occupational exposure to maternal death, stress burden of occupational exposure to maternal death as scored on the *Death Distress Scale*, effect of stress burden on physical and psychological well-being as scored on the *Perceived Well-being Scale*, and methods used by respondents to cope with maternal death as scored on the *Brief COPE Scale*.

#### **3.1 Biographical information**

The study involved a sample of 238 professional midwives who were predominantly female (n=192; 80.7%) and married (n=123; 52%). The majority of the respondents were aged 21-50 years (n=218; 91.5%) and their highest midwifery qualification was a diploma (n=152; 63.9%) although some were comprehensively trained enrolled nurse/midwives who were not as proficient in midwifery skills as they spent less time in midwifery training than the trained registered midwives.

Of the respondents, 33.6% (n=80) had been registered professional midwives for 6 years and longer, 32.8% (n=78) for 2-3 years; 46.2% (n=110) were employed in health centre IIs, which provide outpatient curative services, and 37.4% (n=89) were employed in health centre IIIs, which provide out-patient and in-patient health care services and basic emergency obstetric care. Of the respondents, 51.7% (n=123) had been working in the obstetric ward or clinic for three to seven and more years.

Of the respondents, 40.8% (n=97) were working in the antenatal clinic, and 35.5% (n=84) were working in the delivery wards. The services mostly delivered by the respondents were antenatal care (94.5%; n=225); delivery (81.1%; n=193) and family planning services (81.1%; n=193). Of the respondents, 51.3% (n=122) provided emergency obstetric care services, while 48.7% (n=116) did not deliver emergency obstetric services at all.

### **6.3.2 Organisational variables**

The rural health care units where the respondents worked had 11-40 beds (44.1%; n=105) on average and the majority of the respondents (71.4%; n=170) were involved in other health care services, especially general nursing care (38.8%; n=66), immunisation (24.7%; n=42) and community outreaches (21.8%; n=37). Of the respondents, 74.4% (n=177) reported that they had no functional ambulance services and 58.8% (n=140) did not have communication services at the health care units.

### **6.3.3 Occupational exposure to maternal death**

Of the respondents, 94.1% (n=224) had witnessed a mother dying during labour; 38% (n=85) had witnessed at least 2-3 maternal deaths, and 27.7% (n=62) had witnessed at least one maternal death. Of the respondents, 67.0% (n=150) had been in charge of a patient 1-3 times when maternal death occurred; 76.3% (n=171) had requested emergency assistance for 1-3 patients, and 26.5% (n=63) received emergency assistance "too late to be of value". Emergency assistance was mainly sought from doctors (70.5%; n=158) and other midwives (63.4%; n=142) who worked in the same health care unit.

Most of the mothers had died due to haemorrhage (58.9%; n=132) and the respondents' main obligations after the mother's death were: informing the relatives (80.3%; n=180), writing an incident report (76.8%; n=172) and preparing the corpse for the mortuary (61.6%; n=138). Of the respondents, 56.7% (n=127) did not receive support in the workplace after experiencing maternal death, while 43.3% (n=97) received support as follows: emotional support from colleagues (31.0%; n=30), consolation from relatives of the deceased after certifying death (29.9%; n=29), and through maternal death auditing meetings (26.8%; n=26).

Of the respondents, 48.2% (n=108) had last experienced maternal death during the previous 1 to 12 months while 32.2% (n=72) had experienced maternal death a year ago or longer; 44.3% (n=106) rated the frequency of maternal death experiences at the workplace as *not often*, and 38.2% (n=91) rated it *often*; 57.1% (n=136) reported that professional training had prepared them well to handle death situations, 42.9% (n=102) reported that professional training had not prepared them, and 41.6% (n=99) reported that they had been *well prepared* to handle maternal death situations, while 4.2% (n=10) were *not prepared at all*.

#### **6.3.4 The respondents' self-reported stress burden of occupational exposure to maternal deaths, using the *Death Distress Scale***

Objective 1 of the study was to estimate the self-reported stress burden of occupational exposure to maternal deaths among professional midwives, using the *Death Distress Scale* (see chapter 5, table 5.18 and 5.19). The *Death Distress Scale* measures death distress under the three domains of death anxiety, death depression, and death obsession (Abdel-Khalek 2011:172). For the purposes of analysis and reporting, the 'little' and 'moderate' scores were combined as well as the 'much' and 'very much' the scores.

##### **6.3.4.1 *Death obsession scale***

The responses were to eight items measuring the respondents' death obsession. On the death obsession scale, the majority of the respondents, 24.1% to 46.9% (n=54 to 105) indicated *no*, while between 32.6% and 43.3% (n=73 to 97) indicated *little* or *moderate*, which meant that the majority of the respondents did not rate themselves

high on the death obsession scale. Thus, it can be said that the respondents rated themselves as having a mild to moderate death obsession.

#### **6.3.4.2 Death anxiety scale**

The death anxiety scale covered eight items. In the four positively stated questions (“No”=1 to “Very much”=5), 28.1% to 48.6% (n=63 to 109) of the respondents indicated *little* or *moderate*, while 26.3% to 61.2% (n=59 to 137) indicated *much* or *very much*. This implied that the majority of the respondents rated themselves as having moderate to high death anxiety in response to the positive statements on the scale.

In the four negatively stated questions (“No”=5 to “Very much”=1), 30.3% to 56.7% (n=68 to 127) of the respondents indicated *little* or *moderate*, while 33.5% to 39.9% (n=75 to 89) indicated *no*, implying that they did not agree with the statements regarding not having death anxiety. The majority of the respondents rated themselves as having moderate death anxiety in response to the negative statements on this scale. Therefore the respondents rated themselves as having moderately to high death anxiety in the eight items on the death anxiety scale.

#### **6.3.4.3 Death depression scale**

In this section, eight items measured the respondents' death depression. On the death depression scale, between 37.1% and 58.5% (n=83 and 131) of the respondents indicated *no* while 30.5% to 43.3% (n=68 to 97) indicated a *little* or *moderate*. This indicated that less than half of the respondents rated themselves as having little or mild death depression.

#### **6.3.4.4 Correlation between the respondents' stress burden as scored on the death distress scale, biographical information, organisational variables and occupational exposure to maternal death**

Correlation was computed between the respondents' scores on the death distress subscales (death obsession, death anxiety and death depression) and biographical information, organisational variables and occupational exposure to maternal death (see table 5.20).

A significant but **low positive correlation** was found between the respondents' death obsession and the variables of age ( $r_s=.223$ ;  $p<.01$ ); length of time of working on the obstetric unit or ward ( $r_s=.145$ ;  $p<.01$ ), and frequency of experiencing maternal death in current practice ( $r_s=.169$ ;  $p<.01$ ). Thus it can be said that as the respondents' age, length of working on obstetric ward or unit and frequency of experiencing maternal death went up, so did their death obsession. In addition, there was a significant but **low negative correlation** between death obsession and witnessing a maternal death ( $r_s= -.305$ ;  $p<.01$ ) and the number of maternal deaths witnessed ( $r_s= -.408$ ;  $p<.01$ ), which meant that as witnessing a maternal death and number of deaths witnessed increased, the respondents' death obsession reduced.

The findings also indicated a significant but **low negative correlation** between death anxiety and the following modifiable variables: witnessing a maternal death ( $r_s= -.343$ ;  $p<.01$ ); number of maternal deaths witnessed ( $r_s= -.408$ ;  $p<.01$ ); professional training preparation to handle death situations ( $r_s= -.198$ ;  $p<.01$ ); and how well professional training prepared midwives to handle death situations ( $r_s= -.172$ ;  $p<.01$ ). It can be said that as these modifiable variables increased, the respondents' death anxiety decreased.

A **low positive correlation** was found between death depression and the following variables: respondents' education ( $r_s= .225$ ;  $p<.01$ ); type of health facility the respondents' are currently employed in ( $r_s= .136$ ;  $p<.05$ ), and involvement in other health care activities ( $r_s= .157$ ;  $p<.01$ ), hence it can be deduced that as the respondents' education, and involvement in other health care activities increased so did their death depression. Furthermore, a significant but **low negative correlation** between death depression and the variables: witnessing a maternal death ( $r_s= -.325$ ;  $p<.01$ ); number of maternal deaths witnessed ( $r_s= -.408$ ;  $p<.01$ ), and the last time the respondents experienced death at the workplace ( $r_s= -.132$ ;  $p<.05$ ), thus it is evident that an increase in witnessing a maternal death, the number of maternal death witnessed and the last time they experienced death at the workplace decreased the respondents' death depression.

### **6.3.5 Determine the effect of the identified stress burden on the respondents' physical and psychological well-being**

Objective 2 was to determine the effect of the identified stress burden on the respondents' physical and psychological well-being, using the *Perceived Well-Being Scale* rated on a 7-point Likert scale from "strongly agree" to "strongly disagree" (see chapter 5, table 5.21). The values attributed to *strongly agree*, *agree* and *moderately agree* were grouped together for ease of discussion. Cumulative percentages were also used for the values attributed to *strongly disagree*, *disagree* and *moderately disagree*.

#### **6.3.5.1 Physical well-being scale**

The response was to six items measuring the respondents' physical well-being. The results on the *Physical well-being scale* show that of the respondents, 43.7% and 60.8% (n=98 and 136) indicated *strongly agreed*, *agreed* or *moderately agreed* ("Strongly Agree"=7 to "Strongly Disagree"=1) to having physical un-wellness, while between 65.2% and 83.6% (146 and 187) indicated *strongly disagreed*, *disagreed* or *moderately disagreed* ("Strongly Agree"=1 to "Strongly Disagree"=7) as the items were negatively stated regarding having physical wellness. This indicates that many of the respondents rated themselves as being physically un-well as scored on the *Physical well-being scale*.

#### **6.3.5.2 Psychological well-being scale**

Eight items measured the respondents' psychological well-being. On the *Psychological well-being scale* between 77.7% and 82.7% (n=174 and 185) of the respondents indicated *strongly agreed*, *agreed* or *moderately agreed* ("Strongly Agree"=7 to "Strongly Disagree"=1) in regard to being psychologically well, while between 29.3% and 73.2% (n=66 and 164) indicated *strongly disagreed*, *disagreed* or *moderately disagreed* ("Strongly Agree"=1 to "Strongly Disagree"=7) to items that were negatively stated in respect of being psychologically un-well. The respondents agreed to: being excited to be alive (82.6%; n=185), having peace of mind (79.0%; n=177), and feeling that life is worth living (77.7%; n=174), thus demonstrating that the majority of the respondents' rated themselves as being psychologically well as scored on the *Psychological well-being scale*.

### **6.3.5.3 Correlation between stress burden of occupational exposure to maternal death as scored on the Death Distress Scale and Perceived Well-being Scale**

Correlation was computed between the respondents' scores on the death distress subscales (death obsession, death anxiety and death depression) and perceived well-being subscales (physical and psychological well-being) (see chapter 5, table 5.22). There was a significant but **low positive correlation** between; death obsession, physical ( $r_s=.238$ ;  $p<.01$ ) and psychological well-being ( $r_s=.231$ ;  $p<.01$ ); death anxiety, physical ( $r_s=.259$ ;  $p<.01$ ) and psychological well-being ( $r_s=.329$ ;  $p<.01$ ), and death depression and physical well-being ( $r_s=.157$ ;  $p<.05$ ). Thus it can be interpreted that as the respondents' death obsession and death anxiety increased, so did their physical un-wellness and psychological wellness. In addition, an increase in the respondents' death depression increased their physical un-wellness. Therefore in order to improve the respondents' physical wellness and psychological wellness, there is a need to regulate modifiable factors that affected their death obsession, death anxiety and death depression.

