Male involvement in facilitating the uptake of maternal health services by women in Uganda

PhD student: Alice Norah Ladur

Supervisors

Professor Vanora Hundley

Professor Edwin van Teijlingen

In partial fulfilment of the requirements for the award of Doctor of Philosophy Degree (PhD)

Bournemouth University, United Kingdom

November 2020

Abstract: Male involvement in facilitating the uptake of maternal health services by women in Uganda

Alice Norah Ladur

Background: Health promotion programmes in maternal health are increasingly reaching out to men as partners, husbands and community leaders in a bid to improve women`s uptake of health facilities and or skilled care at birth.

Aim: To explore the contribution of male spousal involvement in facilitating uptake for maternal health services. Four main **objectives**: 1) conduct a scoping review on the rationale for male involvement in maternal health in Low and Middle Income Countries; 2) conduct a literature review on the use of board games with non-health professionals; 3) conduct a pilot study on the use of board games with men in maternal health; and 4) establish the feasibility of using board games as an educational strategy with men in maternal health in Uganda.

Methods: The main study used a mixed-methods approach with face-to-face questionnaires (quantitative) and focus group discussions (qualitative) to collect data in Uganda. Completed questionnaires were entered into EPI DATA software and exported into STATA version 13 for analysis. Qualitative data were thematically analysed. The pilot study comprised focus group discussions

Results: Quantitative findings showed a 26% increase in men`s ability to identify danger signs during pregnancy/childbirth ($p < 0.001$), a 26% increase in their knowledge of complication during delivery ($p<0.005$), and a 22% increase in joint decision making regarding maternal health ($p < 0.01$) following the *Whose Shoes?* board game. The likelihood of choosing facility births for women was increased but this was not statistically significant ($p = 0.218$). The key themes in the qualitative part of the study were; 1) perceptions regarding *Whose Shoes?*; 2) proposed new behaviour after engaging with the game; 3) perceptions and barriers to male involvement in maternity services.
Conclusion: Involving men in maternal health facilitates access to maternal health services through joint decision making, financial support, nutrition in

pregnancy and help with care-giving roles at home. This enables women to seek appropriate maternity care and have adequate rest during pregnancy and after childbirth. Maternal health programmes need to target men to increase uptake of maternity services for women. Educational games are a useful strategy to engage men in maternal health. The *Whose Shoes*? board game was acceptable to a group of Ugandan men living in London and effective in its ability to engage men on topics regarding pregnancy/childbirth complications, health facility birth and nutrition. This was the first-time maternal health messages were packaged through the medium of a board game targeting male spouses in Uganda.

Table of Contents

List of figures

List of tables

List of photos

List of abbreviations

AIDS	Acquired Immuno-Deficinecy Syndrome
AL	Alice Ladur
ANC	Antenatal care
BU	Bournemouth University
CRD	Centre for Reviews and Dissemination
DHO	District health officer
DP	Democratic party
EDS	EBSCO Discovery Service
UNECA	United Nations Economic Commission for Africa
eMTCT	elimination of mother-to-child transmission
FAO	Food and Agriculture Organization
FfWG	Federation of Women Graduates
FDC	Forum for democratic change
FGD	Focus group discussion
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
LIC	Low Income Country
LMIC	Low- and Middle-Income Country
MDG	Millenium Development Goal
MMR	Maternal Mortality Ratio
NRM	National Resistance Movement

PICO	Population, Intervention, Comparison & Outcome
PhD	Doctor of Philosophy
PMTCT	Prevention of Mother-to-Child Transmission
PRISMA	Preferred Reporting Items for Systematic Reviews
RCT	Randomised Controlled Trial
SBA	Skilled Birth Attendant
SCN	Strategic Clinical Networks
SDG	Sustainable Development Goal
TA	Template Analysis
TBA	Traditional Birth Attendant
UBOS	Uganda Bureau of Statistics
UK	United Kingdom
UNDP	United Nations Development Programme
UNICEF	United Nations Children`s Fund
UNFPA	United Nations Population Fund
USA	United States of America
VHT	Village Health Team
WHO	World Health Organization

Acknowledgements

Dear God almighty, my Abba father, friend and the Lord of heaven`s armies I would like to express my deepest gratitude and owe for enabling me to achieve this highest point in my academic career. Throughout this degree and research, you were a very present help in times of need Psalms 46:1. Thank you Jesus for watching over my life, for wisdom, strength and providence throughout this degree program! Many times I felt I had perhaps taken a leap of faith exceeding my limits and wanted to give up but you gave me your word, renewed my hope and gave me the courage to rise up again and say with conviction, I will, I can, I have to get this done and here we are Jesus, it is done! It is complete! Apwoyo tutwal Kabaka me monj. Deyo ki pwoc odok bori Rwot Twe kabed naka, amen.

Special thanks go to Bournemouth University for the BU Vice Chancellor Scholarship which opened an opportunity for me to live and study a doctorate in the United Kingdom! I am forever grateful for this award! A big thank you to British Federation of Women Graduates (FfWG) for the grant (living expenses) accorded to me during the write-up phase of the dissertation. I would like to extend my deepest appreciation and gratitude to my supervisors Professor Vanora Hundley and Professor Edwin van Teijlingen who supervised me throughout this research. Your wisdom, commitment, enthusiasm and immense knowledge have inspired and rubbed off to me. My sincere gratitude goes to Professor Vanora Hundley for the supervision and for steering the direction of my doctoral project to a niche I could work on without a lot of emotional pain. I started off my doctoral studies only a few weeks having lost a dearly loved sister due to a maternal death. Every time I looked up or read papers on maternal mortality, my mind froze and simply stared into the blank computer screen for the first five months of the course. Thank you Professor Vanora Hundley for the support without whom I would not have made it. Many thanks go to Professor Edwin van Teijlingen who agreed to supervise me at the transfer stage. I am particularly grateful because taking on the responsibility of supervising a PhD student after the initial review is hard work. Special thanks also go to Dr Zoe Sheppard for the supervision in the first year of my doctoral

training. I would also like to thank Mrs Louise Bryant for her very supportive and kind administrative role which made my academic journey a success. Thank you, Louise, you are the best!

A big thank you goes to Gill Philips, director of Nutshell Communications Ltd and creator of *Whose Shoes?* board game for graciously allowing me to use and adapt the board game to the Ugandan context! The feasibility study wouldn't have taken place without your generous support Gill! Special gratitude goes to Professor Christopher Garimoi Orach at Makerere University School of Public Health who provided support during fieldwork in Uganda. Thank you for the support towards ethics clearance and for the valuable feedback on my ethics proposal. I would also like to warmly thank the management, library, IT and academics departments of Africa Renewal University (AFRU) for granting me a very supportive environment and space to work on my research project whilst in Uganda! I am particularly indebted to Dr Dennis Kilama, Dr David Fugoyo and Dr Moses Senkozi for the moral & spiritual support and the permission to use resources at AFRU during the duration of my fieldwork/write-up phase in Uganda. Many thanks also go to Mr Mendoza Hilbert for the statistical support and Mr David Mukisa Ochiengi for the support during fieldwork. I am forever grateful to Mr Phillip Kyesimira for the valuable support during mobilisation/recruitment and data collection phases of fieldwork. Weebale inho Sanke! I extend my sincere thanks to all the study participants that took part in this study.

I would like to thank all my friends, family and colleagues. You made the PhD journey bearable and filled it with many precious memories, thank you! Thank you, Harriet Luwemba, for the great moral, spiritual and physical support throughout the PhD programme and for all the years of friendship! Lastly, I am thankful to Kingdom Love Ministries in East London especially Pastor Elly and Rita Kaweesa for the love, care and prayers. I felt at home every time I was at church and or with the family. Many thanks also go to Faith in Jesus Ministries for all the prayers and moral support. God bless you all king size!

Dedication

To my sister, Juliet Angwech Opoka, our lives were forever changed on 11/11/2015 when you died soon after delivery. We miss you and our hearts are still sore with pain but are comforted that you are at the feet of your loving saviour, the Lord of Heaven`s Armies. Thank you for inspiring me to do a PhD!

To my dearest friend, Dennis John Tongar, thank you for loving and believing in me. I miss you dearly. Till we meet again at the feet of the master, Jesus Christ.

Chapter 1 Introduction

1.1 Background

This PhD thesis focuses on improving access to maternity care services in Uganda to help reduce maternal mortality. Uganda is grappling with a high maternal mortality ratio, as discussed in Section 1.3. Sadly, maternal death has become so normal, especially in rural areas, that childbirth is considered a life bridge where only the brave cross over to the other side. To understand the narratives around maternal deaths, one needs to draw on the socio-cultural meanings that society places on childbirth and women. Pregnancy and childbirth hold significant meanings, one in which women find their identity and social status in the Ugandan setting. Considerable pressure is placed on women to produce children to extend the family lineage with a special preference for the male child. The pressure to give birth is often exerted by the woman`s in-laws, her husband and community. Infertile women and childless women are often shunned by society and relegated to the lowest social ranking (Kyomuhendo 2003). It is essential that women`s pregnancy and childbirth experiences are improved in order to ensure positive outcomes for all in Uganda.

1.2 The Ugandan context

Uganda is in East Africa, bordered by Tanzania in the south, Kenya in the east, Democratic Republic of Congo in the west and South Sudan in the north (UBOS 2016). The state was formed in 1962 after obtaining independence from Great Britain (MOH 2015a-a). Administratively, Uganda is divided into four regions; Northern, Eastern, Central and Western. The regions are sub-divided into 112 districts (MOH 2015b-b). The country has a population of 34 million people with an estimated 72% living in rural areas and only 28% in the urban centres (UBOS 2016). Uganda`s economy is transitioning from an agricultural one to an industrial driven economy geared towards economic growth and poverty eradication (MOH 2015a-a).

An estimated 90% of women living in rural areas work in the agricultural sector in addition to care-giving roles at the family level (UBOS 2016). According to the State of Uganda`s *Population Report (2014)*, the percentage of Ugandans living below the poverty line decreased from 56% in 1992 to 19% in 2014. Literacy rates are higher amongst men (77%) compared to women (68%) (UBOS 2016). Uganda`s population consists of many cultural groups which play a key role in shaping behaviour including gender roles, social relationships, spouse communication and health seeking behaviour. Social relationships embedded in culture and religion have an influence on women`s ability to manage their sexual and reproductive lives in Uganda (Nyakato and Rwabukyali 2013). Social relationships and networks influence health seeking behaviour impacting on maternal health outcomes for women. Reaching out to men with respect to reproductive health issues is one of the key components of reducing maternal morbidity and mortality in societies where patriarchy is dominant and women`s decision making is limited (Greene et al. 2004).

Uganda`s health care plan is implemented through a decentralised system consisting of a national referral hospital, regional referral hospitals, district hospitals, and four levels of health cenre: health centre IV, health centre III, health centre II and health centre I (village health team) (Figure 1) (MOH 2009). Ministry of health (central government) provides leadership and supervision oversight to the district health teams.

Figure 1-1 Overview of maternal health services (health services) in Uganda. Adapted from Sensalire et al. (2019)

Uganda`s health sector has witnessed an improvement in staffing levels over the years from 53% in 2009 to 76% in 2018 (MOH 2016, 2019). The health worker population ratio improved slightly from 1.85/1000 population in 2018 to 1.87/1000 population in 2019, although still below the recommended WHO ratio of 2.5/1000 population (MOH 2019). Government expenditure on health was estimated at 10% whilst private expenditure on health was 75% and a heavy reliance on external support/donors (WHO 2018).

1.3 Reducing maternal mortality

A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy from any cause associated with pregnancy or its management excluding accidental or incidental causes (WHO 2012a). Globally, an estimated 216 maternal deaths per 100,000 live births occurred in 2015 (WHO 2016). A large proportion (99%) of these deaths were in low income countries (LIC) with the African region shouldering almost two thirds (64%) of the global maternal mortality burden (WHO 2015a). Uganda`s maternal mortality ratio (MMR) remains high at 368/100,000 live births despite decline from previous years with an estimated 74% of women using a skilled attendant at birth (UBOS 2018). The maternal mortality ratio are often regarded as a marker for a country's development, and is a key indicator of the status of reproductive health services and their uptake, and even of women's status in society (Defo 1997). However, Uganda made insufficient progress to meet the Millennium Development Goal 3 indicator of reducing maternal deaths to 131/100,000 live births by 2015 (UNDP 2015). Proactive efforts are needed for Uganda to achieve the health target of reducing maternal deaths to less than 70/100,000 live births as part of the Sustainable Development Goals (WHO 2016). Uganda`s maternal mortality ratio compared to selected countries such as Switzerland (29/100,000 live births), Algeria (112/100,000 live births) and Chad (1140/100,000 live births) is presented in figure 1.1 extracted from data from the World Health Organization (2019) report.

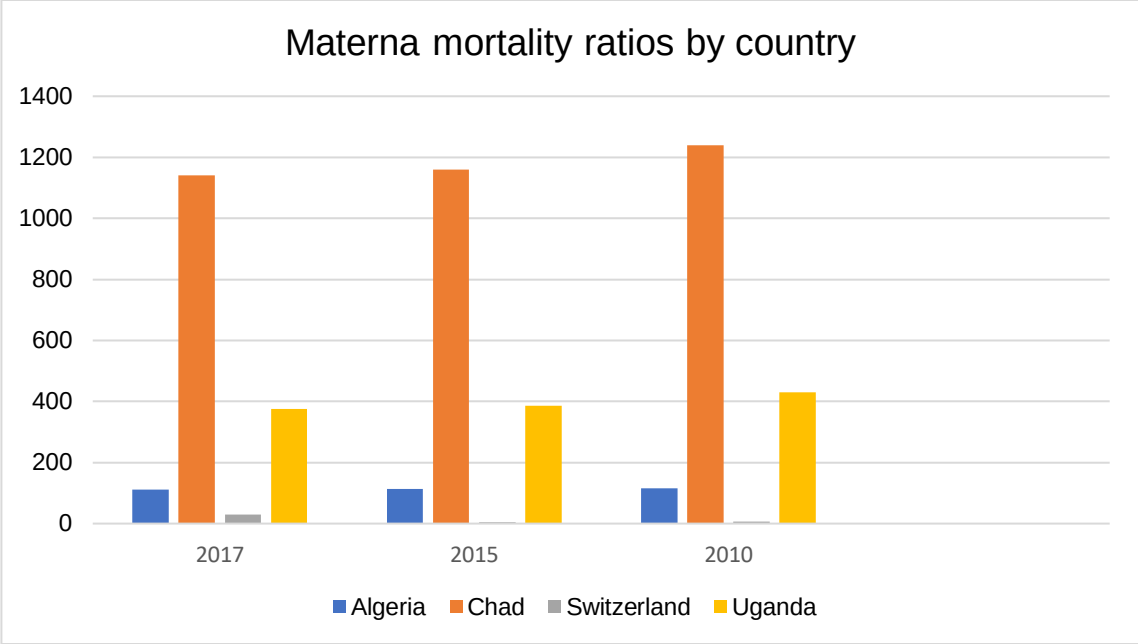


Figure 1-2 maternal mortality ratios selected countries

A significant number of maternal deaths occur around the time of birth or shortly after childbirth (de Bernis et al. 2003).The principal direct and indirect causes of maternal mortality in low income settings often have an underpinning of delayed or little access to maternity care (Shimazaki et al. 2013). Delays in accessing care has been conceptualised into three stages: 1) delay in deciding to seek care with reference to barriers that hinder women`s utilisation of maternity services; 2) delays caused whilst reaching a health facility such as perceived costs involved in seeking care and transportation; and 3) delays in receiving adequate care at the health facility alluding to the availability of skilled care, perceptions of care and experiences with the health care system (Thaddeus and Maine 1994). Such delays may occur at any time during a woman`s pregnancy and childbirth, placing the lives of pregnant women at risk of death. Utilisation of maternal health services by women may be determined by many factors including socio-cultural norms that may place value on home births, financial costs, distance to health facilities and perceptions of quality of care being provided at health facilities (Gabrysch and Campbell 2009). Other factors affecting maternal health service

utilisation include drug stock shortages, poor retention of skilled health workers and inadequate staffing at health facilities (Kyomuhendo 2003). However, official efforts have been made to recruit more health workers; for instance the Government of Uganda launched a recruitment drive in 2009 which witnessed an increase in staff at public health facilities from 56% to 69% by 2014 (MOH 2015d). However, workforce in maternity is still low estimated at 27% in 2012 despite improvements over the years (UNFPA 2014). The marked improvements in maternal health can be attributed to scaling up of health facility-based interventions such as, use of partographs, quality antenatal care, nutrition, maternal and perinatal death reviews (MOH 2015c). More recently, thee Government of Uganda has embarked on a household-based health delivery system focussing on prevention strategies as opposed to a heavy reliance on curative approaches (NPA 2013). The prevention strategies adopted rely on the empowerment of households and communities to improve health outcomes.

1.4 Improving skilled attendance

Over the last decade, efforts have been drawn to the presence of skilled care at birth for women to promote safe motherhood in countries with poor maternal health outcomes (Nabudere et al. 2012). Skilled attendance is critical in promotion of safe motherhood because: 1) research evidence shows that most maternal deaths occur during and immediately after delivery (de Bernis et al. 2003); and 2) direct causes of maternal deaths such as obstructed labour, eclampsia, severe bleeding and sepsis can be managed by health professionals in functioning health facilities (UNFPA 2004a). The literature on maternity care highlights a distinction between skilled attendance and skilled birth attendants (Graham et al. 2001). “Skilled attendance or skilled care refers to the process by which a pregnant woman and her infant are provided with adequate care during pregnancy, labor, birth and the post-partum period either at home or in a health facility setting” (UNFPA 2004a, p.17). Graham et al. (2001) describe skilled attendance in the form of a model consisting of an enabling environment (availability of drugs, supplies, functioning referral system and political/socio-cultural context) and

skilled birth attendants (described in Section 1.4). Pregnant women often relate to maternity services through a complex social web that reflects power struggles within the kinship and the community (Jegede 2009; WHO 2012b). Different from the western perspective, where families are nuclear and decision-making processes are entirely an individual`s responsibility, families in Uganda and other LICs have an element of collective decision-making where other members of the extended family and or community are involved and are key actors in influencing health-seeking behaviour (Greene and Biddlecom 2000; Ganle et al. 2015). Women`s low status in patriarchal settings has placed considerable limitations on their ability to access education, economic opportunities and health services (Varkey et al. 2004). Decisions to seek care are determined by men who have control over financial resources, and this influences factors such as organising transport to reach a health facility and making decisions on whether a woman can be referred to a higher-level facility in the case of complications (Dutta et al. 2004; Magoma et al. 2010). Kyomuhendo describes the financial dependency in a study conducted in West Africa, “in Benin, women sought antenatal care when symptoms of complications arose, but they had to negotiate with their husbands for the money to pay for the visit, which often led to quarrels and anger over their financial dependency. Nor were they always given enough to pay for the medications they needed” (2003, p.3).

Approximately 37% of health care expenditure in Uganda is individual households out-of-pocket spending (MOH 2013). This figure is above the World Health Organization (WHO) recommended (20%) expenditure by households if they are not to be pushed into impoverishment (MOH 2015a-a). Transport to health facilities including emergency referrals from local primary health facilities to higher level facilities located further away must be arranged by the husband/family members due to the weak/inefficient referral system (MOH 2015a-a). The knowledge and skills women receive during maternal health education can be applied when women receive support from immediate family such as husbands, mothers (or mothers-in-law) and other relatives (Sahip and Turan 2007).

1.5 Skilled birth attendants

The WHO defines a skilled birth attendant (SBA) as an “accredited health professional with midwifery skills such as a midwife, doctor or nurse who has been trained to proficiency in the skills needed to manage normal pregnancies, diagnose and refer complications during child birth and postnatal care” (2004, p.1). Poorly trained health professionals lacking midwifery skills have been shown to contribute to high maternal mortality ratios between 1000-2000 per 100,000 live births (de Bernis et al. 2003). SBAs are able to identify early signs of complications and offer first line emergency obstetric care as may be appropriate and or refer for further management which forms a critical element in curbing complications and infections that may lead to adverse pregnancy outcomes for both the mother and baby (Kabakyenga et al. 2012). In Uganda, SBAs tend to operate within the enabling environment of health facilities, providing pregnant women with safe and clean environments in which to give birth and assistance during the postnatal period (Nabudere et al. 2012). According to Graham et al. (2001), skilled care at onset of labour to immediate postpartum period can prevent direct causes of maternal deaths such as obstructed labour, eclampsia, sepsis and hemorrhage between 16 to 33%.

Improved access and utilisation of SBAs has been highlighted as one of the reasons explaining disparities between maternal mortality ratios in LMICs. For instance, evidence from Nordic countries such as Sweden, Norway and Denmark shows that they attained low maternal mortality ratios within a context of access to skilled care and with a system of higher level referral for those requiring hospital care (Khan et al. 2006). Success stories from Malaysia and Thailand showed a reduction of maternal mortality ratios after concerted efforts were invested in the training of midwives and scaling up of midwifery services in rural settings, shift from the use of traditional birth attendants to skilled birth attendants and health facility births (UNFPA 2006). Similarly, in Egypt, efforts geared towards increased utilisation of SBAs through improved quality of care at health facilities and decision making at household level saw a surge in the uptake of births with skilled

birth attendants and a reduction in deaths (Campbell and Graham 2006; Campbell et al. 2006). This serves to reinforce the fact that skilled care can be attainable in low income countries although it is important to consider all actors involved within the context of individual, community, health facility and policy levels.

Community and health facility-based strategies need to reinforce the importance of the utilisation of maternity services such as antenatal care and postnatal care. Antenatal care presents a unique opportunity for informing the woman and her family about the risks associated with the pregnancy and about her options for professional care during delivery (WHO 2012b). Also, antenatal care provided by a SBA assists with making emergency birth plans that may avoid delays during a woman`s pregnancy or at onset of labor thus improving outcomes for the mother and her baby (Villar and Bergsjo 2002). However, a considerable number of women attend their first antenatal care visit in the second/third trimester of pregnancy citing reasons such as lack of knowledge, absence of complications, husband`s restrictions and attendance to simply get an antenatal card (Simkhada et al. 2008; Kawungezi et al. 2015).

