Video-based health professional education for postpartum psychosis: acceptability and changes in knowledge amongst primary care workers in Thyolo, Malawi.

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DECLARATION

I declare that this work was done after registration into the University of Cape Town for Mphil Public Mental health degree program. It is original work that was conceptualised and carried by me together with the afore-mentioned supervisors. This work has not been submitted to any other institution for academic or qualification purposes.

To the best of my ability, I ensured that all processes and procedures stipulated by the Faculty of Health Sciences Research Ethics Committee and the Malawi National Health Sciences Research Committee were followed.

Date: 12 February 2023

Signed: Signed by candidate

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ABSTRACT

INTRODUCTION

Postpartum psychosis is a severe mental health condition that affects women soon after they give birth, and is characterised by disturbances in thought pattern, abnormal behaviour and mood disruption. It is life threatening as women presenting with this condition are at a high risk of suicide and infanticide. Good outcomes such as reduced rate of relapse and better quality of life are expected if pharmacological and psychosocial treatments are initiated early. Stigma by healthcare workers in low- and middle-income countries, including in Malawi, leads to non-identification, late treatment and poor clinical and social outcomes. A video-based educational tool, which includes a narrative of a patient with lived experience of postpartum psychosis was created by the 'Strengthening the Network for Studying Psychological Resilience in Low-And Middle-income Countries Project (NESP)', for potential use in training professional primary healthcare workers in identification and referral of postpartum psychosis. The aim of this study was to assess change in knowledge of and attitudes towards postpartum psychosis in professional primary healthcare workers in Malawi after watching this video, and to explore their perceptions on the usefulness of the video in their training and daily work.

METHOD

We conducted a mixed methods study evaluating the effects of a video- based educational tool on knowledge and attitudes of professional primary healthcare workers in Thyolo, Malawi. The Mental Health Knowledge Schedule (MAKS) was used to assess knowledge and Mental Illness Clinicians Attitudes Scale (MICA) was used to assess attitudes before and after exposure to the video. Convenience sampling was used to select 20 out of 28 health centres in Thyolo district. All professional primary healthcare workers at each sampled health centre were invited to participate in the study. A total of 126 participants were recruited and 96 of them completed both pre and post-tests. Then two separate focus group discussions were held with a total of 11 participants attending out of 12 sampled. SPSS version 28 was used to analyse quantitative data: a paired sample t-test was used to assess the unadjusted change in MAKS and MICA scores. A repeated measures ANOVA controlling a priori for age, number of days between pre-post-test and experience with treating PPP was then performed. NVivo 12 was used in the thematic analysis of transcribed qualitative data.

RESULTS

The results showed significantly higher MAKS (knowledge) scores in the post-test (mean = 23.1, SD = 2.5) compared to the pre-test (mean = 21.9, SD= 2.9) (mean difference = -1.2, t = -3.5, p = <0.001). The MICA (attitudes) scores were significantly lower in the post-test (mean = 37.9, SD = 8.5) than the pre-test (mean = 40.5, SD = 8.17) (mean difference = 2.6, t = 2.5, p = 0.013). Themes emerging from the qualitative data were mainly on the perceived usefulness of the video, concerns for ongoing health system challenges, the perceived contextual challenges and participant recommendations for improvements and dissemination of the video.

CONCLUSION

The study found that there was an increase in knowledge and improvement of attitudes in healthcare workers after exposure to the video. The video was an acceptable tool for usage in training healthcare workers. Widely disseminating the video to professional primary healthcare workers could help reduce stigma against postpartum psychosis. Further long-term research is recommended to assess the long-term effectiveness of implementing video-based trainings in diagnosis and treatment of postpartum psychosis in Malawi.

CONTENTS

DECLARATION 2
ACKNOWLEGEMENTS 3
ABSTRACT 4
CONTENTS 6
LIST OF TABLES 8
LIST OF FIGURES 9
APPENDICES 9
LIST OF ABBREVIATIONS 10
1. CHAPTER ONE: INTRODUCTION 11
2. CHAPTER 2: LITERATURE REVIEW 14
2.1. Burden of postpartum psychosis 14
2.1.1. Effects of postpartum psychosis on the mother 14
2.1.2. Effects of postpartum psychosis on the child 14
2.1.3. Effects of postpartum psychosis on the family 15
2.2. Risk factors for developing postpartum psychosis 16
2.3. Treatment and prognosis for postpartum psychosis 17
2.3.1. The need to intervene early and impact on prognosis 17
2.3.2. Effective treatments option for postpartum psychosis 17
2.3.3. Treatment of postpartum psychosis in Malawi 18
2.3.4. Treatment gap for postpartum psychosis 19
2.4. Barriers to care 19
2.5. Stigma 20
2.5.1. Definition of stigma 20
2.5.2. The composition of stigma 21
2.5.3. Stigma as a barrier to help seeking 21
2.5.4. Approaches to overcoming stigma 22
2.5.5. Link between stigma reduction and improved practice 22
2.6. Rationale for the study 24
2.7. Aim and objectives 25
3. CHAPTER THREE: METHODS 26
3.1. Design 26
3.2. Setting 26
3.3. Sampling 27
3.4. Participants 29

3.5. Recruitment 29
3.6. Phase one: Quantitative (pre-post test) 30
3.6.1. Sample size 30
3.6.2. Procedure 30
3.6.3. Measures 33
3.6.4. Data analysis 34
3.7. Phase two: Qualitative 34
3.7.1. Sampling and recruitment 34
3.7.2. Data collection 34
3.7.3. Trustworthiness 35
3.7.4. Reflexivity 36
3.7.5. Analysis 36
3.8. Ethical considerations 37
4. CHAPTER FOUR: RESULTS 39
4.1. Phase one: Quantitative (pre-post test) results 39
4.2. Phase two – Qualitative results 43
4.2.1. Theme 1: Perceived usefulness of the video 45
4.2.2. Theme 2: Concerns for ongoing health system challenges 47
4.2.3. Theme 3: Perceived contextual challenges 48
4.2.4. Theme 4: Participant recommendations 49
5. CHAPTER FIVE: DISCUSSION 52
5.1. Overview of findings 52
5.2. Limitations and strengths 57
5.3. Implications for research 57
5.4. Implications for practice 58
5.5. Conclusion 58
REFERENCES 60
APPENDICES 68
5.6. Appendix I - Informed consent (Phase one) 68
5.7. Appendix II - Informed consent (Phase two) 71
5.8. Appendix III: The adapted version of the Mental Health Knowledge Schedule (MAKS) 74
5.9. Appendix IV: Mental Illness Clinicians' Attitudes Scale (MICA) 75
5.10. Appendix V: Topic guide for focus group discussion 78
5.11. Appendix VI: Participants' demographics form 78

LIST OF TABLES

Table 1: Demographic characteristics of the sample (N=126) 40
Table 2: Unadjusted paired sample t-tests results 41
Table 3: Sociodemographic characteristics of focus group discussion participants 44
Table 4: Themes and subthemes 44

LIST OF FIGURES

Figure 1: Map of Thyolo district showing distribution of health centres 28
Figure 2: Study design and sampling 32
Figure 3: Histogram showing differences in pre and post test scores for MAKS 41
Figure 4: Histogram showing differences in pre and post test scores for MICA 42
Figure 5: Interaction of MICA scores and categorized age group 43
Figure 6: Interaction of MICA scores and categorized number of days pre and post tests 43

APPENDICES

Appendix I - Informed consent (Phase one) 63
Appendix II - Informed consent (Phase two) 66
Appendix III: The adapted version of the Mental Health Knowledge Schedule (MAKS) 69
Appendix IV: Mental Illness Clinicians' Attitudes Scale (MICA) 70
Appendix V: Topic guide for focus group discussion 72
Appendix VI: Participants demographics form 73

LIST OF ABBREVIATIONS

Analysis Of Variance (ANOVA)

Corona Virus Disease of 2019 (COVID 19)

Disability Adjusted Life Years (DALYs)

Focus Group Discussions (FGD)

Global Burden Of Disease (GBD)

Health Care Workers (HCWS)

Health Surveillance Assistants (HSA)

High Income Countries (HICs)

Low And Middle Income Countries (LMICs)

Mental Health Knowledge Schedule (MAKS)

Mental Illness Clinicians' Attitudes Scale (MICA)

Mother Baby Unit (MBU)

Medical Research Council (MRC)

Postpartum Psychosis (PPP)

The World Health Organization (WHO)

World Mental Health Survey Initiative (WMHSI)

Years Lived with Disability (YLD)

Years of Life Lost (YLL)

Zomba Mental Hospital (ZMH)

1. CHAPTER ONE: INTRODUCTION

It has been estimated that 4.9% of the global burden of disease (GBD) measured in Disability Adjusted Life Years (DALYs) is attributed to mental health conditions (GBD 2019 Mental Disorders Collaborators, 2022). Furthermore, these disorders accounted for 17,361.5 Years of Life Lost (YLL) and 14.6% of the global Years Lived with Disability (YLD) (GBD 2019 Mental Disorders Collaborators, 2022). In the African region, mental disorders account for 13.4 million DALYs or 9% of the total burden of non-communicable diseases in the region (Gouda, 2019). Available estimates for Malawi suggest that mental health conditions account for 49,931.02 DALYs per 100,000 people of the population (GBD 2019 Mental Disorders Collaborators, 2022).

Substantial disability is experienced by people living with severe mental illnesses, such as schizophrenia and other psychotic disorders. Although the prevalence of these disorders is low, the high level of disability results in a large impact on individuals, families and on the health system, with schizophrenia accounting for 12.66 million DALYs globally (He et al., 2020). Moreover, it is estimated that severe schizophrenia has a disability weighting of up to 0.7 on a scale of zero to one, where zero is perfect health and one is death (Salomon et al., 2015). This weighting shows that the condition causes a high level of dysfunction thus requiring prioritisation despite the low prevalence of schizophrenia. Although not reported separately in the GBD study, given that postpartum psychosis (PPP) has been described as a severe psychotic disorder and at times presents with schizophrenic characteristics, it is likely that postpartum psychosis has a similar disease burden.

The burden of PPP is high because it is a life threatening illness for both the mother and the baby as there is a high risk for suicide and infanticide, and this illness causes significant detrimental effects to the individual, family, community and health system (Cohen et al., 2023). For example, the psychotic symptoms of PPP may impair the social functioning of the mother, which negatively affects bonding with the baby and functioning within other interpersonal relationships (Cortes Hidalgo et al., 2019; Ramsauer & Achtergarde, 2018). Most mothers with PPP have less adaptive maternal–child interaction and less sensitivity to the baby (Cortes Hidalgo et al., 2019; Ramsauer & Achtergarde, 2018). In turn, the children are more likely to portray negative behaviours, have forceful ways of interaction and lack emotional regulation and control at the age of 12 to 15 months (Cortes Hidalgo et al., 2019; Ramsauer & Achtergarde, 2018). In addition, there have been reports of strain in interpersonal relationships since such impairment negatively affects the women's interpersonal relationships with partners and friends. Some may breakdown and others may go through a strain as the women experience hard time by experiencing difficulties in taking care of both the baby and the family concurrently. (Forde et al., 2019; Holford et al., 2018).

Postpartum psychosis (PPP) is a psychotic disorder that presents with disorganised behaviour, disturbed cognition and affective disturbance in a woman within three months of giving birth (VanderKruik et al., 2017). The most common symptoms are anxiety, irritability, agitation, disturbed consciousness, disorientation, severe inattention, childbirth related delusions and hallucinations, and depersonalization/derealisation (Kamperman et al., 2017). In the development of PPP, it is thought that both biological and social stressors play a role.

Biological stressors that could lead to the development of PPP are immune dysregulation, sleep disturbances and hormonal changes (Bergink, 2012; Osborne, 2018). Other risk factors include a history of bipolar disorder, history of a previous episode of PPP, family history of a mental health condition, low socio-economic status, primiparity, young age during first delivery and complication during delivery (Aas et al., 2020; Osborne, 2018; Upadhyaya et al., 2014).

PPP has a global prevalence of 0.89 to 2.6 for every 1000 women and a review of papers from Africa found the incidence of postpartum psychosis to be 0.3 to 25.6 per 1000 women (Crew, 2015; VanderKruik et al., 2017). The wide range in the incidence is attributed to out-of-hospital births which are most likely not recorded in many African settings. In addition, the estimates may not be a true representation of the incidence in Africa, as the majority of the studies reviewed in the paper were from West Africa and there may be extensive variability across settings (Crew, 2015). To date, there have been no published studies on the incidence or prevalence of postpartum psychosis in Malawi. However, a hospital review stated that in 2018, postpartum psychosis made up 3% of all female admissions at Zomba Mental Hospital (ZMH) (Hospital-Review, 2018). Zomba Mental Hospital is the largest and only government-owned specialist inpatient mental health institution in Malawi.

Nevertheless, PPP is a treatable condition especially when treatment is initiated early. In as much as psychopathology is present in women who have had PPP, in the long term and with treatment, most women are able to get back to the level of functioning as in the premorbid state (Burgerhout et al., 2017; Doucet, Dennis, Letourneau, & Robertson Blackmore, 2009). In addition, women who recover from PPP have better outcomes compared to women who develop psychosis outside of the postpartum period (Gilden et al., 2020).

Ideally, treatment of PPP consists of an inpatient hospital admission, to specialist care called Mother Baby Unit (MBU). These units enable holistic care, which includes pharmacological and psychosocial interventions to be provided to the mother without compromising bonding with the baby (Hill et al., 2019). Such treatments may include one or several of the following: antipsychotics, benzodiazepines and lithium, electroconvulsive therapy, cognitive behavioural therapy, psychodynamic psychotherapy, eye movement desensitization and reprocessing (EMDR), and basic skills for care of the baby (Forde et al., 2019; Ndosi & Mtawali, 2002; Osborne, 2018).

Despite there being known, effective treatments for perinatal mental health conditions, there are structural, organisational, sociocultural and individual barriers that limit women with mental health conditions from accessing care early (Sambrook Smith et al., 2019). Studies have shown that these barriers affect help seeking in Malawi (Chilale et al., 2019; Makwero, 2018). For example, at the structural level, the limited availability of psychiatric care affects treatment of women presenting with PPP. Women with PPP generally present at the primary care level where they are diagnosed by professional primary healthcare workers and referred to the secondary level of care, where the patient should be referred on to tertiary care. In Malawi, tertiary mental healthcare is provided by one government hospital, Zomba Mental Hospital (ZMH) while there are two private psychiatric hospitals. At ZMH, the only public owned specialist mental health care institution, women are admitted to an adapted MBU and are given medication according to the availability of medication and the needs of the patient. The periodic

medication stock outs and limited trained mental healthcare staff function as barriers to care at the organisational level (Hospital-Review, 2018).

Further, at the sociocultural level, stigma among healthcare workers towards clients negatively affects women in the perinatal period from seeking care. This usually happens when the healthcare workers have low levels of knowledge and hold negative attitudes towards women with mental health conditions (Ross & Goldner, 2009). Stigma occurs when elements of labelling, stereotyping, separation, status loss, and discrimination occur together in a power situation that allows a person or group to disadvantage a particular individual or group (Link & Phelan, 2001). Thus, for stigma to take place there has to be a labelling or naming of certain traits that are considered to be different from what the society considers as the norm at that moment, and may result in discrimination against the group labelled as different (Link & Phelan, 2001). In the healthcare service, this can be viewed as an institution stigmatising against people with a mental health condition. Therefore, individuals with symptoms of PPP may not present to healthcare facilities because they are afraid they will be treated differently, thus personalised stigma making a barrier to care (Corrigan & Watson, 2002).

Among barriers affecting health care help-seeking, stigma by healthcare workers contributes to late presentation to health care facilities, which then adversely affects treatment outcomes for PPP. The main forms of interventions against stigma in healthcare are education, protest or social activism and contact with people with mental health conditions (Thornicroft et al., 2016). Education and some form of contact with people living with a mental health condition have been proven to be effective in reducing stigma in healthcare workers towards clients presenting with mental health condition, in the short and medium term (Clay et al., 2020; Davidson, 2021). This study uses a video-based educational message containing technical information on PPP and clips showing women with lived experience of PPP, to assess if exposure to the video improves knowledge and attitudes among professional primary healthcare workers in Thyolo, Malawi.

2. CHAPTER 2: LITERATURE REVIEW

2.1. Burden of postpartum psychosis

As much as the number of women affected by PPP in a population is low, the severity of the illness causes significant detrimental effects to the individual, the baby and family. However, due to the dearth of studies in this area from LMICs, most literature presented in this review was from High Income Countries (HICs).