### **6.3.5.4 Correlation between the respondents' biographical information, organisational variables and occupational exposure of maternal death and perceived well-being**

Correlation was computed between the respondents' biographical information, organisational variables, occupational exposure to maternal death and perceived well-being subscale (physical and psychological well-being) (see chapter 5, table 5.23).

There was a significant but **low positive correlation** between physical well-being and the variables: age ( $r_s=.145$ ;  $p<.05$ ), years of professional experience ( $r_s=.136$ ;  $p<.05$ ); obstetric ward or unit midwife is working in ( $r_s=.140$ ;  $p<.05$ ); and how often the respondents experienced maternal death in practice ( $r_s=.182$ ;  $p<.01$ ). This meant that as the respondents' age, years of professional experiences, length of working on the obstetric ward and frequency of experiencing maternal death in practice increased so did their physical un-wellness. Therefore regulating adjustable factors, such as length of working on the obstetric ward and frequency of experiencing maternal death in practice, would improve midwives' physical well-being.

The findings also revealed a significant but **low positive correlation** between psychological well-being and the variables: age ( $r_s=.151$ ;  $p<.05$ ); years of professional experience ( $r_s=.209$ ;  $p<.01$ ); length of time of working on obstetric ward or unit ( $r_s=.186$ ;  $p<.01$ ), and the last time the respondents experienced maternal death in the workplace. This means that as the respondents' age, years of professional experience and length of working on obstetric ward increased, so did their psychological wellness. Therefore the respondents' psychological wellness would be sustained by regulating the modifiable variables length of time working on an obstetric ward or unit and curtailing maternal death exposure.

In addition, a significant but **low negative correlation** was found between physical well-being, marital status ( $r_s=-.201$ ;  $p<.01$ ) and the respondents' involvement with other health care activities ( $r_s= -.340$ ;  $p<.01$ ). Furthermore, a significant but **low negative correlation** was also found between psychological well-being, marital status ( $r_s= -.163$ ;  $p<.05$ ), respondents' involvement with other health care activities ( $r_s= -.408$ ;  $p<.01$ ) and support received from the workplace after experiencing maternal death ( $r_s= -.180$ ;  $p<.01$ ). It is thus evident that an increase in the need to be involved in other health care activities would decrease their physical and psychological wellness.

### **6.3.6 Methods used by the respondents to cope with occupational exposure to maternal death by means of the *Brief COPE Scale***

Objective 3 of the study was to identify the methods used by the respondents to cope with occupational exposure to maternal death, using the *Brief COPE Scale*.

#### **6.3.6.1 Respondents' responses on the *Brief COPE Scale***

The *Brief COPE Scale* measured the respondents' thirteen methods of coping (see chapter 5, table 5.24). The coping methods that listed the highest responses on the *I've been doing this a lot* Likert scale were planning 75.9% ( $n=170$ ), acceptance 75.5% ( $n=169$ ) and religion 67.4% ( $n=151$ ), therefore it can be said that planning, acceptance and religion were the methods mostly used by the respondents to cope with maternal death. The methods of coping that were used moderately were instrumental support (78.6%;  $n=176$ ); active coping (73.7%;  $n=165$ ); self-distraction (72.3%;  $n=162$ ); positive reframing (71.4%;  $n=160$ ); denial and venting (68.3%;  $n=153$ ); and emotional support

(66.5%; n=149), while those used the least were substance abuse (98.2%; n=220); behavioural disengagement (86.2%; n=193), and self-blame (73.6%; n=165). The respondents' used both problem-focused and emotional-focused coping methods to cope with occupational exposure to maternal death. Problem-focused methods are directed at managing or altering the problem causing the distress and emotional-focused coping is directed at regulating the emotional response to a problem (Lazarus & Folkman 1984:150).

### **6.3.6.2 Correlation between stress burden of occupational exposure to maternal death as scored on the Death Distress Scale and Brief COPE Scale**

Correlation was computed between the respondents' scores on the death distress subscales (death obsession, death anxiety and death depression) and the 13 methods of coping (see chapter 5, table 5.25).

There was a significant **moderate positive correlation** between death anxiety and active coping ( $r_s=.59$ ;  $p<.01$ ); and planning ( $r_s=.544$ ;  $p<.01$ ). A significant **low positive correlation** was also found between death anxiety and instrumental support ( $r_s=.479$ ;  $p<.01$ ), acceptance ( $r_s=.476$ ;  $p<.01$ ), and emotional support ( $r_s=.449$ ;  $p<.01$ ). This can be interpreted that as the respondents' death anxiety increased, so did their use of coping methods such as active coping, planning, instrumental support, acceptance and emotional support. All of these coping methods were problem-focused coping strategies except for emotional support which aimed at managing or altering the distress (Matthieu & Ivanoff 2006:343).

There was also a significant **moderate positive correlation** between death obsession and venting ( $r_s=.589$ ;  $p<.01$ ); positive reframing ( $r_s=.559$ ;  $p<.01$ ); self-distraction ( $r_s=.548$ ;  $p<.01$ ); emotional support ( $r_s=.527$ ;  $p<.01$ ); and religion ( $r_s=.524$ ;  $p<.01$ ), which means that an increase in the respondents' death obsession increased their use of coping methods such as venting, positive reframing, self-distraction, emotional support and religion. Furthermore, a significant **moderate positive correlation** was found between death depression and; behavioural disengagement ( $r_s=.542$ ;  $p<.01$ ); self-distraction ( $r_s=.533$ ;  $p<.01$ ); and self-blame ( $r_s=.520$ ;  $p<.01$ ), whereas a significant **low positive correlation** was found between death depression, denial ( $r_s=.499$ ;  $p<.01$ ) and venting ( $r_s=.495$ ;  $p<.01$ ). Therefore it can be said that any increase in death depression

among the respondents increased their use of behavioural disengagement, self-distraction, self-blame, denial and venting as coping methods, which were emotion-focused coping strategies aimed at regulating the respondents' emotions.

## **6.4 GENERAL CONCLUSIONS**

The study clearly established some of the factors that contribute to the stress burden resulting from occupational exposure to maternal death among the respondents (professional midwives) working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being. The general conclusions for this study were based on the variables in the two theoretical frameworks used, namely Horowitz's (1986:95) *Stress Response Theory* and Lazarus and Folkman's (1984:21) *Transitional Model of Stress and Coping*. The findings of this study are summarised according to the sections of the questionnaire and the objectives of the study under the following headings:

### **6.4.1 Biographical information**

- The majority of the respondents had a diploma in midwifery, and some who were comprehensively trained enrolled nurse/midwives were not as proficient in midwifery as they spent less time in midwifery training than the trained registered midwives.
- The respondents had been registered midwives for 6 years or longer but this did not necessarily mean providing quality midwifery care, especially if the respondents had only worked in the obstetric ward for a few years, which gave them much less experience in this discipline.
- Less than a third of the respondents reported that they did not deliver emergency obstetric services at all.

#### **6.4.2 Organisational variables**

- The majority of the respondents reported having no adequate ambulance services at the health care unit.
- Most of the respondents reported having no functional communication services.
- The respondents were involved in delivering other health care services, which might compromise the provision of quality maternal health care services.

#### **6.4.3 Respondents' occupational exposure to maternal death**

- Most of the respondents had witnessed a mother dying during child labour.
- Many of the respondents had experienced multiple maternal deaths, and less than a half had experienced them during the previous 1 to 12 months.
- The respondents had many role expectations to fulfil following the mothers' death, leaving them less time to ponder on the death.
- Most of the respondents reported that they did not receive deliberate support at the workplace after experiencing maternal death.
- Less than a half of the respondents were of the opinion that they had not been prepared professionally to handle occurrences of maternal death.
- Some of the respondents stated that they were not well prepared, while others were not prepared at all to handle maternal death situations.

#### **6.4.4 The self-reported stress burden of occupational exposure to maternal deaths among the respondents, using the *Death Distress Scale***

The results from the *Death Distress Scale* showed that the respondents experienced mild to moderate death obsession, moderate to high death anxiety, and mild death depression.

#### **6.4.4.1 *Death obsession scale***

The majority of the respondents did not rate themselves high on the death obsession scale. Nevertheless, since a positive correlation was reported between death obsession and the modifiable variables: length of working on the obstetric ward, and frequency of experiencing maternal death, an increase in these factors increased death obsession. In addition, a negative correlation was reported between death obsession and the variables witnessing a maternal death and number of deaths witnessed, therefore an increase in the variables reduced the respondents' death obsession.

#### **6.4.4.2 *Death anxiety scale***

The respondents rated themselves as having moderate to high death anxiety on the *Death Distress Scale*. A negative correlation was reported between death anxiety and the modifiable variables: professional training preparation to handle death situations and how well professional training prepared them to handle death situations, thus an increase in these variables reduced the respondents' death anxiety.

#### **6.4.4.3 *Death depression scale***

The respondents rated themselves as having mild death depression as scored on the *Death Distress Scale*. Although the respondents experienced little death depression, a positive correlation was reported between death depression and the modifiable variables: education and involvement in other health care activities therefore that an increase in these variables increased the respondents' death depression. In addition a negative correlation was reported between: death depression and witnessing a maternal death, number of maternal deaths witnessed, and the last time the respondents experienced a maternal death at the workplace, thus any decrease in these variables eliminated their death depression.

#### **6.4.5 Determine the effect of the identified stress burden on physical and psychological well-being of the respondents, using the *Perceived Well-being Scale***

The results from the *Perceived well-being Scale* showed that the majority of the respondents *strongly disagreed, disagreed* and *moderately disagreed* with having physical wellness, but *strongly agreed, agreed* and *moderately agreed* with being psychologically well.

##### **6.4.5.1 *Physical well-being scale***

The respondents rated themselves as physically un-well as scored on the *Perceived Well-being Scale*. A positive correlation was found between physical well-being and the modifiable variables: how often the respondents experienced maternal death in practice, obstetric ward or unit in which they were working, hence it was deduced that an increase in these variables increased the respondents' physical un-wellness. A negative correlation was also found between physical well-being and the respondents' involvement in other health care activities, thus increased involvement in other care activities reduced the respondents' physical wellness.

##### **6.4.5.2 *Psychological well-being scale***

The respondents rated themselves as having psychological wellness on the *Perceived Well-being Scale*. A positive correlation was found between psychological well-being and the modifiable variables: length of time of working on obstetric ward or unit, the last time respondents experienced maternal death in the workplace, respondents' death obsession and death anxiety. Therefore, as these variables increased so did the respondents' psychological well-being. A negative correlation was also found between psychological well-being and the respondents involvement in other health care activities, thus an increase in these variables reduced the respondents' psychological wellness.

#### **6.4.6 Methods used by the respondents to cope with occupational exposure to maternal death, using the *Brief COPE Scale***

The methods of coping that the respondents used the most as scored on *the Brief COPE Scale* to cope with maternal death were planning, acceptance and religion, and those used the least were self-blame, behavioural disengagement and substance abuse.

The respondents' **death anxiety** was regulated by using methods of coping, such as active coping, planning, instrumental support, acceptance and emotional support because of their positive correlation with death anxiety. These methods were problem-focused coping methods which helped in managing or altering the problem (Folkman & Moskowitz 2004:751).

The respondents' **death obsession** was regulated by using methods of coping, such as venting, positive reframing, self-distraction, emotional support and religion, because of their positive correlation. These methods were both problem-focused and emotion-focused coping methods. An increase in the respondents' death obsession increased the use of these coping methods.

The respondents' **death depression** was regulated by using coping methods such as: behavioural disengagement, self-distraction, self-blame, denial and venting because of their positive correlation. Thus an increase in the respondents' death depression increased the use of these coping methods. These were all emotion-focused coping methods which help in regulating emotions (Matthieu & Ivanoff 2006:343). However, these coping methods were effective in regulating the respondents' depression since they rated themselves as having little death depression.