Encouraging women to give birth in health facilities is probably the most effective and efficient way of ensuring access to skilled birth attendants in low-income countries (Campbell and Graham 2006). Despite global acknowledgements of the importance of birth with a SBA, uptake is still low in several low-income countries; Ethiopia (16%), Chad (24%), Bangladesh (42%) and Uganda (58%) (WHO 2016). In Nepal for example, disparities exist between levels of attendance at antenatal care and uptake of SBA (Sharma et al. 2016). Reasons for these disparities include financial constraints, socio-cultural barriers, lack of transportation and unequal distribution of incentives such as delivery kits and mosquito nets provided during antenatal visits (Parkhurst and Ssengooba 2009). A key consideration in Uganda has been a) empowering women through education, skills development and employment b) persuading members of a woman`s family and/or community to support women to utilize health services and promote gender equity (Jennings

et al. 2014). Health interventions are increasingly reaching out to men as part of a woman`s immediate family in Uganda as discussed in Section 1.6.

1.6 Men and maternity care

One of the possible interventions to improve skilled birth attendance focuses on getting men involved in promoting and supporting their female partners to attend antenatal care, seek institutional care for the delivery and seek the services of a skilled birth attendant. Global interest in the concept of male involvement in maternal health in general, and pregnancy and childbirth in particular can be traced back to the 1994 International Conference on Population and Development (ICPD) held in Cairo, Egypt. This crucial conference recognised the crucial roles men play in promoting women`s wellbeing and urged governments and international organisations to scale up strategies to actively involve men in reproductive health (UNFPA 2004b). Since then targeting men to actively support their partners in accessing maternal services and seeing men as agents of positive change have been incorporated in strategies addressing gender inequities that impede access to health services by women (Greene et al. 2004; Sternberg and Hubley 2004). The strategies targeting men include: 1) community-based initiatives, i.e. sensitisations, support groups, peer education and group training sessions; 2) health facility-based initiatives, i.e. counselling, home visits, invitation letters; 3) mass media campaigns; i.e. radio, drama/role plays, television, print materials; and 4) work-place initiatives, i.e. targeting men at places of work and worship (Davis et al. 2012).

The term ‘male involvement’ may be used to refer to several actions that a man could take up to support and protect the health of his pregnant partner (often his wife) and children, such as making informed decisions with his spouse regarding Human Immunodeficiency Virus (HIV) prevention, nutrition, workload during pregnancy, attending antenatal care, birth preparations, delivery and postpartum period (Kamal 2002; Fayemi et al. 2011). It is widely argued that men need to know the benefits of antenatal care, danger signs in pregnancy/child birth, birth preparedness and complication readiness to avoid delays that may be detrimental

to a woman`s health (Davis et al. 2012). Fisher (2018) reinforces the need to engage with men as part of the community of care around women to facilitate improvements in safe motherhood. This is discussed in detail in Chapter 2.

In Uganda, the cultural context dictates a limited role for men in maternity care as reflected in an extract from a study conducted in rural Uganda:

“the problem is with our traditions because a long time ago our fathers and great grandfathers did not escort their wives to antenatal care or even go to delivery since that is traditional [culture]…he doesn’t need to go there because wherever you go there, you lose respect among your fellow men. You have to leave the woman to fight her own battle” (Singh et al. 2014, pp.3-4).

Uganda is a patriarchal society with men having considerable control over resources and decision making and as such there is need to work with both men and women to improve maternal health (UBOS 2019). However, to date there has been little work exploring how best to do this. The rationale for choosing this as the basis for my work is discussed in Section 1.7 below.

1.7 Background of the researcher

As a non-midwife and researcher who has worked in the field of maternal health in Uganda and South Africa, my heart goes out not only to the rural woman but all women on the African continent. Although Africa consists of several countries and diverse cultures, these differences tend to disappear when it comes to the way women are treated and their social status fueled by gender roles and communalism. An individual is subordinated to a group which has direct impact on health seeking behaviour (Kyomuhendo 2003).

My interest in male involvement in maternal health started in 2006 on my first job after university. At the time, we were looking at provision of HIV (Human Immudodeficiency Virus and AIDS (Acquired Immuno-Deficinecy Syndrome) services and prevention of gender-based violence in post-conflict communities in Northern Uganda. Through health education sessions, targeting men using channels such as community dialogue, role plays and drama series, there was a

reported decrease in domestic violence. I was able to see first-hand the importance of involving a woman`s immediate family (husband/men) in the pursuit of improving women`s health. Villages that were known for domestic violence were now champions working alongside health workers to denounce violence against women and promote uptake of health services. My interest in working with men continued whilst studying in South Africa reflected in my Master`s thesis which centered on male involvement in the prevention of mother-to-child transmission of HIV services in Cape Town, South Africa (Ladur 2011). A research paper from this Master's thesis was published in the journal *PLoS ONE* (Ladur et al. 2015). Despite the two countries being different, the position of women was largely the same as there were significant barriers in accessing HIV services, adherence to Highly Active Antiretroviral Therapy (HAART) and infant feeding practices to minimise HIV transmission to infants.

The decision to apply for doctoral studies was one that was borne through discussions with my late sister who unfortunately died during childbirth. The subject of discussion was always, `Why do we have so many women dying during childbirth?`; `How come these deaths are largely in Africa and not in High Income Countries?`; What difference can I make to promote safe motherhood in Uganda and perhaps on the African continent? ` The endless quest for answers, the desire to make a difference and / or learn from health systems that barely recorded maternal deaths became the inspiration to apply for doctoral studies in the United Kingdom (UK). Personally, I have experienced the damaging effect of maternal mortality beyond the statistics that are reported. My sister, an advocate for human rights, who gave up the comforts of life in a high-income country to provide free legal services for women and the poor in rural Uganda, passed away whilst giving birth. This tragic event and the circumstances surrounding her death involved the denial to seek skilled care in the capital, Kampala by the husband/in-laws. I found a niche for my PhD, to focus on men in facilitating uptake of maternity services by women. The motivation to undertake doctoral studies has been spurred by events, personal experiences and a desire to make a difference for women, their families and communities through a community-based intervention that seeks to

involve men to promote early and appropriate use of maternity services by pregnant women. No woman deserves to die during pregnancy and childbirth. The health messages and or interventions promoting safe motherhood can achieve greater momentum when a woman`s immediate family/male partner is involved.

1.8 Lay-out of the thesis

This is a Bournemouth University alternative format PhD that includes one chapter in the form of published work (chapter four), one chapter currently under review in the international peer review journal, *Midwifery* (Chapter two) and other chapters specifically written for the thesis. It has four main objectives: 1) conduct a scoping review on male involvement in maternal health in Low and Middle Income Countries; 2) conduct a literature review on the use of board games with non-health professionals; 3) conduct a pilot study on the use of board games with men with respect to maternal health; and 4) establish the feasibility of using board games as an educational strategy with men with respect to maternal health in Uganda.

Chapter one introduces the doctoral research to the reader, describes the reasons for undertaking a doctorate, outlines the key issues and provides background to the country where this study took place. Chapter 1 also provides an overview of what subsequent chapters will be talking about.

Following this introduction, Chapter two presents a scoping review of arguments for and against male involvement in maternity care in Low-and Middle-Income Countries (LMICs). This review attempted to answer the key question: What is the current state of knowledge regarding the inclusion of men in maternal health services in LMICs? This scoping review highlights the importance of male involvement in maternity care in settings where patriarchy is dominant and discusses the concerns raised regarding male involvement. This chapter has been submitted to the international journal *Midwifery* (published by Elsevier) and it is currently under review.

The next Chapter (three) presents a literature review on educational games with non-health professionals. The purpose of the review is to establish whether research on educational board games with non-health professionals has been carried out in LMICs. This review also sets the context for the *Whose Shoes?* educational board game.

Chapter four presents the pilot study conducted in London (UK), which was published in the scientific journal *BMC Pregnancy and Childbirth* (Ladur et al. 2015). This study showed that Ugandan men living in London understood the game and wanted to be involved in maternity care. In addition, it provided feedback on different aspects of the game such as card messages, duration of the game, which helped improve the board game for the intervention and the facilitation of running the game with men ahead of the implementation in rural Uganda.

Chapter five presents the methodology and methods. This thesis uses a mixed-methods approach based which sits within the Pragmatic paradigm, i.e. the theoretical underpinnings in the thesis. It also describes the individual quantitative and qualitative research methods, recruitment strategies, and analysis as well as research ethical considerations

This is followed by Chapter six and seven that focuses on the fied work in Uganda, in the form of a mixed-methods feasibility study in Uganda, a mixed methods study. The results are split into two chapters starting with the quantitative findings and then followed by the qualitative findings. This PhD study showed that an educational board game can be used as a health promotion tool in maternal health.

Chapter eight presents the discussion of findings within the broader contextual factors and the widerliterature. It highlights the strengths and weaknesses of the translated version of the educational board game *Whose Shoes?* as experienced by participants in rural Uganda and compares and contrasts this with what is already known about games as health education tools to help improve maternity care.

The final Chapter nine represents the Conclusions of this PhD study. It also offers Recommendations that emerged from the study, areas for further research and contributions to new knowledge arising from the doctoral research. Finally, the set of appendices includes ethics approvals at BU and in Uganda, tables, a template for data collection and analysis. The appendices provide insight into the research processes that underpin the different stages of the PhD project.

Chapter 2 Male involvement in maternity care in low-and-middle income countries

2.1 Introduction

Chapter two presents an overview of male involvement in maternal health. This chapter is a paper/manuscript currently under review in the high impact peer review journal, *Midwifery*. It describes the rationale for involving men in maternity care, criticisms and challenges inherent in engaging with men in maternal health. Male participation in maternity care in High Income Countries (HICs) such as England is high, with a considerable number of men being present for ultrasound examinations and during labour/delivery (Redshaw and Henderson 2013). A study conducted in England observed that women valued emotional support and the partner`s presence during labour which contributed to reduced anxiety and greater satisfaction with childbirth experience (Redshaw and Henderson 2013). In contrast with HICs, male participation in maternal health in LMICS is low, with even fewer men being present during delivery. Male involvement in maternal health is important in LMICs as maternal mortality is still a challenge despite several initiatives to promote safe motherhood. Maternal health programmes focusing on women exclusively have used several strategies such as; empowerment, autonomy, health education and skilled care in a bid to improve health outcomes (WHO 2012b). However, programmes that focus on the woman alone are limiting as pregnant women often relate to maternity services through a complex social web that reflects power struggles within the kinship and the community (Jegede 2009; WHO 2012b). Women`s low status in patriarchal settings has placed considerable limitations on their ability to access education, economic opportunities and health services (Varkey et al. 2004). Decisions to seek care are determined by men who have control over financial resources, and this influences factors such as organising transport to reach a health facility and making decisions on whether a woman can be referred to a higher-level facility in the case of complications (Dutta et al. 2004; Magoma et al. 2010). The socio-cultural context of women in LMICs reinforces the need for maternal health

programmes to focus on both the woman and her spouse/partner in order to improve health outcomes and or promote safe motherhood. The knowledge and skills women gain during maternal health education can be applied when women receive support from immediate family such as husbands, mothers, mothers-in-law and other relatives (Sahip and Turan 2007). It is worth noting that men are interested in the welfare of their families and could respond positively to efforts to involve them in maternal health (Sternberg and Hubley 2004). A study from Uganda indicates that women are interested in greater male involvement in maternal health beyond the traditional roles on decision making and financial support (Singh et al. 2014). Male participation in maternal health in LMICs varies from country to country and or local context. For instance, a study conducted by Jennings et al. (2014) compared levels of male participation in antenatal clinics in eight African countries ranging from a high of (86.8%) in Rwanda and lowest in Burundi at (18.2%). This review set out to determine the current state of knowledge regarding the inclusion of men in maternal health.

2.2 Review methods

A scoping review was conducted to explore the rationale for male involvement in maternal health in LMICs. This review was guided by the question: “What is the current state of knowledge regarding the inclusion of men in maternal health services in LMICs?” The review had two related objectives to: (a) elicit the rationale for engaging men in maternal health services; and (b) explore the challenges of male involvement in maternal health.

2.3 Search terms

The literature search was conducted using mySearch, Bournemouth University`s iteration of the EBSCO Discovery Service (EDS) tool. This enabled the simultaneous and systematic searching of multiple bibliographic databases, including CINAHL, Cochrane Review, MEDLINE, SOCINDEX and Web of Science. Additional studies were identified through hand searching and snowballing such as reviewing reference lists of papers included in the review and organisational websites. Filters for the search strategy included: publications

in English and ranging from 1994 to May 2019. The start date was chosen to reflect the fact that global efforts to involve men in maternal health were scaled up after the International Conference on Population and Development held in Cairo, Egypt in 1994 (UNFPA 2004b).

Key search terms used in various combinations included: `male involvement`, `male participation`, `men`, `strateg*`, `husband`, `spouse`, `pregnancy`, `antenatal care`, `labo*r`, `childbirth`, `maternal health` and `Low and Middle-Income Countries`. A framework developed by the Cochrane database for systematic reviews known as population, intervention, comparison or context, outcome (PICO) was used to guide the literature search (Bettany-Saltikov 2012). In more field notesal studies Co may be used to represent context. Included studies met the following criteria:

Study population: women, men, health workers, communities

Intervention: male involvement during pregnancy, childbirth and after birth

Context: Low- and middle-income countries

The thesis uses the Preferred Reporting Items for Systematic Reviews (PRISMA) to describe the selection of papers for inclusion (Figure 2.1).

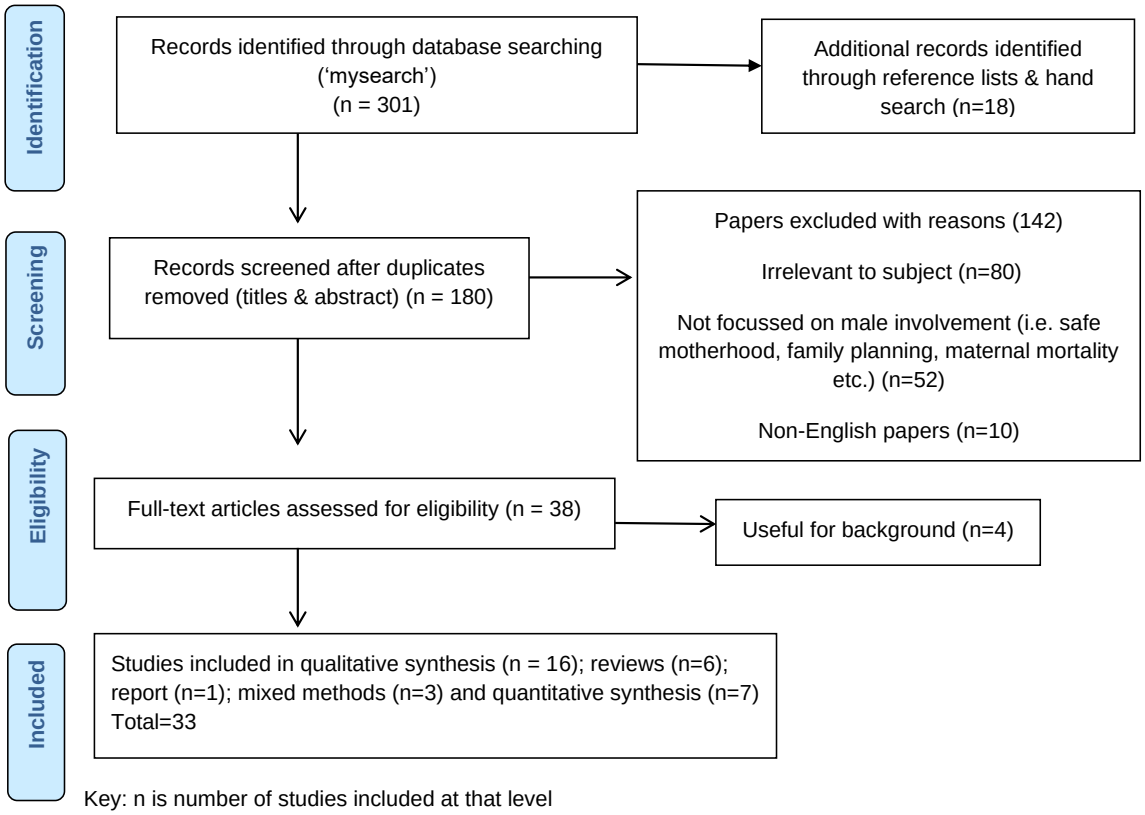


Figure 2-1 Prisma flow diagram

Included studies

The study selection and data extraction included: study setting, population, study design, intervention and results in maternal health. Data extraction was performed by the researcher and reviewed by two supervisors. The scoping review included all study types in order to get a broad picture of the current state of knowledge regarding male involvement in maternity care.

2.4 Data synthesis

Quality appraisal for included studies was conducted using the critical appraisal skills programme (CASP) tool for qualitative and quantitative studies (CASP 2018) and the mixed methods appraisal tool (MMAT) for mixed methods studies (Hong et al. 2019). A narrative description of synthesised findings (Siddaway et al. 2019) has been presented due to the heterogeneity in study setting, study design and outcome variables in the included studies. A “narrative synthesis refers to a process of synthesis that can be used in systematic reviews focussing on a wide range of questions/multiple studies, not only those relating to the effectiveness of a particular intervention. It adopts a textual approach to the process of synthesis to `tell the story` of the findings from the included studies” (Popay et al. 2006, p.5). A thematic synthesis was used to analyse and organise the findings in a structured way (Section 2.5) (Snilstveit et al. 2012).

2.5 Results

Characteristics of papers included

The study designs of papers included: six were reviews (Thaddeus and Maine 1994; Davis et al. 2012; Morfaw et al. 2013; Yargawa and Leonard-Bee 2015; Tokhi et al. 2018; Aliyu et al. 2019); one report (UNICEF 2007); seven quantitative papers (Mullany et al. 2007; Midhet and Becker 2010; Mushi et al. 2010; Tweheyo et al. 2010; Turan et al. 2011; Jennings et al. 2014; Forbes et al. 2018). Most studies (sixteen) in this review were qualitative papers (Desclaux and Alfieri 2009; Traore et al. 2009; Magoma et al. 2010; Maman et al. 2011; Kululanga et al. 2012; Kaye et al. 2014; Singh et al. 2014; Ganle and Dery 2015; Ladur et al. 2015; Lewis

et al. 2015; Ganle et al. 2016; Aborigo et al. 2018; Chimatiro et al. 2018; Mkandawire and Hendriks 2018; Peneza and Maluka 2018; Sharma et al. 2018). Three papers were mixed methods studies (Mullick et al. 2005; Iliyasu et al. 2010; Onchong`a et al. 2016). Most of the individual studies were from low income countries; four from west Africa (Traore et al. 2009; Ganle and Dery 2015; Ganle et al. 2016; Aborigo et al. 2018); six from Southern Africa (Mullick et al. 2005; Maman et al. 2011; Kululanga et al. 2012; Ladur et al. 2015; Chimatiro et al. 2018; Mkandawire and Hendriks 2018); six from East Africa (Magoma et al. 2010; Tweheyo et al. 2010; Turan et al. 2011; Kaye et al. 2014; Forbes et al. 2018; Peneza and Maluka 2018) and four from South Asia (Mullany et al. 2007; Midhet and Becker 2010; Lewis et al. 2015; Sharma et al. 2018). One study had multi-country sites in Africa and South Asia (Desclaux and Alfieri 2009; Jennings et al. 2014).Table 2.1 shows the characteristics of the included studies.

Table 2-1 Characteristics of included papers

Author	Study design	Study setting	Study population	Quality score
Reviews (n=6)				
Aliyu et al. 2019	Scoping review	Sub Saharan Africa	Men, women	Moderate
Tokhi et al.2018	Narrative review	LMICs		High
Yargawa and Leonardi-Bee 2015	Systematic review	LMICs		High
Morfaw et al. 2013	Systematic review	Not included	Men, women, community	High
Davis et al. 2012	Narrative review	LMICs		High
Thaddeus & Maine 1994	Narrative review	LICs		Moderate
Report (n=1)				
UNICEF 2007	Report	LMICs		Low
Quantitative papers (n=7)				
Forbes et a.l 2018	Quantitative	Ethiopia	Couples	High
Mersha 2018	Quantitative	Ethiopia	Men	Low
Turan et al. 2011	Quasi-experimental	Eritrea	Women	High
Mushi et al. 2010	Before-after study	Tanzania	Couples	
Tweheyo et al. 2010	Quantitative	Uganda	Men	Moderate
Midhet and Becker 2010	Quasi-experimental	Pakistan	Women, couples	High
Mullany et al.2007	RCT (Randomised Controlled Trial)	Nepal	Women, couples	High
Qualitative papers (n=16)				
Aborigo et al. 2018	Qualitative	Ghana	Opinion leaders, health workers	Moderate
Sharma et al.2018	Qualitative	Nepal	Male teachers, health providers	Low

Chimatiro et al. 2018	Qualitative	Malawi	Women, health workers	Moderate
Peneza & Maluka 2018	Qualitative	Tanzania	Health workers, men, women, TBAs, community leaders	Moderate
Mkandawire and Hendriks 2018	Qualitative	Malawi	Key informants, community members	High
Ganle et al. 2016	Qualitative	Ghana	Women	Moderate
Ganle and Dery 2015	Qualitative	Ghana	Women, men	Moderate
Ladur et al. 2015	Qualitative	South Africa	Men, women, health workers	Moderate
Lewis et al. 2015	Qualitative	Nepal	Women, men, health workers	Moderate
Kaye et al. 2014	Qualitative	Uganda	Men	Moderate
Singh et al. 2014	Qualitative	Uganda	Men, women	Moderate
Kululanga et al. 2012	Qualitative	Malawi	Women, men, community leaders	Moderate
Maman et al. 2011	Qualitative	South Africa	Women	Moderate
Magoma et al. 2010	Qualitative	Tanzania	Women, TBAs, community members, health workers	Moderate
Desclaux and Alfieri 2009	Qualitative (ethnography)	Cambodia, Cameroon, Kenya, Ivory Coast, Burkina Faso	Women, health workers	Moderate
Traore et al. 2009	Qualitative (longitudinal study)	Ivory Coast	Women, couples	Moderate
Mixed methods papers (n=3)				
Onchong`a et al.2016	Mixed methods	Kenya	Men, women	Low
Iliyasu et al.2010	Mixed methods	Nigeria	Men	Low
Mullick et al.2005	Mixed methods	South Africa	Women, men	Moderate

The main findings from the studies are shown in Table 2.2.