2.1.1. Effects of postpartum psychosis on the mother

Generally, PPP is associated with good outcomes, if treatment is provided, in terms of employment and social functioning as the majority of women go back to a premorbid state (Burgerhout et al., 2017; Doucet, Dennis, Letourneau, & Blackmore, 2009). However, there is a considerable frequency of relapses and an increased suicide rate among women with PPP (Bergink et al., 2016; Chandra et al., 2015; Sit et al., 2006). A literature review of outcomes of PPP among women admitted to psychiatric units from HICs, found that only 20% did not develop other psychopathology in their lifetime (Doucet et al., 2011). A study in the Netherlands that assessed psychosocial impairment in women with PPP reported significantly higher impairment in daily functioning of women with history of a relapse or other psychopathology than those with a sustained remission (Burgerhout et al., 2017). Furthermore, the women with impaired functioning had a higher prevalence of depressive and anxiety symptoms associated with longer duration of the episodes compared to a matched group from the general population (Burgerhout et al., 2017).

2.1.2. Effects of postpartum psychosis on the child

There is growing evidence that children of parents who have mental health conditions are prone to experiencing mental health problems in childhood up to adolescence, and the impact of maternal psychopathology on the child growth and development can be seen as early as 3 months (Stein et al., 2009). For instance, children of mothers with low maternal sensitivity and responsiveness are more likely to have an insecure type of attachment, making them highly distressed and avoidant to contact (Stein et al., 2009). Furthermore, maternal insensitivity affects the child's emotional and social development such that affected children show reduced learning of social cues, reduced attention to tasks, disorganised emotional regulation and disorganised behavioural regulation (Stein et al., 2009). This predisposes affected infants to developing dysregulated externalising mental health conditions such as attention deficit and hyperactivity disorder and oppositional defiant disorders in childhood (Stein et al., 2014). A narrative review on worldwide prevalence of psychopathology in children of parents with mental health conditions stated these children have up to 50% chance of developing a mental health condition themselves (Leijdesdorff et al., 2017). In addition, they are at risk of having poor cognitive development negatively affecting attainment of developmental milestones, learning language and learning abilities (Stein et al., 2009). Lastly, there is a link between maternal mental health conditions and negative effects on child health since the children are at risk of developing malnutrition and diarrhoea diseases (Stein et al., 2014).

Motherhood requires social competencies that may be compromised in the course of psychosis and thus impact the mother's ability to care for her child (Hill et al., 2019). A systematic review of studies from Europe investigating child custody arrangements where mothers were admitted to psychiatric units with PPP, found that there was a higher rate of involvement with child services in mothers with psychotic symptoms than other mothers (Ramsauer & Achtergarde, 2018). Even though the study population was small, there were no adverse effects of PPP on child physical growth in the short-term (Hill et al., 2019). Although mothers whose symptoms resolve are able to care for their children, a systematic review of studies on mothers with PPP found that women reported feelings of guilt for not being able to take care of their infant in the first months of life. These guilt feelings led to overcompensating behaviours such as giving the child more attention than they would normally do, causing the child to become 'spoilt' (Ramsauer & Achtergarde, 2018).

Parent infant attachment is one area that is negatively impacted in families affected by PPP, particularly in the acute phase, while after the symptoms resolved mothers diagnosed with PPP are usually able to bond with the children without problems (Hill et al., 2019). However, early attachment difficulties can have long-term effects on the child's development. A study done in Sweden showed impaired social behaviours and more fear towards strangers among 10-month old children of mothers with PPP compared to children of mothers without this mental health condition (Ulla Albertsson-karlgren, 2000). This could be explained by the less adaptive mother-child interactions and reduced maternal sensitivity that resulted from the socially disabling effects of psychosis (Hipwell et al., 2000). Further, Cortes Hidalgo et al. (2019), in a cohort study conducted in Netherlands, described that problems in attachment with the mother predispose the child to pathological coping strategies, vulnerability to stress and psychopathology in childhood, adolescence and adulthood. They are more likely to lack emotional regulation and control, portray negative behaviours and have a forceful manner when interacting with others (Cortes Hidalgo et al., 2019). Despite PPP having short and long-term effects on the child's social and emotional wellbeing, the family also experiences its impact.

2.1.3. Effects of postpartum psychosis on the family

Postpartum psychosis negatively affects the mother's social abilities, such as attention and responsiveness, which are essential in maintaining relationships. Strain in relationships with spouses, family members and friends was reported in a systematic review on experiences of women and their families of PPP (Forde et al., 2019). Similar experiences were reported in a study on partners' experience of PPP involving British couples, where it was difficult in maintaining the relationship with the spouse (Holford et al., 2018). In addition, it was hard for spouses to cope with caring for the unwell mother, to take up more roles in the care of the child than was planned and to maintain a job or source of income (Holford et al., 2018). In other instances, there was breakdown of intimate relationships with spouses because of focusing more on looking after a child (Forde et al., 2020). Women's friendships may also be affected. Robertson and Lyons (2003) report that friends who did not understand mental health conditions had negative reactions, which brought about negative effects to the friendship. On the other hand, some women reported that friends who were supportive had understood mental health conditions and made the experience better (Robertson & Lyons, 2003).

Systematic reviews that synthesised qualitative data on experiences of families taking care of individuals with psychosis, specifically schizophrenia, described that they face objective and subjective burdens (Cleary et al., 2020). The objective burdens are those that can be quantified, such as financial difficulties due to taking up health and living cost of the one who is sick and lack of resources such as food, clothing, shelter, healthcare, safety and social support (Cleary et al., 2020; Issac et al., 2022; Shiraishi & Reilly, 2019). Qualitative reports that focused on experiences of fathers whose partners were admitted to psychiatric units (MBU or general psychiatric unit) due to severe postpartum mental disorders in the UK, reported that they experienced disruptions in their finances due to the practicalities of the situation (Boddy et al., 2017; Reid et al., 2017). They had to make adjustments in working hours, visiting the sick mother and infant and managing the basic needs for the home. Since they had to travel to the health facilities and spend time with the sick mother, some had to take hours off work to accommodate the schedule which negatively impacted earnings (Boddy et al., 2017; Reid et al., 2017). In addition, Howard et al. (2022) in their study of cost effectiveness of MBUs compared to other forms of acute psychiatric care reported higher costs bared by the individuals who were previously admitted to MBUs one month after discharge from the unit. The subjective burdens were described by caregivers and families as the needs and challenges that they are faced with daily in providing care (Cleary et al., 2020; Issac et al., 2022; Shiraishi & Reilly, 2019). They described the experience being traumatising at the beginning and then a continuous cycle of caregiving marked with disturbed family and interpersonal relationships, lack of communication and information from healthcare workers on the condition, stigma and feeling the pressure of providing care alone (Cleary et al., 2020; Issac et al., 2022; Shiraishi & Reilly, 2019). The coping strategies that were proposed included better communication and inclusion in the treatment plan by the healthcare workers, learning skills to help manage when their family member has disturbed behaviour, community support groups and emotional support (Cleary et al., 2020; Issac et al., 2022; Shiraishi & Reilly, 2019).

In summary, PPP has a significant impact on the mother's health, the child's development and attachment and may have adverse effects on interpersonal relationships including with partners, other family members and friends.

2.2. Risk factors for developing postpartum psychosis

Most of the literature on risk factors is from high income countries (HICs) as there is limited evidence of risk factors of PPP in low-and middle-income countries (LMICs). Due to the impact that PPP has on the mother, child and family, there has been a growing body of literature focused on identifying risk factors. There is some evidence of biological stressors in the form of immune dysregulation, sleep disturbances and hormonal changes being associated with the development of PPP (Bergink, 2012; Osborne, 2018). Furthermore, a study conducted in the Netherlands involving Dutch women, found that a history of either bipolar disorder or previous episode of PPP posed a 25% - 50% increased risk for developing PPP after subsequent childbirths (Bergink, 2012). Women with a lifelong diagnosis of schizophrenia have a higher risk of relapse in the postpartum period but this has not been described as a risk factor for PPP because it is usually attributed to discontinuation of treatment in pregnancy (Jones et al., 2014).

Data from a study in the USA stated that family history of postpartum psychosis or bipolar disorder in a first degree relative is a risk factor for PPP (Osborne, 2018).

However, biological factors and history of mental health conditions are not the only factors implicated in the development of PPP. The stress vulnerability model hypothesises that for one to develop a mental health condition there has to be a combination of an intrinsic vulnerability or abnormal brain processes and a psychosocial stressor (Goh & Agius, 2010). This suggests that, from normal functioning to displaying symptoms of psychosis, there is a process in which biological and psychosocial stressors play a role (Goh & Agius, 2010). Many women experience raised levels of anxiety during pregnancy, which has been thought to be one of the psychosocial stressors that play a role in the stress-vulnerability model for developing PPP (Glover et al., 2014). A study conducted in London, which compared women with PPP to postpartum women without this mental health condition reported more frequent recent stressful life events, higher perceived stress, and higher levels of activation of the stress and immune response in women with PPP (Aas et al., 2020). Further a review of the literature reported that psychosocial factors, such as having a supportive partner can function as protective factors, even in women with known biological risk factors for PPP (Jones et al., 2014). It is also possible that additional stressors encountered during pregnancy and childbirth could increase the risk of developing PPP (Aas et al., 2020). For example, a cross-sectional study in India found that young age at first delivery, primiparity (first pregnancy) and complications during delivery were associated with increased risk of developing PPP, in addition to a financial stressor, namely low per capita household income (Upadhyaya et al., 2014). As described above, risk factors for PPP are mostly non-modifiable biological and some modifiable psychosocial risk factors.

2.3. Treatment and prognosis for postpartum psychosis

2.3.1. The need to intervene early and impact on prognosis

Postpartum psychosis is typically acute and episodic following childbirth. It has a relatively short condition course of one to three months if treatment is initiated early (Tinkelman et al., 2017). After a PPP episode, a relapse may occur outside the postpartum period or it could happen following another childbirth (Tinkelman et al., 2017). However, more favourable outcomes such as reduced chances of relapse, are expected when treatment is initiated within the first month of symptom presentation while delay can prolong the course of the condition (Bergink et al., 2015). Sit et al. (2006), reported similar findings in their literature review, indicating that women who presented late with postpartum psychosis were more likely to suffer long-term disability and recurrent psychotic episodes outside of the postpartum period. Therefore, early detection and initiation of treatments in postpartum psychosis is vital for desirable outcomes for the mother and baby.

2.3.2. Effective treatments option for postpartum psychosis

Due to its severity, treatment for PPP in most countries is provided in a hospital in-patient setting. The need for urgent medical care necessitates inpatient admission with specialist care,

which some HICs provide in Mother Baby Units (MBUs). MBUs allow the admission of both the mother and baby to optimise the mother's treatments while enhancing mother-child bonding (Hill et al., 2019).

During admission to treat PPP, a holistic approach is recommended where both pharmacological and psychosocial interventions are provided. Firstly, pharmacological agents are initiated in the acute phase when psychotic symptoms are more prominent (Sit et al., 2006). In HICs, a combination of antipsychotics, benzodiazepines and lithium are recommended and often used (Osborne, 2018). A hospital-based study in Australia had up to 98% complete remission rate in patients with PPP on this combination of drugs (Bergink et al., 2015; Osborne, 2018). Choice of drugs in Africa is dependent on availability of pharmacological agents, which are usually antipsychotic medications and mood stabilizers that can be used in combination with electroconvulsive therapy (ECT) in severe cases (Ndosi & Mtawali, 2002). In both HICs and LMICs, women are kept on maintenance monotherapy of either antipsychotic or lithium until nine months postpartum, and the doses are slowly tapered down as symptoms allow (Bergink et al., 2015; Osborne, 2018).

Psychological and social interventions are also vital in the treatment of PPP. These are scarce in LMICs but in HICs, where MBUs and well-established mental health care systems are in place, these interventions are provided. Cognitive behavioural therapy, psychodynamic psychotherapy, eye movement desensitization and reprocessing (EMDR) and solution focused brief psychotherapy are the most common psychological interventions that are provided to women and their families (Forde et al., 2019). The family is included in the psychological treatments because of the stress the illness places on the family members. Since the mother is unwell, the family members may be expected to take more responsibility for childcare than planned (Forde et al., 2020). Having the family involved in the care of the baby is also part of social intervention, as it allows the family members to help with infant feeding while the mother rests to promote sleep hygiene and prevent insomnia-induced mania (Engqvist et al., 2007). Other social interventions that may be provided involve teaching skills in a supervised environment with feedback given. These skills include: basic skills for care of baby, skills to improve the baby latching to the breast and guidance on how to encourage bonding with the baby through play and baby massage (Forde et al., 2020).

2.3.3. Treatment of postpartum psychosis in Malawi

Like most LMICs, Malawi currently does not have the evidence-based pharmacological, psychological and social interventions for PPP readily available. The first point of contact for women presenting with PPP are professional primary healthcare workers. These include mostly general care nurses who have at least six weeks' mental health training, but also physicians and midwives. The training offered to student general care physicians, nurses and midwives is aimed at equipping them with skills to identify, manage and refer mental health conditions, including PPP, appropriately.

In the Malawian context, professional primary healthcare workers are expected to diagnose and refer women with PPP to secondary level of care as per training. Inpatient care for severe psychotic illness like PPP is provided at the only government tertiary psychiatric specialist

institution named Zomba Mental Hospital (ZMH). Parallel care providers like traditional healers also provide treatment, such as herbal medicines, tattoos and ritual dances, to people presenting with mental health conditions (Chilale et al., 2017). A hospital review from ZMH showed that some women with PPP had been treated by traditional healers before presenting to the health care facility (Hospital-Review, 2018). There are two other privately-owned mental health inpatient institutions in Central and Northern Malawi where those who can afford to pay can be admitted. Privately owned facilities cater for 29% of all health care services in Malawi (Makwero, 2018). The majority of the population depend on government facilities like ZMH for health care provision.

There is a shortage of staff at ZMH, where there is one psychiatrist for the 350-bed capacity institution and 2 nurses on duty per ward, making individualised care and monitoring of the mother and child during admission for PPP difficult. Therefore, ZMH offers an adapted MBU, where the mother is admitted to the mental health acute ward with other patients and the baby is kept with a guardian (most commonly a relative of the mother) (Hospital-Review, 2018). The guardian and baby are housed in the rehabilitation ward. The baby is breastfed at particular times under the observation of the nurses and with the help of the guardian to facilitate attachment and bonding (Hospital-Review, 2018). Treatment options available for PPP at ZMH are benzodiazepines, antipsychotics, mood stabilisers and electroconvulsive therapy (Mullin, (2020)). The psychiatrist is present at the hospital to care for such cases. Psychological and social interventions are not available currently at the hospital for the women who present with PPP.

2.3.4. Treatment gap for postpartum psychosis

Despite the availability of evidence-based treatment for PPP and the good prognosis of PPP when treated early, some women do not receive treatment. The treatment gap is defined as the percentage of individuals who require care but do not receive treatment (Kohn et al., 2004). In the literature, the specific figure for PPP treatment gap is currently not available. However, the median treatment gap for schizophrenia, including other non-affective psychotic disorders, is 32.2% (Kohn et al., 2004). This means that, globally, a third of people who suffer from psychotic disorders remain untreated although effective treatments do exist. The treatment gap is likely to be much higher in low resource settings, where mental health care is limited and specialist mental health care services are inadequate (Schierenbeck et al., 2013). In Malawi, the treatment gap for psychosis, including PPP, is likely to be large given there is only one specialist mental health care facility in the public health care system that is accessible to the Malawian population. The factors that influence the treatment gap include those barriers that affect how people seek both general and mental health care.

2.4. Barriers to care

The factors that negatively influence health seeking in PPP are similar to those that exist for all mental health conditions. The World Health Organization (WHO) World Mental Health (WMH) Survey Initiative analysed data from 14 countries from both HICs and LMICs and they reported that barriers to mental health care encompassed system factors (resources), perceived

need for treatment and lack of access linked to insurance coverage and financial resources (Demyttenaere et al., 2004). In a systematic review of papers from HICs on barriers to accessing care in women with perinatal mental health conditions, Sambrook Smith et al. (2019) developed a framework of levels of barriers to accessing care, namely structural, organisational, sociocultural and individual barriers. Structural factors are those that relate to accessibility, availability and provision of services, including financial costs of services and how these are met whether through health insurance or out of pocket funds (Wogen & Restrepo, 2020). Inadequate resources to provide care such as medications stock outs, lack of mental health knowledge in general health workers and shortage of mental health staff are barriers at the organisational level (Sambrook Smith et al., 2019). Individual perceptions regarding the need for treatment also pose a barrier to patient care (Schierenbeck et al., 2013). These include thoughts that the illness will go away on its own, attributing causality to spiritual influences and distrust in the confidentiality and ability to treat by the professional primary healthcare workers (Schierenbeck et al., 2013; Umubyeyi et al., 2016; Wogen & Restrepo, 2020). Sociocultural factors are mostly stigma-related as they involve feelings of shame accompanied with fear of the negative perceptions of the community and leading to a person not seeking care. All structural, organisational, sociocultural and individual barriers are pertinent to care for PPP in Malawi.