### **6.5 RECOMMENDATIONS TO PROMOTE THE COPING MECHANISM AND WELL-BEING OF RURAL MIDWIVES IN VIEW OF OCCUPATIONAL EXPOSURE TO MATERNAL DEATH**

Based on the foregoing conclusions the following proposed interventions and recommendations are made to promote coping and the well-being of rural midwives in respect of occupational exposure to maternal death.

The proposed interventions and recommendations for addressing the identified key findings within the context for coping and well-being of rural midwives because of frequently experiencing maternal death are presented in tabular format. Table 6.1 highlights the key finding, proposed intervention, responsible person and the recommendations for practice in the health sector. Table 6.1 presents recommendations to promote the coping mechanisms and well-being of rural midwives in respect of occupational exposure to maternal death.

The proposed interventions may apply to several findings, and the recommendations made in respect of the findings will be discussed fully and cross-references made in order to avoid duplication.

**Table 6.1 Recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death**

Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death			
Key research finding to support the proposed intervention	Proposed intervention	Responsible person	Recommendation for practice in the health sector
<b>Biographical information</b>			
<ul style="list-style-type: none"> <li>a. The majority of the respondents had a diploma in midwifery, and some who were comprehensively trained enrolled nurse/midwives were not so proficient in midwifery as they spent less time in midwifery training than registered midwives.</li> <li>b. The respondents had been registered midwives for 6 years or longer but this did not necessarily mean providing quality midwifery care especially if the respondent had only worked in the obstetric ward for a few years, which might have given them limited obstetric experience.</li> <li>c. Less than a third of the respondents reported that they did not deliver emergency obstetric services at their health care facilities.</li> </ul>	<ul style="list-style-type: none"> <li>a. Provide education on issues of death and dying for midwives in training.</li> <li>b. Upgrade skills and competency of midwives to manage normal and complicated deliveries.</li> <li>c. Deliver continuing in-service training programmes on death issues for midwives in clinical practice.</li> <li>d. Deliver emergency obstetric care in all health centres III and IV since 97.2% of health facilities expected to deliver emergency care are not doing so (Mbonye et al 2007:220).</li> </ul>	<ul style="list-style-type: none"> <li>a. Midwifery educators</li> <li>b. Midwifery employers</li> <li>c. District health officials</li> <li>d. Midwives</li> </ul>	<ul style="list-style-type: none"> <li>a. Midwifery training institutions should integrate education on issues of death and dying into the midwifery curriculum at all levels.</li> <li>b. Midwifery education at every level should also include competency-based skills training so that situations such as maternal death resulting from lack of skills become extremely limited.</li> <li>c. The district health officials should strengthen in-service training for midwives on issues of death and dying to help them cope with stress associated with death issues and should be tailored to meet the needs of health workers in clinical practice. Lazarus and Folkman's model stresses that an individual's education may play a role in determining stress outcomes and well-being (Lazarus &amp; Folkman 1984:234).</li> <li>d. The district health officials should collaborate with the health unit managers to put in place clear standards for when and how to provide in-service training at the health care unit.</li> </ul>

Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death			
Key research finding to support the proposed intervention	Proposed intervention	Responsible person	Recommendation for practice in the health sector
			<p>e. Midwives should be pro-active in planning for, and attending in-service training programmes to keep up to date on skill competences and help them cope with stressors encountered in midwifery practice.</p> <p>f. The Ministry of Health and district health officials should see that all health facilities have adequate and essential supplies, equipment and well-trained medical personnel to provide basic emergency obstetric care because maternal deaths that occur in health facilities are mainly due to inadequate care and supplies, especially lack of blood transfusion, inadequate skills to perform assisted vaginal deliveries and removal of retained products (Mbonye et al 2007:224).</p> <p>g. District health officials should collaborate with health care unit managers to set up refresher training and continuing education programmes to maintain and improve the competencies of midwives in delivering emergency obstetric care.</p>
Organisational variables			
<p>a. The majority of the respondents reported having no adequate ambulance services at the health care unit.</p> <p>b. Most of the respondents reported having no</p>	<p>a. Increase access to adequate emergency transport such as ambulances.</p>	<p>a. District health officials</p> <p>b. Employers</p> <p>c. Communities</p>	<p>a. Communities should set up community savings and cost-sharing financial mechanisms to pay for transport, fuel costs and</p>

<b>Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death</b>			
<b>Key research finding to support the proposed intervention</b>	<b>Proposed intervention</b>	<b>Responsible person</b>	<b>Recommendation for practice in the health sector</b>
<p>functional communication services.</p> <p>c. The respondents were required to deliver other health care services, which might compromise the provision of quality maternal health care services.</p>	<p>b. Provide cheap and effective communication systems.</p> <p>c. Advocate for midwives to work on obstetric wards or units only.</p>	<p>d. Health unit managers</p>	<p>drivers during an emergency.</p> <p>b. District health officials and health unit managers should advocate and budget for and install a radio communication system which is cheaper than other telephone services but effective among referral centres and ambulance services for patient transport to the health care units. These have proved to be effective in other rural districts in Uganda such as Soroti, Iganga (Murk 2009:79).</p> <p>c. Other means should be found to staff the general wards instead of requiring midwifery personnel to work in other wards when they have obstetric cases to attend to.</p>
<b>Midwives' occupational exposure to maternal death</b>			
<p>a. Most of the midwives had witnessed one or more mothers dying during child labour during the previous 1-12 months.</p> <p>b. The respondents had many role expectations to fulfil following the mother's death, leaving them less time to ponder on the death.</p> <p>c. Most of the respondents reported that they did not receive deliberate support at the workplace after experiencing maternal death.</p> <p>d. Less than a half of the respondents were of the opinion that they had not been prepared professionally to handle occurrences of maternal death.</p>	<p>a. Set up or strengthen support systems for midwives' at the work place in view of occupational exposure to maternal death.</p> <p>b. Strengthen maternal death audit meetings at the workplace.</p> <p>c. Introduce a respite care plan for midwives</p> <p>d. Mentor novice midwives.</p>	<p>a. Midwifery employers</p> <p>b. Midwives</p> <p>c. District health officials</p> <p>d. Psychiatric nurse/psychologists</p>	<p>a. Midwifery employers and health unit managers should set up support groups in the workplace for midwives after experiencing death situations. Support could be provided by another midwife, health unit manager, religious leaders or family members and this could be helpful in experience sharing since some of them could have gone through similar experiences to help them explore psychological reactions to the situation. This is comparable to the working through phase of Horowitz's theory to</p>

Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death			
Key research finding to support the proposed intervention	Proposed intervention	Responsible person	Recommendation for practice in the health sector
	<ul style="list-style-type: none"> <li>e. See also: <i>intervention b</i> under biographical information section.</li> <li>f. Set up debriefing or teambuilding systems for midwives' at the workplace in view of occupational exposure to maternal death.</li> </ul>		<p>support healthy coping (Horowitz 1986:95).</p> <ul style="list-style-type: none"> <li>b. The district health officials should scale- up counselling services to address and provide accessible support in view of occupational exposure to maternal death for midwives at the health care units.</li> <li>c. Midwifery employers should strengthen and improve maternal death audit meetings, as encouraged by the MoH Uganda, to discuss any health, social or contributory factors to maternal death, so that recommendations can be made to prevent similar future deaths. These meetings should not be used as a forum to blame anyone but to learn lessons. This is comparable to the completion phase of Horowitz's theory where one accepts what happened and helps to problem-solve and prevent other traumatic incidences (Horowitz 1986:95).</li> <li>d. Midwifery employers should collaborate with the midwives to set up a respite care plan of when and how respite care should be taken when necessary in order to reduce death anxiety, physical un-wellness and decrease stress burden attributed to death experiences.</li> <li>e. Midwifery employers and supervisors should introduce a</li> </ul>

Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death			
Key research finding to support the proposed intervention	Proposed intervention	Responsible person	Recommendation for practice in the health sector
			<p>mentoring plan at the workplace. All novice or new midwives working on the obstetric ward or unit should be allocated to an experienced midwife to help them adjust, learn and cope with the challenges experienced because of working in the rural health units. They may meet regularly to discuss any issues arising or when they feel it is necessary and these meetings should be documented and seen as a support system.</p> <p>f. The midwives should collaborate with the psychiatric nurse/psychologist to take over the responsibility to initiate debriefing and team-building sessions to support, mentor and supervise each other on a regular basis in view of occupational exposure to maternal death. These are active coping methods supported by Lazarus and Folkman's model to support healthy coping.</p>
The self-reported stress burden of occupational exposure to maternal deaths among professional midwives using the <i>Death Distress Scale</i>			
<p>a. The respondents experienced moderate to high death anxiety, mild to moderate death obsession, and mild death depression.</p> <p>b. The respondents' death obsession increased if length of working on obstetric ward and frequency of experiencing maternal death increased, however it would decrease if witnessing a maternal death and number of</p>	<p>a. See also: <i>intervention a, b and c</i> under the section on occupational exposure to maternal death.</p>	<p>b. Midwifery employers</p> <p>c. Midwives</p> <p>d. Researchers</p> <p>e. Midwifery educators</p>	<p>a. Midwives, midwifery educators, researchers and employers need to monitor (using incident reports, observations and meetings) and understand the impact of occupational exposure and experience of maternal death on patient care and quality of</p>

Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death			
Key research finding to support the proposed intervention	Proposed intervention	Responsible person	Recommendation for practice in the health sector
<p>deaths witnessed increased.</p> <p>c. The respondents' death anxiety would decrease if professional training preparation to handle death situations increased.</p> <p>d. The respondents' death depression would increase if education and involvement in other health care activities increase, but would decrease if witnessing a maternal death, number of maternal deaths witnessed and the last time they experienced a maternal death at the workplace increased.</p>			<p>professional life in order to initiate studies on death issues, facilitate effective support mechanisms, enhance quality of midwifery care, promote healthy work environments and midwives' professional quality of work- life. Horowitz's theory supports working through the traumatic event to help one adapt to trauma whereas Lazarus and Folkman model stresses using problem-based focused methods such as planning, positive reframing, acceptance to manage the problem leading to positive health outcomes.</p> <p>b. Midwives, midwifery educators, researchers and employers need to address midwives' modifiable factors which exaggerate maternal death distress such as: midwifery education, witnessing one or more maternal deaths, professional training preparation on how to handle death situations and midwives' involvement in other health care activities.</p> <p>c. See also: <i>recommendations b and e</i> under occupational exposure to maternal death and <i>recommendation a</i> under biographical information.</p>
The effect of the identified stress burden on physical and psychological well-being of the professional midwives			
a. The respondents' rated themselves as physically	a. Address midwives'	a. Midwifery	a. Midwives, midwifery educators,

Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death			
Key research finding to support the proposed intervention	Proposed intervention	Responsible person	Recommendation for practice in the health sector
<p>un-well as a result of repeated occupational exposure to maternal death.</p> <p>b. An increase in the respondents' death obsession, death anxiety and death depression increased their physical un-wellness.</p> <p>c. The respondents' physical un-wellness increased if frequency of experiencing maternal death in practice increased and physical wellness would reduce with increased involvement in other health care activities.</p> <p>d. The respondents' psychological wellness would increase if length of working on the ward and last time they witnessed maternal death increased and it would decrease with increased involvement with other health care activities. In addition increased support received from the workplace after witnessing maternal death would increase their psychological well-being.</p>	<p>modifiable factors that result from occupational exposure to maternal death.</p> <p>b. Ensure midwives have annual medical check- ups.</p> <p>c. Reinforce the use of counselling services.</p>	<p>employers</p> <p>b. Midwives</p> <p>c. Researchers</p> <p>d. Midwifery educators</p> <p>e. District health officers</p>	<p>researchers and employers need to address midwives' modifiable factors which exaggerate their physical un-wellness and maintain psychological well-being, such as the last time they experienced maternal death in the workplace, and support received from the workplace after experiencing maternal death. Addressing these factors will solve the problem causing distress resulting into functional health outcomes such as physical and psychological well-being as supported by Lazarus and Folkman's model (Lazarus &amp; Folkman 1984:234).</p> <p>b. The district health officials and employers should scale-up the free medical care given to health care workers to include work-related psychosocial issues and make referrals to professional therapists, if necessary, for the midwives to receive proper care.</p> <p>c. Midwifery employers should make it mandatory that midwives have an annual medical check-up and a copy of the report sent to the employer to help in making a follow-up plan in case of any problems.</p> <p>d. See also: <i>recommendation b</i> under occupational exposure to maternal death.</p>

Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death			
Key research finding to support the proposed intervention	Proposed intervention	Responsible person	Recommendation for practice in the health sector
<b>Methods used by the respondents to cope with occupational exposure to maternal death</b>			
<p>a. The respondents used effective coping methods, such as planning, acceptance, religion, instrumental support, and emotional support to help them cope with occupational exposure to maternal death. However, they were not very effective in controlling the moderate to high death anxiety experienced.</p> <p>b. Using both problem-focused and emotion-focused coping methods, such as venting, positive reframing, self-distraction, emotional support and religion, was effective in regulating the respondents' death obsession.</p> <p>c. The respondents' death depression was regulated by using emotion-focused coping methods, such as behavioural disengagement, self-distraction, self-blame, denial and venting.</p>	<p>a. See also: <i>intervention a and c</i> under occupational exposure to maternal death.</p> <p>b. See also: <i>intervention c</i> under physical and psychological well-being.</p>	<p>a. Midwifery employers</p> <p>b. Midwifery educators</p> <p>c. Midwifery managers</p>	<p>a. Midwifery employers and health care unit managers should encourage midwives to continue using problem- focused and emotion-focused coping methods together with other deliberate strategies, such as counselling, support care, respite care, death education, to facilitate coping with the stress burden of occupational exposure to maternal death. These are methods are supported by Lazarus and Folkman's model (Lazarus &amp; Folkman 1984:234).</p> <p>b. Midwifery managers or health care unit managers may consider incorporating assesment of midwives' level of coping methods and the potential for positive growth following the traumatic experience of maternal death, using cognitive appraisal and coping variables.</p>

<b>Proposed interventions and recommendations to promote the coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal death</b>			
<b>Key research finding to support the proposed intervention</b>	<b>Proposed intervention</b>	<b>Responsible person</b>	<b>Recommendation for practice in the health sector</b>
			<p>c. Midwifery programmes should enhance midwives' knowledge, skills and continue supporting the use of effective coping methods to manage maternal death distress and prevent midwives from severe effects of psychological distress, such as depression, post-traumatic stress disorder, which would be detrimental to the midwives' well-being and quality of professional work-life.</p>

## 6.6 LIMITATIONS OF THE STUDY

The following limitations may affect the generalisation of the research result:

- The study was conducted among professional midwives in two districts of central Uganda, therefore results may not be generalised to the whole country.
- Data from the respondents was collected using a self-administered questionnaire so it was not possible to probe their responses.
- The respondents had different nurse training backgrounds due to the different nursing programmes. Death education is less covered in the comprehensive nursing courses because they spend less time in midwifery training, which could have affected the way the respondents interpreted or answered the questions.
- The respondents had to recall feelings about death situations that took place in the past and therefore the results have to be interpreted with caution.
- There is very limited literature about midwives' occupational exposure to maternal death in Uganda, Africa and internationally.
- The respondents' symptoms on the physical well-being scale may not be ascribed to death experiences only, because many people often feel depressed, tired, and full of aches and pains.
- A measure of well-being addressing emotional, spiritual, cognitive and social functioning could have provided a more holistic picture of midwives well-being, but the instrument used only measured physical and psychological well-being.
- According to the results the time and frequency of exposure to maternal deaths seem to relate to increased death obsession but witnessing of maternal death is associated with a decrease in death obsession and depression. This is contradicting and may have resulted from the respondents not understanding the concept of witnessing.
- The respondents physical well-being was affected by exposure to maternal death but there psychological well-being was not. This may

have resulted from the respondent's interpretation of the well-being questionnaire more in general context than related to maternal deaths and answered the questions related to their general well-being.

Despite the limitations, the findings are valid and reliable in view of using vigorous quantitative data collection and analysis methods.

## **6.7 RECOMMENDATIONS FOR FURTHER RESEARCH**

Based on the findings of the study, the researcher recommends the following potential areas for future research:

- Occupational exposure to maternal death among midwives throughout the country to obtain in-depth information on the stress burden of experiencing maternal death among midwives working in rural and urban areas.
- An investigation into the effectiveness of using the proposed interventions, education on death and dying issues, training, coaching, mentoring and respite care to enhance the coping and well-being of rural midwives in respect of occupational exposure to maternal deaths.
- An exploration of preventive health education for the community to enhance the antenatal care attendance so that complications can be picked up.
- Resilience among midwives in rural and resource –poor areas.

## **6.8 CONCLUSION**

The aim of this study was to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health care units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives. The study was conducted in two rural districts, Mubende and Mityana located in the central region of Uganda.

A quantitative study with an exploratory, descriptive and correlation design was conducted to the end.

Simple random sampling was used to select the two districts and the whole target population was studied. The response rate was 95.2% and a total of 238 respondents participated in the study. Data was collected with a combined, structured, self-administered questionnaire based on the objectives of the study and the literature review.

The study produced evidence of the stress burden resulting from occupational exposure to maternal death and its effect on physical and psychological well-being. The study also highlighted effective coping methods that midwives can adopt to cope with stress stemming from occupational exposure to maternal death. Consequently, the study has contributed to the existing body of knowledge and understanding of the subject of coping with stress stemming from occupational exposure to maternal deaths and its application in the health care system of Uganda. Based on the findings, the researcher has proposed interventions and recommendations to promote coping mechanisms and well-being of rural midwives in regard to occupational exposure to maternal deaths. If these interventions and recommendations are utilised by midwifery employers and educators, district authorities, researchers and other stakeholders they will assist in reducing the stress resulting from occupational exposure to maternal death among midwives not only in Uganda but also in other developing countries with high maternal deaths.

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Annexure A

Certificate of clearance from the University of South Africa,  
Health Studies Research and Ethics Committee

**ANNEXURE A: CERTIFICATE OF CLEARANCE FROM THE UNIVERSITY  
OF SOUTH AFRICA HEALTH STUDIES RESEARCH AND ETHIC  
COMMITTEE**



**UNIVERSITY OF SOUTH AFRICA  
Health Studies Higher Degrees Committee  
College of Human Sciences  
ETHICAL CLEARANCE CERTIFICATE**

HS HDC/171/2013

Date: 13 March 2013 Student No: 5078-617-2  
Project Title: The influence of occupational exposure to maternal deaths on the well-being of professional midwives in rural Uganda.  
Researcher: RRS Muliira  
Degree: D Litt et Phil Code: DPCHS04  
Supervisor: Prof MC Bezuidenhout  
Qualification: D Litt et Phil  
Joint Supervisor: -

**DECISION OF COMMITTEE**

Approved

Conditionally Approved

**Prof L Roets  
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE**

**Prof MM Moleki  
ACTING ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES



Annexure B

Letter of ethical clearance from  
Mildmay Uganda Research Ethics Committee

**ANNEXURE B: LETTER OF ETHICAL CLEARANCE FROM  
MILDMAY UGANDA RESEARCH ETHICS COMMITTEE**

Mildmay Uganda Research ethics Committee (MUREC)

14 May 2013

Dear Rhoda,

RE: Approval of your research proposal titled: **The influence of occupational exposure to maternal deaths on the well-being of professional midwives in rural Uganda.**

I am glad to inform you that the proposal you submitted to MUREC was reviewed on 8 May 2013 and the committee approved it.

This approval is valid until 14 May 2014. Continuation beyond this period and changes to the protocol including data collection tools should be brought to the attention of MUREC.

You are also required to provide progress reports at an annual interval and to notify Mildmay Research Committee on completion as well as when publishing results.

Kindly proceed with your registration with UNCST.

Thank you for submitting your protocol to MUREC.

Best Wishes.

Yours Sincerely,

  
Dr. Iule John

Chair Person

Mildmay Uganda Research Ethics Committee



**Mildmay Uganda**  
PO Box 24985  
Kampala  
Uganda  
tel: +256 312 210 200  
fax: +256 312 210 205  
[www.mildmay.org/uganda](http://www.mildmay.org/uganda)  
NGO NO. S.5914 / 9191

Annexure C

Letter of ethical clearance from the  
Uganda National Council for Science and Technology

**ANNEXURE C: LETTER OF ETHICAL CLEARANCE FROM UGANDA  
NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY**



**Uganda National Council for Science and Technology**  
*(Established by Act of Parliament of the Republic of Uganda)*

Our Ref: SS 3144

03/07/2013

Ms. Rhoda Muliira  
Mildmay Uganda  
Kampala

**Re: Research Approval:** **The influence of occupational exposure to maternal deaths on the well-being of professional midwives in rural Uganda**

I am pleased to inform you that on **23/05/2013**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **23/05/2013 to 23/05/2014**.

Your research registration number with the UNCST is **SS 3144**. Please, cite this number in all your future correspondences with UNCST in respect of the above research project.

As Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the research protocol or the consent form (where applicable) must be submitted to the designated local Institutional Review Committee (IRC) or Lead Agency for re-review and approval **prior** to the activation of the changes. The approved changes must be communicated to UNCST within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local IRC for review with copies to the National Drug Authority.
4. Unanticipated problems involving risks to research subjects/participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST review.
5. Only approved study procedures are to be implemented. The UNCST may conduct imprompt audits of all study records.
6. A progress report must be submitted electronically to UNCST within four weeks after every 12 months. Failure to do so may result in termination of the research project.

Below is a list of documents approved with this application:

	Document Title	Language	Version	Version Date
1	Research Proposal	English	N/A	April 2013

Yours sincerely,

Jane Nabbuto

for: Executive Secretary

**UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY**

cc Chair, Mildmay Uganda IRC, Kampala

**LOCATION/CORRESPONDENCE**

*Plot 6 Kimera Road, Ntinda  
P. O. Box 6884  
KAMPALA, UGANDA*

**COMMUNICATION**

**TEL: (256) 414 705500  
FAX: (256) 414-234579  
EMAIL: info@uncst.go.ug  
WEBSITE: http://www.uncst.go.ug**

Annexure D

Letter of permission from the Office of the President of the Republic of  
Uganda

**ANNEXURE D: LETTER OF PERMISSION FROM THE OFFICE OF THE  
PRESIDENT OF THE REPUBLIC OF UGANDA**



THE REPUBLIC OF UGANDA

**OFFICE OF THE PRESIDENT**

PARLIAMENT BUILDING P.O.BOX 7168 KAMPALA, TELEPHONES: 254881/6, /343934, 343926, 343943, 233717, 344026, 230048, FAX: 235459/256143  
Email: secretary@op.go.ug, Website: www.officeofthepresident.go.ug

**ADM 154/212/01**

July 17, 2013

The Resident District Commissioner, Mubende District  
The Resident District Commissioner, Mityana District

This is to introduce to you **Muliira Rhoda Rachael Suubi** Researcher who will be carrying out a research entitled "**The influence of occupational exposure to maternal deaths on the well-being of professional midwives in rural Uganda**" for a period of **02 (two) years** in your district.

She has undergone the necessary clearance to carry out the said project.

Please render her the necessary assistance.

By copy of this letter **Muliira Rhoda Rachael Suubi** is requested to report to the Resident District Commissioners of the above districts before proceeding with the Research.

A handwritten signature in blue ink, appearing to read 'Alenga Rose'.