Table 2-2 Summary of findings

Author	Findings
Aliyu et al. 2019	• Lack of implementation guidelines for male involvement at policy level
Aborigo et al. 2018	• Men not involved in maternal nutrition may resist implementation of nutrition-related practices at home • Accompanying pregnant women to health facilities is viewed as culturally inappropriate in some settings • Work commitments hinder men from attending ANC clinics
Chimatiro et al. 2018	• Male involvement has unintended consequences, i.e. women reporting late for ANC whilst waiting for husbands to accompany them to health facilities
Mersha 2018	• Male involvement in birth preparedness and complications was associated with knowledge of obstetric danger signs during pregnancy (AOR=3.3, 95% CI:3.1,3.9); during delivery (AOR=2.2, 95% CI: 1.1, 2.8); and postpartum (AOR=1.8, 95% CI: 1.1, 2.4) • Male involvement in birth preparedness and complications readiness was low (9.9%)
Mkandawire and Hendriks 2018	• Male involvement in maternal nutrition contributes to healthier pregnancies and babies i.e. buying food, ensuring pregnant spouse eats a balanced/healthy diet • Barriers to male involvement, i.e. long waiting time at health facilities, health facilities not designed to accommodate men, policy guidelines that discriminate/ unaccompanied women
Sharma et al.2018	• Barriers to male involvement; gender stereotypes, stigma, culture
Tokhi et al.2018	• Male involvement facilitates uptake of SBA and health facility delivery
Forbes et al. 2018	• Men`s presence at ANC clinics was associated with uptake of screening services and information about complications in pregnancy • No association between male involvement and early ANC visits
Peneza & Maluka 2018	• Health workers refusing to provide healthcare to single/unaccompanied women
Ladur et al. 2015	• Barriers to male involvement include; lack of knowledge, men being uncomfortable attending clinics where most patients are women, long waiting times at health facilities
Lewis et al. 2015	• Men serve as gatekeepers to women`s health through decision making • Cultural norms deter men from attending ANC clinics and witnessing the birth of baby

	• Work commitments prevents men from being physically present at health facilities
Ganle et al. 2016	• Male involvement (men accompanying women to maternity clinics/physical presence) is acceptable in situations of complications/emergencies, provision of financial/transport support • Men`s presence is not acceptable due to gender roles, women`s desire to avoid community stereotypes, fears of turning women`s social spaces into unsecure places
Onchong`a et al. 2016	• Male involvement acceptable during complications in pregnancy. • Negative community attitudes deter men from being actively involved
Ganle and Dery 2015	• Male involvement acceptable in situations where women developed complications • Gender roles limit men from being actively involved during pregnancy and childbirth
Yargawa & Leonardi-Bee 2015	• Male involvement is associated with uptake of SBA and reduced odds of postpartum depression
Kaye et al. 2014	• Cultural norms of women moving back to parent's home limit male involvement during childbirth • Negative attitudes by health workers limits men`s physical presence during delivery
Singh et al. 2014	• Differences in expectations regarding male involvement by gender, i.e. women`s expectations of male involvement in MCH include; financial support and physical presence at health facilities. Whilst men perceived of roles such as financial support, provision of food and rest from physical work
Morfaw et al. 2013	• Low levels of male involvement in maternal health • Communities stigmatise/label men who are actively involved in maternal health • Poor communication between couples is a barrier to male involvement
Davis et al. 2012	• Barriers to male involvement include; stigma, poor communication between couples, lack of trust/suspicions of infidelity, work commitments
Kululanga et al. 2012	• Male involvement has been open to misinterpretation and considered as a requirement for men`s physical presence at health facilities • Policy guidelines on male involvement may unintentionally discriminate/marginalise single or unaccompanied women
Maman et al. 2011	• Men`s roles in MCH include facilitating access to health facilities, infant feeding, emotional/financial support • Male involvement is dependent whether a woman wants the partner involved or not (choices based on individual circumstances)

Turan et al. 2011	• Increase in health facility delivery from 3% to 47% following a community-based intervention targeting men and women • Increase in the proportion of women who had four or more antenatal care visits from 18% to 80% ($p < 0.001$) • Decrease in the proportion of women reporting birth or infant related complications following the intervention
Magoma et al. 2010	• Men serve as gatekeepers to women`s health through decision making • Male involvement facilitates uptake of SBA and health facility deliveries
Midhet and Becker 2010	• Men play a critical role in advocacy for joint decision making and speaking out against inequities targeted at women in communities • Men contribute to reducing maternal deaths through providing nutrition, ensuring rest, access to SBA, arranging transport & finances
Mushi et al. 2010	• Significant increase in uptake of SBA from 34.1% to 51.1% following a safe motherhood programme targeting couples/immediate family at home
Mullany et al.2007	• Women who received education with husbands during ANC were more likely to make birth preparations and attend postnatal visits
Tweheyo et al. 2010	• Low levels of male involvement in maternal health • Barriers to male involvement; long waiting times, health facilities not designed to accommodate men
Iliyasu et al.2010	• Low levels of male participation in maternity care (32.1%) • Lack of knowledge, culture and religious reasons limit men`s participation in maternity services
Desclaux and Alfieri 2009	• Men play a key role in ensuring wife adheres to preferred infant feeding practices and protect women from societal/cultural criticism
Traore et al. 2009	• Husbands play an instrumental role in the care of infants, i.e. emotional support, adherence to preferred infant feeding practices and protection from social pressures
UNICEF 2007	• An estimated 50-75% households in selected countries reported decisions on healthcare were made by husbands only
Mullick et al.2005	• Men are recipients of maternal health services • Engaging men positively influences couple communication, postpartum visits
Thaddeus & Maine 1994	• Women`s social status shapes health seeking behaviour/access to maternal health services • Men serve as gatekeepers to women`s health through decision making

2.6 Social context in which women live

Six papers described the influence of social context on women`s access to maternity services (Thaddeus and Maine 1994; UNICEF 2007; Acharya et al. 2010; Magoma et al. 2010; Midhet and Becker 2010; Lewis et al. 2015).

Thaddeus and Maine (1994) suggests that women`s social status within a given society shapes health seeking behaviour/access to maternal health services. It is worth noting that social status comprises of the educational, cultural, economic, legal and political position in a society (Thaddeus and Maine 1994). Women`s low status and or dependency on men arise from cultural values, gender roles, lack of education, place of residence (rural vs urban) and lack of economic capabilities (Acharya et al. 2010). Men serve as gatekeepers to women`s health through decision making on matters regarding finances, nutrition in pregnancy, place of delivery, referral to higher level health facilities and infant care (Acharya et al. 2010; Magoma et al. 2010; Lewis et al. 2015). An extract from the paper by Thaddeus and Maine (1994, p.9) illustrates this; “Women do not decide on their own to seek care: the decision belongs to a spouse or to a senior member of the family…” For instance, in Burkina Faso, Mali and Nigeria, almost 75% of women reported that husband`s alone made decisions about women`s healthcare whilst in Bangladesh and Nepal, the figure was about 50% (UNICEF 2007). In addition, social norms embedded in culture may discourage unaccompanied women from leaving home and or those that require women to inform close family relations on movements restrict women`s mobility even in situations where women can influence household decisions on medical care thereby causing delays in accessing maternal health services.

Men play an important role in advocating for shared decision-making amongst couples/families as well as speaking out against norms that contribute to inequities in society. Midhet and Becker (2010, p.2) suggest that men (husbands)

“can help reduce maternal mortality and morbidity by a) encouraging and facilitating their wives` use of prenatal care; b) ensuring better nutrition and rest for their wives during pregnancy and the postpartum period; c) arranging for a

skilled birth attendant for delivering the baby; d) preparing for the possibility of obstetric emergencies by arranging transportation and finances; and d) reducing the delay in the decision to seek medical care in case of obstetric emergencies".

2.7 Benefits of male involvement in maternal health

Mullick et al. (2005) highlighted the need to view men as recipients of maternal health services who may require practical information on pregnancy and or birth preparations and mechanisms to support their spouses. This same study also reported that efforts to engage with men can positively influence a couple's communication, postpartum visits and provide an opportunity for health workers to provide vital information to their partners on maternity care (Mullick et al. 2005). A similar study conducted in South Africa reported on women`s description of men`s roles in maternal health such as facilitating access to health facilities, support while they waited at antenatal clinics, emotional support, infant feeding and provision of finances for food and infant care (nappies, clothes, formula milk) (Maman et al. 2011). Mersha 2018 observed that male involvement in making birth plans and complication readiness was found to be positively associated with knowledge of obstetric danger signs during pregnancy, labor and postpartum period. Awareness of danger signs enables couples to anticipate and/or prepare to lessen complications during pregnancy and childbirth. A randomised control trial (RCT) in Nepal reported women who received education with husbands during antenatal care sessions were more likely to make birth preparations and attend postnatal visits compared to the control group women (Mullany et al. 2007). Forbes and colleagues (2018) described the effect of men`s physical appearance at antenatal clinics as one that was associated with higher uptake of screening services (urine and blood samples) and health information on complications in pregnancy. Forbes et al. (2018) also noted the behaviour of health providers towards couples seeking maternity services to be different and attributed it to gender roles accrued to men as head of a household thereby requiring more information and or ability to pay for screening tests accordingly. It is worth noting

that this study did not find an association between male involvement and early antenatal care attendance among pregnant women in Ethiopia.

Involving partners of pregnant women in maternal health has been shown to improve uptake of skilled birth attendants and health facility deliveries in LMICs (Magoma et al. 2010; Tokhi et al. 2018). For instance, a systematic review in LMICS showed that male involvement during pregnancy and postnatal care was significantly associated with improved utilisation of skilled birth attendants and reduced odds of postpartum depression (Yargawa and Leonardi-Bee 2015). Whilst a community-based intervention targeting men and women in Eritrea with maternal health education observed a significant increase in health facility births from about 3% to 47% in the intervention group over a period of nine months (Turan et al. 2011). This same study also reported an increase in uptake of antenatal care from 18% to 80% ($p < 0.001$) and a decrease in the proportion of women reporting birth or infant related complications from 34% to 13% ($p < 0.001$) (Turan et al. 2011). A before-and-after study conducted in Tanzania reported a significant increase in uptake of skilled birth attendants from 34.1% to 51.1% ($p < 0.05$) suggesting the effectiveness of a safe motherhood programme targeting pregnant women and male partners/family (Mushi et al. 2010). Midhet and Becker (2010) observed improvements in pregnant women`s diet, reduced workload and increased health facility visits after their husbands were provided with health information on maternal health in Pakistan. A study conducted in rural Malawi described the importance of involving men in maternal nutrition to facilitate healthier pregnancies and babies (Mkandawire and Hendriks 2018). Nutrition education during antenatal clinics is carried out routinely in Sub-Saharan Africa to address nutritional disorders such as anaemia arising from a cultural diet rich in carbohydrates but lacking fruits and vegetables. Involving men in maternal nutrition facilitates changes in the cultural diets as men learn of the benefits of a balanced diet and are able to support pregnant women from an informed position,

“we learn together with women. They tell us that expectant women are not supposed to do very tiresome work. They need to eat different food groups like

milk, meat, eggs, beans, vegetables and fruits…then we try as much as possible to give it to her at home" (Mkandawire and Hendriks 2018, p.6).

In contrast, men who are uninformed of the importance of nutrition in pregnancy maybe problematic and or resist implementation of nutritional messages learnt during antenatal care sessions by women as reported by Aborigo et al;

"a woman went for weighing [antenatal care] and she was told the type of foods to eat. When she got home and told her husband, the man asked her to go back to the hospital for those foods. If the man had gone with his wife to the clinic, he would have also heard the type of foods his wife should eat. It would have been more helpful" (2018, p.5).

It is possible that men can be involved in providing resources to support good nutrition at home and encourage pregnant women in adopting healthier diets thereby impacting on positive maternal health outcomes. Men can support their partners in adhering to preferred infant feeding practices such as formula feeding or exclusive breast feeding. A study on infant feeding practices in Burkina Faso, Cambodia and Cameroon highlighted the role played by fathers/male partners in supporting their wife`s decision to use either replacement feeding or exclusive breastfeeding and/or early weaning for their infants (Desclaux and Alfieri 2009). This study was conducted within the context of Prevention of Mother-to-Child Transmission (PMTCT) programme where health workers provided women with two infant feeding alternatives either to exclusively breastfeed their infants for a short time or use formula feeding. Women, on the other hand, had to consider the social context before choosing a feeding method which was fraught with societal pressure to practice mixed feeding and or longer weaning period than it was recommended and approvals by the spouse (Burkina Faso and Cameroon). Husbands who were involved and or knew their wife`s HIV (Human Immunodeficiency Virus) status used their social status in the community to defend their wife`s choice of infant feeding method and protect them from criticism arising from a non-conformity to cultural norms on infant feeding (Desclaux and Alfieri 2009). A similar study conducted in Ivory Coast found that women whose

partners knew their HIV prevention were more supportive and respectful of their choice to use formula milk instead of the preferred breast feeding option in the community (Traore et al. 2009). This study highlighted various ways in which husbands played an instrumental role in the care of their infants such as providing emotional support to their spouse when faced with emotional pain/regret regarding the decision not to breast feed, helping out with bottle preparations/feeding the baby and protecting them from social pressures. In addition, the husband`s acceptance and positive attitude towards the wife`s choice for replacement feeding facilitated adherence to prevention counselling received from the PMTCT programme (Traore et al. 2009). Despite positive attributes, male involvement in maternal health has been fraught with challenges.

2.8 Challenges for male involvement

Despite increased efforts to engage with men in maternal and child health, male involvement is often low (Tweheyo et al. 2010; Morfaw et al. 2013). There are differences in male and female expectations regarding the role men should play in maternal health. A study in rural Uganda observed that women`s expectations of active male involvement consisted of financial support and men accompanying them to access maternity services well as men thought of their perceived roles during the wife`s pregnancy to include an indirect role of providing financial support and ensuring the wife was well taken care of in relation to food, rest from physical work and childcare (Singh et al. 2014). Differences in perceptions and expectations of men`s roles in maternal health by women and men may contribute to misunderstandings in communities if not addressed appropriately. Challenges for male involvement in maternal health are multifaceted in nature and found at various levels; individual, interpersonal, community, health facility and national/policy levels described below.

2.9 Community factors

The studies reviewed highlighted recurrent themes on barriers regarding male involvement in maternal health such as gender stereotypes, culture, lack of knowledge, stigma and lack of time despite being conducted in different contexts

and communities (Mullick et al. 2005; Davis et al. 2012; Kululanga et al. 2012; Morfaw et al. 2013; Ganle and Dery 2015; Ladur et al. 2015; Lewis et al. 2015; Mkandawire and Hendriks 2018; Sharma et al. 2018; Aliyu et al. 2019). Pregnancy and childbirth are viewed as women`s roles whilst men`s roles are tied to economic activities consequently limiting men`s active involvement (Singh et al. 2014; Ganle and Dery 2015; Onchong`a et al. 2016). Similarly, cultural norms and beliefs that prevent husbands from witnessing delivery or attending clinics considered as women`s spaces limit men`s participation in maternal health (Lewis et al. 2015). Iliyasu et al. 2010 noted in Northern Nigeria, a strong community resitance for men`s physical presence in the labor, for instance, men were not permitted to witness the delivery of babies due to cultural and religious reasons. A study conducted in Uganda highlighted cultural expectations of pregnant women moving back to their parents' home closer to the time of delivery in order to be taken care of by family during birth and postpartum period which limits male involvement (Kaye et al. 2014). Accompanying pregnant women to health facilities was considered as public display of affection which is viewed as culturally inappropriate in some contexts (Aborigo et al. 2018). However, in situations where pregnant women developed complications, it was acceptable for men to accompany their spouses to the health facility (Ganle and Dery 2015; Onchong`a et al. 2016). In some contexts, men who accompany pregnant women to health facilities are shunned, stigmatised and or labelled as `weak`, `controlling`, `bewitched` and `women`s rivals` which acts as a hindrance to male involvement in maternal health (Davis et al. 2012; Singh et al. 2014; Ladur et al. 2015; Ganle et al. 2016; Aborigo et al. 2018; Mkandawire and Hendriks 2018). Onchong`a et al. (2016, p.6) described this in an extract "the husband`s family members see you as controlling the husband and so he listens to you [wife] more". Community attitudes of labelling men who support pregnant women may point to the fact that society is unaware of men`s roles in maternal health (Morfaw et al. 2013).

2.10 Interpersonal factors

Poor communication among couples on sexual and reproductive health was identified as a barrier to male involvement (Davis et al. 2012; Morfaw et al. 2013). Male involvement may be dependent on whether the woman wants to involve her partner or not as it is highlighted in some studies where women chose not to involve their husbands due to concerns of violence and negative experiences with their partner (Maman et al. 2011; Davis et al. 2012). Other barriers related to interpersonal factors included; fidelity and trust in a relationship in that some men only attended maternity clinics if there were suspicions of infidelity/lack of trust of female partners and men not wanting their relationship with pregnant woman known publicly (Mullick et al. 2005; Davis et al. 2012; Morfaw et al. 2013).

2.11 Individual factors

Ladur et al. (2015) identified barriers to male involvement including; lack of knowledge regarding men's role in maternal health and men being uncomfortable attending clinics where most patients were women as illustrated in this extract,

"when sitting down on the chairs, you see women all around you and you end up shaking because you are asking yourself, are you sure of what you are doing here [antenatal care] and the things they talk about are away from what men talk about" (2015, p.8).

Work commitments may hinder some men from being attending antenatal clinics with pregnant spouses. Studies reported men reasons men`s limited involvement/absence during antenatal care/delivery clinics including the pressure of providing for their families, timing of antenatal clinics that clashed with timing for work and parental obligations in taking care of other children whilst pregnant woman went to seek health care (Davis et al. 2012; Aborigo et al. 2018; Mkandawire and Hendriks 2018). A study conducted in Nepal reported on men working away from home which made it difficult to be physically present at health facilities with their pregnant spouses (Lewis et al. 2015).

Ganle et al .2016 describe aspects of male involvement that were uncomfortable for some women such as men accompanying them for antenatal care/delivery and men`s physical presence at antenatal clinic. The women in this study resisted men`s presence at maternity clinics for varied reasons; 1) cultural perceptions that pregnancy and childcare is a woman`s role and men should be breadwinners; 2) fears that men`s physical presence may turn secure social/meeting spaces into unsecure ones; and 3) women`s desire to avoid negative stereotypes labelled on women who are accompanied to maternity clinics by the community. However, women welcomed aspects of male involvement that involved financial support and arranging for transport throughout the continuum of maternal and child healthcare. In addition, women accepted the notion of men`s physical presence/escorting them to health facilities in situations when they developed a complication or medical emergency (Ganle et al. 2016).

2.12 Health facility factors

Recurrent in the literature on barriers to male involvement are long waiting times and health facilities not designed to accommodate men (Mullick et al. 2005; Tweheyo et al. 2010; Davis et al. 2012; Kululanga et al. 2012; Morfaw et al. 2013; Kaye et al. 2014; Ladur et al. 2015; Mkandawire and Hendriks 2018; Aliyu et al. 2019). Long waiting times have been highlighted as a reason for men not accompanying pregnant women to health facilities (Tweheyo et al. 2010; Ladur et al. 2015). Maternity clinics in LICs are on a first come, first serve basis with no prior appointments and understaffed which causes delays. Literature shows that the physical structure of maternity clinics are not designed to facilitate male inclusion for instance, antenatal clinics are grossly understaffed and reports of inadequate space to accommodate both men and their pregnant spouses are common which discourages men from coming to antenatal clinics (Davis et al. 2012; Kaye et al. 2014; Ganle and Dery 2015). A study conducted in a national referral hospital in Uganda highlighted negative attitudes by health workers towards men`s presence at labour wards with some men being rudely chased out of the maternity clinic and or asked to wait outside for their partners (Kaye et al.

2014). This same study observed that health workers limited men`s presence in the delivery room as a precautionary measure to protect women`s privacy and reduce congestion. In addition, maternity services view men as passive recipients of care and are not provided with information regarding progression of labour as illustrated in this extract:

"My wife came last night. She was told she will be operated, it is now 8 hours ago. I can`t go to see her. They said men are not allowed in the labour ward. I want to see her but they have refused to let me enter. Nobody has talked to me, there is no information" (2014, p.5).

Mullick et al. 2005 reiterate the need for maternity services to view men as clients who may be experiencing emotional changes during pregnancy and delivery and need to be prepared for both processes alongside their female partners. Other barriers mentioned in the literature include; poor reception of men at maternity clinics, poor communication, men being unaware of their roles during delivery and lack of health provider confidentiality (Kaye et al. 2014; Ganle and Dery 2015; Aliyu et al. 2019).

2.13 Policy factors

At policy level, several countries in LICs lack implementation guidelines on male involvement in maternal health (Aliyu et al. 2019). In instances where guidelines exist, policies appear to discriminate or marginalise single or unaccompanied women (Kululanga et al. 2012; Mkandawire and Hendriks 2018).

2.14 Unintended consequences of male involvement in maternal health

The active involvement of men in maternity services is not without its problems, as there are potential risks involved. Male involvement has been open to misinterpretation and perceived by some health workers/community activists as a requirement for men`s physical presence at health facilities which has led to reports of unaccompanied women being denied access to health care (Kululanga et al. 2012; Contractor et al. 2016). In clinical settings, efforts to encourage male involvement must avoid unintentionally discouraging single or unaccompanied

women from accessing services (Davis et al. 2012). A study conducted in Malawi noted that women report late for first antenatal care visit whilst waiting for their husbands who are not at home (Chimatiro et al. 2018). A similar study conducted in Tanzania also reported health workers turning away unaccompanied women seeking antenatal services for the first time (Peneza and Maluka 2018). During the first antenatal care visit HIV testing services are provided to couples. It is likely that some health workers could have misinterpreted this initiative to advocate for mandatory presence of men for all first-time pregnant women seeking maternity services. Male presence at health facilities may also be problematic for women who have not disclosed their HIV status/contraceptive use to male partners, which may lead to violence or divorce (Reece et al. 2010; Mohlala et al. 2011; Ladur et al. 2015). Male involvement as a strategy in maternal health does evoke strong discussions on the inherent tension and ethical implications, which seem to arise out of concerns about compromising women`s autonomy/privacy and the mechanisms through which men are involved that may serve to reinforce men`s dominance over women (Kiwanuka 2015). This highlights the need to consider individual factors whilst encouraging male involvement in maternal health.

2.15 Limitations of the review

Due to the heterogeneity in study setting, study design and outcome variables in the included studies no meta-analysis was possible, hence this review used a narrative description of synthesised findings. It enabled the description of wide range of concerns regarding male involvement in maternal health.