As indicated above, ZMH is the only specialist mental health care facility for the entire population in Malawi, thus the majority of the population have to travel to access it (Makwero, 2018). This creates a structural barrier to care as people have to travel long distances to access mental health care and some may not have adequate funds for such trips. Limited drug supplies, lack of skills in mental health care by general health workers and shortage of mental health care workers also contribute as organisational barriers in the mental health care system (Makwero, 2018). This affects the delivery of quality mental health care especially for a condition like PPP that requires specialised care (Bruwer et al., 2011). At the sociocultural level, the belief that mental health condition is caused by spirits or witchcraft in some African contexts, including in Malawi, leads people to seek care from traditional healers (Bruwer et al., 2011; Makwero, 2018). A study in the northern part of Malawi found that the majority of the people attributed mental health condition to socio-cultural factors with witchcraft, spirit possession and curses as the main causes (Chilale et al., 2019). As a result, people seek help for a mental disorder from traditional healers first, before reporting to hospitals (Chilale et al., 2019). This is also seen among younger people, as poor mental health literacy and understanding of mental health conditions was also reported among young people in Malawi, in a study aimed at engaging youths in mental health literacy interventions (Jumbe et al., 2022).

2.5. Stigma

2.5.1. Definition of stigma

All barriers to care described earlier are relevant in Malawi, and this study focuses specifically on health facility stigma. Stigma by health care workers towards clients negatively affects the quality of care provided. Therefore, improving knowledge and attitudes of professional primary

healthcare workers could improve the diagnosis and referral of women with PPP. Link and Phelan (2001), in their description of stigma, stated that 'stigma exists when elements of labelling, stereotyping, separation, status loss, and discrimination occur together in a power situation that allows a person or group to disadvantage a particular individual or group'. The definition conveys that for stigma to be present there has to be a labelling or naming of certain traits that are considered different from what the society considers as the norm at that moment (Link & Phelan, 2001).

2.5.2. The composition of stigma

Stigma is composed of complex social constructs that are connected in a way that leads to the targeted individuals being disadvantaged and discriminated against (Wogen & Restrepo, 2020). Stereotypes are labels or over-generalized social beliefs about groups of people, which occur in the community and society and then are endorsed amongst the people (Corrigan & Watson, 2002). For example, people suffering from a psychotic illness could be perceived as dangerous and unpredictable. Prejudice is how people who hold stereotypes against others respond emotionally when in contact with the stigmatised group, which may include responses of anger, irritation, pity or fear (Corrigan & Watson, 2002). This then elicits a behaviour, which is discriminatory (Wogen & Restrepo, 2020). For example, people may want to be socially distant from those living with a psychotic illness based on the perception that they are dangerous.

Stigma can come about in different settings and can be categorised according to setting. Structural stigma is present when negative perceptions towards a certain group of people are held as a cultural norm. In addition, laws and policies used to govern countries, institutions and organisations directly or indirectly disadvantage people who are labelled to be different (Hatzenbuehler, 2016). Institutional stigma is when people working in structures endorse the discrimination. For example if nurses at a hospital have negative attitudes towards people with mental health conditions because they are labelled as "violent", those people are less likely to receive the same care as a person without a mental health condition, placing them at a disadvantage (Hatzenbuehler, 2016). Public stigma is when the community holds a negative attitude or perception of certain persons (Bruwer et al., 2011).

2.5.3. Stigma as a barrier to help seeking

Due to negative perceptions of mental health conditions, people do not want to be seen to have these conditions, and therefore do not seek care (Bruwer et al., 2011; Grandón et al., 2018). This negative association between stigma and help seeking is a barrier to health care (Bruwer et al., 2011). In the conceptual framework developed by (Clement et al., 2015) from their systematic review, structural, institutional, public and internalised stigma are shown as decreasing help seeking for mental health conditions. A literature review on stigma and help seeking behaviours found that those who sought help believed that they would be accepted, understood and provided confidentiality by the health care workers (Schomerus & Angermeyer, 2008). Umubyeyi et al. (2016) reported disclosure or confidentiality concerns about health care workers' actions as the most common stigma-related barrier to help seeking. People are more likely to be subjected to misdiagnoses and poor general health service provision by healthcare workers because once they disclose of a pre-existing mental health

condition, symptoms that could be due to other physical disorders are attributed to their mental health (Henderson et al., 2014). In HICs there is a mortality gap of 20 years less for men and 15 years less for females among those with severe mental health conditions are compared to the general population (Henderson et al., 2014). Stigma is one of the contributing factors to the discrepancy in life expectancy (Henderson et al., 2014). Therefore, approaches that target the healthcare workers' attitudes and stigma-related aspects of care could improve help seeking behaviour in mental health conditions disorders (Clement et al., 2015).

2.5.4. Approaches to overcoming stigma

The main forms of interventions are education, protest or social activism, and contact with the people suffering from mental health condition, depending on the group that is being targeted (Umubyeyi et al., 2016). Thornicroft et al. (2016), in a systematic review of papers on stigma reduction from HICs, stated that educational information on mental health condition and contact provided medium to short term effects in decreasing stigma among health care workers. This was corroborated by a more recent meta-analysis that assessed effective interventions in reducing mental health-related stigma in primary health care settings in LMICs (Heim et al., 2018). The authors stated education and contact as the most effective interventions against stigma (Heim et al., 2018). In addition, interventions that contained social contact had the strongest evidence base for effectiveness in reducing mental health related stigma in primary health care settings in the immediate and short term (Heim et al., 2018). Furthermore, interventions that contain social contact and first-person narratives (lived experience) were found to be more effective and have better effect sizes in reducing mental health stigma in primary care than working on changing perspectives (Corrigan et al., 2014).

Interventions against stigma that use social contact between people with lived experience of mental health conditions and other groups such as the general public, healthcare workers and students are most effective (Carrara et al., 2021). A meta-analysis aimed at investigating the overall effect of social contact on stigma found a medium effect of contact on stigma (Maunder & White, 2019). They further reported that there was no significant difference in the effect sizes of direct and indirect contact on stigma reduction and stated that contact had significant effect on stigma among healthcare workers (Maunder & White, 2019). Considering the limited opportunities for direct social contact with people with lived experience for mental health conditions, indirect contact can be used to maximise the effects of contact on stigma interventions (Lee & Seo, 2018). Furthermore, an integrative review of studies found social contact as the most effective stigma intervention for healthcare workers towards people with mental health conditions compared to educational interventions and protest (Carrara et al., 2021). Therefore, contact-based interventions could be used to reduce stigma amongst healthcare workers with the intention of improving care delivery to people with mental health conditions.

2.5.5. Link between stigma reduction and improved practice

Social psychology underpins many of the social contact strategies used. The theory hypothesises that social contact of people from different groups reduces prejudice, which is one of the aspects of stigma (Pettigrew et al., 2011). This improves tolerance and interaction

between the groups therefore reducing stigma (Pettigrew et al., 2011; Pettigrew TF, 2011). As stated earlier, educational interventions are effective in reducing stigma among healthcare workers (Thornicroft et al., 2016). Therefore, it could be expected that a combination of theoretical knowledge (education) and social contact, in the form of first-person narratives of lived experiences, would serve as a useful tool to help reduce stigma in PPP among healthcare workers. A systematic review concluded that interventions that include first person narratives from people with lived experience with the illness, also considered to be a form of social contact, are the most effective in improving stigma-related knowledge and attitudes in the short term at the general population level (Thornicroft et al., 2016). In Malaysia, video-based contact interventions which included interviews on lived experiences of people with mental health conditions were effective in changing the attitudes of professional primary healthcare workers towards people with mental health conditions (Ng et al., 2017).

There is evidence that reducing stigma in health care workers can help improve health care delivery by promoting timely diagnosis and initiation of treatment therefore reducing morbidity and mortality associated with mental disorders (Kohrt et al., 2020). Stigma towards clients with mental health conditions by service providers is mostly due to existing negative attitudes, lack of knowledge and skills to effectively provide care and a lack of resources to deliver care (Henderson et al., 2014). Results from a study in Kenya that investigated the relationship between knowledge of mental health related stigma and negative attitudes toward clients with mental health illness suggested that health care workers who were more willing to interact with clients with mental health conditions had higher mental health knowledge (Mutiso et al., 2017).

A meta-analysis of factors that influence behaviour performance expressed that direct experience, easily remembered attitudes and motivation to think and act on the behaviour are predictive of behaviour (Glasman & Albarracin, 2006). Knowledge and attitude behaviour theory supports these findings by suggesting that correct health information on mental health conditions brings about positive attitudes, which then motivates improved performance behaviour (Liu et al., 2016). A study from India that looked at dental students' willingness to provide treatment to patients with HIV reported improvements in knowledge and attitude were associated with improvement in behaviour (Oberoi et al., 2014). Observational studies conducted in Cameroon and South Africa found significant relationships between knowledge and attitude with intended clinical practice such as infection prevention (Olaifa et al., 2018; Woromogo et al., 2020). Health workers with more knowledge and better attitudes were more likely to perform the intended clinical behaviours (Olaifa et al., 2018; Woromogo et al., 2020).

Theorising that healthcare workers who have more knowledge and better attitudes would diagnose and refer women with PPP early for treatment, the present study proposed the usage of a video-based training intervention to improve knowledge and attitudes of professional primary healthcare workers towards PPP. Therefore, promoting timely detection and referral of women with PPP to mental health care.

2.6. Rationale for the study

Professional primary healthcare workers based at health centres are the first point of contact for mothers presenting with PPP in Malawi; therefore, it is vital that they know how to identify and refer such cases for specialist care. Women with symptoms of PPP are most likely to present first to postnatal clinics or to general medical care. Considering that health care workers in these settings do not deal with mental health conditions frequently, they are likely to have inadequate knowledge on how to manage the illness and refer appropriately. Lack of knowledge may delay diagnosis and referral, and consequently reduce the possibility of early treatment and better prognoses. A hospital-based review from ZMH reported that misdiagnoses of PPP cases and late initiation of treatment could have occurred due to lack of knowledge (Hospital-Review, 2018).

In healthcare settings, lack of knowledge is associated with stigma towards people with mental health conditions (Henderson et al., 2014). This stigma further leads to discrimination in providing healthcare services which negatively affects the people with mental health conditions (Henderson et al., 2014). As described earlier a combination of social contact and educational interventions is effective in reducing stigma among healthcare workers (Kohrt et al., 2020).

Taking this evidence into consideration, the "Network for Studying Psychological Resilience in Low-And Middle-income Countries" (NESP) (https://www.ed.ac.uk), developed a video-based tool to improve mental health care provision for women presenting with PPP in rural Malawi, through reducing stigma in professional primary healthcare workers and increasing their knowledge of PPP management. The video-based educational tool is a ten-minute video that includes technical information on PPP and lived experiences of women with postpartum psychosis, and aims to improve diagnosis and increase timely referral for women with PPP. The technical information was delivered by a Malawian psychiatrist and a mental health nurse. A Malawian woman, who was previously diagnosed with PPP, and her relative, provided the narrative of a lived experience of PPP. The faces and names of the Malawian woman and her relative were hidden to maintain privacy and confidentiality. The technical information on PPP in the video included the definition, signs and symptoms, duration and management options available in the country.

The video was designed to be easily understood by all health care workers, with different levels of training, including professional primary healthcare workers in rural areas. The video was created in consultation with stakeholders from the government owned mental hospital and Malawian psychiatrists, who provided insights on how the video should be produced to appeal to the Malawian healthcare worker audience. In addition, the lived experiences from Malawian women were recorded in a local language (Chichewa), while the technical information was delivered in English by a Malawian psychiatrist, which is understood by all professional primary healthcare workers, since all training in health services is done in English.

Prior to this study, the video had not been used for training purposes, as it was used to raise awareness for PPP. As a first step towards the systematic use of this video or similar tool among professional primary healthcare workers, this study aimed to independently assess the change in knowledge and attitudes of professional primary healthcare workers on PPP after watching

the educational videos, as well as explore their understanding of the video's content and its perceived usefulness. In this way, the study aimed to provide preliminary data to inform future training of primary healthcare workers. Currently in Malawi, there is a gap in literature on training professional primary healthcare workers using a combination of education and indirect contact methods to reduce stigma, increase knowledge and improve attitudes towards postpartum psychosis, the present study seeks to close the gap. The present study was proposed to independently assess the possibility of using the tool on a large scale. The lead investigator did not take part in the NESP project despite being conducted in the department.

2.7. Aim and objectives

The aim of this study was to explore the use of a video-based educational tool about postpartum psychosis as a training resource for professional primary healthcare workers. More specifically, the objectives were to:

- Assess change in knowledge of and attitudes towards postpartum psychosis in professional primary healthcare workers in Malawi.
- Explore the professional primary healthcare workers' perceptions on the usefulness of the video-based tool in their daily work.

3. CHAPTER THREE: METHODS

3.1. Design

This study combined pre- and post-test quantitative assessments, and a qualitative methodology. The first phase quantitatively assessed the knowledge and attitudes of professional primary healthcare workers towards women presenting with PPP, both before and after watching the video. The second phase of the study was qualitative and made use of focus group discussions to explore participants' understanding of PPP and the perceived usefulness of the video regarding its relevance to the professional primary healthcare workers' daily work. Triangulation was achieved by the mixed methods approach where the quantitative and qualitative results were used to build a picture of potential acceptability of the video based educational tool.

3.2. Setting

Malawi is a country in south-eastern Africa; it is divided into three regions: Northern, Central and Southern Regions. Thyolo, where the study took place, is a rural district in the southern region with a population of 721,456 people (MNSO., 2019). The majority of the country's population lives in rural areas, which makes Thyolo district broadly representative of the Malawian population (MNSO., 2019).

The Malawian health care system is composed of community, primary, secondary and tertiary health care levels, where referrals are made from community level upwards. The primary care health centres offer packages of care suited for the primary care level, including packages for maternal and child health. Cases that are severe or complex are referred to the next level of care, which is a district hospital. This study focused on the primary care level. There are 28 primary care health centres in the district that provide maternal health services to the communities surrounding them. Within the communities, there are smaller clinics called community clinics, which offer basic screening and treatment of minor ailments and report to the health centre. Seven out of the 28 health centres are owned by Christian Aid Organisations but they provide the same services that government centres provide. The services in these health centres are free of charge to people living in the designated catchment areas as part of a service level agreement with the government. The community clinics were not included in the sampling frame.

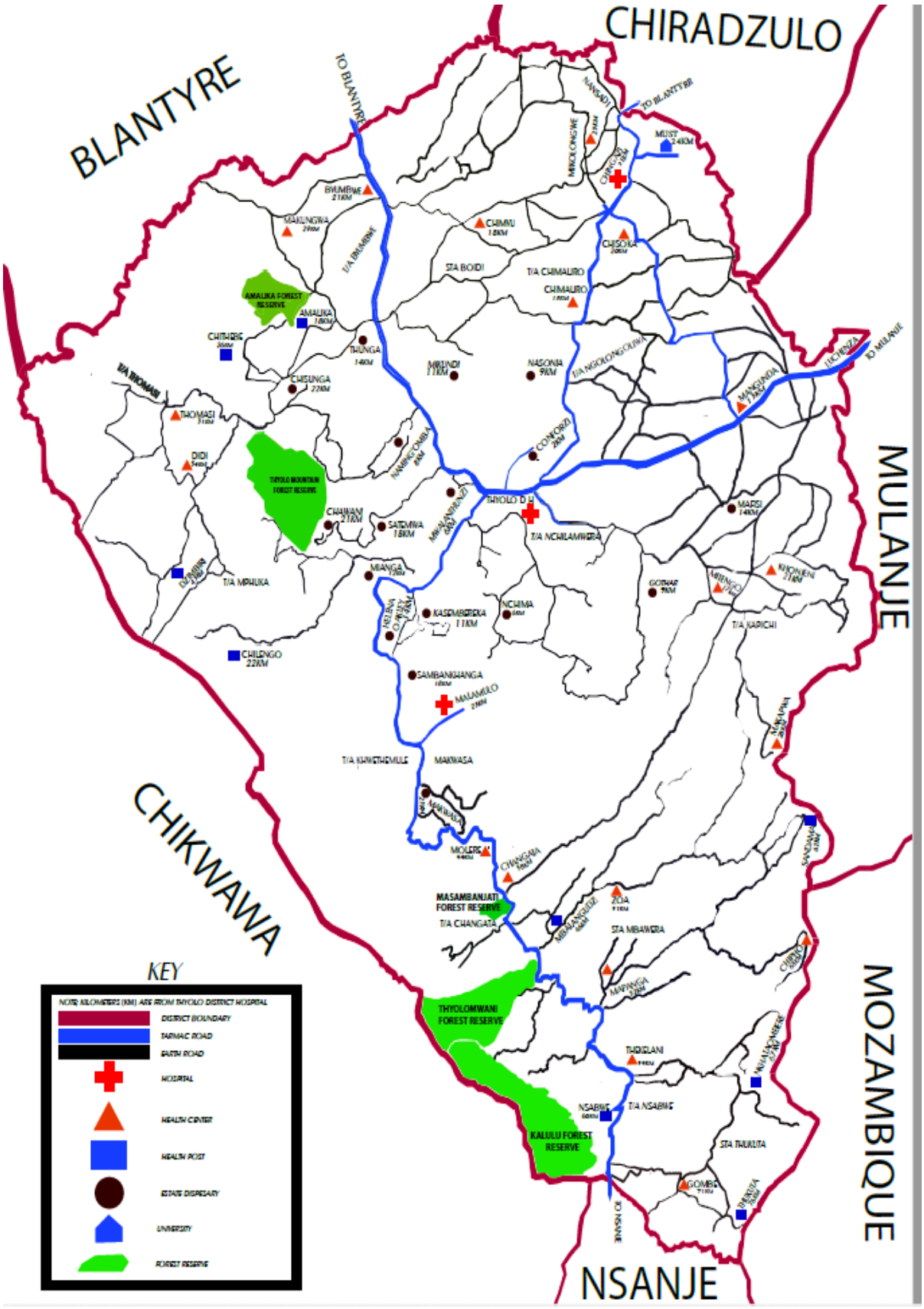
According to ALMA-ATA (2015) declaration of 1978, professional primary health care workers include physicians, nurses and midwives with technical training to work as a team and respond to expressed health needs. Primary care health centre staff members working in the primary care centres and community clinics include the following cadres: community nurses, registered nurses, medical assistants and clinical officers. Community nurses have either a certificate (two years of training) or diploma (three years of training) in nursing. Registered nurses hold a degree in nursing and midwifery, which is four years of training and are the ones who handle most of the maternal health care needs. The medical assistants are trained for two

years in clinical medicine and have a certificate in clinical medicine, while clinical officers are awarded a diploma in clinical medicine after three years of training. The medical assistants and clinical officers are referred to as clinicians as they conduct clinical work. Some health facilities that cater for large populations have up to 15 professional primary healthcare workers working in the facility.