Alenga Rose  
**FOR: SECRETARY, OFFICE OF THE PRESIDENT**

Copy to: Muliira Rhoda Rachael Suubi

Annexure E

Letter of permission to collect data from  
Mubende District Local Government

**ANNEXURE E: LETTER OF PERMISSION TO COLLECT DATA FROM  
MEBENDE DISTRICT LOCAL GOVERNMENT**



THE REPUBLIC OF UGANDA

**MUBENDE DISTRICT LOCAL GOVERNMENT  
OFFICE OF THE DISTRICT HEALTH OFFICER  
P.O. BOX 93 - MUBENDE**

TEL: 0772670556

Your Ref:

Our Ref:

Date: 1<sup>st</sup> July 2013

Mrs. Rhoda Muliira  
P.O. Box 22984,  
Kisaasi Trading centre, Nakawa Division,  
Kampala, Uganda.

Dear Mrs. Muliira,

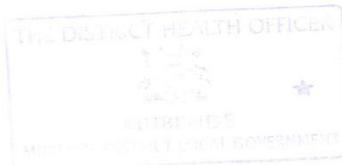
**RESEARCH PROJECT, "THE INFLUENCE OF OCCUPATIONAL EXPOSURE TO  
MATERNAL DEATH ON THE WELL-BEING OF PROFESSIONAL MIDWIVES IN RURAL  
UGANDA"**

This is to inform you that Mubende District Local Government has granted you permission to carry out the study on "*The influence of occupational exposure to maternal death on the well-being of professional midwives in rural Uganda*" in the Rural Health Care units II, III and IV.

We hope the findings will inform us on how to improve well-being of midwives working in the rural areas.

Yours sincerely,

Dr. Mubiru Wilson  
DISTRICT HEALTH OFFICER  
MUBENDE DISTRICT LOCAL GOVERNMENT



Annexure F

Letter of permission to collect data from  
Mityana District Local Government

**ANNEXURE F: LETTER OF PERMISSION TO COLLECT DATA FROM  
MITYANA DISTRICT LOCAL GOVERNMENT**

Telephone contacts:

District Chairperson: 0464442917

Chief Administrative Officer: 0464442916

IN ANY CORRESPONDENCE ON

THIS SUBJECT PLEASE QUOTE: 350/01



P.O BOX 332

MITYANA - UGANDA

**MITYANA DISTRICT LOCAL GOVERNMENT**

15<sup>TH</sup> July 2013

To  
Mrs. Rhoda Muliira  
P.O. Box 22984,  
Kisaasi Trading centre, Nakawa Division,  
Kampala, Uganda.

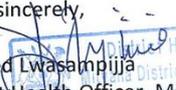
Dear Mrs. Muliira,

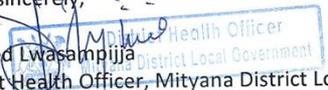
**RE: RESEARCH PROJECT, "THE INFLUENCE OF OCCUPATIONAL EXPOSURE TO MATERNAL  
DEATH ON THE WELL-BEING OF PROFESSIONAL MIDWIVES IN RURAL UGANDA"**

Having gone through your request letter to conduct a research study in Mityana District Local Government, I hereby grant you permission to carry out the study on "*The influence of occupational exposure to maternal death on the well-being of professional midwives in rural Uganda*" in the Rural Health Care units II, III and IV.

I hope the findings will inform us on how to improve well-being of midwives working in the rural areas.

Yours sincerely,

  
Dr. Fred Lwasampijja  
District Health Officer, Mityana District Local Government

The stamp is rectangular with a blue border. It contains the text 'District Health Officer' at the top, 'Mityana District Local Government' in the middle, and 'Mityana District Local Government' at the bottom. There is a handwritten signature over the stamp.

Annexure G

Letter requesting for permission from  
rural health care unit managers to collect data from midwives

**ANNEXURE G: REQUEST LETTER FOR PERMISSION FROM RURAL HEALTH CARE MANAGERS TO COLLECT DATA FROM MIDWIVES**

Sultan Qaboos University,  
College of Nursing,  
P. O. Box 66, Alkhod,  
Muscat, Oman.

To: Manager, Rural Health Unit

.....  
.....

Dear Sir/Madam,

**REQUEST FOR PERMISSION TO COLLECT DATA FROM PROFESSIONAL MIDWIVES WORKING IN RURAL HEALTH FACILITIES**

I am a doctoral student (DLitt et Phil in Health Studies) at the University of South Africa. The title of the intended thesis is "*The influence of occupational exposure to maternal deaths on the well-being of professional midwives in rural Uganda*". The study is undertaken towards the fulfillment of the requirements for the DLitt et Phil degree at the University of South Africa.

The purpose of this study is to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives.

I hereby would like to request to submit questionnaires to a percentage of the professional midwives at your health facility. Enclosed please find the preliminary questionnaire for your perusal and the ethical clearance letters from the district health officers, Mubende and Mityana districts. Your favourable consideration will be appreciated.

All information will be treated in confidence and no reference will be made to a specific service or authority.

Yours sincerely,



Mrs. Rhoda R. S. Muliira

Annexure H

Letter requesting for permission to pre-test  
data collection instrument

**ANNEXURE H: LETTER REQUESTING FOR PERMISSION TO PRE-TEST  
DATA COLLECTION TOOL**

Sultan Qaboos University,  
College of Nursing,  
P. O. Box 66, Alkhod,  
Muscat, Oman.

To John Serebe  
District Health Officer,  
Kiboga District Local Government,  
Kiboga, Uganda.  
15<sup>th</sup> May 2013

Attention: Rural Health Care Unit Manager

Dear Sir,

**REQUEST FOR PERMISSION TO PRE TEST DATA COLLECTION TOOL**

I am a doctoral student at the University of South Africa. The title of the intended thesis is "*The influence of occupational exposure to maternal death on the well-being of professional midwives in rural Uganda*". The study is undertaken towards the fulfillment of the requirements for the DLitt et Phil degree at University of South Africa.

The purpose of this study is to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being in order to recommend coping mechanisms and support for these midwives.

I hereby would like to request for permission to pre-test data collection tool among ten midwives collect data from professional midwives at Kiboga Health Centre III in Kiboga district. Please find enclosed the preliminary questionnaire for your perusal and the ethical clearance letter from the Uganda National Council for Science and Technology. Your favourable consideration will be appreciated.

Yours sincerely,



Mrs. Rhoda R. S. Muliira

Annexure I

The consent form

## ANNEXURE I: THE CONSENT FORM

### STUDY TITLE:

**THE INFLUENCE OF OCCUPATIONAL EXPOSURE TO MATERNAL DEATHS ON THE WELL-BEING OF PROFESSIONAL MIDWIVES IN RURAL UGANDA**

**PRINCIPAL INVESTIGATOR: MRS. RHODA R. S. MULIIRA**

I am a nurse currently pursuing a doctoral degree from the University of South Africa entitled "*The influence of occupational exposure to maternal deaths on the well-being of professional midwives in rural Uganda*" This study will be carried out in the districts of Mubende and Mityana.

The purpose of this study is to explore the self-reported stress burden resulting from occupational exposure to maternal death among professional midwives working in rural health units, and the effect of the identified stress burden on their physical and psychological well-being.

The Uganda National Council for Science and Technology (UNCST), district authorities and health facility managers of the rural health units will be approached to approve that the study be conducted in these districts.

There will be no risk or harm to your participation in this study. You are expected to respond to the questions in the questionnaire in your free time. The questionnaire will take 30 minutes to complete. Your participation in this study is voluntary and you are under no obligation to participate. You have the right to withdraw at any time, however your participation is highly appreciated. You are not required to include any identifying information on the questionnaire such as a name. Your identity will not be revealed during the study, during reporting or in the publishing of the research findings. On completion of the questionnaire, kindly return it to Mr/Ms....., who has been trained in ethical data collection methods and will not share the information with any person.

The consent form will be collected separately from the completed questionnaires by the field workers. This will ensure that no signed consent form could be linked to any completed questionnaire, thus ensuring your anonymity.

In case you need any clarification kindly contact the following person. Mrs. Rhoda Muliira, Tel: +256782424905; Email: [suubiracs@gmail.com](mailto:suubiracs@gmail.com)

I have read this form and voluntarily consent to participate in this study.

**Participant's Signature:**..... **Date:**.....

Annexure J

The data collection instrument

## ANNEXURE J: THE DATA COLLECTION INSTRUMENT

QUESTIONNAIRE NUMBER

--	--	--

1 2 3

### Section A: Biographic information

Please answer by marking X next to the corresponding answer

1. What is your gender?

1.1 Female	1
1.2 Male	2

2. Could you please tell us your age category?

2.1 20 years or younger	1
2.2 21-30 years	2
2.3 31-40 years	3
2.4 41-50 years	4
2.5 51-60 years	5
2.6 61 or older	6

3. What is your marital status?

3.1 Single	1
3.2 Married or partnered	2
3.3 Separated	3
3.4 Divorced	4

4. What is your highest midwifery qualification?

4.1 Diploma in midwifery	1
4.2 Diploma in nursing and midwifery	2
4.3 BSc nursing and midwifery	3
4.4 Master's degree	4
4.5 Others, please specify	5

5. How many years have you been a registered midwife?

5.1 0-1years	1
5.2 2-3years	2
5.3 4-5 years	3
5.4 6 years and longer	4

6. In which type of health facility are you currently employed?

6.1 Health Centre II	1
6.2 Health Centre III	2
6.3 Health Centre IV/Health Sub District	3

7. In what type of clinical/ward are you currently working?

7.1 Antenatal Clinic	1
7.2 Delivery Ward/Labour room	2
7.3 Post natal ward	3
7.4 Gynaecology ward	4

8. Indicate how long you have been working in this ward.

8.1 Less than one year	1
8.2 1-2 years	2
8.3 3-4 years	3
8.4 5-6 years	4
8.5 7 years or longer	5

9. Which maternal health services are provided at this health care unit?  
(Circle all the applicable services)

9.1 Antenatal care services	1
9.2 Delivery services	2
9.3 Newborn care services	3
9.4 Family planning services	4
9.5 Emergency obstetric care services	5

## **SECTION B: RELEVANT ORGANISATIONAL CHARACTERISTICS**

10. What is the maternal health care unit capacity at this health facility?  
(Include antenatal, delivery, postnatal and gynaecology wards)

10.1 10 or less beds	1
10.2 11-20 beds	2
10.3 21-30 beds	3
10.4 31-40 beds	4
10.5 41-50 beds	5
10.6 51 or more beds	6

11. Are the midwives in this health care unit involved in other health care services other than maternal health care services?

11.1 Yes	1
11.2 No	2

11.1 If your response to Question 11 was YES, then please indicate which other services they are expected to deliver:

.....  
.....