2.16 Chapter summary

Pregnancy and childbirth are periods when men are receptive to being involved with their families and this presents a window of opportunity to engage with men on matters regarding safe motherhood (Kaye et al. 2014). Active involvement of men in maternal health may require changing the narratives around traditional roles accrued to men and women for instance, men being viewed as passive players during pregnancy/childbirth process rather as active players/primary carer with full parental obligations (Wild 2005; Ireland et al. 2016). This review has

shown that involving men in maternal health has potential benefits for the mother and her family including uptake of maternity services, nutrition and joint decision making among couples. A similar study from a High-Income Country context Fisher et al. (2018) describes the benefits of engaging fathers in neonatal units; skin-to-skin contact between fathers and babies creates attachments to babies and strong feelings of bonding, happiness and gratitude. A study exploring the influence of fathers regarding their partner`s choice of birthplace in the United Kingdom (UK) cited the majority of fathers (82%) making joint decisions with their partner regarding place of birth (hospital birth) (Pearson and Marshall 2014). Fathers in this study gave reasons for a hospital birth such as safety and availability of facilities in case of complications (Pearson and Marshall 2014). Whilst this scoping review found that involving men in maternal health has many positive attributes, findings also show that male inclusion strategies need to be mindful of already existing gender inequities that exist in society (Tokhi et al. 2018). It is worthwhile to note that male involvement may not be applicable for all women as the needs/contexts of individual women may be different. The WHO suggests that the potential risks of involving men in maternal health can be minimised through good implementation mechanisms summarised in ten recommendations:

i) ensure women`s autonomy in decision making;
ii) draw on men`s positive roles in gender transformation;
iii) ensure male involvement is in the best interests of the woman;
iv) train health workers to promote shared decision making/respect women`s autonomy;
v) design context specific/culturally appropriate services;
vi) obtain women`s consent on inclusion of male partners
vii) consider family diversity;
viii) health facilities make provisions for male friendly services;
ix) monitor implementation process; and
x) link male involvement strategies to wider programmes on gender equality/equity (WHO 2015b).

Davis et al. (2012) highlight the need for male involvement strategies to place emphasis on promoting women`s choice (for instance women`s decisions on whether they want a partner involved/ specific aspects of the men`s participation) and for health facilities to make it clear to women that they are still able to utilise maternity services without a male partner in attendance. The next chapter (three) is a literature review on educational games with non-health professionals.

Chapter 3 Educational games with non-health professionals

3.1 Introduction

Chapter three presents an overview of educational games in health. Educational games refers to games designed to help people learn about a certain subject or assist in learning a skill through play (Tufte 2005). Entertainment is enhanced through play while learning is secured through the content of the game in a non-threatening environment (Blakely et al. 2008). Educational games come in various types such as computer, cards, video and board games (Wildman and Reeves 1996; Baldor et al. 2001). The term 'edutainment' is often used in this context (Tufte 2005). A dictionary definition of edutainment is "the process of entertaining people at the same time as you are teaching them something, and the products, such as television programmes or software, that do this" (Cambridge 2019). In short, the games are educational, they offer the potential for its users to learn new things or skills but they are also entertainment and an element of relaxation.

Board games have largely been used in medical education to train midwives, nurses, doctors, pharmacists and other health professionals on topics like maternal mortality, immune system, physiology, psychology and pharmacology (Bochennek et al. 2007). According to Kolb (1984), knowledge is created through the transformation of experience based on reflection, conceptualisation and active planning for new situations with each individual developing their own learning style. Board games can be classified into three categories; 1) competitive, where players develop strategies to win the game; 2) co-operative, where players work together to achieve a win-win situation; and 3) collaborative, where player's work together to achieve a goal and share in the outcomes (wins or loses) (Zagal et al. 2006). Board games represent a learning strategy that triggers interest of students on a relevant subject enabling the acquisition of knowledge and skills (Fernandes et al. 2016). They employ an interpersonal form of communication where players sit face to face to play the game and discuss different health issues raised, whilst reconsidering their prior beliefs and understandings (Fonseca et al. 2002; Bradshaw 2004).

A systematic review on educational games in the health sciences describes the advantages of board games as a medium of learning; stimulates interaction, reduces stress/ anxiety, and creates a conducive environment for increased learning and retention of knowledge (Blakely et al. 2008). In addition, board games facilitate decision making and peer-to-peer learning and can be played by any person irrespective of literacy levels (Gibson 2013; Laisser et al. 2018). Active learning of the desired content is enhanced through interaction and feedback in a comfortable and engaging environment (Richardson and Birge 1995). Board games have been shown to make a substantial contribution to adult learning (Baid and Lambert 2010). For instance, in the *clinical pharmacology game*, medical students roll the dice and move patient characters on a board. When a patient arrives at a disease field, the player has to offer the right medication from his cards hand to liberate the patient, Students enjoyed playing this game and used it to learn drug names and therapeutic principles (Bochennek et al. 2007). However, it is worthwhile to note that group sizes and competition to win may overshadow the motivation to learn whilst engaging with educational board games (Baid and Lambert 2010).

The evidence on educational board games with non-health professionals includes a systematic review & meta-analysis by (Gauthier et al. 2019). The researchers examined the effect of educational games on health-related outcomes by exploring two questions; 1) what kinds of board games targeting health related outcomes have been evaluated in the literature; 2) what the impact of board games on health-related outcomes is. The systematic review focused on quantitative approaches to provide evidence on effectiveness of board games (Randomised control trials, RCTs). However, RCTs may not cover all aspects that maybe captured in qualitative research such as acceptability and perceptions regarding the use of board games as a health promotional tool in health. This literature review will extend the review by Gauthier and colleagues (2019) by including qualitative research on acceptability and perceptions regarding the use of board games as a health promotional tool in health.

3.2 Methods

3.2.1 Aim of the review

The aim of the review was to explore perceptions of non-health professionals on educational board games as a learning tool. The review was guided by the question: what are the perceptions and acceptability of educational board games as a health promotional tool.

3.2.2 Search strategy

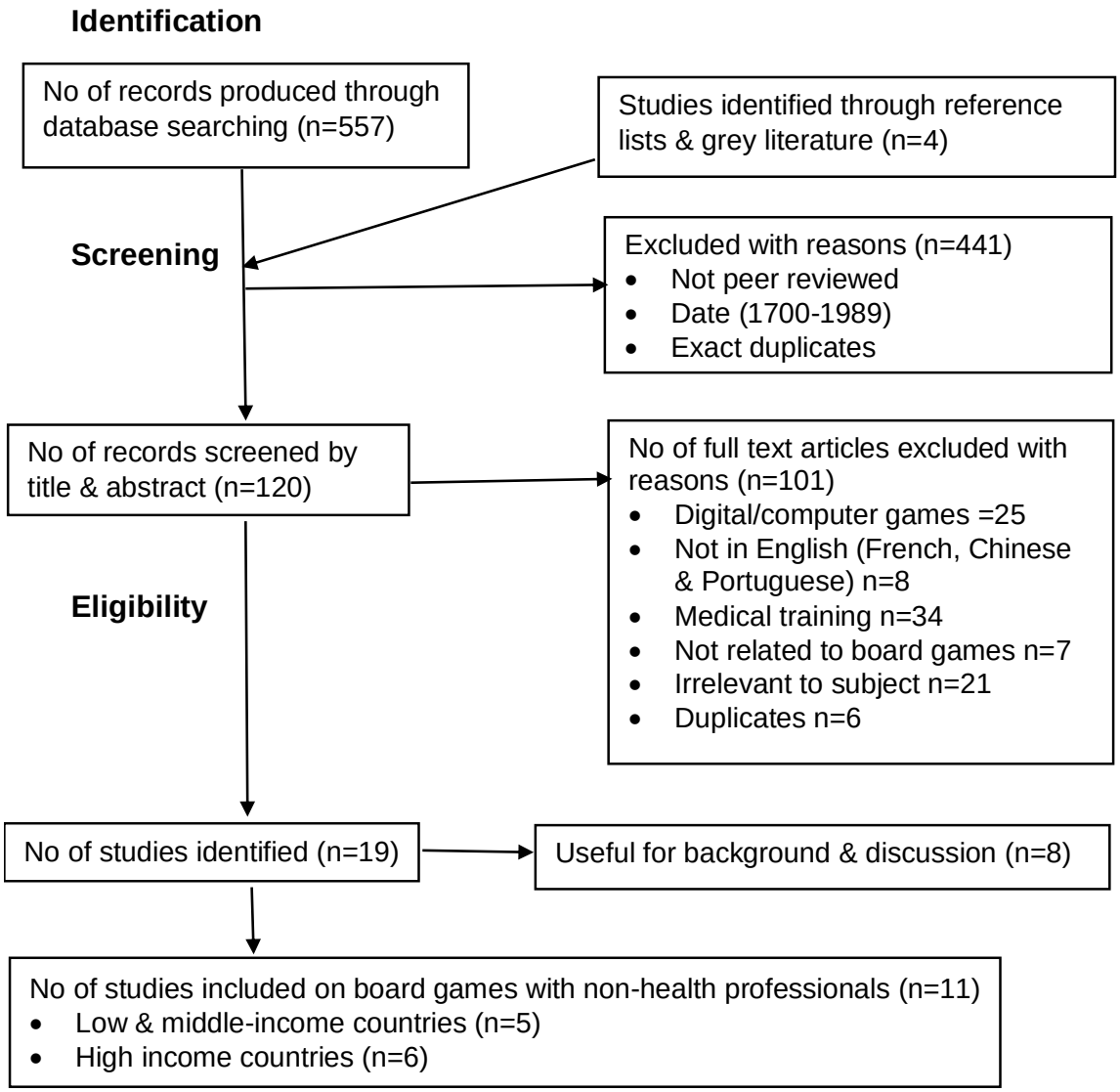
A literature search was conducted using mySearch (Section 2.3). Additional studies were identified through hand searching and snowballing such as reviewing reference lists of papers included in the review.

3.2.3 Search terms

Initially the search terms included permutations of "perceptions", "attitudes", "acceptability" and "board games", "educational games" and “maternal health*”, “pregnancy”, “childbirth”, “maternal mortality” but this did not yield any papers. Consequently, the search words were adjusted to include "board game", and “health*” which yielded papers (Section 3.2.4).

3.2.4 Search flow process

The PRISMA flow chart was used to show the number of selected papers for inclusion (Figure 3.1)



Key: n is number of studies included at that level

Figure 3-1 Prisma flow diagram

3.2.5 Inclusion and exclusion criteria

Eligible papers were those that reported studies:

- Focused on the use of a specific educational board game in health. No restrictions were made in terms of health field as initial search for studies

in maternal health did not yield any results. Studies that focused on behaviour change/health promotion were also included.

- Focussed on attitudes, acceptability, perceptions of board games with non-health professionals conducted in any country.
- Using group games such as card or paper-based board games

Papers were excluded if they were:

- Computer/digital based games as these were more likely to be individual rather than group limiting peer to peer learning/dialogue
- Not available in English as there were no resources to facilitate the translation of non-English papers.
- Evaluation of games using a tool such as a questionnaire or survey as these did not allow for expressions of perceptions/acceptability/user-ability
- Focussed on medical training

3.2.6 Data synthesis / critical appraisal

Quality appraisal for included studies was conducted using the CASP tool for qualitative studies (CASP 2018) and the mixed methods appraisal tool (MMAT) for mixed methods studies (Hong et al. 2019). This review used narrative synthesis to analyse included studies. “Narrative synthesis refers to a process of synthesis that can be used in systematic reviews focussing on a wide range of questions/multiple studies, not only those relating to the effectiveness of a particular intervention. It adopts a textual approach to the process of synthesis to `tell the story` of the findings from the included studies” (Popay et al. 2006, p.5). A thematic synthesis was used to analyse the included papers in a structured way and helped to identify themes/concepts explained in Section 3.3 (Snilstveit et al. 2012).

Results

3.2.7 Study characteristics

Almost all studies (n=8) included in this review were qualitative (Lennon and Coombs 2005; Pon 2010; van der Stege et al. 2010; Yeoman and Storey 2016; Coil et al. 2017; Ezezika et al. 2018; Olympio and Alvim 2018).Three papers were mixed methods studies (Wiener et al. 2011; Gontijo et al. 2016; Kennedy et al. 2017). Three studies were from Europe (van der Stege et al. 2010; van der Stege et al. 2016; Yeoman and Storey 2016), one study was conducted in Africa (Ezezika et al. 2018), whilst two studies were from Asia (Lennon and Coombs 2005; Pon 2010) and five studies from the Americas (Wiener et al. 2011; Gontijo et al. 2016; Coil et al. 2017; Kennedy et al. 2017; Olympio and Alvim 2018).The sample sizes in the included studies ranged from five participants (Pon 2010) to one hundred fifty-four (n=154) participants (van der Stege et al. 2016) shown in table 3.1. The population in the included studies consist of; adolescents (Lennon and Coombs 2005; van der Stege et al. 2010; Gontijo et al. 2016; Coil et al. 2017; Ezezika et al. 2018); families (Kennedy et al. 2017); professionals working in sexual health/social care (Wiener et al. 2011; van der Stege et al. 2016) (Yeoman and Storey 2016) and adults (Pon 2010; Olympio and Alvim 2018). Duration of game play in the included studies ranged from a minimum of thirty minutes (Ezezika et al. 2018) to a maximum of two and half hours (Olympio and Alvim 2018).

Table 3-1 Summary of study characteristics of included papers

Author	Study design	Study setting	Study population	Quality score
Ezezika et al.2018	Qualitative	Nigeria	Students (n=31)	Low
Olympio and Alvim 2018	Qualitative	Brazil	Older adults	Low
Kennedy et al.2017	Mixed methods	Canada and USA	Families (n=77)	Moderate
Coil et al.2017	Qualitative	USA	Students	Low
Van der Stege et al.2016	Mixed methods	Netherlands	Professionals (n=154)	Moderate
Gontijo et al.2016	Mixed methods	Brazil	Adolescents (n=54)	Low
Yeoman and Storey 2016	Qualitative	United Kingdom	Professionals	Low
Wiener et al.2011	Mixed methods	USA	Professionals (n=110)	Low
Van der Stege et al.2010	Qualitative	Netherlands	Adolescents (n=85)	Low
Pon 2010	Qualitative	China	Patients (n=5)	Moderate
Lennon and Coombs 2005	Qualitative	Philippines	Students (n=81)	Low

3.2.8 Description of the board game interventions

Most of the included studies assessed the board game as a (stand-alone) intervention geared towards behaviour change (n=9) with the exception of two studies that investigated the effect/acceptability of the game as part of a multicomponent programme (Gontijo et al. 2016; Olympio and Alvim 2018). The board games were largely collaborative in nature and used a question-answer strategy as a medium for engaging participants with game content. Three studies used an action-consequence strategy that involved a reflective learning style. For instance, `My wonderful life` game, designed to integrate key elements of psychosocial issues in end of life care, prompted participants (reflections/ questions) to think back on their lives and undertake unfinished tasks such as asking for forgiveness, farewell and funeral arrangements (Pon 2010). Topics of discussion included reproductive health, sexual health, nutrition, cancer and social care. All studies required a facilitator to steer or guide the subject of discussion and in some instances follow up on proposed actions after the game.

3.2.9 Attitudes regarding the use of educational board games in health

Recurrent in the papers reviewed were questions on `most positive experience about the board game`, `likes and or dislikes` and `what was useful/helpful in facilitating learning`. Answers/responses to these questions were analysed from perspectives of the service user/recipient of board game intervention and the implementers/facilitators of the board games explained below.

3.2.10 Perspectives from service user/recipient of board games

3.2.10.1 Conducive environment

Studies included in this review alluded to board games providing a platform for individuals to think, talk and ponder on actions either collectively or as individuals. An extract from the `My wonderful life game` describes this as follows;

“I feel it is like a form of release. It is not easy talking about my feelings…This game allows me to put all these feelings, both good and bad behind me. I feel liberated. There is a sense of peace” (2010, p.155).

3.2.10.2 Pleasure and relaxation

A popular attribute for board games as a learning modality is that they are fun and interactive compared to lecture style of learning (Gontijo et al. 2016; Coil et al. 2017; Olympio and Alvim 2018). Individuals feel free to express themselves without the fear of being judged, scolded by peers/instructors (Pon 2010).

“In the game, we have fun and learn at the same time… its more interactive, it gives us the opportunity to speak, and to ask [questions]” (Gontijo et al. 2016, p.24).

Pon (2010) argued that participants viewed board games as a tool that empowered individuals to affirm and recognise their self-worth and status in society. Recognition of self-worth/contributions to society served as a great distraction from anxiety/depression in hospice/end of life care patients. The extract below illustrates the positive experiences attributed to board games.

“I was looking forward to play this game as it brings me joy to think and talk about the things that I enjoy. I feel like a film star…am so happy that someone is interested in me and my life stories” (2010, p.155).

3.3.1.3 Teamwork

Olympio and Alvim (2018) observes that participants loved the concept of peer support/working together to `win` a task as part of the game as well as in real life scenarios. For instance, working collectively in answering questions helped participants remember important messages that they would otherwise have forgotten easily had it not been for the group discussions and sharing of personal stories.

“When we work together, think together, the game flows better. While we were playing, we helped each other remember what we had talked about and also got to know our colleague sitting next to us” (Olympio and Alvim 2018, p.823).

3.3 Perspectives from professionals having used board games in routine work

Included papers highlighted experiences and views of professionals using board games to facilitate discussions on topics such as sexual health, menstruation and cancer explained below (Pon 2010; Wiener et al. 2011; Gontijo et al. 2016).

3.3.2.1 A tool useful for building rapport with patients and gauge understanding

A common theme in the studies reviewed was that health professionals saw board games as useful in getting patients to talk and to enable professionals to gauge how much information patients had in terms of their illness and or coping mechanisms.

“The game is great for first sessions as an introduction to therapy… also it has been a useful tool to engage children who don’t offer a lot of verbal responses…in a group setting, it has been very effective in validating feelings and decreasing sense of isolation” (Wiener et al. 2011, p.1053).

3.3.2.2 Safe space for individuals to share views

Professionals reinforced the fact that board games provide an opportunity a safe space for patients to discuss their illness without being coerced as the following extract illustrates;

“It is an incredibly non-threatening and fun way for patients to express feelings about their illness and anxieties. They don’t feel forced to talk about things because it’s part of the game. This game is fantastic!” (Wiener et al. 2011, p.1053).

It is worth noting that although individuals may be free to express their feelings/views, this may not happen immediately such as on the first implementation. In some contexts, this may take time after the initial visits as the next quote taken from a study on board games and menstruation among adolescents in Brazil;

“We started the intervention and the girls demonstrated that they were apprehensive and curious but timid and introvert towards me (game facilitator/teacher). At the third meeting, I noticed the girls were feeling more comfortable and more trusting towards me” (Gontijo et al. 2016, p.24).

Some authors, such as van der Stege et al.2016 attributes the popularity of board games among professionals to its added benefits such as peer support, which is crucial whilst working with young people/adolescents. The game is perceived as useful in rehabilitation despite the amount of time placed on planning for the sessions such as appropriate time, energy and group sizes for effective learning to take place.

3.4 Reflection on findings

Based on this review, educational board games can be used to facilitate change in behaviour in all age groups in the natural environment including out of the classroom/non-health facility settings. This review highlights the acceptability and usefulness of board games as a health educational tool. This is consistent with

other studies on board games (Bochennek et al. 2007; Wanyama et al. 2012; Gauthier et al. 2019). Board games have been used to facilitate changes in behaviour. A study on smoking cessation showed changes in behaviour among smokers in the precontemplation stage; reduction of number of cigarettes smoked in a day and smoking cessation (Khazaal et al. 2013). According to Okitika et al. (2015) interactive games can increase interest in global health issues among the lay public especially among young people. Similarly, Burghardt et al. (2013) reported that educational games can increase the ability of community members to seek pharmacist advice and a useful tool to promote health literacy among individuals with low literacy levels.

3.5 Chapter summary

There appears to be limited research carried out on the use of board games with non- health professionals in LMICs and even fewer studies exist regarding perceptions on the use of board games in health promotion. This review did not find any studies conducted with men in facilitating uptake of maternal health services in LMICs. This PhD addressed this gap in the literature by providing an analysis of the theoretical perspective (the pilot study conducted in London) and testing an intervention (*Whose Shoes?*) with men in Uganda (Chapter Six and Seven). The next Chapter (Four) presents findings from a pilot study in London with men of African descent. These findings were published in the international peer reviewed journal, *BMC Pregnancy and Childbirth*.

Chapter 4 Pilot study in London

4.1 Introduction

Chapter four presents a paper published in the International peer review journal, *BMC Pregnancy and Childbirth*. Prior to implementation of the pilot study in London, the researcher attended a facilitator`s workshop organised by University College of London (UCL). This workshop was facilitated by Gill Phillips, the creator of *Whose Shoes?* board game. The purpose of the training was to equip health and social care professionals with facilitation skills and the opportunity to learn more about *Whose Shoes?* board game/ play the game. A systematic review on the nature of facilitation and teaching approaches used in interprofessional education highlights "the need for initial professional development for all new facilitators to help cope with the complex role of facilitating interprofessional education" (Reeves et al. 2016, p.1226). After the workshop, the researcher met with Gill and discussed the possibility of using the game with men in maternal health as well as adapting it to the Ugandan context with her permission. The *Whose Shoes?* board game was chosen because the tenets of the game rest on empathy, compassion and critical thinking (Phillips 2016). These principles facilitated opportunities for men`s learning through reflection, empathy and peer-to-peer interactions. The implications of this are discussed in chapter seven of this thesis. The game has been validated for use in a number of countries. The pilot study was implemented after the training with Gill`s permission and the details of the study follow after Photo 4.1 below.

Photo 4-1 Researcher at the facilitator`s workshop in London

Ladur et al. BMC Pregnancy and Childbirth (2018) 18:81
https://doi.org/10.1186/s12884-018-1704-6

BMC Pregnancy and Childbirth

RESEARCH ARTICLE Open Access

`Whose Shoes?` Can an educational board game engage Ugandan men in pregnancy and childbirth?

Alice Norah Ladur*, Edwin van Teijlingen and Vanora Hundley

Abstract

Background: Men can play a significant role in reducing maternal morbidity and mortality in low-income countries. Maternal health programmes are increasingly looking for innovative interventions to engage men to help improve health outcomes for pregnant women. Educational board games offer a unique approach to present health information where learning is reinforced through group discussions supporting peer-to-peer interactions.

Methods: A qualitative study with men from Uganda currently living in the UK on their views of an educational board game. Men were purposively sampled to play a board game and participate in a focus group discussion. The pilot study explored perceptions on whether a board game was relevant as a health promotional tool in maternal health prior to implementation in Uganda.

Results: The results of the pilot study were promising; participants reported the use of visual aids and messages were easy to understand and enhanced change in perspective. Men in this study were receptive on the use of board games as a health promotional tool and recommended its use in rural Uganda.