3.3. Sampling

There are 28 health centres in Thyolo district and 20 centres were selected by the lead investigator using a convenience sampling method. The health centres that were geographically close to the district hospital were more accessible and were chosen for this reason. This was for easy access to the health centres as many roads leading to the health centres were in a bad condition. Apart from convenience, there was no other inclusion and exclusion criteria for selecting health centres. Figure 1 is a map of Thyolo district in Malawi, the study area for the present study, showing the locations of health centres and the road network. After receiving ethical approval for the study as detailed below, we contacted the head nurse for each centre by telephone to introduce the study, asked for permission to address the staff and planned for a day when the study was introduced to the health care workers. The head nurse is the manager or lead nurse at a facility who oversees the activities and running of the health centre and reports to the District Health Management Team (DHMT).

Figure 1: Map of Thyolo district showing distribution of health centres



3.4. Participants

Eligible participants were professional primary healthcare workers stationed at a facility that was one of the sampled health care facilities. All professional primary healthcare workers who were present at the meeting during which the study was introduced were eligible, regardless of the amount of working experience they had in primary health care provision and mental health. Health care workers from the district hospital that may have been present at the health centre for supervision and mentorship were excluded from the study. Only professional primary healthcare workers who were willing to participate and provided signed informed consent were recruited. The head nurses working at the sampled health centres were eligible to enrol as participants in the study if they consented. A maximum of 8 staff members at each of the selected health facilities were included in the study.

A history of PPP would exclude potential participants from the study to avoid potential emotional distress that could arise from interviews or discussion. One professional primary healthcare worker reported a history of PPP and thus was excluded from the study. In addition, those who did not provide a signed informed consent form were not recruited, as well as those who were not present physically on the day of study introduction at the health centre.

3.5. Recruitment

The head nurse in each health facility was first contacted through a phone call to introduce the study, after which, the lead investigator was added to the health facility's WhatsApp group. Such groups are usually used for easy communication in patient care and referral therefore almost all professional primary healthcare workers at each health centre were on this platform. In order to give time for potential participants to decide whether to take part or not, the study was introduced to potential participants using WhatsApp and then again in person one week later, during a staff meeting, which takes place at each facility twice a week. The staff meetings are one hour long and compulsory for professional primary healthcare workers to discuss patient care and other matters regarding their work. We also took advantage of a malaria training program taking place at the district hospital, which was attended by several professional primary healthcare workers from health centres. The majority of primary healthcare workers from the sampled health facilities were approached either at the staff or training meetings.

During these face-to-face meetings, the lead investigator described the aims and objectives of the study and requirements for participation. Then written informed consent was obtained from professional primary healthcare workers who were willing to participate. All those who consented to participate in phase one of the study were invited to participate in phase two during the phase one study visits or via the health facility WhatsApp group. From those who showed interest in participating in the second phase of the study, a purposive sample of 12 was selected based on the whether they had experience in treating PPP or not and enabling the representation of cadres and health facilities. These participants were invited to the district hospital through a phone call on a scheduled day for a focus group discussion. The head nurses did not play any other role in the study recruitment apart from being a point of contact on the online and physical platforms and were not treated any differently from all the other healthcare workers.

3.6. Phase one: Quantitative (pre-post test)

3.6.1. Sample size

The sample size calculation was performed using a software called G power version 3.1. The calculation was based on an estimated change in knowledge score of 1.48 using the Mental Health Knowledge Schedule (MAKS) (Evans-Lacko et al., 2010), based on previous studies (Hankir et al., 2017), and a type 1 error rate (α) of 0.05 and power ($1 - \beta$) at 0.95. The estimated change in scores corresponds to an effect size of 0.35. The minimum sample size required was 89. With an anticipated 30% attrition rate for the post-test, the required sample size was set to 127. We recruited 127 participants who signed the informed consent, one of whom had a positive history of PPP and was excluded (as explained above). Thirty participants were lost to follow up, leaving a sample of 96 participants, which was higher than the minimum sample size required. The two main reasons for loss to follow up included participants not being on duty on the day of follow up and participants being moved to other duty stations outside of the district.

3.6.2. Procedure

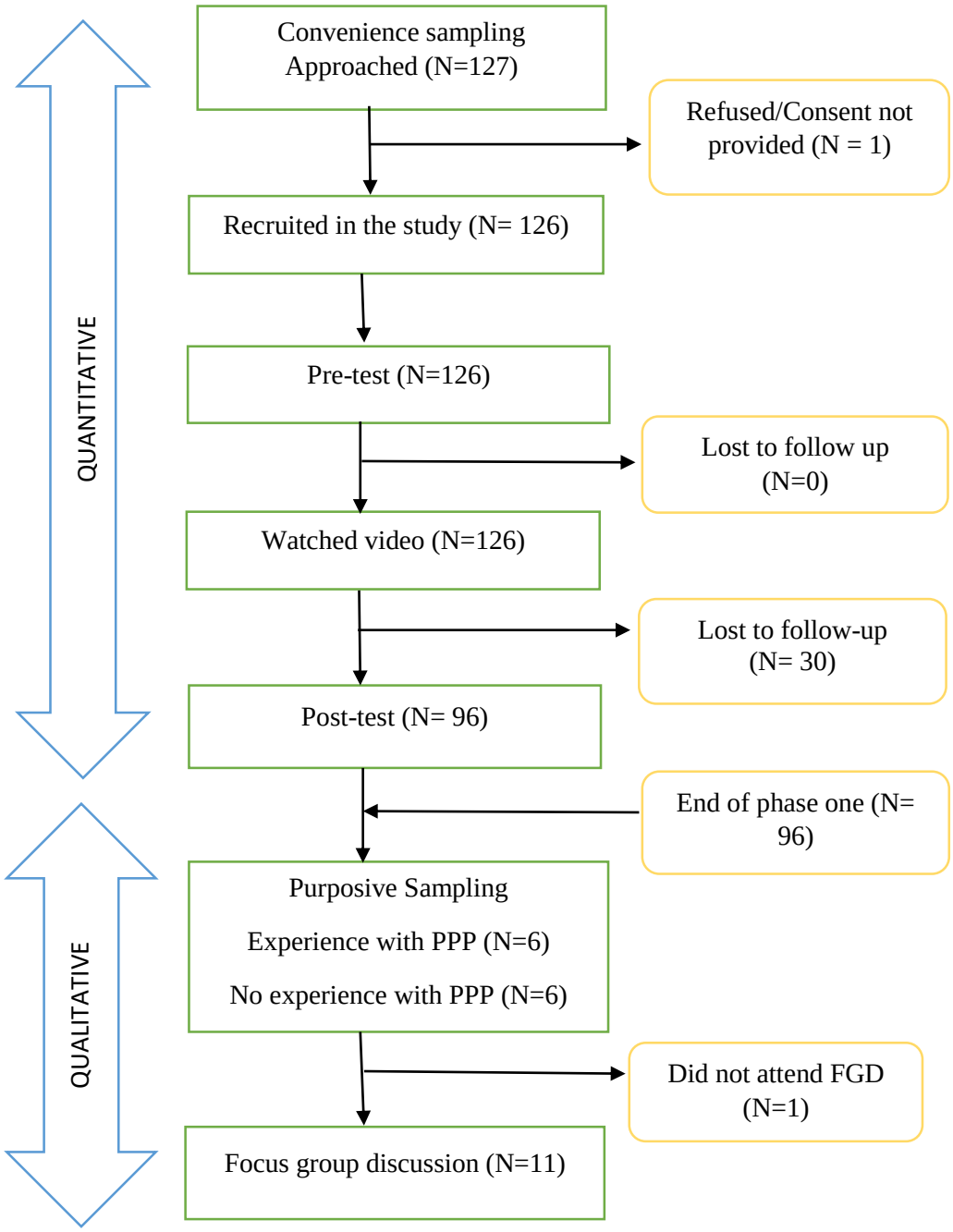
Precautions for Corona Virus Disease of 2019 (COVID 19) were followed at all the meetings. Handwashing facilities with soap and water were available at the entrance of the meeting room. Face masks were given to all those attending the meeting and all attendees were encouraged to have masks on throughout the meeting. Social distancing was encouraged by arranging the chairs 1.5 metres apart from each other. Hand sanitiser for use during the meeting was provided in the meeting room. A list of all attending the meeting was kept for at least 14 days after the meeting date for contact tracing purposes in case someone tested positive after the meeting.

During the introductory meetings, an information sheet was given to all attendees by the lead investigator who explained what the study entailed and answered all the questions that arose. The number of attendees for the introductory meetings differed between health centres but ranged from 3 to 20 potential participants. Time was allowed for reflection and decision making before requesting those who agreed to participate to sign the informed consent. After signing the informed consent forms (see appendix I), the participants completed the pre-test questionnaires in English during the same meeting. This is because all professional primary healthcare workers have a minimum of the Malawi School Leaving Certificate with a pass in English language, and all trainings in health services in Malawi are conducted in English. It was therefore assumed that all professional primary healthcare workers were able to read and write in English. The questionnaire contained 22 questions, which was estimated to take not more than 30 minutes to complete. Refreshments in terms of a drink and a snack were provided to all professional primary healthcare workers taking part in the study.

At the same introductory meeting, the lead investigator screened the video using a projector or a laptop screen, once the signed informed consent forms were handed in and the pre-test completed. Some facilities had few healthcare workers ranging from one to three healthcare workers at a time, so they watched the video from the laptop. A projector screen was used in

facilities with more than 10 participants. The post-test was conducted two weeks later, on a day agreed upon with the head nurse. A two-week gap was used, as this would be short enough to minimise the possibility that factors other than the video would influence the participants' knowledge and attitudes, but long enough to allow for any testing effects to subside and to assess short-term change in knowledge and attitudes. On the day of the post-test, participants completed the same questionnaire that was used for the pre-test assessment. After the post test was finished, the participants were asked if they would like to participate in the second qualitative phase of the study (see below Phase two: Qualitative). Figure 2 below shows a summary of the research procedure in phase one and phase two.

Figure 2: Study design and sampling



3.6.3. Measures

Firstly, the participants' demographic information was collected (see appendix VI); this included their age, gender, education, whether they had children and if they had children, whether the children were their biological offspring or not. Then information on their current cadre, years of experience both in obstetrics and general clinical practice, and whether they had ever managed a case of postpartum psychosis was recorded.

Knowledge about PPP was measured using the Mental Health Knowledge Schedule (MAKS) (Evans-Lacko et al., 2010). This is a widely used measure of mental health knowledge, which consists of 12 statements scored on a Likert scale from 1 (strongly disagrees) to 5 (strongly agrees). The statements are simple and easy to understand, for example 'medication can be an effective treatment for people with postpartum psychosis'. The designers of the instrument found it brief and feasible to be used for assessing and tracking stigma-related mental health knowledge (Evans-Lacko et al., 2010). It had a good test–retest reliability ($\alpha = 0.71$) and internal consistency ($\alpha = 0.65$) (Cronbach's Alpha) (Evans-Lacko et al., 2010). Although this tool has not yet been validated in Malawi, it has been used previously in sub-Saharan Africa to assess changes in mental health knowledge among community health workers after a mental health training in Cape Town, South Africa (Sibeko et al., 2018). The MAKS was adjusted and adapted for our study in several ways. First, the last 6 items, which are intended to measure levels of recognition of various mental health conditions apart from psychosis, were excluded. Second, the wording 'mental health problems', used throughout the questionnaire, was replaced with 'postpartum psychosis' because the video contains information of postpartum psychosis only and doesn't include other mental health problems. Item scores were added to generate a total score, which can range from 1 to 30; a higher total score indicated greater knowledge on postpartum psychosis (see Appendix III for the adapted version of the MAKS).

Attitudes were measured using the Mental Illness Clinicians' Attitudes Scale (MICA-4) (Gabbidon et al., 2013). This tool was used to measure the level of stigmatising attitudes of health workers towards people with mental health condition. It consists of 16 items; each item is rated on a 6-point Likert scale ranging from 1=totally agree to 6= totally disagree. Scores can range from 16 to 96 and a lower score indicates less stigma. One example of an item from the MICA is 'people with postpartum psychosis can never recover enough to have a good quality of life'. The MICA was originally developed by Kassam et al. (2010) among the United Kingdom medical students' population. Original work on the scale suggested that it had good internal consistency and test-retest reliability. Further work by Gabbidon et al. (2013) and Li et al. (2014) on the MICA v4 was found to have good internal consistency (α=0.72) and item-total correlations. Principal component analysis produced a five-factor structure and the scale had acceptable convergent validity. A group of students and professionals within the healthcare discipline (n=5) reported that the MICA v4 had good face validity and suggested its use with students and professionals working in non-mental health settings (Gabbidon et al., 2013). The scale had low rates of missing data, good readability and took less than 4 min to complete. The MICA v4 scale was found to be a reliable, valid and acceptable measure of foundation year nursing students' attitudes towards mental health condition (Gabbidon et al., 2013). It has the potential for use with students and qualified staff across a range of healthcare professions and

is available for use from the authors. This tool has not yet been validated in Malawi but is a widely used and validated tool for measuring attitudes of healthcare workers towards people presenting with mental health condition in HICs (Kassam et al., 2010). It was used in Pretoria, South Africa to measure stigmatising attitudes towards people living with a mental health condition in medical students and psychiatrists (Eksteen et al., 2017). (See appendix IV for MICA v4).

3.6.4. Data analysis

Scores from the pre- and post-test were calculated for the 96 participants that were followed up and data was entered into Microsoft Excel using a unique identifier for each participant. SPSS version 28 was used to analyse the data. Descriptive statistics were conducted to describe the characteristics of the sample. The demographic characteristics of the study group that was lost to follow up and the group followed up were compared using cross tables making use of Fisher's exact test at 0.05 level of significance. A paired sample *t*-test was conducted (scores were normally distributed) to compare pre-test and post-test scores; results were considered significant at $p \leq 0.05$. A repeated measures analysis of variance ANOVA was conducted, adjusting for confounders which were identified theoretically, namely: age, number of days between pre-post-test and experience with treating PPP.

3.7. Phase two: Qualitative

3.7.1. Sampling and recruitment

All the professional primary healthcare workers who participated in phase one were eligible for phase two. Purposive sampling was used for the focus group discussions to select 6 participants with experience and 6 participants without experience in providing care for PPP. This was done to get views of participants who had experience with treatment and those who did not have experience with treatment because they could be different. During registration for the FGDs, the research team explained that the selection was made purposively based on information of whether they have ever encountered a case of PPP in their clinical practice or not. A list of those who had experience and those who did not have experience with PPP were tabled and then from that list a sample of equal numbers of males and females was selected consecutively. A total of 12 professional primary healthcare workers identified previously were asked for verbal consent to participate in the FGDs through a phone call after an explanation of the research and giving the potential participant the opportunity to ask questions to clarify the nature, purpose and procedure of the research. One professional primary healthcare worker who had accepted the telephone invitation did not attend the FGD physically, so 11 participants provided written informed consent and participated in the focus group discussions (see appendix II).