12. Does the health care unit have functional communication services such as telephones to use in cases of emergencies?

12.1 Yes	1
12.2 No	2

13. Does the health facility have adequate functional ambulance services?

13.1 Yes	1
13.2 No	2

**SECTION C: MIDWIVES OCCUPATIONAL EXPOSURE TO MATERNAL DEATH**

14. Have you ever been present when a mother died in child labour?

14.1 Yes	1
14.2 No	2

15. If your response to Question 14 was YES, then please indicate how many deaths you have witnessed.

15.1 One death	1
15.2 2-3 deaths	2
15.3 4-5 deaths	3
15.4 6 deaths and more	4

16. For how many of these deaths were you in charge of the patient/case?

16.1 None	1
16.2 One death	2
16.3 2-3 deaths	3
16.4 4-5 deaths	4
16.5 6 deaths and more	5

17. For how many of these cases did you request emergency assistance?

17.1 None	1
17.2 One case	2
17.3 2-3 cases	3
17.4 4-5 cases	4
17.5 6 cases and more	5

18. From whom did you request emergency assistance? (Circle all the applicable responsibilities).

18.1 Health care unit manager	1
18.2 Midwifery supervisor	2
18.3 Ambulance driver	3
18.4 Doctor	4
18.5 Clinical officer/medical assistant	5
18.6 Midwife	6
18.7 Nurse	7
18.8 Anesthetist	8
18.9 Pharmacist	9
18.10 Others, please specify	10

19. In view of question 18, did you receive the assistance requested?

19.1 Yes	1
19.2 No	2
19.3 "too late to be of value"	3

20. What were the reasons for the mothers' death?

20.1 Haemorrhage	1
20.2 Infection	2
20.3 High blood pressure	3
20.4 Unsafe abortion	4
20.5 Obstructed labour	5
20.5 Others, please specify	6

21. What were your obligations after these deaths? (Circle all the applicable responsibilities).

21.1	Inform the relatives	1
21.2	Support the relatives	2
21.3	Take care of the baby	3
21.4	Prepare the corpse for the mortuary	4
21.5	Write a report on the incident	5
21.5	Others, please specify	6

22. Do you get the necessary support at your work place after experiencing a maternal death?

22.1	Yes	1
22.2	No	2

22.1 If your response to Question 22 was YES, then please indicate the kind of support you received

.....  
 .....  
 .....  
 .....

23. When was the last time you experienced a maternal death at work?

23.1	Less than one week ago	1
23.2	1 - 3 weeks ago	2
23.3	1 - 6 months ago	3
23.4	7-12 months ago	4
23.5	more than a year or longer ago	5

24. Generally how often do you experience maternal death situations in your current professional practice as a midwife?

24.1	Not often	1
24.2	Often	2
24.3	Very often	3
24.4	Never	4

25. Do you feel that your professional training prepared you well enough to handle maternal death situations?

25.1	Yes	1
25.2	No	2

26. How well did your professional training prepare you to handle maternal death situations?

26.1	Very well prepared	1
26.2	Well prepared	2
26.3	Not well prepared	3
26.4	Not prepared at all	4

**SECTION D: DEATH DISTRESS SCALE**

27. This section deals with your self-reported level of stress due to exposure to death. Read the following statements, and then decide to what extent each one describes your feelings, behavior, and opinion. Place an X in the appropriate box.

**1—No (N)**

**2—Little (L)**

**3—Moderate (MO)**

**4—Much (MU)**

**5—Very Much (VMU)**

<b>A- because of experiencing maternal death at work</b>		<b>N</b>	<b>L</b>	<b>MO</b>	<b>MU</b>	<b>VMU</b>
A1	The idea that I will die dominates me.					
A2	I fail to dismiss the notion of death from my mind.					
A3	Thinking about death preoccupies me.					
A4	I find it greatly difficult to get rid of thoughts about death.					
A5	The idea of death overwhelms me.					
A6	I have exaggerated concern with the idea of death.					
A7	I find myself rushing to think about death.					
A8	I think about death continuously.					
A9	I am very much afraid to die.					
A10	It does not make me nervous when people talk about death.					
A11	I am not at all afraid to die.					
A12	I am not particularly afraid of dying during child birth.					
A13	The thought of death never bothers me.					
A14	I fear dying a painful death.					

A15	I am really scared of having a heart attack.					
A16	The sight of a dead body is horrifying to me.					
A17	When I think about death I lose interest in activities of life.					
A18	I lose interest in caring for myself when I think about death.					
A19	When death is on my mind, my body seems to lose energy and slows down.					
A20	The thought of death saps my energy.					
A21	It is hard to concentrate when death is on my mind.					
A22	When I think about death, even the easiest of tasks becomes difficult.					
A23	Death makes me feel discouraged about the future.					
A24	Death makes me feel hopeless.					

### **SECTION E: BRIEF COPE INVENTORY**

28. These items deal with ways you've been using to cope with the stressful experience of occupational exposure to maternal death. Use the response choices and place an X to rate each item separately. Apply the questions to you personally.

1. Haven't been doing this at all-- (N)
2. I've been doing this a little bit -- (L)
3. I've been doing this a moderate amount-- (MO)
4. I've been doing this a lot-- (A LOT)

<b>B. Coping methods</b>		<b>N</b>	<b>L</b>	<b>MO</b>	<b>A LOT</b>
B1	I've been turning to work or other activities to take my mind off things.				
B2	I've been concentrating my efforts on doing something about the situation I'm in.				
B3	I've been saying to myself "this isn't real".				
B4	I've been using alcohol or other drugs to make myself feel better.				
B5	I've been getting emotional				

	support from others.				
B6	I've given up trying to deal with the problem.				
B7	I've been taking action to try to make the situation better.				
B8	I've been refusing to believe that it happened.				
B9	I've been saying things to let my unpleasant feelings escape.				
B10	I've been getting help and advice from other people.				
B11	I've been using alcohol or other drugs to help me get through it.				
B12	I've been trying to see it in a different light, to make it seem more positive.				
B13	I've been criticizing myself.				
B14	I've been trying to come up with a strategy about what to do.				
B15	I've been getting comfort and understanding from someone else.				
B16	I've given up the attempt to cope.				
B17	I've been looking for something good in what happened.				
B18	I've been doing other things to think about it less, such as watching TV, reading, sleeping.				
B19	I've been accepting the reality of the fact that it happened.				
B20	I've been expressing my negative feelings.				
B21	I've been trying to find comfort in my religion or spiritual beliefs.				
B22	I've been trying to get advice or help from other people about what to do.				
B23	I've been learning to live with it.				
B24	I've been thinking hard about what steps to take.				
B25	I've been blaming myself for what happened.				
B26	I've been praying or meditating.				

**SECTION F: PERCEIVED WELL-BEING SCALE**

29. This section contains a number of statements related to physical and psychological well-being. Read each statement carefully and indicate the extent to which you agree or disagree by indicating an X in the appropriate box.

Please indicate your answers as follows:

- |                                 |                                    |
|---------------------------------|------------------------------------|
| <b>1. Strong Agree (SA)</b>     | <b>5. Moderately Disagree (MD)</b> |
| <b>2. Agree (A)</b>             | <b>6. Disagree (D)</b>             |
| <b>3. Moderately Agree (MA)</b> | <b>7. Strong Disagree (SD)</b>     |
| <b>4. Undecided (U)</b>         |                                    |

<b>C. Well-being</b>		<b>SA</b>	<b>A</b>	<b>MA</b>	<b>U</b>	<b>MD</b>	<b>D</b>	<b>SD</b>
C1	No one really cares whether I am dead or alive.							
C2	I have plenty of physical energy.							
C3	I often feel bored.							
C4	I have aches and pains.							
C5	It is exciting to be alive.							
C6	Sometimes I wish that I never wake up.							
C7	I am in good shape physically.							
C8	I feel that life is worth living.							
C9	I think my health is deteriorating.							
C10	I don't seem to care about what happens to me.							
C11	I don't get tired very easily.							
C12	I can stand a fair amount of physical strain.							
C13	I have a peace of mind.							
C14	I am afraid of many things.							

Thank you for your time and effort in participating in this study.

Annexure K

Permission to Use the Perceived Well-being Scale



Racheal Muliira <suubiracs@gmail.com>

---

**Request to use the perceived Well-being scale revised**

4 messages

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**Racheal Muliira** <suubiracs@gmail.com>

Sun, Sep 16, 2012 at 12:34 PM

To: greker@trentu.ca, ptpwong@rogers.com, dr.paul.wong@gmail.com

Dear Prof. Reker and Dr. Wong,

RE: REQUEST FOR PERMISSION TO USE THE PERCEIVED WELL-BEING SCALE TO COLLECT DATA FOR RESEARCH IN UGANDA AS PART OF THE DOCTORATE OF LITERATURE AND PHILOSOPHY STUDIES AT UNIVERSITY OF SOUTH AFRICA.

My name is Rhoda Muliira a Ugandan, registered with the University of South Africa (UNISA)(student number 50786172) for a doctorate degree. The title of the intended thesis is "Occupational exposure to maternal death affecting the well-being of professional midwives in rural Uganda". I am expected to undertake research as part of the fulfilment of the requirements for the degree of D Litt et Phil degree at the University of South Africa.

I am writing to seek permission to use the perceived Well-being scale to collect data for research. I do not intend to use the questionnaire for any other purpose other than for this research. Also kindly avail me with a copy of the perceived well-being scale, scoring schema and supporting literature. As part of the University policy i have to show proof to the ethical clearance committee that permission was granted to me to use this scale and that i did not violated the copyright law. Kindly avail me with a letter in this regard. Kindly find my contact address below:

Rhoda Suubi Muliira,  
Sultan Qaboos University,  
College of Nursing, P.O. Box 66, Alkhod,  
Muscat, P.C. 123. Sultanate of Oman  
Telephone: +968-93284387  
Fax: +968-24413536  
E-mail:50786172@mylife.unisa.ac.za, suubiracs@gmail.com

Thank you very much.  
Kind regard,

Rhoda Suubi Muliira.

---

**Gary Reker** <greker@trentu.ca>  
To: suubiracs@gmail.com

Thu, Sep 20, 2012 at 8:14 PM

Dear Racheal,

You have our permission to use the Perceived Well-Being Scale-Revised for your research. Attached is a copy of the scale, a very brief manual, and a listing of articles in which the scale has been used. Please let me know if permission via email will be enough or whether you need a formal letterhead letter from me.

Cheers, Gary T. Reker

Annexure L

Permission to Use the Death Distress Scale

**TO USE THE DEATH DISTRESS SCALE.**

  
Muliira <suubiracsgmail.com>

Racheal

---

**RE: REQUEST TO USE THE DEATH DISTRESS SCALE**

1 message

---

**Ahmed Abdel-Khalek** <aabdel-khalek@hotmail.com> Mon, Oct 22, 2012 at 11:24 AM To: suubiracs@gmail.com

Dear Rhoda

Many thanks for your interest in my scale.

Please feel free to use the DDS in your research. You have the full permission to use it.

Best wishes Ahmed

---

Date: Sat, 20 Oct 2012 14:27:54 +0400

Subject: REQUEST TO USE THE DEATH DISTRESS SCALE

From: suubiracs@gmail.com To: ahmedkunik@hotmail.com

CC: [aabdel-khalek@hotmail.com](mailto:aabdel-khalek@hotmail.com)

Dear Prof. Abdel-Khalek,

**RE: REQUEST FOR PERMISSION TO USE THE DEATH DISTRESS SCALE TO COLLECT DATA FOR RESEARCH IN UGANDA AS PART OF THE DOCTORATE OF LITERATURE AND PHILOSOPHY STUDIES AT UNIVERSITY OF SOUTH AFRICA.**

My name is Rhoda Muliira a Ugandan, registered with the University of South Africa (UNISA)(student number 507861 72) for a doctorate degree. The title of the intended thesis is "Occupational exposure to maternal death affecting the well-being of professional midwives in rural Uganda". I am expected to undertake research as part of the fulfilment of the requirements for the degree of D Litt et Phil degree at the University of South Africa.

I am writing to seek permission to use the death distress scale to collect data for research. I do not intend to use the questionnaire for any other purpose other than for this research. Also kindly avail me with a copy of the death distress scale, scoring schema and supporting literature. As part of the University policy I have to show proof to the ethical clearance committee that permission was granted to me to use this scale and that did not

violated the copyright law. Kindly avail me with a letter in this regard. Kindly find my contact address below:

Rhoda Suubi Muliira, Sultan Qaboos University,

College of Nursing, P.O. Box 66, Alkhod, Muscat, P.C. 123. Sultanate of Oman Telephone: +968-93284387, Fax: +968-24413536

E-mail:50786172mylife.unisa.ac.za, suubiracs@gmail.com

Annexure M

Permission to Use the Brief COPE Scale

## ANNEXURE M: PERMISSION TO USE THE BRIEF COPE SCALE

---

**From:** Charles S. Carver [ccarver@miami.edu]  
**Sent:** Monday, October 22, 2012 6:07 PM  
**To:** Rhoda Suubi Mulira  
**Subject:** Re: REQUEST TO USE THE BRIEF COPE SCALE

I apologize for this automated reply. All measures I have developed are available for research and teaching applications without charge and without need to request permission; we ask only that you cite their source in any report that results. If you wish to use a measure for a purpose other than that, you must also contact the copyright holder, the publisher of the journal in which the measure was published.