Conclusions: This study provides preliminary data on the relevancy and efficacy of using board games in maternal health. Key messages from the focus group appeared to be that the board game is more than acceptable to fathers and that it needs to be adapted to the local context to make it suitable for men in rural Uganda.

Keywords: Safe motherhood, Utilisation, Facility-birth, Male involvement, Educational board games

Background

Globally, an estimated 216 maternal deaths per 100,000 births occurred in 2015 [1]. A large proportion (99%) of these deaths were in low-income countries (LICs) with the African region shouldering almost two thirds (64%) of the global maternal mortality burden [2]. Uganda is a low-income country situated in the eastern part of Africa with an estimated population of 34 million [3]. Uganda's maternal mortality rate remains high at 368/100,000 live births despite a decline over the past years [4]. The principal direct and indirect causes of maternal morbidity and mortality in LICs often have an underpinning of delayed or little access to maternity care [5]. Birth with a skilled birth attendant (SBA) is central to curbing infections and complications contributing to maternal deaths and morbidity in LICs [6]. A SBA refers to a "trained health worker with midwifery skills such as a midwife, doctor or nurse competent in managing normal pregnancies, and able to appropriately detect and refer complications arising during pregnancy and child birth" [7]. In Uganda, these workers tend to operate within the enabling environment of health facilities, providing pregnant women with safe and clean environments in which to give birth and assistance during the postnatal period [8]. The support pregnant women receive at home and at health facilities impacts on the health outcomes for both mother and baby. Pregnant women often relate to maternity services through a complex social web that reflects power struggles within the kinship and the community [9]. Uptake of health facility birth is still low estimated at 73% in Uganda [4]. Husbands are vital determinants of the likelihood of facility-based delivery by women in LICs in their roles as

* Correspondence: aladur@bournemouth.ac.uk
Faculty of Health and Social Sciences, Bournemouth University, Royal London House, Christchurch Road, Bournemouth BH1 3LT, UK

bread winners, key decision makers in the household and control over economic resources [5]. Involving men in maternal health encourages spousal communication, the making of birth plans and the uptake of health facility based deliveries in a timely manner [10].

Although childbearing and child rearing are regarded as a woman's role in African communities, decisions around child birth and/or number of children are largely determined by men [11]. Unequal power relations, however pose a problem when men do not support women or actively intervene in health seeking actions [12]. The 1994 International Conference for Population and Development outlined men's roles in maternal and child health [13]. These roles include men as partners with a responsibility to support women's health and men as agents of positive change with the ability to change gendered constructions that may impede access to healthcare [14]. Several strategies have been used to encourage male involvement in safe motherhood; group education, mass media campaigns, home visits and games such as soccer and athletics have previously been used as an avenue to reach out to men in communities [12, 15]. Reaching out to men on reproductive health issues is one of the mechanisms by which maternal mortality can be reduced in communities where women's decision making is limited [16].

Developers of maternal health programmes are increasingly looking for innovative approaches to engage with couples/families and communities to improve health outcomes for pregnant women. Educational board games offer a unique approach to present health information to men, where learning is reinforced through group discussions supporting peer-to-peer interactions [14]. Educational games (board, card and video games) have been designed as a communication tool that bridges the gap between awareness and behaviour change and represent a cost effective mechanism for improving health literacy skills amongst literate and illiterate populations [17]. By providing a visual metaphor, players are given an opportunity to acquire new knowledge through the content of the game, which can enhance critical thinking, collective learning and inter-personal communication in a relaxed environment [18]. Studies on the value of educational board games for health care professionals in high income countries has been published elsewhere [19, 20]. An evaluation of the *Make a Positive Start Today* game reported participants and facilitators' preferences for a board game over health talks as an education method [17]. Similarly, in a study conducted in Malawi, children and their families were exposed to the *AIDS challenge* game and there was a significant increase in knowledge on HIV/AIDS and change of behaviour [21]. However, the concept of using board games as an educative tool in healthcare is relatively new and evolving in several LICs. Development of educational games for patients and their kin seems especially valuable in cultures where men do not engage much in pregnancy issues and child health care.

Description of Whose Shoes? Board game

Whose Shoes? is the title of the game. This game rests on the premise of empathy, compassion and critical thinking [22]. The *Whose Shoes?* board game consists of: little shoes that act as playing pieces, dice, a board marked with footprints and information cards (Fig. 1). The cards and little shoes are labelled in red, yellow, blue and green colours. An individual player throws the dice, moves a shoe across the board and reads out a card like the colour of shoe.

The game was developed by Gill Phillips as a tool to explore the challenges affecting health and social care in the United Kingdom (UK). The target audience for the workshops have included pregnant women, service users, health professionals involved in delivery of health services and policy makers in the UK [23] (Table 1).

Given that men are socialised in groups, peer to peer interactions with fellow men provide a safe environment to explore positive dimensions of their masculine identities. This intervention draws on the health belief model theory with the basic premise that what people know and think affects how they act [24]. An individual's readiness to act is influenced by perceptions of whether one is susceptible or not to the health problem, how serious the problem is and benefits of avoiding the problem [24]. Evidence from studies on male involvement is largely observational and focussed on motivating men to participate in maternal health [10, 25, 26]. By exploring positive dimensions of their masculine identities and women's experiences during pregnancy and child birth, men will be granted the ability to reflect and question socially constructed norms that may be detrimental to women's health. It is hypothesised that once men are given opportunities for learning and self-

Table 1 Content of selected card messages

Diet during pregnancy	Changing the culture	Which place?
• When a pregnant woman has a balanced diet, it helps the proper development of the unborn child and also keeps her from sickness. • A balanced diet includes fruits, vegetables, meat and grain foods.	• My mother told me that she was forced to give birth at home. She lost so much blood that she almost died. • Which cultural norms prevent pregnant women from giving birth in a health facility?	• Women seldom know that they have a right to choose where they wish to give birth. • How can men be of help to their pregnant wives?

Fig. 1 *Whose Shoes?* board game. Photo credit: Gill Phillips

examination, they will be challenged to embrace more proactive roles in promoting the utilisation of maternity services by women.

Aim of study

This study sought to pilot the *Whose Shoes?* board game with men of African descent living in the UK. The purpose of the pilot was to first identify whether using a board game to discuss women's health would be an acceptable intervention, and second to gain feedback on the content of the game and general experiences upon playing the game prior to implementation in Uganda. The essence of conducting pilot studies has been documented elsewhere [27].

Methods

Using a qualitative approach, men were invited to play the game and participate in a focus group immediately afterwards. Men were purposively sampled to participate in this study. Purposive sampling refers to the deliberate selection of participants based on criteria that would elicit information on a phenomenon of interest [28]. Purposive sampling is a common technique used in qualitative research to select participants in relation to qualities they possess [29]. The inclusion criteria are: men who were fathers and/or married men originally from Africa.

Four men originally from Uganda played *Whose Shoes?* game for 1 h and participated in a focus group discussion (FGD) immediately after the game ended. The FGD lasted for 1 h and was audio recorded with permission from the participants. The researcher (AL) conducted and transcribed the FGD verbatim into English from Luganda (participants chose to speak in local language commonly spoken in Uganda). The game and FGD took place in March 2017. A single FGD was held and considered adequate as it brought sufficient information needed to design relevant messages suitable for the Ugandan audience. The researcher sought to seek views on whether the game was relevant as a health promotional tool and whether messages were appropriate for the Ugandan audience.

FGDs have been documented as an appropriate tool used in studies whose primary aim is to explore attitudes, views and experiences on a research topic in a way that would not be feasible using other methods such as individual interviews [30]. In addition, FGDs can be used at preliminary stages such as pre-test/pilot studies before an intervention is implemented and has been used with a small group of participants [31]. This study chose to use an FGD to elicit responses on men's views and experiences having played a game to feedback on the design of context specific messages for the Ugandan context. Questions asked included:

- What aspects of the game did you find most useful in aiding your understanding about topics discussed?
- Were there any parts that were unclear/not relevant?
- What benefits did you experience upon engaging with the game?
- What did you like/dislike about the game?
- Is there anything you would have changed about the game?

Recruitment procedure

Men were recruited through a local church in East London. The church was used as a recruitment platform because religion constitutes an important medium through which Africans in the diaspora construct their identity and cultivate a sense of belonging [32]. African immigrants including men, irrespective of their religious beliefs readily attend events organised by the church as a social network. Information about the study was presented to people in attendance through 'announcements' and further spread through word of mouth to individuals not in attendance by the researcher. All men who expressed interest in the study

met with the researcher after the event at church and more information was provided accordingly.

A participant information sheet was given to men to consider participation 1 week prior to the study. It was emphasised that participation was voluntary and participants given the opportunity to ask questions. Participants signed a participant agreement form before the commencement of the study.

Data analysis

Data for this study were analysed using template analysis (TA) [33]. This is a technique used in thematic analysis to organise and analyse textual data [34, 35]. An initial outline template is applied to the data and revised to incorporate new emergent themes in a hierarchical structure. It follows an iterative process which may involve adding, collapsing and deletion of codes/themes in the outline template, until a final template representing all the data is developed [33].

This method of analysis was selected because: TA can be used to address a wide range of research questions including people's experiences and perspectives [33]. This study explored men's experiences of engaging with the game and perceptions on the use of games as a learning tool in maternity services. It provides a researcher with an opportunity to develop priori codes and themes more extensively where the richest data are found in relation to the research question [35]. Also, the flexibility of the coding structure allows researchers to explore the relevant aspects of the data in real depth. As this was a pilot study, the researchers were keen on receiving feedback on the content of the game that would be used to design context specific messages for men in Uganda.

Analysis procedure

The discipline of producing a template enables the researcher to take a systematic and well-structured approach to data handling. The use of an initial template followed by the iterative process of coding means that the method facilitates careful consideration of how codes/themes are defined and ensures rigour. The transcript was read several times to become familiar with the data and then annotated with emerging codes which were added to the template. An initial coding template following the structure of the FGD guide was developed. The template was revised throughout this process with additional themes and sub themes inserted, deleted or collapsed under a new heading as the analysis progressed until the final template was developed. For confidentiality purposes, pseudonyms were used and access to data was restricted to only the researchers involved in the study. Trustworthiness was enhanced through the use of template analysis method; returning to the data repeatedly to check for accuracy in interpretation; dialogue with two senior researchers with extensive experience in maternal health and qualitative research.

Results

The analysis of the focus group discussion generated four themes or key issues: 1) aspects of the game that aided men's understanding on topics discussed (learning aids and messages); 2) benefits of the game (empathy and change in perspective); 3) general attitudes about the game; and 4) recommendations for the game (context specific messages and should be used in the rural setting).

Aspects of the game that aided men's understanding

Learning aids used

Little shoes Participants spoke about the symbols that were visual such as dice, little croc shoes, and pathways clearly marked on the board game.

> *The shoe is a core point, it has ignited my thoughts to stand in the shoes of women, to walk in her shoes.* P4

> *The significance of the shoe as my colleague has emphasised is that for many of us here even in daily life situations, we do not place ourselves in the shoes of others...*P1

Using the symbol of a shoe enabled participants to reflect on women's experiences in pregnancy and roles at home. Participants appeared fascinated by the concept of the little shoes and throwing the dice on the board. This captured men's attention and inspired them to pause and examine their actions through a woman's lens.

Messages

Poem Some of the participants were motivated through the choice of words used to relay messages to men in form of poems, questions and statements.

> *When we were playing the game, the dice I threw, took me to the poet's corner and the poem I ended up picking said let us work together, they used the phrase of real people and not roles.* P2

> *It has opened my understanding in that, although we talk about it, we sometimes overlook it but the way the questions were phrased...*P4

Messages reinforced a collective effort in addressing women's health concerns. It reinforced the need for men to view themselves as part of the facilitaters of change.

Use of real life events & experiences All participants appreciated the use of real life situations on topics discussed which inspired them to share their own experiences whilst engaging with health professionals and family life.

> *We are here talking about real life scenarios happening in Kitgum, Soroti, Masaka [districts in Uganda]. It is real scenarios, no doctor, no medicine, a woman is pregnant, vulnerable, she has to give birth. I look at the fact that all this is true.* P2

The messages on the cards talked about experiences women go through such as dignity in care, nutrition, birth preparedness, male involvement among others. These were experiences the men in the group could relate to being fathers in stable relationships.

Benefits of the game

Empathy

Participants placed emphasis on the concept of 'little shoe' which draws men's attention to think about women's experiences during pregnancy and child birth

> *This particular game brings men's attention to not just overlook women's issues especially pregnant women but to go deeper to think about it as several men father children, take them to school but in his thoughts, he has never really stepped into the shoes of women.* P3

Enhances change in perspective

Reflection appears to act as a mirror where men view their actions through a woman's lens and are able to weigh in on their actions.

> *I think for me what I have picked from this game which is most important is about perspective and mind set.* P1

The game provided a platform to discuss women's experiences with fellow men. Such opportunities for self-examination and critical thinking enhances a change in mind set about cultural roles accrued to men and women by society.

General attitudes about the game

All men in this study were receptive towards the use of board games to engage with men in maternity services.

> *Yes, you chose the best [game], I think we need to encourage all men everywhere especially in Uganda or Africa to stand in the shoes of women.* P2

Participants were keen on the concept of *Whose Shoes*, drawing on empathy to reflect on experiences women face during pregnancy and child birth. This was also reflected in the roles women perform in the home beyond child bearing such as care giving and house work.

Environment

Despite the fact that the men in this study generally liked the concept of *Whose Shoes?* game, there appeared mixed reactions with regards to the relevancy of the game to men living in the UK.

> *let us say that almost you are preaching to the converted, since we have lived in this country and also been here for long, we already got a perspective irrespective of what we had that a man does not do this and that, now we all do things differently.* P1

> *...even us here, it has helped us except that most of us here can relate on the same level because we know, we've been there, we do it and the environment we live in, is normal [for men to be involved].* P2

Some of the participants were inspired to reflect on their involvement in maternity services, whilst others were already actively involved in offering support including chores around the home.

Participants highlighted different perspectives between men who are exposed and unexposed to male involvement due to contextual factors such as environment.

> *You will find that generally we who are here [UK], the perspective we have will be different from the everyday Ugandan man because of the different experiences and environment.* P4

Men in this study appeared to have adopted a new perspective of being involved in women's health as a result of living in the UK. Exposure to a way of life that is different from the Ugandan context had influenced men's decision to be involved.

Easy to understand and use

In this study, men found the components of the game and messages easy to understand and could easily relate with the content of the game since they were parents.

> *This shoe whether you went to school or not, whether whoever assisted with the delivery did that in a health facility or not, I want a man to wear the shoes of this woman...* P2

The use of symbols like little shoes and footprints on the board are visual tools that drew men's attention to

reflect on women's experiences. The simplicity of the game implies that it can be used with men across different socio-economic status and education levels.

Recommendations for the game

Context

Participants emphasised the need for the game to be applied to the Ugandan context to make it is more relevant so that it has the potential to make a unique contribution

> *If you shift it to Uganda, for so many men, it would be something new. Pregnancy is hers to deal with and as a man, I come in to boast about being a father to the child and that is it. There is a great need for change to come to our communities.* P3

> *If you went deep in the villages like in Mukono* [district], *all your trying to aim for is a change in perspective and mind set… it would be more eye opening to them because you will find that for them when a woman gives birth, I know about it when she comes back with a baby or when am picking her up from the hospital. That is where his role starts as a man.* P1

Considerable importance was placed on engaging men in the rural setting especially the villages where cultural values are dominant and social norms dictate men and women's roles.

Messages

Participants proposed the need to design messages that are not only context specific but compelling messages that could provide men with opportunities for self-reflection.

> *The messages must be hard hitting and relevant in that it has to give people food for thought like when a man says traditionally, we have always done things this way, the questions become tailored to that.* P3

> *As a concept [game] it is very good but then it has to be more hard hitting that if I place someone in that position, it gives them a chance to think. A woman does not complain but she suffers in silence but it does not remove the fact that a man needs to change.* P1

Participants highlighted the need for messages addressing socio cultural norms that hinder male participation in maternity services and women's access to health services.

In addition, messages could reinforce men's active involvement during pregnancy and support each other as a team

> *If we work on changing our mind sets as men especially in Uganda that when a woman is pregnant, from that day we wear the same shoe and it becomes my responsibility as well to put on a woman's shoes, know her experiences and support one another as we are in this together.* P2

Participants suggested the inclusion of messages with an emphasis on pregnancy and child birth viewed as shared responsibility amongst couples.

Discussion

Overall, men were receptive about the use of a game and embraced the concept of using real life scenarios. This reflects the findings of an evaluation study conducted in Uganda on *Make a Positive Start Today* game, which reported participants' preference for the use of a board game compared to health talks as an education method [17]. Men in this study were particularly captivated by the visual aids used such as little shoes, throwing dice and footprints on a board. A visual display of the game reiterated the importance of walking in women's shoes. The role of board games in motivating players has been documented elsewhere [19]. In the *Clinical Pharmacology Game*, medical students stated having enjoyed playing the game which involved rolling the dice and moving patient characters on a board [20].

For the pilot study, a subset of cards was chosen from the package of *Whose Shoes?* cards and some new cards were added that were not part of the original UK package. The content of the cards included messages on dignity in care, team work, empathy, men's roles and birth preparedness and complication readiness. These cards were considered most relevant to the subject of pregnancy and childbirth and appropriate for the Ugandan audience. Men reported having understood the messages on the cards, which drew rich discussions on the topics of interest and those beyond the scope of the study. According to Okitika and colleagues [36] interactive games can increase interest in global health issues among the lay public especially among young people. Similarly, others observed that educational games can be used as a learning aid to promote health literacy among individuals with low literacy levels [37].

Piloting the *Whose Shoes?* board game with Ugandan men provided valuable insight into practical issues such as whether board games are acceptable and appropriate as a mechanism to facilitate change in behaviour. The findings also reiterated the importance of adapting the game to suit the local context. This included ensuring that cards and data collection tools were translated into Luganda, the local language of the population in the main study, and that male facilitators were on hand to work with male and female researchers and women

during the intervention and interviews respectively. Smith and colleagues [38] highlighted the need to pilot studies to test selection and/recruitment processes, data collection instruments, and the duration and quality measures on a relatively small scale before the main study is carried out.

Limitations of the study

This pilot study consisted of a focus group discussion of four Ugandan men. Whislt the participants still maintained regular contact/visits to their villages in Uganda, the authors acknowledge the likelihood of a change in perception and behaviour having been exposured to life in the UK. The limitation of using template analysis as an approach in analysing qualitative data is the risk of losing sight of the original research aims and the focus on the existing template as an end result rather than a means to achieving an outcome. Although considered a minimal limitation in this particular study the researcher acknowledges the fact that all approaches to qualitative analysis are not without flaws and as therefore addressed this concern through steering clear of the reasons for adopting a template as a process of understanding the data and not the purpose of the analysis.

Conclusion

This study provides preliminary data on the relevancy and efficacy of using board games in maternal health. Key messages from the focus group appeared to be that the board game is more than acceptable to fathers and that it needs to be adapted to the local context to make it suitable for men in rural Uganda. The main study, using a before and after design, will assess the feasibility of implementing a board game with men to encourage uptake of health facility births by women in Uganda.

Abbreviations

LIC: Low income country; SBA: Skilled birth attendant; TA: Template analysis; UK: United Kingdom

Acknowledgements

The authors would like to thank Gill Phillips for permission to use the *Whose Shoes?* board game and participants for their participation in the study.

Funding

The authors did not receive funding for this study.

Availability of data and materials

The data generated and used in the analysis of this study are included in this published article. Additional data is available from the authors upon reasonable request.

Authors' contributions

ANL and VH conceived the study. ANL, EVT and VH participated in the analysis and writing of the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

Ethical approval for this study was obtained from Bournemouth University's Research Ethics Committee (ID: 14852). A written informed consent was obtained from participants before the commencement of the study.

Consent for publication

Not applicable

Competing interests

Two authors (VH and EVT) are members of the editorial board for BMC Pregnancy and Childbirth. This manuscript was subjected to an independent peer review process as per BMC Pregnancy and Childbirth guidelines.

Publisher's Note

Received: 1 November 2017 Accepted: 15 March 2018
Published online: 27 March 2018

References

1. World Health Organization. World health statistics 2016. Monitoring health for the SDGs, sustainable development goals. Geneva: WHO; 2016.
2. World Health Organization. Health in 2015 from MDGs, millennium development goals to SDGs, sustainable development goals. Geneva: WHO; 2015.
3. Uganda Bureau of Statistics. The national population and housing census. 2014. Kampala, Uganda.
4. Uganda Bureau of Statistics. Uganda demographic and health survey 2016: key indicators report. Kampala, Uganda. 2017.
5. Shimazaki A, Honda S, Dulnuan M, Chunanon J, Matsuyama A. Factors associated with facility based delivery in Mayoyao, Ifugao Province, Philippines. Asia Pac Fam Med. 2013;12:5.
6. Graham W, Bell J, Bullough C. Can skilled attendance at delivery reduce maternal mortality. In: Safe motherhood strategies. A review of the evidence. Antwerp: SHSOP; 2001. p. 97–130.
7. World Health Organization. Making pregnancy safer: the critical role of the skilled attendant. A joint statement by WHO, ICM and FIGO. Geneva: WHO; 2004.
8. Nabudere H, Asiimwe D, Amandua J. Improving access to skilled attendance at delivery. Uganda. REACH: Kampala; 2012.
9. World Health Organization. Addressing the challenge of women's health in Africa: report of the commission on women's health in the African region. Brazzaville: WHO; 2012b.
10. Jennings L, Muzi N, Cherewick M, Hindin M, Mullany B, Ahmed S. Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries. BMC Pregnancy Childbirth. 2014;14(297):1471–2393.
11. Mullick S, Kunene B, Wanjiru M. Involving men in maternity care: health service delivery issues. Agenda Special Focus. 2005;30(8):124–35.
12. Stern O, Peacock D, Alexander H. Working with men and boys: emerging strategies from across Africa to address gender based violence and HIV/AIDS. Cape Town: Sonke Gender and Justice Network; 2004.
13. United Nations Population Fund. International conference on population and development (ICPD). Cairo: UNFPA; 1994.
14. Greene M, Mehta M, Pulerwitz J, Wulf D, Barikole A, Singh S. Involving men in reproductive health: contributions to development. Background paper to the report, public choices, private decisions. Sexual and reproductive health and the millennium development goals. Washington: UN Millennium Project; 2004.
15. Shefner-Rogers C, Sood S. Involving husbands in safe motherhood: effects of the SUAMI SIAGA campaign in Indonesia. J Health Commun. 2004;9:233–58.
16. Yargawa J, Leonardi-Bee J. Male involvement and maternal health outcomes: systematic review and meta-analysis. J Epidemiol Community Health. 2015;69(6):1–9.
17. Wanyama JN, Castelnuovo B, Robertson G, Newell K, Sempa JB, Kambugu A, Manabe YC, et al. A randomized controlled trial to evaluate the effectiveness of a board game on patients' knowledge uptake of HIV and sexually transmitted diseases at the infectious diseases institute, Kampala, Uganda. J Acquir Immune Defic Syndr. 2012;59(3):253.
18. Vigil-Cruz S. Research on comparative effectiveness of the PHARM game and other teaching tools. University of Connecticut, School of Pharmacy 2005.
19. Blakely G, Skirton H, Cooper S, Allum P, Nelmes P. Educational gaming in the health sciences: systematic review. J Adv Nurs. 2008;65(2):259–69.