3.7.2. Data collection

Due to the relatively low prevalence of PPP, it was evident that professional primary healthcare workers that have experience with PPP worked in different health facilities. In order to have a neutral location that was easily accessible for all participants, both FGDs for those with

experience and those without experience treating PPP, took place at the district hospital. A date and time were set and communicated to the participants. They were also notified that transport refunds for the most convenient public transportation would be provided.

Two FGDs were conducted in separate meetings held on different days for participants with experience of treating PPP and another for those without experience of PPP. Both FGDs were held for one hour and were facilitated by the lead investigator. At the start of each FGD, the lead investigator emphasised to the participants not to disclose contents of the discussion outside the meetings and requested them to sign the informed consents. The participants then watched the video, to serve as a refresher, since two months had elapsed since phase one of the study when they first saw the video. Discussions followed the topic guide in Appendix V using open ended questions to guide discussion, for example; 'In what way is the information in the video relevant to your daily work?' The discussions explored perceptions of health care workers towards PPP, the relevance and usefulness of the content to their daily work, and the format of the video. The FGDs were conducted in English but the participants were encouraged to express themselves in Chichewa if they were more comfortable with this. The FGDs had a majority of male participants (6 males and 5 females), and in Malawian culture women do not usually speak up when men are talking. This was observed in the focus group discussions and the lead investigator would ask specific individuals (females) to comment on the ongoing discussion. It was noted that after speaking and being heard women spontaneously joined the discussion and freely gave their views.

The lead investigator who moderated the focus group discussions took field notes which contained observations of non- verbal cues, key points raised and reflections. The discussions were audio recorded by an encrypted device which was accessible by the lead investigator only. The recordings were stored on a password-protected computer and only accessible to the research team. The material was transcribed and those sections requiring translation were translated into English from Chichewa verbatim by a professional bi-lingual transcriber. The audio recordings were listened to repeatedly by the lead investigator in order to improve accuracy of transcription and familiarisation with the data. The transcribed data were imported into NVivo 12 for management and analysis.

3.7.3. Trustworthiness

For qualitative research results to be considered meaningful and useful, researchers should show the steps taken to ensure rigor (Nowell et al., 2017). To do so, the processes of credibility, transferability, dependability, and confirmability must be documented. Credibility is when the researcher's description of the participants' views becomes an easily recognizable experience by readers and other researchers (Nowell et al., 2017). The lead investigator in this study spent a prolonged time engaging with the interview recordings and the transcripts to ensure that the results presented were representative of the participants' views. The lead investigator also revisited the field notes and proofread the transcripts to ensure that transcripts were an accurate reflection of the discussions, despite the transcripts being compiled by a professional transcriber/translator fluent in Chichewa and English. One supervisor and the lead investigator independently created codes and then discussed the coding to create themes. Dependability is

considered as how consistent, stable and reliable the qualitative research findings are in representing the participant's views after analysis despite passage of time (Korstjens & Moser, 2018). Transferability is when the researcher provides detailed and clear descriptions of the steps taken to ensure that the results of a qualitative research can be applied to other contexts with a different setting, time and population (Korstjens & Moser, 2018). For the process of transferability and dependability, we have outlined how the study was conducted from the method, data collection, analysis to presentation of the results in the thesis. Lastly, confirmability has to do with ensuring the conclusions are derived from the data (Nowell et al., 2017). Member checking is eliciting feedback from the participants to determine if the results were an accurate interpretation of the participants' views (Birt et al., 2016). A WhatsApp online group platform was created with all participants in the FGDs as members. A document containing the qualitative results, in simple language that could be easily understood was posted on the group. Then all participants were asked to read the document and provide feedback, on WhatsApp, as to whether results were an accurate reflection of the discussions that took place in the FGDs, from the participants' own perspectives. This online group was used for the member checking process so that the participants did not have to travel to the district hospital. The outcome of the member checking process was that participants confirmed the results and no changes were made.

3.7.4. Reflexivity

Reflexivity in qualitative analysis requires the researcher to acknowledge the possibility that their pre-conceived ideas can affect the decisions made on codes, themes and contextualizing data since they themselves become the 'instrument' for analysis (Nowell et al., 2017). The lead investigator was not involved in the development of the educational tool. In addition, the lead investigator recognized that with the experience she had working in the health system, she could have generated biased interpretations to the participants' views of mental health conditions. Therefore, she kept a reflexive diary throughout the qualitative research process which helped to facilitate reflection of how her personal assumptions, belief systems and being subjective could affect the construction of the research findings. Throughout the process of data analysis, the lead investigator had weekly meetings with supervisors where thoughts and reflections were shared. Her involvement as the moderator for the focus group discussion could have made other primary healthcare workers uncomfortable as the lead investigator worked at the secondary level of care which could have created a power dynamic given the hierarchy of the health system. Participants were assured prior to taking part in the discussion that all that was discussed would be used for research purposes only. The lead investigator recognized the potential power dynamics that could exist between staff members from the primary level of care and those from the secondary level of care. However, the team (lead investigator and supervisors) believed that the impact was minimal as the lead investigator was not involved in supervision, appraisals and promotions of professional primary healthcare workers.

3.7.5. Analysis

Transcripts were considered as the main source of data for the FGDs. All anonymised transcribed data were imported into NVivo 12 qualitative data management software. Thematic

analysis was used to create a coding frame with emergent themes. 'Thematic analysis is a method for identifying, analysing and reporting patterns within data by organising and describing the data set in rich detail' (Braun & Clarke, 2014). The six steps for thematic analysis were followed namely: (1) Familiarisation, (2) Generating initial codes, (3) Searching for themes, (4) Reviewing themes, (5) Defining and naming themes and (6) Producing the report (Braun & Clarke, 2014). The lead investigator engaged with the data for familiarisation. Then a coding frame was created by the lead investigator independently and the supervisor also created codes independently. A discussion ensued on the codes that had emerged, with revisions and refinements and coding of transcripts until no new themes emerged (saturation) (Lacey A, 2001). Themes and subthemes were developed in discussion with a second coder (the supervisor) to improve reliability. Attention was paid to minority perspectives and some were included as sub-themes to ensure inclusivity. The remainder of transcripts was then coded according to the emergent themes (Lacey A, 2001). Any disagreements were resolved through discussion with a third researcher (second supervisor).

3.8. Ethical considerations

Ethical approval was sought from the National Ethics Committee in Malawi after approval was granted by the University of Cape Town Human Research Ethics Committee. Prior to commencement of the study, all the approval documents and a request for an introductory letter were submitted to the Director of Health and Social Services (DHSS) in Thyolo district. The DHSS provided a letter of introduction which endorsed the study being conducted during working hours. After a discussion, the DHSS approved conducting the present study during on-duty time for non-core activities. This information was included in the letter of introduction which served as official document to be presented to the head nurse at health centres.

Detailed informed consent forms explaining the aims of the study and the research question were provided to all potential participants for the present study. The consent form in Appendix I explained that the professional primary healthcare workers could choose whether to participate or not, and if they decide to withdraw participation in the ongoing study at any point they were allowed to do so. It was emphasised that no negative consequences would befall on those who decided not to participate in the study or those who agreed and dropped out of the study. There was a risk of breach in privacy if the participant's knowledge and attitude scores were revealed to colleagues or management; to avoid this, all the participants used identification numbers not names when filling the questionnaires before and after watching the video. The completed pre and post-test forms were kept in a locked safe only accessible to the lead investigator and then were shredded a year later. The scores in knowledge and attitudes and the recordings of FGDs were kept in a password protected laptop of the lead investigator. Anonymised data was shared only with the supervisors therefore maintaining privacy and confidentiality.

At the time of data collection, the lead investigator was working as a Senior Medical Officer at Thyolo District hospital. With this position, there was a probability of coercion of potential participants into the study. However, this risk was minimal because the lead investigator was not involved in managerial duties such as appraisals and promotions. There was a probability

of professional primary healthcare workers participating in the present study experiencing emotional distress from recollection of probable trauma experienced in their personal life or while providing care to a client with postpartum psychosis. The psychiatric nurses conducting their normal duties at the district hospital were notified of the data collection in progress with the probability of some participants developing psychological distress. Despite having no referrals made in phase one, which was conducted at health centres, the psychiatric nurses would have been contacted via a phone and the case presented to them. Depending on how they assessed the situation, they could call the participant for a phone consultation or plan for a referral to the district hospital. In the case where referral to the district hospital would have been advised, the ambulance would be used for transportation as is done for all referrals in the district. For phase two of the study, no referrals were made but linkage to psychiatry nurses would have been done through an in-person referral for a face-to-face consultation. For better communication during FGDs the psychiatry nurses were notified that a session of data collection was in progress.

The focus group discussions were held in private rooms and transcripts were anonymised. Participants were asked to keep what was discussed in the FGDs confidential even though it could not be guaranteed that they would do so. A drink and a small snack were provided to participants in all data collection meetings held for both qualitative and quantitative phases. The professional primary healthcare workers could benefit from this study by increasing knowledge and awareness of postpartum psychosis.

All data was stored on a password protected laptop and the paper based questionnaires were stored in a locked cabinet only accessible by the lead investigator. The aggregated participant data was kept on a password protected laptop until five years after the study is published in a peer reviewed journal. In addition, the research findings will be shared with the Director of Health and Social services in the district for distribution to all health facilities.

4. CHAPTER FOUR: RESULTS

4.1. Phase one: Quantitative (pre-post test) results

Data were collected from November 2021 to January 2022, during which time 127 participants were recruited. We excluded one participant with a positive history of PPP because, as stated in the exclusion criteria, interviews and focus groups may lead to emotional distress among participants with past trauma. Of the total 126 participants, we managed to follow up 96 participants; this corresponds to an attrition rate of 24%, which was lower than the anticipated 30%. The final sample for quantitative analysis consisted of 96 participants with both pre and post-test data, which was higher than the minimum sample size required of 89. The characteristics of the final sample are presented in Table 1, where the majority (n=54, 56.2%) were female. The age of participants ranged from those in their twenties (n=40, 41.7%) to those in their forties and above (n=20, 20.8%), most (n=63, 66.7%) had children and only one participant reported a history of mental health condition. The majority of participants (n=52, 54.2%) were clinicians and just under two-thirds (n=55, 57.3%) had experience with treating PPP.

A series of Fisher's exact tests showed that participants who were lost to follow-up (n=30) did not differ from those followed-up (n=96) in terms of gender ($\chi^2 = .36\, p = 0.675$), professional cadre ($\chi^2 = .32, p = 0.675$), experience in treating PPP ($\chi^2 = 1.79\, p = 0.211$), whether or not they had children ($\chi^2 = .01\, p = 1.000$), their age ($\chi^2 = .47\, p = 0.789$), years of experience ($\chi^2 = .88, p = 0.406$), or history of mental health condition ($\chi^2 = .32\, p = 1.000$) (Table 1). This indicated that attrition would not have led to bias and that the final sample was representative of the sample initially recruited.

Before viewing the video, participants had a mean MAKS score of 21.9 (SD=2.9) and a mean MICA score of 40.5 (SD=8.17) (Table 2). The median number of days between pre and post-test was 11 days (IQR=7.50-14). To assess whether the difference in pre- and post-scores was normally distributed (a key assumption of a paired sample t-test), the differences between pre and post test scores for both MAKS and MICA were plotted in histograms (Figure 3 and Figure 4, respectively). These appeared normally distributed, and this was confirmed by the non-significant Kolmogorov-Sminorv test results of .117 (df = 96, p = 0.002) and .086 (df = 96, p = 0.074) for differences in pre and post MAKS and MICA tests, respectively. This confirmed that a parametric test could be used to assess whether scores on both scales differed between pre- and post-tests.

Table 1: Demographic characteristics of the sample (N=126)

Demographic	Followed up (%) – final sample (n=96)	Lost to follow up (%) (n=30)	Chi-square (χ^2)	*p*
Gender				
Male	42 (43.8)	15 (50.0)	0.36	0.675
Female	54 (56.2)	15 (50.0)		
Age				
20 – 29	40 (41.7)	12 (40.0)	0.474	0.789
30 – 39	36 (37.5)	10 (33.3)		
40 & above	20 (20.8)	8 (26.7)		
Have children				
Yes	63 (66.7)	20 (65.6)	0.011	1.000
No	33 (33.3)	10 (34.4)		
History of mental health condition				
Yes	1 (1.0)	0	0.315	1.000
No	95 (99.0)	30 (100.0)		
Cadre				
Clinician	52 (54.2)	18 (60.0)	0.315	0.675
Nurse	44 (45.8)	12 (40.0)		
Years of experience in clinical work				
1 - 5 years	45 (46.9)	17 (56.7)	0.877	0.406
6 years to highest	51 (53.1)	13 (43.3)		
Experience with treating PPP				
Yes	55 (57.3)	13 (43.3)	1.793	0.211
No	41 (42.7)	17 (56.7)		

Table 2: Unadjusted paired sample t-tests results

	Pre-test mean (SD)	Post-test mean (SD)	Mean difference[a]	Confidence interval	t-value	p-value
Mental Health Knowledge Schedule (MAKS)	21.9 (2.9)	23.1 (2.5)	-1.219	-1.905 to -0.532	-3.525	<0.001
Mental Illness Clinicians attitudes scale (MICA)	40.5 (8.17)	37.9 (8.5)	2.594	0.564 to 4.623	2.537	0.013

[a] The mean difference was calculated by subtracting the results of test 2 from test 1 in both MAKS and MICA. That is why the MAKS mean difference is negative as the scores in test 2 were higher, and why the MICA mean difference is positive as the scores were lower in test 2. Note. SD=standard deviation.

Figure 3: Histogram showing differences in pre and post test scores for MAKS

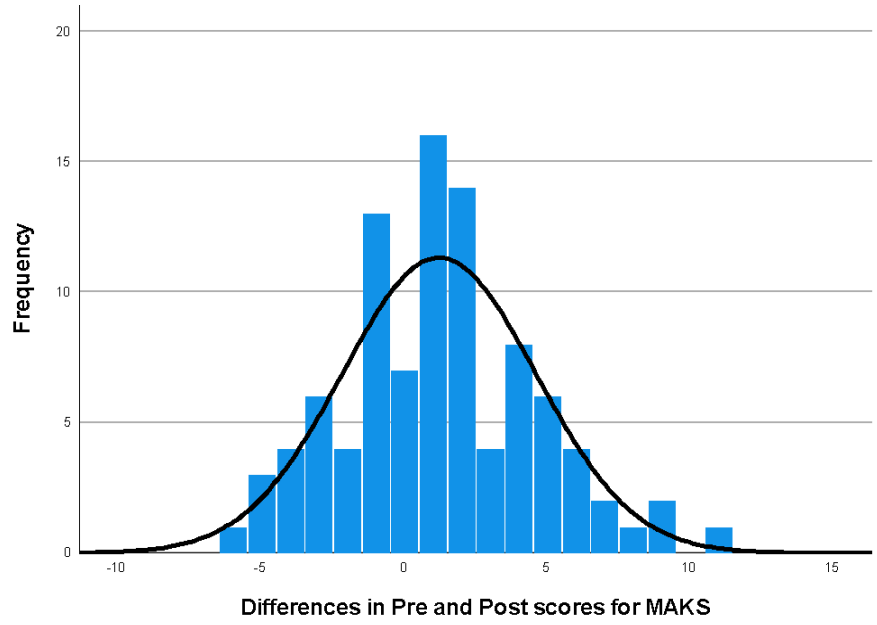
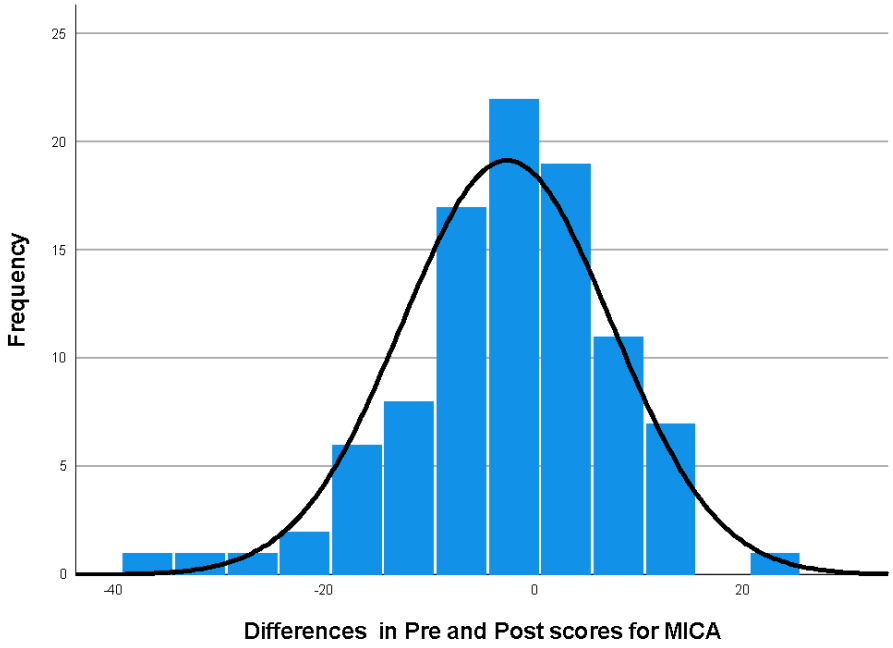


Figure 4: Histogram showing differences in pre and post test scores for MICA



Results of the unadjusted paired sample t-tests are presented in Table 2. These show that participants had significantly higher MAKS scores (suggesting greater knowledge) in the post-test (mean = 23.1, SD = 2.5) compared to the pre-test (mean = 21.9, SD= 2.9), with a mean difference from pre to post MAKS score of -1.2 (95% CI -1.91 to -0.53). The MICA scores were significantly lower in the MICA post-test (mean = 37.9, SD = 8.5) than the pre-test (mean = 40.5, SD = 8.17), suggesting a reduction in stigmatising attitudes, with a mean difference of 2.6 (95% CI 0.56 to 4.46).