Information concerning the measure you are asking about can be found at the website below. I think most of your questions will be answered there. If questions remain, however, do not hesitate to contact me. Good luck in your work.

<http://www.psy.miami.edu/faculty/ccarver/CCscales.html>

On Oct 19, 2012, at 11:37 PM, rhodam <[rhodam@squ.edu.om](mailto:rhodam@squ.edu.om)> wrote:

Dear Prof. Carver,

RE: REQUEST FOR PERMISSION TO USE THE BRIEF COPE SCALE TO COLLECT DATA FOR RESEARCH IN UGANDA AS PART OF THE DOCTORATE OF LITERATURE AND PHILOSOPHY STUDIES AT UNIVERSITY OF SOUTH AFRICA.

My name is Rhoda Muliira a Ugandan, registered with the University of South Africa (UNISA)(student number 50786172) for a doctorate degree. The title of the intended thesis is "Occupational exposure to maternal death affecting the well-being of professional midwives in rural Uganda". I am expected to undertake research as part of the fulfilment of the requirements for the degree of D Litt et Phil degree at the University of South Africa.

I am writing to seek permission to use the BRIEF COPE scale to collect data for research. I do not intend to use the scale for any other purpose other than for this research. kindly avail me with a copy of the BRIEF COPE scale, scoring schema and supporting literature. As part of the University policy i have to show proof to the ethical clearance committee that permission was granted to me to use this scale and that i did not violated the copyright law. Kindly avail me with a letter in this regard. Kindly find my contact address below:

Rhoda Suubi Muliira, Sultan Qaboos University, college of Nursing, P.O. Box 66, Alkhod, Muscat, P.C. 123. Sultanate of Oman

Annexure N

Testing for the normal distribution of data

## ANNEXURE N: TESTING FOR NORMAL DISTRIBUTION OF DATA

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Q15.Number of deaths you have witnessed	.219	224	.000	.831	224	.000
Q16.Numer of deaths you are in charge of the patient/case?	.218	224	.000	.876	224	.000
Q17. Times you requested for emergency assistance?	.231	224	.000	.868	224	.000
Q18.1 Request emergency assistance- health unit manager	.485	224	.000	.505	224	.000
Q18.2 Request emergency assistance- Midwifery supervisor	.481	224	.000	.513	224	.000
Q18.3 Request emergency assistance- ambulance driver	.469	224	.000	.537	224	.000
Q18.4 Request emergency assistance- doctor	.421	224	.000	.600	224	.000
Q18.5 Request emergency assistance- clinical officer	.514	224	.000	.422	224	.000
Q18.6 Request emergency assistance- Midwife	.401	224	.000	.616	224	.000
Q18.7 Request emergency assistance- Nurse	.507	224	.000	.445	224	.000
Q18.8 Request emergency assistance- Anesthetist	.475	224	.000	.525	224	.000
Q18.9 Request emergency assistance- pharmacist	.536	224	.000	.300	224	.000
Q18.10 Request emergency assistance- Others	.539	224	.000	.142	224	.000
Q19. Did you receive the assistance requested?	.334	224	.000	.723	224	.000
Q20. What were the reasons for the mother's death?	.387	224	.000	.674	224	.000
Q21.1 Obligations after the deaths- inform relatives	.485	224	.000	.505	224	.000
Q21.2 Obligations after the deaths- support relatives	.350	224	.000	.636	224	.000
Q21.3 Obligations after the deaths- Care for baby	.434	224	.000	.587	224	.000
Q21.4 Obligations after the deaths- Perform last offices	.399	224	.000	.617	224	.000
Q21.5 Obligations after the deaths- write incident report	.473	224	.000	.529	224	.000
Q21.6 Obligations after the deaths- others	.539	224	.000	.142	224	.000
Q22. Support at your work place	.399	224	.000	.617	224	.000
Q23. The last time you experienced maternal death at work?	.219	224	.000	.857	224	.000
Q24. Experience maternal deaths situations	.420	224	.000	.631	224	.000
Q25. professional training preparation to handle death	.485	224	.000	.505	224	.000
Q26. professional training preparation to handle death	.238	224	.000	.821	224	.000
Q27.1.The idea that I will die dominates me.	.202	224	.000	.872	224	.000
Q27.2 I fail to dismiss the notion of death from my mind.	.195	224	.000	.909	224	.000
Q27.3 Thinking about death preoccupies me.	.178	224	.000	.911	224	.000
Q27.4 Difficult to get rid of thoughts about death.	.188	224	.000	.912	224	.000
Q27.5 The idea of death overwhelms me.	.155	224	.000	.908	224	.000
Q27.6 I have exaggerated concern with the idea of death.	.194	224	.000	.907	224	.000
Q27.7 I find myself rushing to think about death.	.216	224	.000	.903	224	.000
Q27.8 I think about death continuously.	.272	224	.000	.862	224	.000
Q27.9 I am very much afraid to die.	.169	224	.000	.892	224	.000
Q27.10 Makes me nervous when people talk about death.	.157	224	.000	.923	224	.000
Q27.11 I am not at all afraid to die.	.175	224	.000	.899	224	.000
Q27.12 I am not particularly afraid of dying during child birth.	.193	224	.000	.885	224	.000
Q27.13 The thought of death never bothers me.	.142	224	.000	.917	224	.000
Q27.14 I fear dying a painful death.	.287	224	.000	.799	224	.000
Q27.15 I am really scared of having a heart attack.	.203	224	.000	.860	224	.000
Q27.16 The sight of a dead body is horrifying to me.	.189	224	.000	.925	224	.000
Q27.17 Think about death I lose interest in activities	.259	224	.000	.870	224	.000
Q27.18 Lose interest in caring for myself	.297	224	.000	.841	224	.000
Q27.19 Death is on my mind, i lose energy and slows down.	.214	224	.000	.900	224	.000
Q27.20 The thought of death saps my energy.	.246	224	.000	.868	224	.000
Q27.21 It is hard to concentrate when death is on my mind.	.212	224	.000	.901	224	.000
Q27.22 Death makes the easiest of tasks difficult.	.263	224	.000	.866	224	.000
Q27.23 Death makes me feel discouraged about the future.	.278	224	.000	.844	224	.000
Q27.24 Death makes me feel hopeless.	.332	224	.000	.802	224	.000
Q28.1 I've been turning to work to take my mind off things.	.226	224	.000	.901	224	.000
Q28.2 I've been concentrating my efforts on doing something	.235	224	.000	.864	224	.000
Q28.3 I've been saying to myself "this isn't real".	.220	224	.000	.895	224	.000

Q28.4 I've been using alcohol or other drugs to feel better.	.393	224	.000	.738	224	.000
Q28.5 I've been getting emotional support from others.	.196	224	.000	.902	224	.000
Q28.6 I've given up trying to deal with the problem.	.232	224	.000	.882	224	.000
Q28.7 I've been taking action to try to feel better.	.248	224	.000	.848	224	.000
Q28.9 I've been refusing to believe that it happened.	.205	224	.000	.903	224	.000
Q28.10 I've been saying things let my bad feelings escape.	.212	224	.000	.902	224	.000
Q28.11 I've been getting help and advice from other people.	.261	224	.000	.858	224	.000
Q28.12 I've been using alcohol or other drugs	.358	224	.000	.784	224	.000
Q28.13 I've been trying to see it in a different light.	.192	224	.000	.910	224	.000
Q28.14 I've been criticizing myself.	.241	224	.000	.886	224	.000
Q28.15 I've been trying to come up with a strategy	.211	224	.000	.849	224	.000
Q28.16 I've been getting comfort and understanding	.228	224	.000	.879	224	.000
Q28.17 I've given up the attempt to cope.	.284	224	.000	.852	224	.000
Q28.18 I've been looking for something good	.231	224	.000	.894	224	.000
Q28.19 I've been doing other things to think about it less, such as watching TV, reading, sleeping.	.216	224	.000	.878	224	.000
Q28.20 Accepting the reality of the fact that it happened.	.225	224	.000	.848	224	.000
Q28.21 I've been expressing my negative feelings.	.202	224	.000	.908	224	.000
Q28.22 Find comfort in my religion or spiritual beliefs.	.228	224	.000	.862	224	.000
Q28.23 Trying to get advice from other people	.265	224	.000	.829	224	.000
Q28.24 I've been learning to live with it.	.207	224	.000	.855	224	.000
Q28.25 I've been thinking hard about what steps to take.	.239	224	.000	.845	224	.000
Q28.26 I've been blaming myself for what happened.	.192	224	.000	.912	224	.000
Q28.27 I've been praying or meditating.	.185	224	.000	.888	224	.000
Q29.1 No one really cares whether I am dead or alive.	.257	224	.000	.775	224	.000
Q29.2 I have plenty of physical energy.	.232	224	.000	.914	224	.000
Q29.3 I often feel bored.	.201	224	.000	.925	224	.000
Q29.4 I have aches and pains.	.136	224	.000	.926	224	.000
Q29.5 It is exciting to be alive.	.299	224	.000	.749	224	.000
Q29.6 Sometimes I wish that I never wake up.	.241	224	.000	.809	224	.000
Q29.7 I am in good shape physically.	.259	224	.000	.808	224	.000
Q29.8 I feel that life is worth living.	.245	224	.000	.798	224	.000
Q29.9 I think my health is deteriorating.	.225	224	.000	.852	224	.000
Q29.10 I don't seem to care about what happens to me.	.253	224	.000	.816	224	.000
Q29.11 I don't get tired very easily.	.179	224	.000	.928	224	.000
Q29.12 I can stand a fair amount of physical strain.	.212	224	.000	.910	224	.000
Q29.13 I have a peace of mind.	.175	224	.000	.919	224	.000
Q29.14 I am afraid of many things.	.155	224	.000	.927	224	.000

a. Lilliefors Significance Correction

Annexure O

Cronbach's alpha for the statistical scales used in the study

**ANNEXURE O: CRONBACH'S ALPHA FOR THE STATISTICAL SCALES  
USED IN THE STUDY**

**A. Cronbach's Alpha Death Distress Scale (DDS)**

**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.710	.713	3

**Item Statistics**

	Mean	Std. Deviation	N
Death obsession	19.1092	10.00024	224
Death anxiety	22.2521	7.89351	224
Death depression	15.5546	8.70346	224

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Death obsession	37.8067	202.486	.707	.636
Death anxiety	34.6639	281.633	.603	.752
Death depression	41.3613	257.742	.609	.741

**Scale Statistics**

Mean	Variance	Std. Deviation	N of Items
56.9160	503.799	22.44546	3

## B. Cronbach's Alpha Brief COPE Scale

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.793	.796	13

### Item Statistics

	Mean	Std. Deviation	N
Self-distraction	3.9286	1.13911	224
Active coping	4.3527	1.18120	224
denial	3.5513	1.29705	224
Substance use	2.4152	1.24452	224
Emotional support	3.9598	1.25394	224
Instrumental support	4.3683	1.27121	224
Behavioural disengage	3.1585	1.36520	224
venting	3.4799	1.17934	224
Positive reframing	3.5893	1.12197	224
planning	4.3460	1.36982	224
acceptance	4.4085	1.29914	224
religion	4.3661	1.26789	224
Self-blame	3.1250	1.24201	224

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Self-distraction	45.1205	70.212	.423	.304	.795
Active coping	44.6964	68.511	.495	.388	.789
denial	45.4978	69.721	.378	.290	.799
Substance use	46.6339	71.392	.316	.352	.804
Emotional support	45.0893	66.878	.543	.382	.785
Instrumental support	44.6808	66.979	.528	.511	.786
Behavioural disengage	45.8906	69.272	.372	.334	.800
venting	45.5692	68.203	.513	.359	.788
Positive reframing	45.4598	69.279	.484	.322	.790
planning	44.7031	66.901	.482	.391	.790
acceptance	44.6406	67.625	.481	.364	.790
religion	44.6830	70.016	.375	.261	.799
Self-blame	45.9241	70.788	.347	.332	.801

### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.773	2.415	4.408	1.993	1.825	.387	13

### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
49.0491	79.585	8.92104	13

### C. Cronbach's Alpha Perceived Well-being Scale

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.848	.864	2

#### Item Statistics

	Mean	Std. Deviation	N
Physical Wellbeing	7.8908	2.36818	224
Psychological Wellbeing	11.2353	3.27168	224

#### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	9.563	7.891	11.235	3.345	1.424	5.593	2

#### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Physical wellbeing	11.2353	10.704	.500	.353	.816.
Psychological wellbeing	7.8908	5.608	.539	.369	.880.

#### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
19.1261	29.393	5.42156	2

Annexure P

Correlation matrix between Perceived well-being scale domains  
and death distress scale domains

**Annexure P: Correlation matrix between perceived well-being domains and death distress domains**

Spearman's <i>rho</i> rank order Non Parametric correlation		Physical Well-being	Psychological Well-being	Death obsession	Death anxiety	Death depression	
Spearman's <i>rho</i>	Physical wellbeing	Correlation Coefficient	1.000	.490**	.238**	.259**	.157*
		Sig. (2- tailed)	.	.000	.000	.000	.015
		N	224	224	224	224	224
	Psychological wellbeing	Correlation Coefficient	.490**	1.000	.231**	.329**	.081
		Sig. (2- tailed)	.000	.	.000	.000	.214
		N	224	224	224	224	224
	Death obsession	Correlation Coefficient	.238**	.231**	1.000	.527**	.638**
		Sig. (2- tailed)	.000	.000	.	.000	.000
		N	224	224	224	224	224
	Death anxiety	Correlation Coefficient	.259**	.329**	.527**	1.000	.415**
		Sig. (2- tailed)	.000	.000	.000	.	.000
		N	224	224	224	224	224
Death depression	Correlation Coefficient	.157*	.081	.638**	.415**	1.000	
	Sig. (2- tailed)	.015	.214	.000	.000	.	
	N	224	224	224	224	224	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## Annexure Q

Correlation matrix between perceived well-being domains  
and biographic information, organisational variables and  
occupation exposure of maternal death

**Annexure Q: Correlations matrix between Perceived well-being domains and biographic information, organisational variables and occupational exposure to death**

<b>Spearman's rank order correlation coefficient</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
1. Physical wellbeing	Correlation Coefficient	1.000	.415**	.145*	-.201**	.136*	.090	.140*	.012	-.340**	.123	.137*	-.077	.121	.182**
	Sig. (2-tailed)	.	.000	.030	.003	.041	.179	.037	.854	.000	.058	.041	.253	.071	.006
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
2. Psychological wellbeing	Correlation Coefficient	.415**	1.000	.151*	-.163*	.209**	-.081	.057	.186**	-.408**	.034	.086	-.180**	.162*	.082
	Sig. (2-tailed)	.000	.	.023	.014	.002	.225	.400	.005	.000	.604	.197	.007	.016	.220
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
3. Could you please tell us your age category	Correlation Coefficient	.145*	.151*	1.000	-.036	.331**	.140*	.059	.250**	-.182**	.111	.093	-.044	.123	.031
	Sig. (2-tailed)	.030	.023	.	.579	.000	.030	.369	.000	.005	.088	.153	.497	.058	.636
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
4. What is your marital status	Correlation Coefficient	-.201**	-.163*	-.036	1.000	.130*	.106	-.029	.167**	.126	-.019	-.034	.026	.034	-.015
	Sig. (2-tailed)	.003	.014	.579	.	.045	.102	.660	.010	.052	.771	.605	.694	.604	.823
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
5. How many years have you been a registered midwife	Correlation Coefficient	.136*	.209**	.331**	.130*	1.000	.154*	.071	.391**	-.180**	.062	.290**	-.097	.165*	.242**
	Sig. (2-tailed)	.041	.002	.000	.045	.	.018	.279	.000	.005	.344	.000	.136	.011	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
6. In which type of health facility are you currently employed	Correlation Coefficient	.090	-.081	.140*	.106	.154*	1.00	.346**	.152*	.088	.036	.099	-.076	-.028	.104
	Sig. (2-tailed)	.179	.225	.030	.102	.018	.	.000	.019	.178	.582	.126	.245	.663	.108
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
7. In what type of clinical/ward are you currently working	Correlation Coefficient	.140*	.057	.059	-.029	.071	.346**	1.000	.127*	-.001	.034	.063	-.123	-.020	.007
	Sig. (2-tailed)	.037	.400	.369	.660	.279	.000	.	.050	.983	.602	.331	.058	.754	.909
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
8. Indicate how long you have been working in this ward	Correlation Coefficient	.012	.186**	.250**	.167**	.391**	.152*	.127*	1.000	-.071	.090	-.028	-.024	.159*	.024
	Sig. (2-tailed)	.854	.005	.000	.010	.000	.019	.050	.	.274	.166	.671	.718	.014	.718
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224
9. Are the midwives in this	Correlation Coefficient	-.340**	-.408**	-.182**	.126	-.180**	.088	-.001	-.071	1.00	-.116	-.041	.155*	-.090	-.057

health care unit involved in other health care services other than maternal health care services?	Sig. (2-tailed) N	.000 224	.000 224	.005 224	.052 224	.005 224	.178 224	.983 224	.274 224	.	.075 224	.532 224	.017 224	.168 224	.377 224
10. Have you ever been present when a mother died in child labour	Correlation Coefficient Sig. (2-tailed) N	.106 .102 224	.090 .166 224	.111 .088 224	-.019 .771 224	.062 .344 224	.036 .582 224	.034 .602 224	.090 .166 224	-.116 .075 224	1.00 .	-.050 .445 224	.015 .817 224	.061 .350 224	-.091 .163 224
11. If your response above was Yes, then please indicate how many deaths you have witnessed	Correlation Coefficient Sig. (2-tailed) N	.137* .041 224	.086 .197 224	.093 .153 224	-.034 .605 224	.290** .000 224	.099 .126 224	.063 .331 224	-.028 .671 224	-.041 .532 224	-.050 .445 224	1.00 .	-.050 .441 224	-.089 .171 224	.555** .000 224
12. Do you get necessary support at your work place after experiencing a maternal death?	Correlation Coefficient Sig. (2-tailed) N	-.077 .253 224	-.180** .007 224	-.044 .497 224	.026 .694 224	-.097 .136 224	-.076 .245 224	-.123 .058 224	-.024 .718 224	.155* .017 224	.015 .817 224	-.050 .441 224	1.00 .	-.156* .016 224	.104 .108 224
13. When was the last time you experienced maternal death at work?	Correlation Coefficient Sig. (2-tailed) N	.121 .071 224	.162* .016 224	.123 .058 224	.034 .604 224	.165* .011 224	-.028 .663 224	-.020 .754 224	.159* .014 224	-.090 .168 224	.061 .350 224	-.089 .171 224	-.156* .016 224	1.00 .	-.098 .132 238
14. Generally how often do you experience maternal deaths situations in your current professional practice as a midwife?	Correlation Coefficient Sig. (2-tailed) N	.182** .006 224	.082 .220 224	.031 .636 224	-.015 .823 224	.242** .000 224	.104 .108 224	.007 .909 224	.024 .718 224	-.057 .377 224	-.091 .163 224	.555** .000 224	.104 .108 224	-.098 .132 224	1.00 . 224

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## Annexure R

Correlation matrix between death distress scale domains and  
biographic information, organisational variables and  
occupation exposure of maternal death



other health care services other than maternal health care services?	N	224	224	224	224	224	224	224	224	224	224	224	224	224
9. Have you ever been present when a mother died in child labour?	Correlation Coefficient Sig. (2-tailed)	-.305** .000	-.343** .000	-.325** .000	.011 .871	-.047 .466	-.015 .820	-.077 .236	-.079 .224	1.000 .	.772** .000	-.019 .771	-.033 .611	.336** .000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224
10. If your response above was Yes, then please indicate how many deaths you have witnessed	Correlation Coefficient Sig. (2-tailed)	-.408** .000	-.408** .000	-.408** .000	-.081 .212	-.116 .073	-.033 .613	-.037 .566	-.119 .068	.772** .000	1.000 .	-.019 .771	-.033 .611	.244** .000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224
11. When was the last time you experienced maternal death at work?	Correlation Coefficient Sig. (2-tailed)	-.077 .239	.047 .468	-.132* .041	.184** .004	-.154* .018	-.006 .924	.106 .104	-.058 .371	-.019 .771	-.019 .771	1.000 .	-.171** .008	-.133* .041
	N	224	224	224	224	224	224	224	224	224	224	224	224	224
12. Generally how often do you experience maternal deaths situations in your current professional practice as a midwife?	Correlation Coefficient Sig. (2-tailed)	.169** .009	.031 .636	.069 .286	.030 .641	.038 .563	.100 .125	.130* .046	-.080 .221	-.033 .611	-.033 .611	-.171** .008	1.000 .	.170** .009
	N	224	224	224	224	224	224	224	224	224	224	224	224	224
13. How well did your professional training prepare you to handle maternal death situations?	Correlation Coefficient Sig. (2-tailed)	-.052 .426	-.172** .008	.018 .784	-.065 .320	.007 .914	-.002 .970	-.060 .357	.027 .682	.336** .000	.244** .000	-.133* .041	.170** .009	1.000 .
	N	224	224	224	224	224	224	224	224	224	224	224	224	224

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Annexure S

Correlation matrix between death distress scale domains  
and methods of coping domains



Instrumental support	Correlation Coefficient	.467**	.479**	.372**	.480**	.567**	.462**	.323**	.587**	1.00	.335**	.550**	.565**	.661**	.676**	.517**	.339**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
behavioural	Correlation Coefficient	.462**	.289**	.542**	.345**	.332**	.494**	.510**	.439**	.335**	1.00	.515**	.468**	.387**	.304**	.326**	.585**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
venting	Correlation Coefficient	.589**	.418**	.495**	.487**	.422**	.492**	.615**	.476**	.550**	.515**	1.00	.534**	.505**	.449**	.541**	.541**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
Positive reframing	Correlation Coefficient	.559**	.344**	.491**	.549**	.366**	.506**	.462**	.546**	.565**	.468**	.534**	1.00	.565**	.529**	.494**	.531**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
planning	Correlation Coefficient	.476**	.544**	.372**	.504**	.525**	.396**	.394**	.501**	.661**	.387**	.505**	.565**	1.00	.627**	.537**	.444**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
acceptance	Correlation Coefficient	.438**	.476**	.312**	.466**	.509**	.388**	.363**	.473**	.676**	.304**	.449**	.529**	.627**	1.00	.545**	.326**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
religion	Correlation Coefficient	.524**	.408**	.345**	.469**	.361**	.322**	.458**	.453**	.517**	.326**	.541**	.494**	.537**	.545**	1.00	.361**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
Self-blame	Correlation Coefficient	.456**	.262**	.520**	.372**	.327**	.558**	.628**	.367**	.339**	.585**	.541**	.531**	.444**	.326**	.361**	1.00
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
	N	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224

\*\* . Correlation is significant at the 0.01 level (2-tailed).