20. Bochennek K, Wittekindt B, Zimmermann S, Klingebiel T. More than mere games: a review of card and board games for medical education. Med Teach. 2007;29:941–8.
21. Dodd R. Malawi uses games to educate the young. AIDS Anal Afr. 1995;5:14–5.
22. Phillips G. WHOSE SHOES? Board Game 2016. Available from: http://nutshellcomms.co.uk/product/. Accessed 20 Mar 2016.
23. Paparella G. The state of maternity services in England. Policy briefing. England; 2016.
24. Glanz K, Rimer B. Theory at a glance. A guide for health promotion. United States Department of Health and Human Services, National Institute of Health 2005.
25. Nwakwuo G, Oshonwoh F. Assessment of the level of male involvement in safe motherhood in Southern Nigeria. J Community Health. 2013;38(2):349–568.
26. Ladur A, Colvin C, Stinson K. Perceptions of community members and healthcare workers on male involvement in prevention of mother-to-child transmission Services in Khayelitsha, Cape Town, South Africa. PLoS One. 2015;10(7):e0133239.
27. van Teijlingen E, Hundley V. The importance of pilot studies 2001; (35).
28. Bernard H. Research methods in anthropology: qualitative and quantitative approaches. 3rd ed. Walnut Creek: Alta Mira Press; 2002.
29. Etikan I, Musa SA, Alkassim RS. Comparison of convenience sampling and purposive sampling. AJTAS. 2016;5(1):1–4.
30. Race K, Hotch D, Parker T. Rehabilitation program evaluation: use of focus groups to empower clients. Eval Rev. 1994;18(16):730–40.
31. Morgan D. Focus groups as qualitative research. Planning and Research Design for Focus Groups. Research Methods: London. Sage; 1997.
32. Kaibante A. The Ugandan Diaspora in Britain and their quest for cultural expression within the church of England. J Angl Stud. 2009;7(1):79–86.
33. Brooks J, King N, Wearden A. Couple's experiences of interacting with outside others in chronic fatigue syndrome: a qualitative study. Chronic Illn. 2014;10:5–17.
34. King N. Doing template analysis. In: Symon G, Cassell C, editors. Qualitative organizational research. London: Sage; 2012. p. 426–50.
35. Etheridge J, Slade P. "Nothing's actually happened to me". The experiences of fathers who found childbirth traumatic. BMC Pregnancy Childbirth. 2017;17:80.
36. Okitika T, Barnabas R, Tessa Rue M, Weisman J, Harris N, Orenstein W, et al. Polio eradication game may increase public interest in Global Health. Games Health J. 2015;4(3):195.
37. Burghardt K, Bowman M, Hibino M, Opong-Owusu B, Pokora T, Reeves K, et al. Using educational games to promote the seeking of a pharmacist and to teach key medication use messages: results from an inner city health party. Res Social Adm Pharm. 2013;9:542–52.
38. Smith P, Morrow R, Ross D. Field trials of health interventions: a tool box. 3rd ed. OUP Oxford: Oxford; 2015.

4.2 Reflections on the pilot study in London

It could be argued that the pilot study, held in London (a western society), had men whose behaviour was different from participants in rural Uganda; these men having been exposed to new cultures and ways of life in the United Kingdom. Informal observations, written as field notes at the time of the study, highlight that the Ugandan men living in London maintained close contact with rural Uganda and the ways of life, even whilst staying in a different country. For instance, the men and their families spoke Luganda, ate Ugandan foods and attended religious gatherings/socialised with other Ugandans. Gender norms still manifested in men engaging in paid work, whilst women undertook paid work in addition to the care-giving roles/cooking and nurturing of children at home. As highlighted in the published paper, the *Whose Shoes?* board game was an eye-opener to the participants in the study as observed from their immediate actions/behaviour after the game, which included helping with children and adopting more caring attitudes towards their wives. Children born to the participants in the London study appeared to have embraced the way of life in Britain having been exposed through education and friends/social interactions.

Literature on migrant integration in foreign countries alludes to first generation migrants (persons born outside the country to non-host parents) and second generation migrants (children born in the host country to one or more immigrant parents or those who arrived before primary-school age) (Waite and Cook 2011). A study conducted among African communities living in the UK showed that first generation migrants had strong attachments/cultural identities with countries of origin and /or adopted specific aspects of the British way of life as a mechanism to survive in the host country (Waite and Cook 2011). This same study observed that the children born to Africans in the diaspora appeared to identify with/behave in mannerisms similar to the host country compared to their parents (Waite and Cook 2011). The next chapter discusses the research methods and processes used in the thesis.

Chapter 5 Methodology & methods

5.1 Introduction

Chapter five describes the methodology, and the chosen research paradigm (pragmatism) and theoretical underpinnings in the thesis. This thesis uses a mixed-methods design described in Section 5.2.2. Mixed-methods research refers to a study design in which the researcher collects, analyses and mixes both quantitative and qualitative data in one single study (Johnson et al. 2007). Mixed methods research was chosen because of its abiliy to harness the strengths and counterbalance the weaknesses of one approach (Tariq and Woodman 2010). For instance, quantitative research is associated with a belief that reality can be measured and observed objectively, creating room for generalisations but less suited in explaining social or cultural phenomena (Tariq and Woodman 2010). Additionally, mixed methods research was chosen to address two distinct aspects of a research question that called for the use of qualitative and quantitative methods in the same study (Tariq and Woodman 2010). This chapter also discusses research processes and concludes with ethical considerations and confidentiality.

5.2 Research paradigm

5.2.1 Pragmatism

A paradigm refers to the philosophical assumptions or underlying beliefs that guide the actions and shapes the researcher`s worldview (Lincoln et al. 2011; Kaushik and Walsh 2019). It is a belief system that guides researchers to choose relevant questions in their field and the appropriate methods to answer those questions (Kuhn 1996). Therefore, research paradigms are helpful in assessing whether proposed research projects are worth undertaking and or whether the proposed methods are likely to produce anticipated outcomes (Morgan et al. 2017). The key five research philosophies are: Positivism, Critical Realism, Interpretivism, Postmodernism and Pragmatism. Each philosophy will be briefly

outlined in a paragraph apart from the one appropriate for this mixed-methods study, namely Pragmatism which will be explored in greater detail.

Positivism relates to the philosophical stance of the natural sciences with a focus on describing causal relationships and quantifiable field notess/factual data. Positivism assumes that there is a real social world out there, i.e. that such world exists objectively and therefore the researcher should be able to measure it objectively and should therefore be measured using objective methods. Critical Realism, on the other hand, focuses on explaining reality based on underlying structures/observable events. Thus, Critical Realism takes the form of in-depth analysis of social and organisational structures and how they have changed over time (Saunders et al. 2009). Interpretivism seeks to create meanings derived from in-depth understandings / interpretations of social context as Interpretivists believe language, culture and history shape interpretations and lived experiences of the social world. This is done through exploring lived experiences, cultural artefacts and social interactions (Saunders et al. 2009). Postmodernism focuses on power relations and challenging dominant views. It seeks to challenge "organisational concepts and theories as well as demonstrate what perspectives and realities they exclude or leave silent. This is done by `deconstructing` social realities in search for instabilities within their widely accepted truths and for what has not been discussed such as abscences and silences created in the shadow of such truths" (Saunders et al. 2009). The research philosophies described were not able to sufficiently answer the applied research questions appropriately in this thesis.

The underlying philosophy for this mixed-methods PhD is Pragmatism. According to Morgan (2017), pragmatism as a research paradigm/philosophy originated from the United States of America (USA) in the nineteenth century. Pragmatism asserts that human knowledge is socially constructed (view of reality) and based on experiences (Morgan et al. 2017). The epistemology view (i.e. what constitutes acceptable knowledge) for pragmatism is based on deriving practical meaning of knowledge in specific contexts geared towards successful action (Saunders et al.

2009). In Pragmatism the meaning of the generated knowledge is specific to its contexts, i.e. it is often applied knowledge. Morgan (2017) further states that within pragmatism, all experience begins with a problem to be addressed or a question (which informs the purpose of the research) followed by a set of procedures that could address the issue (methods). A pragmatic approach to inquiry initiates a process of planning which starts with a research question followed by a research design/ method in a given study (Morgan et al. 2017). It also asserts that there are several ways of interpreting the world/undertaking research and that no single point of view may be sufficient to interpret reality (Saunders et al. 2009). According to Creswell (2003), Pragmatism allows for the flexibility of utilising multiple methods and assumptions appropriate for a study. In this study, as it should in all good studies, the research questions informed the choice of research methods (mixed methods) used to collect data.

5.2.2 Study design

Mixed methods

A mixed-methods design employing quantitative (Section 5.6) and qualitative (Section 5.7) tools was used to collect data for this doctoral study. By collecting both qualitative and quantitative data, the researcher sought to draw on the strengths of both methods to elicit a deeper understanding of the overaching research questions. According to Johnson and Onwuegbuzie (2004), a mixed-methods research design accords a researcher the best chance of answering specific research questions. This study design provided the researcher with an appropriate method to address two broad research questions on: (1) perceptions regarding educational board games and male involvement which were qualitative in nature; and (2) assessing knowledge before and after engaging in an educational board game (quantitative in nature). The study was predominantly qualitative with a quantitative component as guided by the research questions (Tariq and Woodman 2010). Quantitative and qualitative data were collected concurrently with analysis done independently and mixed/integrated in the overall

interpretation of findings as recommended by Fiorini et al. (2016). This is reported in Chapter Eight of the thesis.

5.3 Development of data collection tools

Table 5-1 Development of data collection tools

Objective	**Sampling**	**Data collection approach**	**Participants / sample**
To conduct a scoping review on male involvement in maternal health in LMICS	N/A	Scoping review	Thirty-four papers/studies
To conduct a literature review on the use of board games with non-health professionals	N/A	Systematic review	Eleven papers/studies
To conduct a pilot study on the use of board games with men in maternal health	Purposive sampling	Qualitative (focus group discussion)	Four men
To establish the feasibility of using board games as an educational strategy with men in maternal health in Uganda • To assess knowledge before and after engaging with *Whose Shoes?* board game • To explore perceptions regarding educational board games and male involvement	Purposive sampling	Mixed methods Researcher administered questionaires Focus group discussions	Couples (50 men and 50 women) 50 Men **Men (three FGD) – overall 50 men** **Women (three FGD) – overall 50 men**

5.3.1 Pilot study

Two pilot studies were conducted in two separate countries: (1) a London pilot study to pre-test qualitative research tools and board game messages reported in Chapter Four; and (2) pre-testing of questionnaires with students at Africa Renewal University in Uganda. This chapter reports the second of these that was designed to ascertain the appropriateness of the questions, ordering of the questions and whether the instructions were clear/understood. Regmi et al. (2016) identify that studies should pre-test instruments in order to "ensure the adequancy of the questions, ordering of the questions, instructions are clear and adequate, skipping patterns and data compatibility/transfer issues" (p.642).

The pilot involved twelve male students pursuing undergraduate studies in Community Health at Africa Renewal University in Uganda aged between 20-30 years. The researcher recruited students through information leaflets placed on various student noticeboards around the university. It was emphasised that participation was voluntary, and it was a pre-test study meant to obtain feedback on study tools prior to being rolled out in the community. The students played the adapted *Whose Shoes?* board game guided by the PhD researcher and filled in a questionnaire after the game. Participants gave feedback on time taken to fill the questionnaire, unclear/ambiguous questions. Testing questions is an important part of the process of study design (van Teijlingen and Hundley 2001). Consequently, this led to removing some questions that were deemed irrelevant, re-phrasing and re-ordering of the sequence of questions in the final questionnaire.

5.4 Study area for the main study in Uganda

Mityana district is located in central region of Uganda, originally curved out of Mubende district and has an estimated population of 328,964 with the majority living in rural areas and dependent on farming and or informal trade as a source of livelihood (UBOS 2016). The literacy rate for central region is 77% with males having a higher literacy rate (80%) than females (74%) (UBOS 2017). The study was conducted in Bulera Sub County in Mityana district (Figure 5.1).

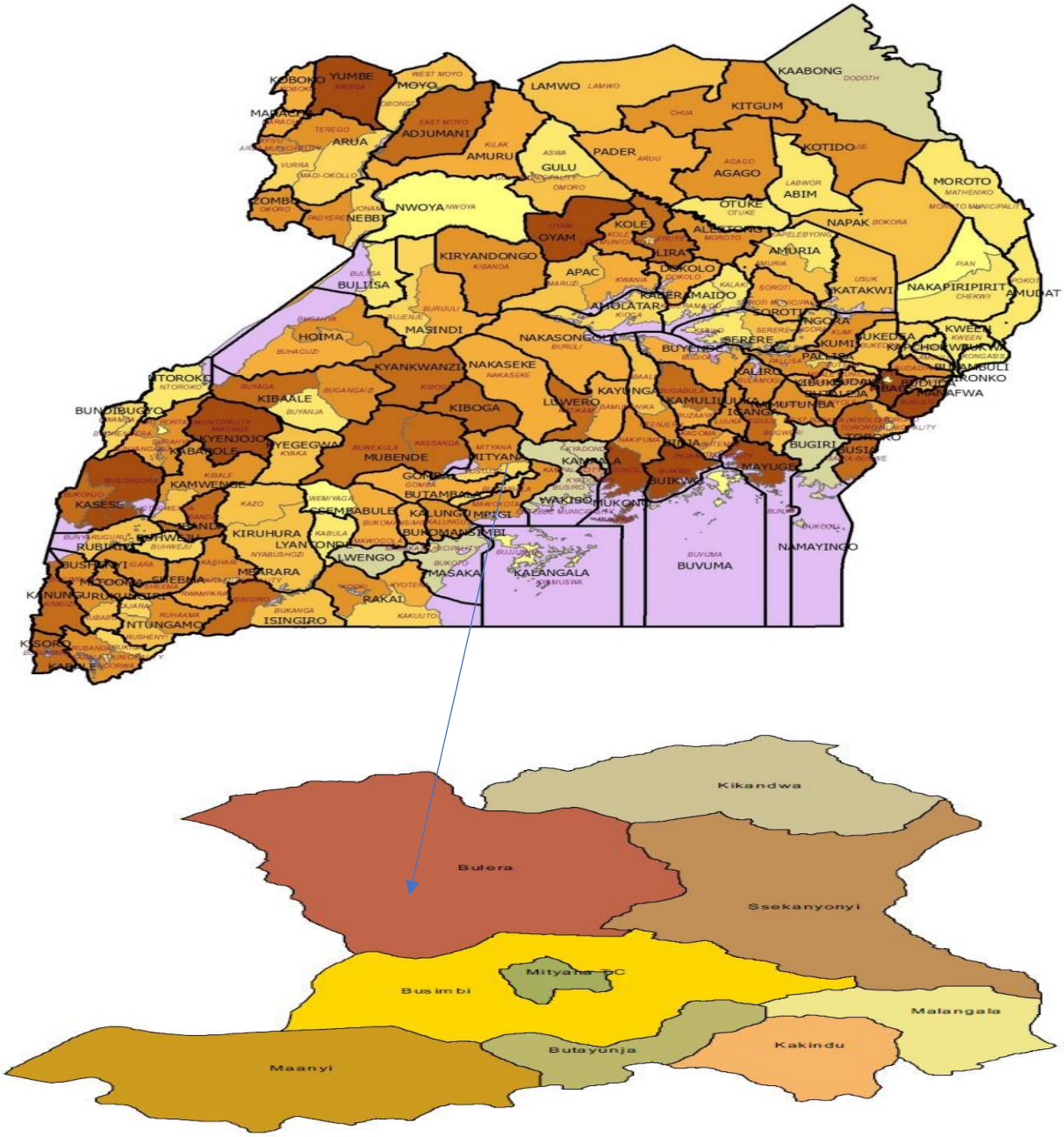


Figure 5-1 Map of Uganda and Mityana district, adapted from UBOS (2016)

Mityana district/Bulera was chosen as the most appropriate study site for three major reasons:

1) Poor maternal health indicators; only about 40% pregnant women give birth in a health facility with approximately 35% pregnant women attending the recommended fourth antenatal care (ANC) visit and only 58% HIV positive mothers attend elimination of mother to child transmission of HIV (eMTCT) programme (MOH 2009). These figures are below the national targets (90% health facility delivery, 80% fourth ANC visit and 75% eMTCT coverage) recommended by Ministry of Health (MOH 2015b-a). Antenatal care and health facility delivery present opportunities to detect and address adverse pregnancy outcomes along the continuum of care provided to women to enhance safe motherhood (UBOS 2012).

2) A district/village with limited or no grass-root behavioural change campaigns on safe motherhood to avoid contamination. Since this study has an intervention component, considerable attention was placed to identify a location with very limited behaviour change strategies in order to minimise influence from similar initiatives. This decision was based on the number of development partners (non-governmental organisations) operating in a district. In Uganda, a majority of health promotion programmes including maternal health are run by non-governmental organisations working in partnership with government under the leadership of the district health management team (MOH 2015a-b). According to an assessment report on village health teams in Uganda, Mityana district has a limited presence of non-government organisations operating in maternal health services (MOH 2015a-b)

3) Logistical purposes with regards to accessibility and financial resources. Mityana district is situated in a central location easily accessible by road transport with a rural and urban population characteristic of most districts in Uganda (UBOS 2016). This research is conducted as part of a doctoral training programme and with limited time and financial budget to conduct research in the field. Findings

(Sections 4.5-4.6) from the feasibility study will be used to inform a larger future trial into the use of educational games in maternity services in Uganda.

5.5 Recruitment procedure

Pregnant women and their husbands/partners were recruited through a health facility (Bulera health centre III) and the community it served. A health facility was used to identify pregnant women accessing health services and or husbands/partners in attendance. Additionally, men/husbands were recruited through home visits by a village health team (VHT) member with prior consent from pregnant women. Recruitment of participants took place on Thursdays which was the designated day of the week for routine antenatal care services at Bulera health centre III. The researcher was granted the opportunity to introduce herself and speak about the study during group antenatal care sessions at the health facility. All women and men who expressed interest in the study met with the researcher after receiving health services and more information was provided accordingly. It was emphasised that participation was voluntary, and participants given the opportunity to ask questions. A participant information sheet (Appendix 3.3 and 3.4) was given to women and men who could read/write to consider participation one week prior to the study. For those that could not read/write, the researcher explained verbatim information in the participant information sheet and were given the form in case they wanted someone else to read it to them at home. It is common practice for those who are unable to read/write in rural communities in Uganda to find someone they trust to read or explain verbally what is written. Recruitment was stopped once the study had attained the required sample size (see Section 5.5 below). Participants were given the option of a written consent form to either sign for those who could read/write or use a thumb print before the commencement of the study. The study was conducted in a community hall next to the health facility due to the centrality of the location which was accessible for all participants and the PhD researcher. To increase participation rates, participants were reminded about the study through phone calls and or home visits a day prior to the study.

Inclusion and exclusion criteria

Pregnant women and their husbands/partners (couples) resident in Mityana district at the time of the study. Additionaly, participants had to be at least 18 years or above to be considered eligible based on the legal age for adults in Uganda. Teenage mothers and non-pregnant women were excluded from the study.

Study procedure

Questionnaires were administered to men prior to the *Whose Shoes*? board game (pre-intervention) and thereafter invited to play the game for one hour (Appendix 3.5).

Photo 5-1 Men participating in *Whose Shoes?* board game in Uganda

A focus group discussion was held after the game which lasted for about one hour (see Section 5.7.1). These focus group discussions with pregnant women were conducted by the PhD researcher in Luganda (i.e. the local language). These focus group discussions were recorded with the participants' permission.

Photo 5-2 Focus group discussion with pregnant women in Uganda

A second follow-up questionnaire for men (post-intervention) was administered one week after playing the *Whose Shoes*? board game (Appendix 3.6). A door-to-door (home visits) and phone call strategy was used to remind men about the post-test intervention and or schedule appropriate time to administer questionnaires (Tol et al. 2018). This strategy was used to minimise loss to follow up after the pre-intervention study.

5.6 Quantitative study in Uganda

5.6.1 Population and sample

Fifty-two men (husbands of pregnant women) were recruited in the study. Two men whose partners gave birth during the study were excluded. Hence fifty men took part in the study. The sample size for this study was arrived at through reviewing literature on feasibility/pilot studies which recommend a sample size between 24 and 50 participants (Browne 1995; Lancaster et al. 2004; Julious 2005; Sim and Lewis 2012). Research highlights the need for pilot studies to be conducted on a small scale and test out all study procedures for instance selection of study participants, duration of data collection, quality control and data processing before a full-scale study is undertaken (van Teijilingen and Hundley 2001; Smith et al. 2015; Hooper 2017).

5.6.2 Questionnaires and data analysis

Researcher administered questionnaires were used in this study to enable participants who were literate and illiterate to take part in the study (Brindle et al. 2005). Completed questionnaires were entered into EPI DATA software and exported into STATA version 13 for analysis. A descriptive analysis was conducted producing quantitative findings which are presented through visual displays such as tables and graphs (Chapter Six).

5.6.3 Quality control: validity and reliability

Quality control measures undertaken to ensure validity and reliability included adapting a validated questionnaire from the Uganda demographic and health survey 2016 and pilot testing of the questionnaire. A male facilitator (for the board game) was trained by the student researcher (AL) prior to data collection in the community. A male facilitator was used due to cultural reasons in the study setting and to enable men to freely express themselves without bias of the researcher`s gender (female). Data checking and cleaning was done in the field. The researcher read through the filled in questionnaires to check for accuracy,

completeness and address any inconsistencies such as missing data/outliers whilst still in the field. The researcher entered completed questionaires (single entry) into EPI DATA Software. An experienced statistician double-checked all entries and questionaires before files were exported into STATA version 13 for analysis. A trail of the data processes such as data checking and any changes made during data collection were noted for record purposes (Appendix 3.11).