To account for potential confounders (age, experience with treating PPP and number of days between pre and post-tests), repeated measures ANOVA was conducted to compare the differences in scores of both MAKS and MICA across time (within subject factor), this time adjusting for these variables. Since there were only two time points of within subject effect, sphericity was assumed.

The results of the ANOVA suggest that, even after controlling for potential confounders, there was still a significant increase in MAKS scores ($F(1) = 8.199$, $p = 0.019$) and a significant decrease in MICA scores ($F(1) = 25.557$, $p = <0.001$) from pre- to post-tests. The results also indicate that there is a marginal interaction between MICA scores and age ($F(30) = 2.590$, $p = 0.068$), and MICA scores and number of days between pre and post-tests ($F(13) = 2.788$, $p = 0.064$). This was further investigated graphically and is shown in figure 5 and 6 respectively. These results indicate that participants in the 30 to 39 age group had the least decrease in MICA scores pre-post-test, and participants who had 8-13 days between pretest and posttest had the highest decrease in MICA scores.

Figure 5: Interaction of MICA scores and categorized age group

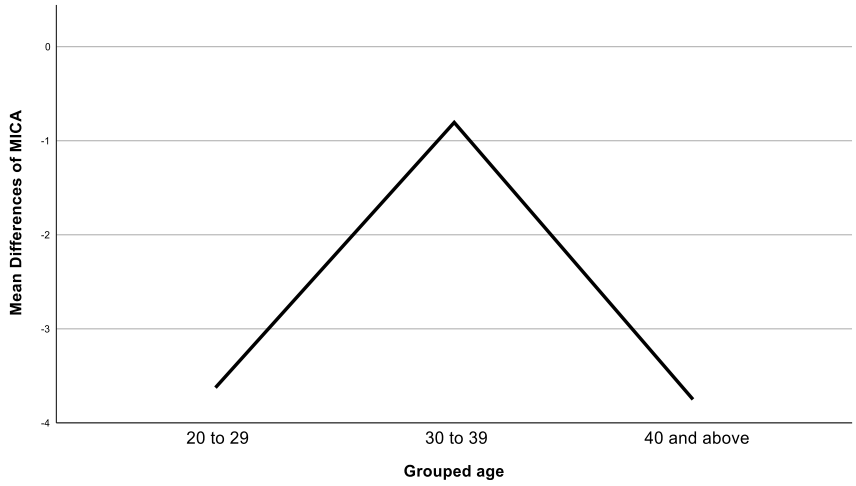
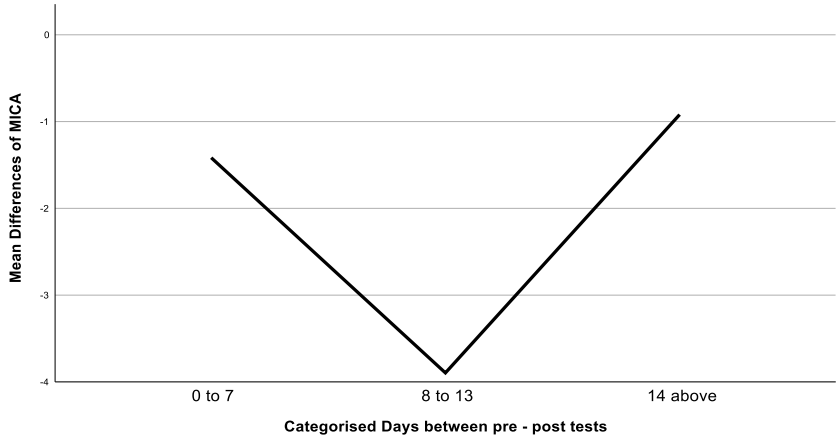


Figure 6: Interaction of MICA scores and categorized number of days pre and post tests



4.2. Phase two – Qualitative results

A total of 11 participants took part in the two focus group discussions that followed the pre-post-tests. One staff member from the following health facilities was included in the FDGs; Chimvu, Chisoka, Bvumbwe, Mangunda, Thunga, Thomasi, Didi, Mianga, Khonjeni and Amalika. Representing more than half of the total number of health facilities that participated in phase one. One focus group had 6 participants and the other 5 participants, with mixed genders and cadres in each. Table 3 below outlines the socio-demographic information of the

participants. The sample was balanced in terms of gender, with ages ranging from 20 to 50 years and comprising 4 nurses and 7 clinical officers.

Table 3: Sociodemographic characteristics of focus group discussion participants

	Healthcare workers (n=11)
Gender	
● Male	6
● Female	5
Age range	
● 25 years or younger	3
● 26–35 years old	5
● 36-50 years old	3
Cadre of work	
● Nurse	4
● Clinical officer	7
Experience with treating PPP	
● Treated PPP	6
● Not treated PPP	5

Participant characteristics indicate representation of male and female genders, variety of ages and both cadres of workers most likely to be involved in the identification of PPP in the primary care settings of the study. Five main themes emerged in the analysis, with nine corresponding sub themes listed in Table 4 below. The qualitative results were sent as a word document attachment to an online WhatsApp group, where all 11 participants of the FGDs were present, as a way of member checking. All participants responded that they agreed with the results and none provided further comments.

Table 4: Themes and subthemes

Themes and corresponding subthemes
1. Perceived usefulness of the video
1.1 Relevant video content and format
1.2 Useful for increasing awareness on PPP
1.3 Applying knowledge to change practice

2. Concerns for ongoing health system challenges
2.1 Lack of resources affecting access to and quality of care
2.2 Lack of skills and knowledge in mental health affecting quality of care
3. Perceived contextual challenges
3.1 Pre-existing beliefs or taboos affect help-seeking
3.2 Stigma and discrimination affect help-seeking
4. Participant recommendations
4.1 Additional information for the video
4.2 Improving the video for better understanding
4.3 Options for dissemination of the video

4.2.1. Theme 1: Perceived usefulness of the video

Relevant video content and format

Participants said that the video format was beneficial and that having both expert opinion and lived experience made it easy for them to understand. Most reported being able to understand the illness from the patient's perspective through the lived experience narrative. The technical information contained knowledge which participants thought they could use to provide care to women with PPP.

> *'The video was just very good, tackled a lot of areas especially from what postpartum psychosis is, and how that it is a serious problem for our mothers who have given birth, what they go through so they go home and meet the relatives and friends and also what happens as our healthcare system is in Malawi. I think it has covered a lot.' Participant 10*

Furthermore, they explained that including lived experience helped them understand the condition and many participants expressed intentions to provide care if a patient presented with such symptoms. Most participants agreed that they were able to follow the story as presented in the video which made it look realistic and was easy for them to remember.

> *'Yes, it's important to show that the cases are real; we learn a lot of diseases in class and at trainings. When we learn a disease without seeing a case it's as though it's irrelevant, but this case is live; there was a patient and a doctor who had helped the patient which is helpful.' Participant 7*

Useful for increasing awareness on PPP

Participants felt that the video was beneficial to them and found it to be a relevant tool for training primary healthcare workers. They articulated that they were enlightened on a number of issues regarding PPP after watching the video, including how it affects women.

> *'Alright, generally this video is beneficial starting from the experts, the healthcare workers and the client - the woman herself. Because in medicine, we believe it's evidence-based practice, so with this knowledge that the experts are sharing and what*

the woman is saying it helps to give a certain picture to healthcare workers.' Participant 2

'After watching this video, I have understood postpartum psychosis. Now I know how a patient feels.' Participant 11

Participants were able to relate with the video and stated that they were able to understand what was being communicated as well as the need for clinicians to re-engage with this 'neglected' condition.

'"Ndizochitika ndithu" translates to "This is happening in our setting" Postpartum psychosis is real; it's out there. The patients are there. So, the video is talking about something that happens and it's not lies; these things do happen.' Participant 8

'This video has woken me up as a clinician because I learnt this while I was at school but when I came into office, I wasn't putting much on this condition. So, after watching this video I am reminded that it's there and we're omitting them. Now, we need to put much focus on this, that we can do this.' Participant 9

Applying knowledge to change practice

Participants commonly felt that the knowledge they gained from the video would lead to changes in their practice which would improve initial care (diagnosis, counselling and referral) for women with PPP.

'The video showed that we can assess at the health centre to see if we can manage there or refer to the district hospital.' Participant 1

They explained that knowing the signs, symptoms and treatment for PPP would enable them to conduct appropriate medical investigations, diagnose PPP and refer appropriately. Some indicated that the video had made evident to them the gaps in their current practice (that they had been 'missing' cases) and they expressed intentions to apply the knowledge which they had gained after watching the video.

'*We lack knowledge; we have been missing these cases because we forgot on how to dig deeper or what to do. We only learnt about this in school and we have never treated such a case, we have forgotten so they need to give us refreshers so that we know what to do when we meet these patients.' Participant 1*

'Uumh, I have never treated a patient presenting with this condition ever since I finished school. So I realised that this condition is present in the community which means definitely I have been missing some patients. So this has helped us to know that once we meet such a case in the hospital we should conduct a proper investigation on what the condition is' Participant 3.

4.2.2. Theme 2: Concerns for ongoing health system challenges

Lack of resources affecting access and quality of care

Participants expressed concern that they may not be able to fully utilize the knowledge they had gained from the video to benefit patients. In as much as the video had helped impart knowledge to help participants provide care, most raised concerns that ongoing health care system challenges would be a hindrance.

They recounted experiences of the lack of resources such as medicines, other medical supplies and medical related transportation (affecting ability of patients to access the health facilities they were referred to). Participants indicated that stock outs negatively affect patients who are in recovery as they are unable to access medications when they present to the health centres for repeat medication prescription. They further stated that although they would want to refer based on the knowledge gained from the video, there was a shortage of ambulances to transport the patients to the next level of care. This meant the patients would have to look for and pay for their own transportation. Participants voiced the concern that in their experience, most patients they work with have low socio-economic status and would not be able to afford the costs of the required transportation, so that they would be unable to get the care needed, even when the appropriate referral was made.

> *'When we are in the health centres, we don't have first care medications (sedatives). So sometimes, we don't have transportation and some patients can say we do not have money for transport to go to the hospital, so the ambulance is not available, so what can we do? We just tell them to go home and the disease is still affecting the patient and baby, but what can we do?' Participant 1*

> *'There are so many challenges in all mental illnesses not just postpartum psychosis there are patients who were diagnosed with schizophrenia but they do not have drugs available in the primary care. They come to the hospital to collect drugs but we don't have even the common chlorpromazine so we send them to the district just to collect their medications.' Participant 4*

Lack of skills and knowledge in mental health affecting quality of care

Participants reflected on their own previous clinical practice after watching the video. Several stated that they believed they had missed cases of PPP. They attributed their previous practices to lack of skills and knowledge in this area of practice. Participants commonly stated that, given the current training curriculum and lack of continuing education, they had not been able to identify the behaviours associated with PPP.

> *'Even if you look at the period people working in the health centres had with learning psychiatry, you will see that they just had a month or two in class learning that and just a month or two weeks at Zomba Mental Hospital for practical. And we expect them to deliver appropriate care at the health facility. How do they do that?' Participant 2*

Furthermore, a subgroup of participants said the lack of psychosocial counsellors and counselling skills amongst the primary healthcare workers was also a challenge for enabling

communication with patients and families for the identification of PPP. They also highlighted the need for ongoing support and communication between health workers, women with PPP and family members, going beyond the basic provision of medication. Participants also explained that they had conflicting demands with regard to time allocated for work, with little time available to be able to counsel clients properly due to high workload for the primary healthcare workers. So even if the counselling skills were present the conflicting time demands of their roles were a barrier to the provision of communication and counselling in their practice.

> '*There are also no counsellors in health centres and clinicians have a long queue of clients waiting for help and cannot afford the time to sit down and counsel a patient that cannot happen.' Participant 10*

> *'Because for someone to get the medication that we prescribed they need to know why he's receiving that and what's the condition he's suffering from and all the details of it. But if we go into our consultation rooms and the queues that are waiting outside for the clinicians you will see that the time and the number of people are not matching. As a result, the clinicians during consultations, they don't provide much counselling and we usually say in simple terms, "we have diagnosed you with this condition you need to take these medications and finish them", but we don't explain what the condition is all about. Mental health is different; say if someone has malaria, a lot of people in the communities know about malaria, but say you diagnosed someone with postpartum psychosis, you don't expect to just say you have postpartum psychosis take this medication and go home. We can't expect them to be adherent to the prescription and the guardians, we don't expect them to understand so what is much needed is psychotherapy.' Participant 10*

4.2.3. Theme 3: Perceived contextual challenges

Pre-existing beliefs or taboos affect help seeking

Participants expressed their concerns for contextual challenges as potential barriers to care for women with PPP, which would remain in spite of the improved knowledge and skills of primary care staff that could be gained through the video. Participants explained that some traditional beliefs include that mental health conditions are caused by witchcraft. People in communities thus seek care at traditional healers and not hospitals when a person is presenting with symptoms of a mental health condition. Participants noted that this leads to late presentation at health facilities, when the mental health condition has progressed, leading to poorer outcomes.

> *'Because in Malawi, one of the reasons we have conditions poorly treated or we get poor outcomes is because we get late medical seeking behaviour because most community members are not aware of the condition and whether they can get help or not, so they spend much of their time looking for other alternatives apart from seeking for medical help.' Participant 4*

> *'From our experiences in the communities, most Malawians from rural areas and villages think much of these conditions comes from being bewitched, so even after*

providing counselling to them it takes too much for them and it's hard for them to understand that this condition can be treated with medication at hospital. So, they seek prayers first thing or traditional healers before they come in for the hospital.' Participant 2

A minority of participants felt that late help seeking behaviours were reinforced by beliefs and taboos held by healthcare workers themselves. One participant said that the case in the video was confusing to her because she knew that there are "African causes" of mental health conditions which can only be treated by traditional healers. A few participants also felt that witchcraft causes mental health conditions and can be treated by prayers or a traditional healer.

'Based on taboos, you'd believe what the mother said about witchcraft because there are African causes of diseases. Sometimes the medication we give them doesn't help but when they go home things change, so I would have believed them. So, the story is complex and confusing, but it would take you as a healthcare worker - what do you know and use your judgement in order to help the patient appropriately.' Participant 7

Stigma and discrimination affect help seeking

According to participants, help seeking behaviours could be affected by ongoing stigma and discrimination in the community and the primary health care setting. They related that women who had just given birth were considered to be "difficult" and hard to deal with by the healthcare workers. They explained that because of this it would be easy for health care workers to miss cases of PPP and not make the appropriate referral for care. Some participants expressed that if healthcare workers had knowledge on PPP they would be less likely to disregard potentially important signs and symptoms.

'Sometimes we just say, it's because they just gave birth so they act a little different.' Participant 5

'Because as Hawa (pseudonym, lived experience character in the video) explained, we do meet these people but we don't investigate properly; we assume the patient is just difficult, is very talkative or has a nasty attitude.' Participant 3

4.2.4. Theme 4: Participant recommendations

Additional technical information for the video

Inasmuch as the video was educational, participants recommended additional information including information on patient risk factors, assessment, differential diagnosis, specific treatment and rehabilitation. Participants felt this would be helpful information to increase the knowledge that would be gained after watching the video. In addition, participants felt information on how to prevent the condition should be included because '*preventing a condition is better than coming up with a treatment'* (Participant 6). Participants also felt that the video should provide information on treatment options at each level of care so that when a patient is back in the community for recovery after discharge if they were hospitalized, they should be able to provide appropriate medication repeat prescriptions without supervision.

'They should also show us how they are treating for example the specific drugs that we use, they just said antipsychotics which ones? haloperidol? Chlorpromazine (CPZ)? A combination of haloperidol and CPZ? They should tell us the dose and frequency too'. Participant 8

Adding more narratives of lived experiences to the video

Most participants suggested adding more narratives of lived experiences, so that they could get different perspectives of the lived experience of this condition. Some participants explained that they thought the family in the video was had some knowledge and understanding of mental health conditions and therefore did not respond negatively. They thought most families would have responded differently with a more negative and challenging response. Therefore, participants believed that having more lived experiences from people with different socioeconomic backgrounds would give a more representative reflection of the experiences of the condition in the various settings and improve the understanding of PPP.

'I would like to agree with my friends that if we had more patient's presentation, we would know different signs for the same illness and we would have a better understanding of different symptoms of postpartum psychosis.' Participant 6

'I would suggest that we should not only have one client - at least two or three as it would have a good representation, as my colleague has said. Because most of the times, patients will come with different presentations so this patient has come with her own presentation and experience so we need another one and a third one, so if we aggregate, we would be able to have a bigger picture and get more knowledge and skill to help these clients.' Participant 5

Options for dissemination of the video

Participants suggested that a copy of the video should be disseminated to community members, as they felt this video could help in raising awareness of PPP in communities, and reduce the stigma and discrimination faced by individuals with mental health conditions. They suggested showing the video to community members at meetings held by traditional leaders. Health talks were suggested as another platform that could be used to disseminate the video since they are held daily at the health centres. These are talks which healthcare workers hold with community members coming to seek healthcare at the facilities daily. Several changes were suggested to promote accessibility for community members, such as removing the technical information and having the lived experiences fore fronted, to show that the illness is treatable if people present early to the health facilities. In addition, participants recommended that the video should be translated into the local language Chichewa so that community members could easily understand the information it contains.

Furthermore, participants recommended that the video be shown to other health workers involved in preventive health promotion, such as health surveillance assistants (HSA), so that they could gain knowledge on PPP. Finally, participants thought that the video could be used in lobbying for psychosocial counsellors to be present at health centres to help in providing care and information on PPP to patients and their families.

'It's recommendable for everyone out there for the healthcare team and the community; all need to know about the disease.' Participant 2

'Us as HCW working in the community, we have a lot of work to do because all the sensitisation work is our responsibility. We have to tell the people in the communities about this illness. For example, HIV was so stigmatised that people wouldn't go to the hospital for medication, but now people will even tell their neighbours to get drugs from the hospital for them. People are no longer hiding and some feel like it's better to have HIV than other illnesses. All of this happened because there was a lot of sensitisation.' Participant 8

5. CHAPTER FIVE: DISCUSSION

5.1. Overview of findings

This study aimed to conduct a preliminary investigation of the usefulness of a video-based educational tool on PPP as a training resource for professional primary healthcare workers. The video-based educational tool contained technical information including definitions, identification of symptoms and treatment of PPP. It also included a narrative of lived experience from a woman who was treated for PPP. Changes in knowledge of and attitudes towards PPP were assessed before and after exposure to the video. In addition, the study explored with qualitative methods the usefulness of the video-based tool from the perspectives of healthcare workers in relation to their daily work.

The findings suggest that there was an improvement in knowledge about and attitudes towards PPP among health workers after exposure to the video. Further analysis highlighted a trend suggesting that the least improvement in attitudes was seen among health workers aged 30-39, and among those followed-up between 8-13 days (rather than those followed up within a week or beyond two weeks).

The investigation of changes in knowledge and attitudes in professional primary health care workers after exposure to the video supports the literature on the effects of social contact and education in stigma reduction reported in Chapter 2. Indeed, it has been suggested that it is the combination of social contact and education interventions that generates positive effects on knowledge and attitudes (stigma attributes) of professional primary healthcare workers, as evidenced in other studies (Henderson et al., 2014). For example, the present study found similar results to those reported in a randomised control trial conducted in Nepal, that compared stigma related outcomes in primary care providers between those who attended mental health training that included people with lived experience and those that had mental health training only (Kohrt et al., 2021). There was higher improvement in knowledge, attitudes, social distance (willingness to interact with those who have mental health conditions) and diagnostic accuracy among health workers 16 months after receiving mental health training in the intervention group, compared to the control group. Another randomized control trial, that assessed the effect of a social contact-based educational intervention on reducing stigma among community and healthcare staff in China, reported improved knowledge and attitudes after exposure to the intervention (Zhang et al., 2022). Authors stated the importance of integrating social contact with didactic teachings on mental health conditions to counter stigma (Zhang et al., 2022).

In the present study, the video-based educational tool contained technical information on PPP and a recorded narrative of a lived experience. While this provided an indirect, rather than direct, social contact with PPP for professional primary healthcare workers, it is possible that this, in combination with educational information, could be beneficial to improving knowledge and attitudes among professional primary healthcare workers in this setting. The lived experience component was also fore fronted by participants in the qualitative component of this study as key to driving this change in knowledge and attitudes. Extrapolating from the social psychology theory of contact described in Chapter 2, professional primary healthcare workers may have indirectly associated with a woman with lived experience of PPP by

watching the video and the effect reduced prejudice (negative attitudes) and discrimination (stigma) (Pettigrew et al., 2011). Similar effect of indirect social contact on stigma was reported by a randomized controlled study conducted in Chile that used internet-based contact with people with mental health conditions as a stigma reduction intervention among university students (Rodríguez-Rivas et al., 2021). They found reduced stigma outcomes such as perceived dangerousness, stereotypes, fear, avoidance and endorsing coercion in the intervention group than in the control group concluding that there was a positive impact (Rodríguez-Rivas et al., 2021). Thus, the current study contributes to the evidence suggesting that the use of indirect forms of social contact, such as pre-recorded videos and online platforms, has potential for improving knowledge and attitudes and thereby reducing stigma among professional primary healthcare workers.

The benefits of using a video-based educational tool for training in PPP also go beyond improvement in attitudes among professional primary healthcare workers. A systematic review on educational and training interventions targeted at healthcare workers to detect and manage mental health conditions concluded that digital and online based training tools were successful and effective to improve skills and build capacity of healthcare workers to deliver mental health care in low resource settings (Koly et al., 2021). Similarly, while cost-effectiveness was not assessed in the present study, digital or video-based tools as a form of indirect social contact can be delivered in a cost-effective manner to hard-to-reach rural areas in LMICs (Koly et al., 2021). Areas that have poor road infrastructures and inadequate resources to cover training costs, such as those of this study district, could stand to gain particular benefit from such tools. These tools could also be useful in providing training to professional primary healthcare workers in times of pandemics and outbreaks of infectious diseases, such as during the COVID-19 pandemic when direct social contact was restricted (Koly et al., 2021). While the video-based educational tool training in PPP is not digital per se, it does offer similar advantages, and thus the present study adds to the evidence that it may be effective to deliver a digital training intervention to hard-to-reach areas in LMICs.

The present study does seem to indicate that improvement in knowledge and attitudes about PPP might have been a short-term effect, since there was a trend suggesting that improved attitudes noted 8-13 days after the video, were absent among participants followed up more than fourteen days after viewing the video.. This could be attributed to the gradual loss of the effect the intervention had on attitudes overtime, while the greater improvement in attitudes in the group followed up beyond 14 days may not be reliable given the relatively small sample size (n=24). Therefore, it could be suggested that the indirect social contact provided by the video-based educational tool produced a short-term effect. A similar observation was made in an Egyptian study that reported a decline in the improved knowledge and attitudes among healthcare workers 3 months after the mental health training intervention (Bellizzi et al., 2021). They concluded that this could have been due to the deeply rooted cultural and social beliefs that could not be changed in a short period of time but required longer term interventions to be able to see the change (Bellizzi et al., 2021). A systematic review on long term interventions to reduce stigma and discrimination in healthcare suggested using multiple-regular exposure to the intervention and using themes from qualitative research to adapt the content to the context as ways to maximise the observed short term effects (Gronholm et al., 2017). This was suggested because in their review, most contact based educational interventions that improve knowledge and attitudes among specific target groups like professional primary health care

workers reported short term effects (Gronholm et al., 2017). In the present setting, further studies could consider having professional primary healthcare workers watch the video at regular intervals for a longer period such as 3-6 months to assess if the effect would be sustained.

When planning stigma interventions, having an understanding of how age affects changes in knowledge and attitudes in the population being targeted could ensure a sustained effect. A population based study from England investigating stigma trends reported that being young was one of the factors associated with better attitudes and intended behaviours towards people with mental health conditions (Evans-Lacko et al., 2013). Several studies from Europe, that analysed population level factors influencing stigma also reported younger age being associated with positive attitudes towards people with mental health conditions (Aznar-Lou et al., 2016; Coppens et al., 2013). Giralt Palou et al. (2022) in their study on how attitudes and intended behaviours evolved among nursing students who underwent mental health training, concluded that younger students learn easily, get influenced easily and quickly apply the information to their professional and personal lives. Therefore, it is likely that sustained effects of interventions on knowledge and stigma would be seen in younger populations. This supports the present study's findings, since the younger age group (20-29 years) reported the greatest change in attitudes. The older age group (39 years or more) showed similar change in attitudes to the younger group over time, a finding which may reflect that greater experience and contact with mental health conditions may have facilitated the knowledge gain and improved attitudes. The quantitative long-term exploration of these dynamics affecting attitudes such as age of participants could help to understand how to maximize the effectiveness of the video-based educational tool.

The theory of planned behaviour has been used to explain how changes in knowledge and attitudes among healthcare workers affect the way they provide services to people with mental health conditions. The theory of planned behaviour states that for healthcare workers to act in a predetermined manner, attitude, knowledge and consequences of not acting play a role (Dickens et al., 2022). The consequences of not acting are disciplinary measures taken by institutions or regulatory bodies towards healthcare workers for failing to provide required services in their duty stations. Therefore, healthcare workers would be expected to act differently if their knowledge and attitudes were changed (Dickens et al., 2022). By aiming to improve knowledge and attitudes of professional primary healthcare workers in relation to PPP, we thus assumed that improvements in the identification and referral of women with PPP in health centres would follow. Assessing change in behaviour was beyond the scope of the present study, but there is evidence suggesting that training in improving identification and management of patients with mental health conditions has been effective in the past. For example, a systematic review reported that training primary care health workers to provide mental health services and ensure that there was improved identification, management and referral of people with mental health conditions can be effective (Koly et al., 2021). They concluded that training primary health care providers was an efficient way of utilising the scarce resources to provide needed care in the LMICs where there exists a treatment gap in mental health conditions (Koly et al., 2021). Another study that was conducted in Malawi, trained primary healthcare workers to be able to identify, manage and refer mental health conditions, found that there was improved knowledge, confidence and increased number of diagnosed mental health conditions 6 months after the training (Ahrens et al., 2020). While

change in behaviour was not assessed in the present study, findings from the qualitative phase of the study indicate that there was willingness to use the information gained in providing care expressed; and according to the theory of planned behaviour, willingness to act is one of prerequisites to performing the intended behaviour (Dickens et al., 2022). Therefore, further studies on the usage of the video-based educational tool in training, should include outcomes of the improved knowledge and attitudes on changes in behaviour, identification, management and referral of women with PPP by professional primary healthcare workers.

While the present study suggests that knowledge and attitudes about PPP may improve among professional primary healthcare workers, a further qualitative exploration indicated that the video was also acceptable. The professional primary healthcare workers said that the inclusion of a lived experience made it easy for them to understand the condition, the video content was relevant to their work, and that they were looking forward to utilising the knowledge they had gained. Furthermore, they endorsed the usage of the video-based educational tool for healthcare worker training by stating that they would recommend it to a colleague. This is promising, as research has shown that stigma interventions are accepted by the healthcare workers when they express positive descriptions of the video, think it as a useful tool for training and express the intentions to recommend the video to other healthcare workers (Lagunes-Cordoba et al., 2022). It was essential to explore the perspectives of the professional primary healthcare workers on the video-based educational tool prior to potential wider usage, in order to assess if the video-based educational tool could be effectively implemented in the Malawian primary healthcare service. Assessing the acceptability and adapting the video-based educational tool to the prospective context and population to ensure its uptake is essential in the process of developing and implementing healthcare interventions (Klaic et al., 2022).

This qualitative investigation also aimed to obtain suggestions on how to adapt the video to the context and target population and make enhancements accordingly. The participants suggested several adjustments to adapt the video-based educational tool to the Malawian setting for possible use in professional primary healthcare workers training. The participants recommended that more information on technical knowledge of PPP be added the video, increase the number of lived experiences featured in the video and widely disseminate the video targeting the community members and healthcare workers at all of levels of the healthcare system. The Medical Research Council (MRC), created an updated guidance framework composed of 6 core elements to be considered at each phase in the process of developing and evaluating complex interventions (Skivington et al., 2021). The core elements in the framework include 1) understanding how the context interacts with intervention, 2) stating the program theory, 3) inclusion of stakeholder perspectives, 4) identifying key uncertainties, 5) adapting or refining the intervention and 6) identifying the comparative resources and outcomes of the intervention (Skivington et al., 2021). Some of the core elements from the MRC framework were applied in the present study since it is at the phase of evaluating the possible wider scale usage of the video-based educational tool for training professional primary healthcare workers in PPP. Therefore, the video-based educational tool targeted health centres in hard to reach areas which are representative of the context, used the theory of social contact in stigma elimination, conducted qualitative investigation with professional primary healthcare workers as the main stake holders who provided suggestions on adapting the video-based educational tool to the setting. The suggestions likely to be adopted are those that maximise social contact and education to ensure that the observed effect on attitudes and knowledge is maintained

(Skivington et al., 2021). Therefore, more educational information on how to identify symptoms, provide pre-referral care, safe referral and follow up care after the women are discharged from specialist care will be added. In addition, 2-3 narratives of women with lived experience of PPP will be used in the tool since professional primary healthcare workers explained this would help them understand the different presentations of PPP. The adaptations to be made to the video-based educational tool could ensure its uptake among professional primary healthcare workers. These would also contribute towards ensuring sustained effects of the training tool on healthcare service provision, which is currently questionable given the short-term changes in attitudes reported above.

Concerns over ongoing systemic challenges were raised in addition to the perceived contextual challenges that included deeply rooted cultural understanding that mental health conditions held by a few professional primary healthcare workers. These challenges could be barriers to implementing the skills that professional primary healthcare workers gained from the video-based educational tool. In the present study, descriptions of health system and contextual challenges were raised by the professional primary healthcare workers. These included lack of medical transportation for referral of cases, lack of psychotropic medication, lack of mental health supervision by healthcare managers, and lack of on job trainings in mental health. Professional primary healthcare workers stated that despite gaining knowledge and expressing willingness to apply it in their clinical practice, these challenges would hinder them from doing so. This finding was also reported in a previous study conducted in Malawi, where Ahrens et al. (2020) implemented a mental health training to improve access to care in Malawi, and mentioned unavailability of psychotropic medications in health centres as a barrier for primary healthcare workers to apply the knowledge they had gained. A study in Nepal reported that socio-cultural and contextual factors caused challenges in financing and supplying psychotropic medication (Upadhaya et al., 2018). Where stigma negatively affects the demand for psychotropic medications, this compounds supply chain inefficiencies leading to medication shortages in the primary healthcare system, creating the large treatment gap (Upadhaya et al., 2018). In the present study, the use of indirect social contact didn't eliminate stigma altogether, as findings suggest that several professional primary healthcare workers still held cultural beliefs that PPP was caused by witchcraft.

Thus, there is a need to address the systemic challenges such as social stigma and lack of essential medical resources to widely use the video-based educational tool for training. A common way to address social stigma is by holding population wide mental health awareness and anti-stigma campaigns. Furthermore, the lack of essential medical resources could be addressed by lobbying policy makers and decision makers in the healthcare system to improve the supply chain of psychotropic medications. In addition, district level healthcare managers could 1) create opportunities for mental health on job trainings, 2) integrate mental health supervision to the routine supervision schedule and 3) strengthen primary healthcare services to have adequate resources for referral such as medical transportation. Therefore, results from the present study highlight the essential need to involve the Ministry of Health to address the systemic barriers when planning for potential wider use of the video-based educational tool for professional primary healthcare worker training in PPP.

5.2. Limitations and strengths

The present study had several limitations that need to be considered. First, though the study was sufficiently powered to detect a change in knowledge and attitudes, the sample size remained small, which meant that any subgroup differences should be considered with caution. However, the majority of professional primary healthcare workers approached at a given clinic from the 20 sampled clinics were enrolled in the study, with low attrition rate and no difference in key demographics between those with and without data at follow-up. Thus, it is likely that the present sample is representative of the population of healthcare workers in the district. Second, the lack of control group also limits our understanding of whether the change in knowledge and attitudes found in the present study was solely due to the video-based educational tool or other factors. Having said that, at the time of data collection, there were no other known stigma interventions targeting healthcare workers in the district, and it is unclear what other factors, if any, may have had an impact on these measures over the course of the two weeks pre to post assessment period. Third, the short-term assessment meant only short-term changes in knowledge and attitudes were observed, with little understanding of whether these changes would have been sustained over time. Fourth, there was no possibility of professional primary healthcare workers watching the video before the pre-test was administered which made contamination unlikely. Though chances were low, professional primary healthcare workers from different facilities meet regularly, and thus might have discussed the video. Based on this assumption, the pre-test knowledge and attitudes scores would have been higher affecting the changes to be observed after the post-test. Nonetheless, the present study is a pre-post-test and a more thorough study design containing a control group should be employed to assess the effect of the video on knowledge and attitudes. Finally, we were not able to assess the impact of the video-based educational tool on change in clinical skills or in the identification and referral of women with PPP. Nevertheless, the mixed method design of the study allowed us to assess whether the video-based educational tool had an impact on knowledge and attitudes and was acceptable to healthcare workers. These preliminary findings are valuable to help tailor the video to their needs and indicate the further investigation of its effectiveness in improving knowledge, attitudes and behaviours in relation to women with PPP.