5.7 Qualitative study in Uganda

5.7.1 Focus group discussions

Focus groups refer to guided discussions with a group of people with similar characteristics (van Teijlingen and Forrest 2004; van Teijlingen and Pitchforth 2006). According to van Teijlingen (2004), focus groups stimulate discussions and ideas among group members and allow for probing by the researcher on an issue of interest/clarity purposes. Focus group discussions provided a platform to discuss a relatively sensitive topic (male involvement) and generate ideas/discussions around the subject (van Teijlingen and Pitchforth 2006). A pilot study for the men`s focus group discussion was held in London, as discussed in Chapter Four of the thesis. For the women`s focus group discussion, the first FGD held with women served as a pilot and minor changes were made (ordering of questions) for subsequent focus groups. Three focus group discussions were held with a total of 50 pregnant women aged between 18-39 years. The women were divided into age categories: younger women (18-29 years); older women (30-41 years) and a mixed group (24-39 years). Three focus group discussions were also held with male spouses of the pregnant women (50 men) aged between 20-55 years: younger men (20-32 years); older men (33-55 years) and a mixed group (29-45 years). Discussions were held separately with each group on different days. The separation of participants by gender and age was to allow participants to freely express themselves (Ladur et al. 2015).

A semi-structured FGD guide (Appendix 3.7 and 3.8) was used to elicit responses on research questions regarding male involvement and perceptions on board

games (van Teijlingen et al. 2011a). The discussions were held in the local language (Luganda) and lasted for one hour. Participants were requested for permission to audio record the discussions prior to the start of the interview. Six focus group discussions were considered adequate after obtaining saturation. Field notes were made (prior to meeting participants, during and after engaging with participants) by the researcher whilst in the community. The fieldnotes were triangulated with data from focus group discussions and questionnaires. This was done to gain a better understanding of contextual factors and to check for non-verbal expressions of feelings and relationships amongst participants (Mack et al. 2011).

5.7.2 Data analysis

Preparation of data for analysis was carried out through a rigourous process of transcription, data reduction (coding) and theme development (Jugder 2016). Qualitative data was analysed manually using inductive thematic analysis (Braun and Clarke 2006; van Teijlingen et al. 2011a). Thematic analysis refers to the process of "identifying, analysing and reporting patterns/themes within qualitative data" (Braun and Clarke 2006, p.6). This study used the six-step criteria for thematic analysis by Braun and Clarke (2006) described below.

Step 1: Familiarising yourself with your data

The researcher familiarised herself with the data through transcription and translation of the six focus group discussions (women and men). All audio recordings were directly transcribed into English, verbatim by the researcher. Translation and transcription of audio recordings was carried out simultaneously after each focus group discussion was held (Jugder 2016). This enabled the researcher to understand what was coming out of the data, address ambiguities/clarifications and whether the data collected answered the research questions. Each recording was listened to multiple times, taking note of the general conversations/discussions in addition to listening to individual/group responses, sounds and interactions among participants. Transcripts were generated from the raw data and printed out in hard copies, read, re-read and

initial notes (Appendix 3.10) made on the transcripts to further understand meanings from the data. All hard copy transcripts were further checked against the audio recordings and missing phrases added to the typed transcripts by the researcher. A bilingual researcher with experience in qualitative research listened to and read some of the transcripts to ensure meaning/phrases were captured appropriately and as a form of quality check. The process of reading transcripts involved quick reading to familiarise myself with the data and then re-reading multiple times for coding purposes/identify themes and discussion with supervisors (Keenan and van Teijlingen 2004b)

Step 2: Generating initial codes

A code refers to "the most basic segment or element of raw data that can be assessed in a meaningful way regarding the phenomenon. Codes identify a feature of the data (semantic content or latent) that appears interesting to the analyst" (Braun and Clarke 2006, p.18). Coding can be done manually or through a software programme (Braun and Clarke 2006; van Teijlingen et al. 2011a). Codes were manually derived from the data using highlighter pens and writing short notes on paragraphs/transcripts (Keenan and van Teijlingen 2004a). Data extracts were earmarked with a pen to demonstrate a code from individual transcripts and collated together within each code in a word file (Appendix 3.10). Codes/themes were developed from the dataset to obtain insight on a complex issue (male involvement in maternal health) and explore new phenomena that has not been studied before (acceptability of men after engaging with *Whose Shoes?* board game) (Keenan and van Teijlingen 2004a; van Teijlingen et al. 2011a).

Step 3: Searching for themes

This stage of the analysis involved the sorting of the different codes into potential themes and collating all relevant coded data extracts within the identified themes. Codes that did not fit in any of the themes where put aside and later discarded. This study utilised a technique proposed by Attride-Stirling 2001 to sort the different codes into themes known as thematic networks. Thematic network is an

illustrative technique used to structure and depict themes in thematic analysis (Attride-Stirling 2001). The themes are organised from the “lowest-order theme (basic theme) derived from textual data, to a middle-order theme (organising theme) which are clusters of basic themes and finally to a super-ordinate theme (global theme) which is the overarching theme in the analysis” (Attride-Stirling 2001, pp.4-5). A thematic network is presented in Chapter Seven (Figure 7.1).

Step 4: Reviewing themes

Themes were reviewed and refined at two levels: (1) extracts for each theme and basic theme were re-read in lieu of coherent patterns; and (2) individual themes were considered in relation to the data set and research questions. Some extracts that did not fit with the themes were moved and others discarded from the analysis. Additional data that had been missed in earlier coding stages was included within the themes.

Step 5: Defining and naming themes

At this stage, themes were structured according to the aspects of the data they portrayed and the purposes for their inclusion. See details in Figure 7.1.

Step 6: Producing the report

The final phase of the analysis involved the write-up of the data providing a concise, coherent and logical account of the story within and across themes. Extracts from the transcripts are included to substantiate basic themes and interpretations made study context and broader society factors. The findings are presented in chapter seven of the thesis.

5.7.3 Quality control: qualitative notions of trustworthiness

Guba (1981) proposes four-pronged criteria to address the trustworthiness of qualitative research; 1) credibility; 2) transferability; 3) dependability; and 4) confirmability. The notions of trustworthiness used in this study are explained below. Shenton (2004) observes that credibility refers to the adoption of appropriate/recognised research methods, familiarity with culture of participants, probing and triangulation. This study used universally acceptable qualitative methods of data gathering such as focus group discussions described in Section 5.7.1 and field notes (van Teijlingen et al. 2011a). Early familiarity with culture of participants to establish a relationship of trust (Shenton 2004) was carried out during pre-visits to the study site whilst obtaining approvals at the district/health facility levels (Section 5.9) and recruitment processes (Section 5.5). In addition, the researcher is familiar with the local context of rural communities in Central Uganda where the study was conducted (see also Section 1.7). Triangulation through the use of different data collection methods (researcher administered questionaires, focus group discussion and field notes), participants (men and women), probing to seek clarity on participant responses were undertaken as well as debriefing sessions between the researcher (AL) and her male research assistant/facilitater. Focus group discussions were conducted by a male research assistant (men`s groups) and a female researcher (women`s groups) to allow participants to express themselves freely. Confidentiality was emphasised throughout the study discussed in Section 5.9. Transferability was ascertained in the study through provision of background data/contextual information (Section 5.4 and Section 1.2). Dependability includes the description of the study processes, design and methods in order to provide readers with an opportunity to assess effectiveness/repeat similar study (Shenton 2004). A description of the study aim, design (Section 5.2.2), context/area (Section 5.4), recruitment (Section 5.5), data collection, analysis (Section 5.7) and confidentiality (Section 5.9) is provided accordingly. Confirmability is concerned with capturing participant voices/experiences and minimising researcher bias (Shenton 2004). Data analysis followed an iterative process proposed by Braun and Clarke (2006),

described in Section 5.7.2. In addition, random transcripts were read and coded independently by supervisors as a form of quality check/minimise bias. Findings provide a distinction between participant voices (italicised extracts) and researcher explanations (Chapter 7).

5.8 Bringing it altogether: The mixing of methods in this thesis

Johnson and Onwuegbuzie (2004) state that for a study to be considered as `mixed-methods` having used quantitative and qualitative research approaches, there must be integration/mixing of findings at some point in the study. These authors propose options such as a qualitative phase conducted to inform a quantitative phase sequentially or if the quantitative and qualitative phases are undertaken concurrently, the findings can be integrated during the discussion/interpretation of the findings (Johnson and Onwuegbuzie 2004). In this study, integration of quantitative and qualitative findings was carried out and will be reported in the discussion (Chapter Eight) of the thesis. Quantitative and qualitative findings were compared and contrasted to provide a greater understanding of issues in the study (Fiorini et al. 2016).

5.9 Ethical considerations and confidentiality

The feasibility study was approved by Bournemouth University`s Research Ethics committee (Reference ID: 16334). Whilst in Uganda, permission to conduct an intervention and study was obtained at various levels (van Teijlingen and Simkhada 2012; Creswell 2014): (1) at central level, ethical approval for the study was obtained from Makerere University School of Public Health Ethics Committee (HDREC: 566); (2) at district level, permission was obtained from the District Health Officer (DHO) for Mityana district and Bulera Health Centre III; whilst (3) at community level, informed consent was obtained from pregnant women and men (husbands). Written informed consent will be obtained from each of the participants able to read/write. This was done one week prior to the intervention, focus group and interviews in Luganda to give participants time to consider their involvement in the study. Emphasis was placed on voluntary participation and respondents were told that they could withdraw from the study at any stage up to

the point when data are processed without any consequences (Creswell 2014). Permission was obtained from participants to record group discussions and to quote them during the reporting and disseminating phase of the study, without revealing their identity (Rapley 2011). Participants were duly informed that though the research team would do everything possible to guarantee confidentiality, they could not prevent information leakage by other participants in the discussion groups as these would be carried out within a group setting (Sim and Waterfield 2019). Contact details of Makerere University ethics committee were given to participants for queries/complaints. Refreshments were given to study participants at the end of each session and a transport refund where necessary. Through an educational board game, the research intervention in this thesis, men acquired knowledge on pregnancy and childbirth. Raw data (questionnaires, field notes and transcripts) were entered into a password protected computer accessible only by the researcher. Raw data was stored in a locked cabinet for about two years and securely destroyed with confidential waste at Africa Renewal University. In the next chapter (Six), the quantitative findings from the feasibility study in Uganda are presented.

Chapter 6 Quantitative results

6.1 Socio-demographic characteristics of participants in the study

A total of 50 men participated in the study. Their socio-demographic characteristics are presented in Table 6.1 (men). There were differences in the men`s socio-demographic information between the pre and post intervention responses, which can be attributed to fear of arrest/ mistrust of the researcher at the beginning of the study. Data collection coincided with a government crackdown on men in the study site for political reasons focusing partly on reducing the incidence of teenage pregnancies. This unexpected barrier took some efforts to overcome. Male participants were not comfortable providing information (socio-demographic) that they thought would be used to track them on paper despite re-assurances by the researcher. This mistrust changed after playing the game and the men participating in a focus group discussion. They provided the correct socio-demographic information in the post-intervention.

Table 6-1 Socio-demographic characteristics of the men in the study

Characteristics	Pre intervention	Post intervention
	n=50 (%)	n=50 (%)
Age - categories		
20-25	6 (12)	13 (26)
26-31	21 (42)	19 (38)
32-37	7 (14)	4 (8)
38-43	9 (18)	7 (14)
44-49	4 (8)	3 (6)
50-55	3 (6)	4 (8)
Educational level		
None	8 (16)	5 (10)
Primary	14 (28)	18 (36)
Secondary	27 (54)	25 (50)
Tertiary	1 (2)	2 (4)
Occupation		
Farmer	20 (40)	28 (56)
Employed	17 (34)	13 (26)
Unemployed	13 (26)	9 (18)

6.2 Outcome variables (Knowledge on maternal health aspects)

There was a significant shift in knowledge following the intervention (Table 6.3)

Men who participated in the game were more likely to be able to mention three danger signs during pregnancy and three complications that could arise during delivery. There was an increase in the number of men that reported the planned place of delivery for their pregnant wife was a health facility, but this was not statistically significant. Playing the game influenced who decides where a pregnant wife gives birth with significantly more men reporting that it was a joint decision.

Table 6-2 Knowledge on maternal health aspects

Knowledge on maternal health aspects	**Pre-intervention n=50 (%)**	**Post-intervention n=50 (%)**	**P value**
Able to identify three danger signs during pregnancy	34 (68)	47 (94)	0.001
Able to mention three complications during delivery	28 (56)	41 (82)	0.005
Planned place of delivery for pregnant wife			
Home	8 (16)	4 (8)	0.218
Health Facility	42 (84)	46 (92)	
Who decides where a pregnant wife gives birth			
Husband only	16 (32)	5 (10)	0.007
Husband and wife	34 (68)	45 (90)	

These changes reported in Table 5.9-2 are now discussed in more detail below.

Ability to identify three danger signs during pregnancy

The bar graph (Figure 6.1) shows that there was a 4% (2/50) decrease in knowledge on the ability to identify at least three danger signs during pregnancy and 70% (35/50) no change in knowledge, whilst only a quarter of participants showed an improved score.

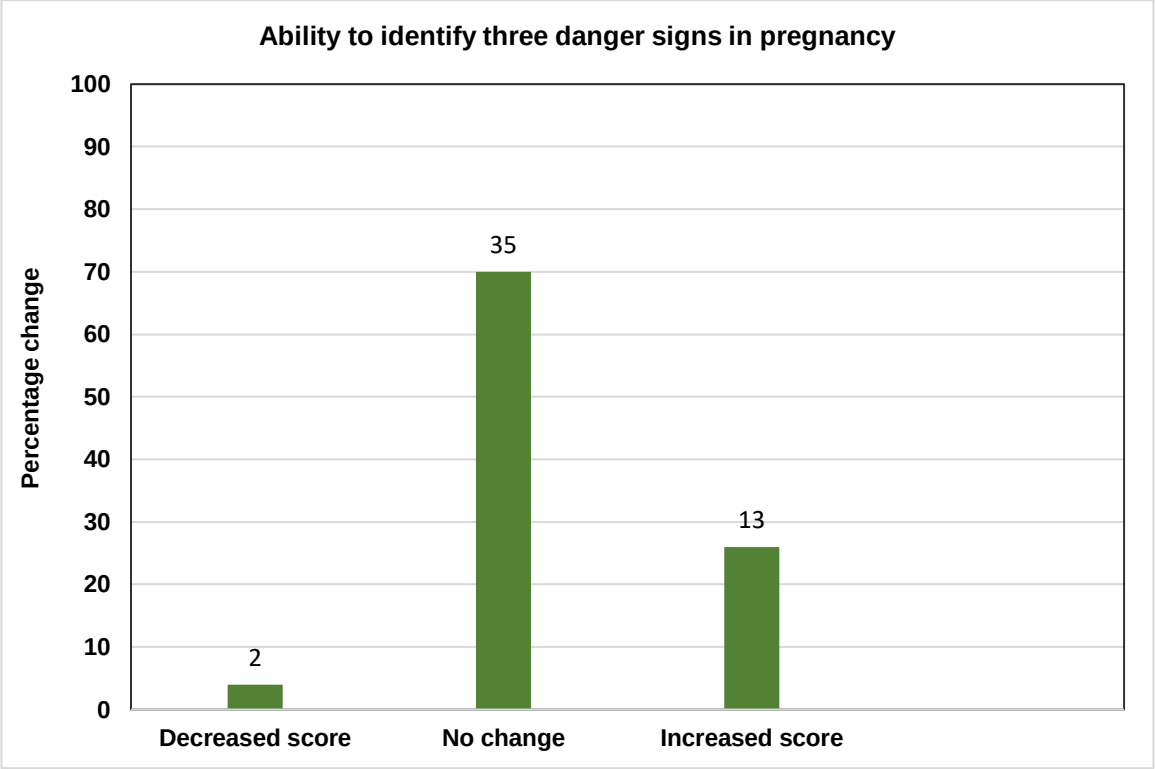


Figure 6-1 Ability to identify three danger signs during pregnancy

Ability to identify three complications during delivery

Figure 6-2 shows that there was a 26% (13/50) increase in knowledge regarding participants' ability to identify at least three complications during delivery while 8% (4/50) reported a decrease in knowledge on complications during delivery and two-thirds showed no change in knowledge.

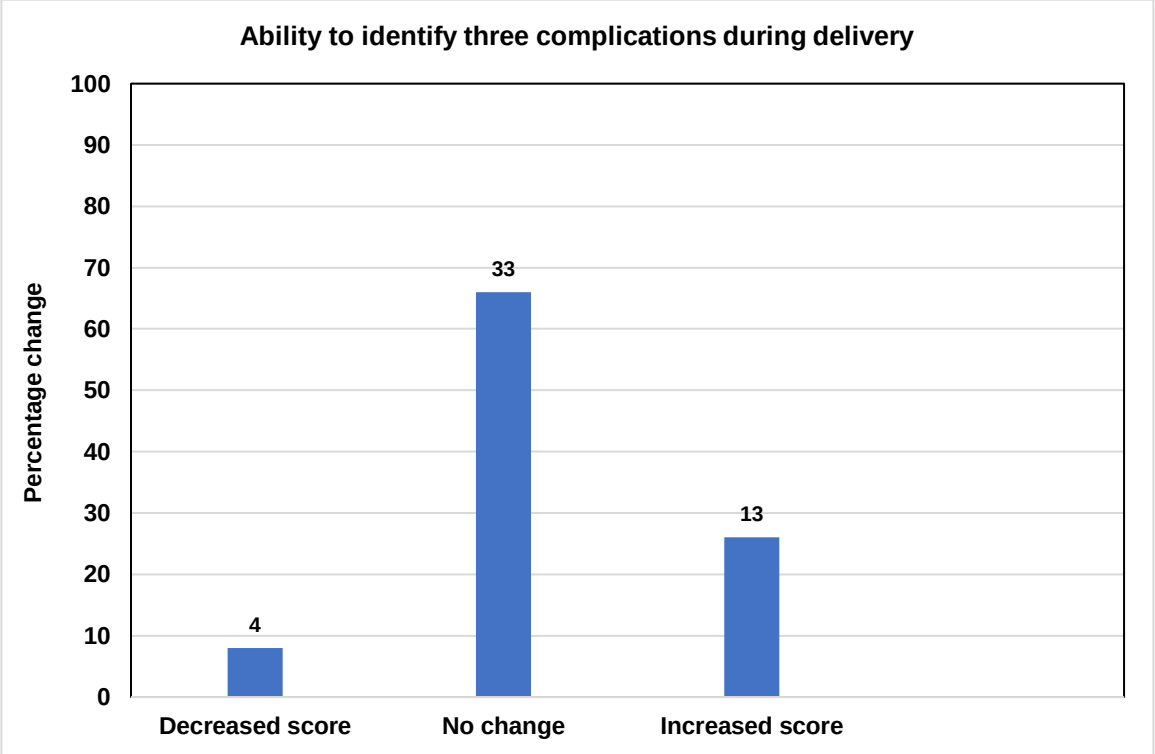


Figure 6-2 Ability to identify three complications during delivery

Increased likelihood of facility birth

The next bar graph (Figure 6-3) shows an 8% (4/50) increase in likelihood of a facility birth and 86% (43/50) no change in decision regarding facility birth.

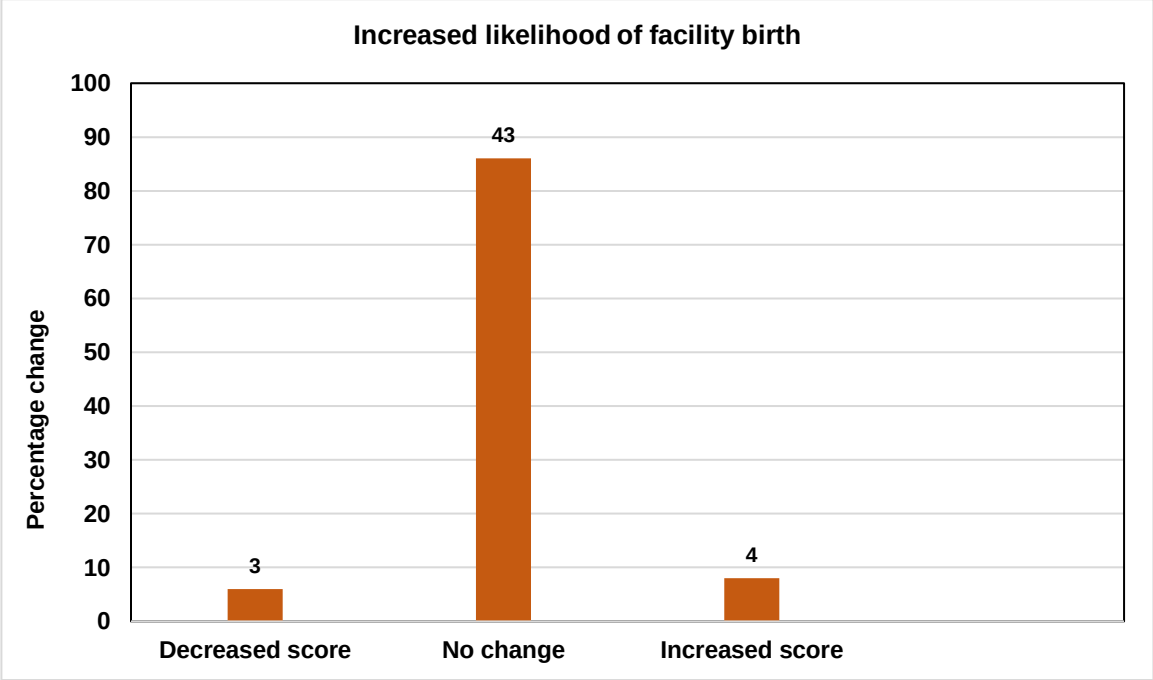


Figure 6-3 Increased likelihood of facility birth

Likelihood of woman being involved in decision making

The bar chart (Figure 6-4) shows a 22% (11/50) increase in likelihood of woman being involved in decision making regarding maternal health.