5.3. Implications for research

Findings contribute to knowledge on interventions that decrease stigmatising attitudes and stigma from professional primary healthcare workers in order to improve care for PPP in Malawi. The present study used a combination of education and indirect social contact which was described as one of the effective ways to overcome stigma in healthcare settings and improve healthcare provision. Despite the present study finding the video-based educational tool a useful tool for stigma reduction in this low resource setting with scarce resources available for in-person trainings, there is need to test this effect with a control group. In addition, further research should be conducted to assess outcomes such as behaviour change, change in identification, management and referral of PPP, and long term change in knowledge and attitudes by planning studies with a follow-up of 12 months or more after exposure to interventions (Kohrt et al., 2021). These outcomes could be assessed at short term, medium term and long-term intervals to compare effects of the changes over time prospectively. Furthermore, research assessing changes in knowledge and attitudes after training should

investigate using formal randomised controlled trial designs whether the material from the video is being applied in primary healthcare settings, and more specifically whether there are any changes in early case detection in the postpartum period at the primary healthcare level and in the number of referrals to tertiary care level for treatment. Future research should also assess implementation indicators such as factors facilitating and inhibiting the adoption and uptake of information and skills conveyed in the video-based educational tool.

5.4. Implications for practice

This study shows that an educational tool containing indirect social contact material is acceptable and can be used in formal trainings of professional primary healthcare workers or for continuous professional development. The improved knowledge and attitudes from a video-based educational tool that is acceptable for professional primary healthcare workers can help in promoting integration of mental health care into maternal health care, promoting early detection and referral of women with PPP to specialist care (Funk, 2008). These changes in practice would contribute to reducing the existing treatment gap for women with PPP. The suggested adaptations of the video for better uptake will help improve the training tool by making a new video containing more educational material and lived experiences. The information would also help in future planning and developing anti-stigma interventions that use social contact and education to produce changes in knowledge, attitudes and behaviours of healthcare workers towards mental health conditions such as psychosis. The present study has highlighted the need for on job trainings in mental health for professional primary healthcare workers in Malawi to ensure continued mental health care provision.

5.5. Conclusion

The current study found improvement in knowledge and attitudes in professional primary health care workers after exposure to a video-based educational tool on PPP comprising information on the condition and a narrative of the lived experience of a person diagnosed and treated for PPP. The video-based educational tool was acceptable to the professional primary healthcare workers and they recommended that it could be used for training and wider awareness raising in the community. Being the first point of contact in healthcare seeking, professional primary healthcare workers are required to identify PPP and initiate early referral and treatment. Because the condition is rare, they may not have had opportunities to develop clinical skills to do this post formal training. Having a tool that can be used to improve knowledge and attitudes of professional primary healthcare workers towards PPP could reduce this barrier to diagnosis and thereby help to address the treatment gap for PPP. In turn, professional primary healthcare workers would diagnose and refer women with PPP early, leading to better treatment outcomes such as recovery and reduced risk of relapse. Mothers who recover from the condition would be able to bond with the infant, which is essential for early childhood neurocognitive development. Furthermore, the mothers would be re-united with their families and friends in the community after discharge from inpatient care. Despite the need for further research to identify factors that can sustain the observed changes and influence clinical practice, the study supports the use of the video as a training tool to improve knowledge and attitudes towards PPP. This tool has important potential to reduce the impact

of PPP of on women and families in Malawi and potentially could be adapted for other LMIC settings.

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APPENDICES

5.6. Appendix I - Informed consent (Phase one)

INTRODUCTION

Postpartum psychosis (PPP) is a psychotic disorder that presents with disorganised behaviour, disturbed cognition and affective disturbance in a woman within three months of giving birth (VanderKruik et al., 2017). It is a severe mental illness that is rare and can affect families and patients negatively.

WHAT IS THIS RESEARCH FOR?

This study wants to find out whether a video with technical information and lived experience of a woman with postpartum psychosis can change the levels of knowledge and attitudes of professional primary healthcare workers.

WHY AM I BEING ASKED TO TAKE PART

You are being asked to take part in this study because you are a professional health care worker who is working in the primary level of the Malawi health system. We plan to use this tool as an instrument in training professional primary healthcare workers if the results are supportive.

WHAT WILL HAPPEN

If you accept to take part in this study you will be asked to provide your demographic details including your work experience. Then you will be asked to take a pre-test, watch a video and then take a post-test. Both the pre and post-test contain 22 questions that will take you a maximum of 30 minutes. Please note that you may be invited to participate in a focus group discussion a few weeks from now. A focus group discussion is a technique where a researcher assembles a group of individuals to discuss a specific topic, aiming to draw from the complex personal experiences, beliefs, perceptions and attitudes of the participants through a moderate interaction. After phase one, the lead investigator will select participants to take part in phase two, if selected you could be asked to take part in a focus group discussion with other participants. The other participants will be from other health centres and you will be talking about what you think about the video that you watch in the first phase of the study. This discussion is to get your views on the video therefore questions that will be asked will be in line with the video. Agreeing to participate in the phase one of the study does not mean that you have to participate in phase two. If you are selected to participate in phase two, you are allowed to decline when invited, participation is voluntary. Declining from participating in the focus group discussion will not have any effects on your work at the facility and participation in phase one.

WHAT WILL HAPPEN TO THE QUESTIONS I ANSWER

The questionnaires will be used to compile information on whether there is a change in knowledge and attitude of health care workers before and after watching the video. The information cannot be linked back to you because your identities will not be recorded with the information. In the write up of the study only results will be published not the personal information. This information is only available to the lead investigator and her supervisors and nobody else. The questionnaires will be kept in a locked cabinet until the paper is published and then the raw data will be shredded while aggregated data will be stored until the study is published in a peer reviewed journal.

WHAT IMPACT WILL THE STUDY HAVE ON ME?

At the end you would have contributed to new medical knowledge on reducing stigma and increasing knowledge on postpartum psychosis. There is a chance of being distressed psychologically in the course of participation in this study but if this happens you are free to stop at any time you do not feel comfortable. In addition to this, we will provide linkage to a mental health nurse via a phone call, if you allow us to do so.

WILL I FIND OUT ABOUT THE STUDY RESULTS?

We anticipate that the study will be published in a scientific journal and we will make the results available to you.

WHAT HAPPENS IF I DON'T WANT TO TAKE PART?

Your participation in this study is purely voluntary. There are no negative consequences that you will face if you do not take part in this study. Your employment will not be affected in any way if you decide not to take part. If you consent to participate in this study and later on change your mind you are free to stop. This will not affect your employment status in any way here in Thyolo District.

HOW LONG DO YOU HAVE TO DECIDE?

You have 5 minutes to decide whether you would like to participate in this study or not.

WHO CAN I CONTACT FOR MORE INFORMATION?

Principal Investigator

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Co-supervisor

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Local Lead investigator

Gloria Kalolo
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Phone: 0888 96 96 11

Please circle Yes or No to confirm whether you agree or do not agree with each of the points below.

- I have read the information above or it has been explained to me. **Yes** / **No**
- I have had the chance to ask questions and am satisfied with the answers that I have been given. **Yes** / **No**
- I voluntarily agree to take part but I know I can change my mind at a later date. **Yes** / **No**

Name of participant:

Date:

Signature:

5.7. Appendix II - Informed consent (Phase two)

INTRODUCTION

Postpartum psychosis (PPP) is a psychotic disorder that presents with disorganised behaviour, disturbed cognition and affective disturbance in a woman within three months of giving birth (VanderKruik et al., 2017). It is a severe mental illness that is rare and can affect families and patients negatively.

WHAT IS THIS RESEARCH FOR?

This phase of the study seeks to investigate if the video is appropriate and acceptable for professional health care workers at primary care level facilities.

WHY AM I BEING ASKED TO TAKE PART

You are being asked to take part in this study because you are a health care worker who is working in the primary level of the Malawi health system. We plan to use this tool as an instrument in training professional primary healthcare workers if the results are supportive.

WHAT WILL HAPPEN

If you accept to take part in this phase of the study, you will be taking part in a focus group discussion with other health care workers. The discussion will be focused on your views and thoughts on the video-based educational message that you watched. The venue for focus group discussion is at Thyolo district hospital. In addition, you will have to find your own transport to the venue which will then be reimbursed in cash after the focus group discussion before you leave the hospital district hospital premises. The discussion will take place for one hour and you will be provided with some refreshments. You will be given airtime voucher of MWK 1000 (20 ZAR) for taking time to participate in the study. Please note that you will be called to confirm if the data collected is reflective of your views, a process called member checking. Member checking is a technique used to help improve the credibility of the results of a qualitative research. This involves data returned to you to check for accuracy and resonance with your experiences. In this study you will be added to a WhatsApp group with other members who participated in this discussion. The group will be used to send you the information that we collected so that you may give feedback. Please note that this is voluntary and you can decide not to provide the feedback.

WHAT WILL HAPPEN TO THE QUESTIONS I ANSWER

We request that you to provide consent for the recording of the focus group discussion. If you do not consent to recording the discussion you will be excluded from the study and transportation costs will still be reimbursed. The discussion will provide a lot of information on the video which will later be transcribed, therefore it is essential that we record so that we get accurate information. The discussion will be recorded using a device that is only accessible to

the lead investigator and written notes will be taken by the lead investigator. All the information extracted from the recordings and notes will be kept on a laptop that is password protected, the recorder and notes will be kept in a locked cabinet. In the write up of the study only results will be published not the personal information. This information is only available to the lead investigator and her supervisors and nobody else. The data will stored for in a password secured laptop until the study is published in a peer reviewed journal.

WHAT IMPACT WILL THE STUDY HAVE ON ME

At the end you would have contributed to new medical knowledge on a different way to inform professional primary healthcare workers about postpartum psychosis therefore increasing knowledge and reducing stigma. There is a chance of being distressed psychologically in the course of participation in this study but if this happens you are free to stop at any time you do not feel comfortable. In the case where psychological distress occurs we will provide linkage to a mental health nurse at the facility. Please note that this is not a strong probability but it is possible that some of the content may be triggering for people who have past trauma or certain vulnerabilities.

WILL I FIND OUT ABOUT THE STUDY RESULTS?

We anticipate that the study will be published in a scientific journal and we will make the results available to you.

WHAT HAPPENS IF I DON'T WANT TO TAKE PART?

Your participation in this study is purely voluntary. There are no negative consequences that you will face if you do not take part in this study. Your employment will not be affected in any way if you decide not to take part. If you consent to participate in this study and later on change your mind you are free to stop. This will not affect your employment status in any way here in Thyolo District.

HOW LONG DO YOU HAVE TO DECIDE?

Please take your time to decide and you are free to ask more questions about the study if any clarifications are needed.

WHO CAN I CONTACT FOR MORE INFORMATION

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Co-supervisor
Dr Carrie Brooke-Sumner
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Carrie.brooke-sumner@mrc.ac.za

Local Lead investigator
Gloria Kalolo
Thyolo District Hospital
P.O box 21
Thyolo.
Phone: 0888 96 96 11

Please circle Yes or No to confirm whether you agree or do not agree with each of the points below.

- I have read the information above or it has been explained to me. **Yes** / **No**
- I have had the chance to ask questions and am satisfied with the answers that I have been given. **Yes** / **No**
- I voluntarily agree to take part but I know I can change my mind at a later date. **Yes** / **No**
- I agree that the interview be audio-recorded. **Yes/No**
- I agree to be contacted for by the lead investigator to confirm if the data collected is reflective of my views. **Yes/No**

Name of participant:

Date:

Signature:

5.8. Appendix III: The adapted version of the Mental Health Knowledge Schedule (MAKS)

Instructions: For each of statements 1– 6 below, respond by **ticking one box only**. Postpartum Psychosis here refers to a severe mental illness that occurs to women soon after delivery of a baby.

	Agree Strongly	Agree slightly	Neither agree or disagree	Disagree slightly	Disagree strongly	Don't know
1. Most people with postpartum psychosis want to have paid employment.						
2. If a friend has postpartum psychosis, I know what advice to give them to get professional help.						
3. Medication can be an effective treatment for people with postpartum psychosis.						
4. Psychotherapy (e.g. counselling or talking therapy) can be an effective treatment for people with postpartum psychosis.						
5. People with postpartum psychosis can fully recover.						
6. Most people with postpartum psychosis go to a healthcare professional to get help						

Thank you very much for your help.

5.9. Appendix IV: Mental Illness Clinicians' Attitudes Scale (MICA)

Instructions: for each of questions 1-16, please respond by ticking one answer only. Mental illness here refers to conditions for which an individual would be seen by a psychiatrist.

QUESTIONS	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
1. I just learn about mental health when I have to, and would not bother reading additional material on it.						
2. People with a severe mental illness can never recover enough to have a good quality of life.						
3. Working in the mental health field is just as respectable as other fields of health and social care.						
4. If I had a mental illness, I would never admit this to my **friends** because I would fear being treated differently.						
5. People with a severe mental illness are dangerous more often than not.						
6. Health/social care staff know more about the lives of people treated for a mental illness than do family members or friends.						
7. If I had a mental illness, I would never admit this to my **colleagues** for fear of being treated differently.						

8. Being a health/social care professional in the area of mental health is **not** like being a real health/social care professional.						
9. If a senior colleague instructed me to treat people with a mental illness in a disrespectful manner, I would						
not follow their instructions						
10. I feel as comfortable talking to a person with a mental illness as I do talking to a person with a physical illness.						
11. It is important that any health/social care professional supporting a person with a mental illness also ensures that their physical health is assessed.						
12. The public does **not** need to be protected from people with a severe mental illness.						
13. If a person with a mental illness complained of physical symptoms (such as chest pain) I would attribute it to their mental illness.						
14. General practitioners should **not** be expected to complete a thorough assessment for people with psychiatric symptoms because they can be referred to a psychiatrist.						
15. I would use the terms 'crazy', 'nutter', 'mad' etc. to describe to colleagues people with a mental illness who I have seen in my work.						

16. If a colleague told me they had a mental illness, I would still want to work with them.						

5.10.Appendix V: Topic guide for focus group discussion

Thank you for accepting the invitation and taking time to attend this meeting. As introduced earlier this is the second phase on the study that is looking at a video-based educational message for possible primary health care training in postpartum psychosis. This study seeks to find out if the video can change the knowledge and attitudes of professional primary healthcare workers towards PPP. We would also like to know your thoughts on the information contained in the video and how that could help you in your daily work. That is why we have invited you to this meeting for a discussion. That way we can be able to get information on how to improve it or use it in primary health care. Finally, before the discussion starts we would like to confirm that everyone has agreed to being recorded by signing the informed consent forms and the recordings will only be used for the purposes of this study.

In order to allow respondents to expand on the subject being discussed more probing questions like can you tell me more about that? Can you explain why you said that? And what do others think about that? Will be used in the discussion as it progresses.

1. What are your thoughts on the video?
    a Probe: What stands out as the most important message?
    b Probe: What is your initial reaction to the video?
2. In what way is the information in the video relevant to your daily work?
    a Probe: Can you tell me more about how it would be useful
    b Probe: Could you tell me more about why it would not be useful?
3. Can you explain your thoughts on the story about the woman in the video?
    a Probe: Could you tell me if you found the story acceptable in your understanding of the video.
4. Would you recommend the video to other health care workers? Can you tell me about why you would or wouldn't recommend them?
    a Probe: What do others think about recommending the video to other healthcare workers?
5. Could you tell me about anything in the video that you weren't comfortable with or that you think needs to change?
    a Probe: What change can we make in the video to make it better?
6. What would you like to see more of in the video – what other information would you like to know?

5.11.Appendix VI: Participants' demographics form

Instruction: please provide a response in the space provided for, if there is a Yes or No option circle the response that best applies to you.

Participant number:

Date:

Age:

Sex:

Cadre:

Marital status:

Have biological children? Yes/No

Past medical history of postpartum psychosis: Yes/No

Working station/health center name:

Number of years of work experience/ how many years of you have worked in clinical practice:

Do you have experience in treating postpartum psychosis? Yes/No

Would you be willing to take part in a focus group discussion? Yes/No