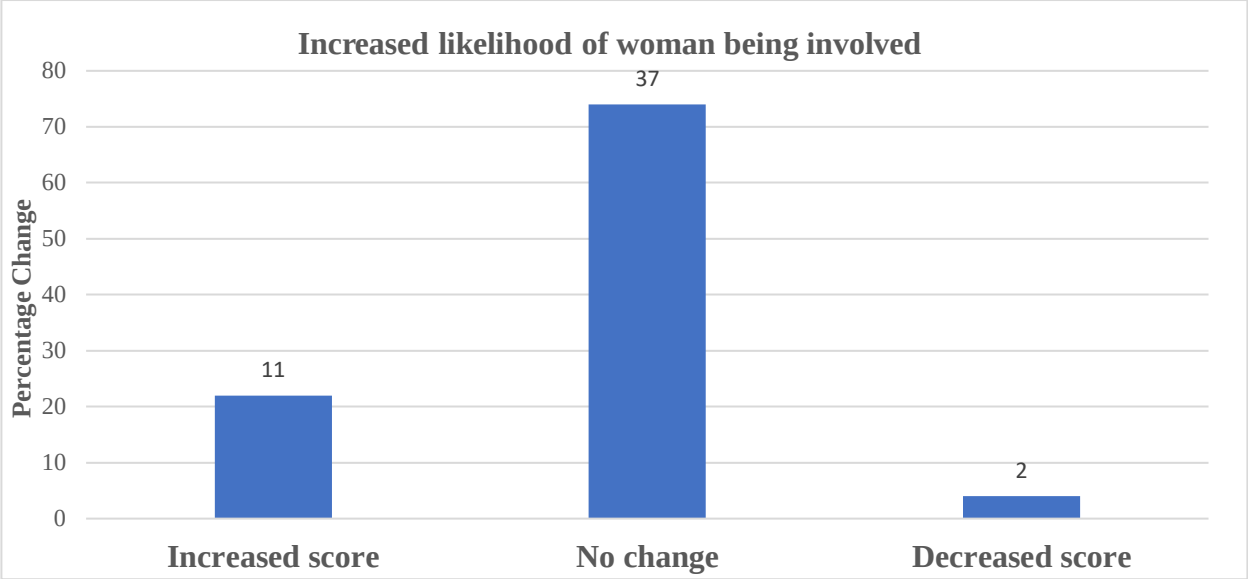


Figure 6-4 Increased likelihood of woman being involved

6.3 Outcome variables (pre-intervention)

Factors associated with the man's ability to identify at least 3 danger signs in pregnancy in the pre-intervention questionnaire were the man's roles in delivery preparation such as; arranging for transport, asking for family support and ensuring the wife was attended to by a trained health worker (Table 6-4).

Table 6-3 Ability to identify at least three danger signs in pregnancy

	Ability to identify at least 3 danger signs in pregnancy				**P-value[1]**
	Able to identify		Unable to identify		
	F (n=34)	%	F (n=16)	%	
Arrange for transport in case of emergency as a man's role in delivery preparation					
Yes	23	67.7	16	100	
No	11	32.3	0	0	0.01*
Ask for family support as a man's role in delivery preparation					
Yes	12	35.3	12	75	
No	22	64.7	4	25	0.02*
Ensure a wife is attended to by a trained health worker as a man's role in delivery preparation					
Yes	18	53	15	93.8	
No	16	47	1	6.2	0.004*

1. Fisher`s exact test was carried out on variables with cells with less than 5 responses.

Men who could identify three complications during delivery were more likely to accompany their wife for antenatal care, ensure the wife eats a balanced diet and arrange for someone to help with chores at home (Table 6.4).

Table 6-4 Ability to identify at least three complications during delivery

	Ability to identify at least 3 complications during delivery				**P-value[1]**
	Yes		No		
	F (n=28)	%	F (n=22)	%	
Accompany wife for ANC as a role during wife's pregnancy					
Yes	22	78.6	11	50	
No	6	21.4	11	50	0.042*
Ensure wife eats balanced diet as a man's role during wife's pregnancy					
Yes	22	78.6	8	36.4	
No	6	21.4	14	63.6	0.004*
Arrange for someone to help with house chores as a man's role during wife's pregnancy					
Yes	21	75.0	9	40.9	
No	7	25.0	13	59.1	0.021*

1. Fisher`s exact test was carried out on variables with cells with less than 5 responses.

Factors associated with planned place of delivery (Table 6-5) were man`s role in accompanying wife to health facility for antenatal care and delivery in the pre-intervention study (Table 6-6). Men who accompanied women to their antenatal care were more likely to say that the health facility was the planned place for birth.

Table 6-5 Planned place of delivery

	Planned place of delivery				**P-value[1]**
	Health facility		Home		
	F (n=42)	%	F (n=8)	%	
Accompany wife to health facility for delivery as a man's role in delivery preparation					
Yes	32	76.2	3	37.5	
No	10	23.8	5	62.5	0.04*
Ever accompanied wife for ANC					
Yes	33	78.6	3	37.5	
No	9	21.4	5	62.5	0.03*

1. Fisher`s exact test was carried out on variables with cells with less than 5 responses.

6.4 Outcome variables (post-intervention)

Factors associated with the ability to identify at least three danger signs in pregnancy (Table 6-6) in the post-intervention study were: the man's roles in delivery preparation such as identifying a health facility, ensuring wife is attended to by a trained health worker and accompanying wife to health facility.

Table 6-6 Ability to identify at least three danger signs in pregnancy

	Ability to identify at least 3 danger signs in pregnancy				**P-value[1]**
	Yes		No		
	F (n=47)	%	F (n=3)	%	
Identify a HF as a man's role in delivery preparation					
Yes	44	93.6	1	33.3	
No	3	6.4	2	66.7	0.023*
Ensure wife is attended to by a trained health worker					
Yes	44	93.6	1	33.3	
No	3	6.4	2	66.7	0.023*
Accompany wife to health facility as a role in delivery preparation					
Yes					
No	46	97.9	1	33.3	
	1	2.1	2	66.7	0.007*

1. Fisher`s exact test was carried out on variables with cells with less than 5 responses.

Factors associated with the ability to identify at least three complications during delivery (Table 6-8) in the post-intervention study were the man's roles in delivery preparation such as; arranging for transport in case of emergency, asking for family support and ensuring wife is attended to by a trained health worker.

Table 6-7 Ability to identify at least three complications during delivery

	Ability to identify at least 3 complications during delivery				**P-value[1]**
	Yes		No		
	F (n=41)	%	F (n=9)	%	
Arrange for transport in case of emergency					
Yes	40	97.6	6	66.7	
No	1	2.4	3	33.3	0.02*
Ask for family support					
Yes	38	92.7	4	44.4	
No	3	7.3	5	55.6	0.003*
Identify a health facility as a man's role					
Yes	39	95.1	6	66.7	
No	2	4.9	3	33.3	0.035*
Ensure wife is attended by a trained health worker					
Yes	39	95.1	6	66.7	0.035*
No	2	4.9	3	33.3	

1. Fisher`s exact test was carried out on variables with cells with less than 5 responses.

Factors associated planned place of delivery (Table 6-9) in the post-intervention study were; person in charge of decision making at home and identifying health facility as man`s role in delivery preparation.

Table 6-8 Planned place of delivery

	Planned place of delivery				**P-value[1]**
	Health facility		Home		
	F (n=46)	%	F (n=4)	%	
Person in charge of decision making in the home					
Husband	6	13	3	75	
Husband and wife	40	87	1	25	0.016*
Identify a health facility as a man's role					
Yes	43	93.5	2	50	
No	3	6.5	2	50	0.045*

1. Fisher`s exact test was carried out on variables with cells with less than 5 responses.

6.5 Chapter summary

This chapter has looked at the effect of *Whose Shoes?* board game on men`s knowledge regarding selected maternal health aspects (complications during pregnancy and childbirth, joint decision making and planned place of delivery). In the next chapter (Seven), qualitative findings are presented regarding perceptions on male involvement in maternal health and acceptability of Whose Shoes? board game.

Chapter 7 Qualitative findings

7.1 Introduction

Chapter 7 presents the qualitative fieldwork conducted in rural Uganda. The qualitative data was analysed using inductive thematic analysis criteria by Braun and Clarke (2006) discussed in detail in Section 5.7.2. Themes emerged from a process that involved 1) transcription and translation of audio recordings; 2) reading and re-reading of hard copy transcripts including making reflexive field notes; 3) some transcripts (three) were analysed by supervisors independently for quality control purposes; 4) preliminary themes were generated by AL and checked/discussed by supervisors; 5) preliminary themes were then combined and some re-named to become the final themes presented in this chapter. Themes are organised using a thematic framework that groups them into basic themes, organising themes and to a global theme (Figure 7.1 and Section 5.7.2). Finally, themes arising from the data are illustrated with extracts from the raw data (i.e. quotes) included under each basic theme.

The thematic network derived twenty-one basic themes, six organising themes and one global theme which are shown below in Figure 7.1.

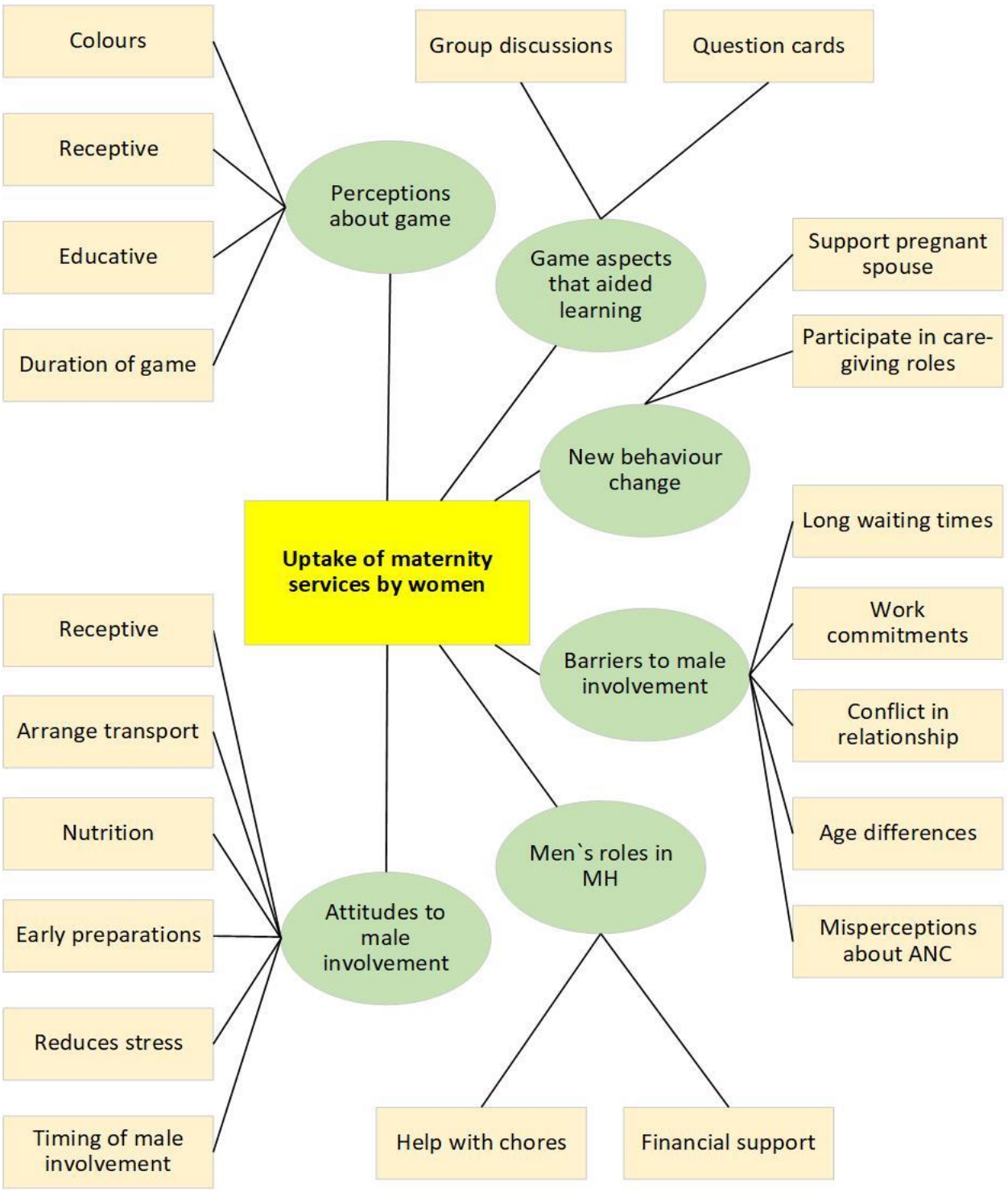


Figure 7-1 Qualitative analysis: resulting thematic network

7.2 Findings

Table 7-1 presents the socio-demographic characteristics of women in the study. almost half (50%) of all female participants in the study were in the age bracket 18-23 years, most women (62%) had atleast obtained primary education and were farmers (64%).

Table 7-1 Socio-demographic characteristics of women in the study

Characteristics	**n=50 (%)**
	Women
Age - categories	
18-23	25 (50)
24-29	17 (34)
30-35	5 (10)
36-41	3 (6)
Educational level	
None	7 (14)
Primary	31 (62)
Secondary	11 (22)
Tertiary	1 (2)
Occupation	
Farmer	32 (64)
Employed	8 (16)
Unemployed	10 (20)

7.3 Acceptability by men

The analysis of the qualitative data on men`s perceptions about the use of board games in maternity services revealed three organising themes; 1) perceptions about the game; 2) aspects of the game that facilitated learning; and 3) proposed new behaviour after playing the game and eight basic themes. Each of these organising themes and basic themes are highlighted in turn in a separate sub-section.

7.3.1 Perceptions about the game

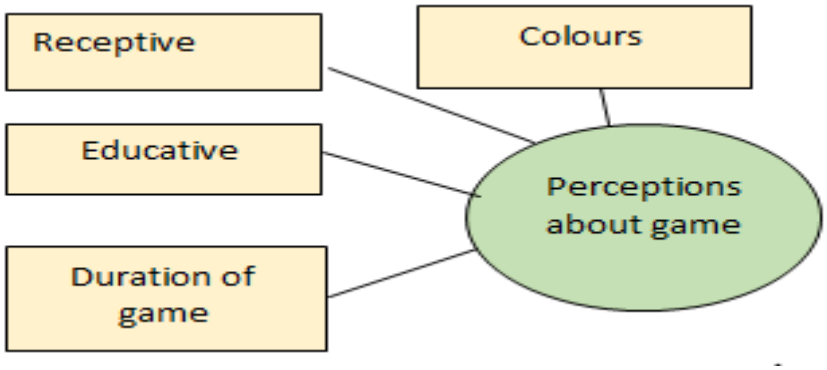


Figure 7-2 Factors associated with perceptions about the game

Overall, men in this study were receptive towards engaging with the *Whose Shoes?* board game. Participants' impressions before engaging with the game varied from curiosity to thinking that it was a children's game. However, despite *Whose Shoes?* being a new game in Uganda, participants were willing to try it and to play the game.

*When I came here and saw this [board game], I thought it was a children`s puzzle…but when we started playing the game, reading the cards…its really wonderful and the people who thought about this, really thought so well.* **P.1-Men`s FGD III**.

The display of little shoes, cards and a board game draped in bright colours (yellow, red, green and blue) may have contributed to the perception of a children`s game (see Chapter 4). It was the first-time local participants were introduced to an educational board game in this kind of setting. After engaging with the game, all participants had positive things to say about the game, for example:

For me, I have loved the game, it is wonderful and educative. This is a very good tool to sensitise men to be there for their wives. **P.2 –Men`s FGD-II**

Participants reflected on the essence of using an educational tool that combined elements of play and learning to create awareness on safe motherhood and male involvement in maternal health. Others expressed this slightly differently, highlighting the level of engagement combined with the learning that took place:

I like the way the game was designed and how it communicates the message. It's not just a mere game for keeping people busy; this one keeps you busy [engaged], but you learn something. **P.1 – Men`s FGD I**

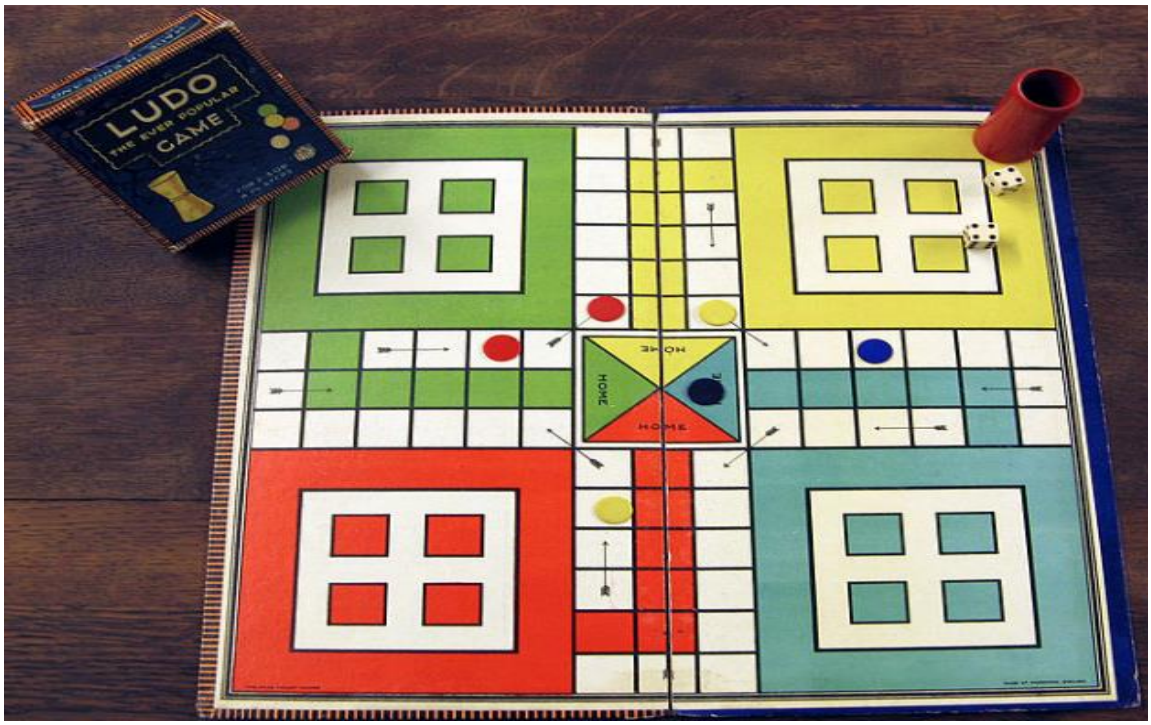
Participants engaged in the game were preoccupied with rolling the dice, moving little shoes on a board and peer-to-peer discussions generated from question cards. After participating in the game, all participants loved the board game due to the medium of learning which blended entertainment and health education.

7.3.2 Educative

All men engaged in the game found it to be educative and said they acquired knowledge from peers and discussions. The game provided a platform to share ideas, experiences and or ask questions amongst fellow men/peers. Participants alluded to the fact that the game gave them the opportunity and time to reflect upon their actions/behaviours as men regarding maternal health.

…the game gives room for everyone to share their mind and encourages participation…you think better as one is talking [reflection] and I think I learnt more from my colleagues here. **P.3- Men`s FGD II**

In one group it was even suggested that the *Whose Shoes?* game was better than *Ludo*, a local board game (Photo 7.1)



(Wikipedia 2019)

Photo 7-1 Ludo

Participants said they preferred this board game compared to *Ludo*, which is popular among young people in the villages and/or considered as a pass time/leisure game:

I enjoyed playing the game…it should replace Ludo as it teaches, for example if you pick a card, there is a lesson to learn. It teaches cooperation [joint decision making], knowing the value of pregnant women. **P.5 – Men`s FGD-I**

The game is thought to be more beneficial as one acquires knowledge in the process of interacting with other players. For instance, participants acquired knowledge on the benefits of couple's decision making in the home and valuing women in the community. This finding should be interpreted in light of the social context of men being the sole decision makers and women considered at the bottom of a social hierarchy. The board game facilitated discussions on couple communication to encourage joint decision making on health care/household

related issues and gender equity (respect for women) which could improve women`s health and well-being in this setting.

7.3.3 Colours

Participants found a few elements of the game off-putting or even disturbing. Most participants did not want to choose the yellow cards and shoes on the board game. In Uganda yellow is the colour used as a symbol by the national ruling party that has been in power for over three decades (NRM 2010). The regime is infamous for oppressive rule and violent crackdown of all forms of opposition (Kakaire 2018).

When we started picking the shoes, everyone refused to pick the yellow shoes including me. When I was picking the shoes, I thought in my mind that I should be the first so that they don't leave yellow for me. These cards here in yellow, we do not want. Why do you put yellow in the game? Put another colour! People were running away from the yellow colour… **P.11-Men`s FGD-III**

Yellow has a real psychological barrier for most, as the next quote highlights:

Only the colours are a big deal for me. I hate the yellow but love the red colour [laughter from the group, others nod in agreement]. **P.4 – Men`s FGD-III**

The red colour is used as a symbol by members of the opposition and representing all those who desire change in the political governance structures in Uganda. The colour red became a political symbol after the study had obtained ethics approval and other in-country clearances. These experiences highlight the importance of context in using games designed elsewhere as teaching methods.

7.3.4 Duration of game

The duration of the game raised varied responses from the participants. Some participants were not comfortable about the length of time it took to play the game. The duration of the game lasted on average between one hour to one hour and fifty minutes. With some men pointing out that the game could not be completed due to time constraints. One participant wanted all the card messages to be read

and discussed which would imply that the game had been completed or `played to the end`.

The game was not played to the end, it seems too long yet I wanted it to end. I criticise the game because it is too lengthy, it needs to be reduced a bit. **P.3 – Men`s FGD II**

Another participant thought that the learning and messages from the game are too important to restrict the playing time:

*What I can say about time is that you cannot limit the time to let`s say about thirty minutes. Actually, what you can do is say, today we are learning about this topic and we will end here and then tomorrow, you choose another topic… if we make it short, then it has no meaning*. **P.1 – Men`s FGD-III**

The general sense/thoughts around the duration of the game was that it needed time in order to understand the messages being relayed through this form of health education.

This game should stay the way it is, you really need enough time to understand the whole idea [messages]. You need time to listen to what someone is saying or even thinking [reflection] what you would do in that situation. **P.10 – Men`s FGD-III**

There appeared to be mixed feelings about the time taken to play the game with one participant suggesting that the game should be reduced whilst others suggesting the game should not be reduced but rather select one topic and have a lengthy discussion. This may suggest that the game should be tailored to specific individuals/audiences.

7.4 Aspects of the game that facilitated learning

This learning sub-heading covered a number of overlapping issues, starting with ‘Group discussions/peer-to-peer learning’ and ‘Question cards’ (see Figure 7.4-1).

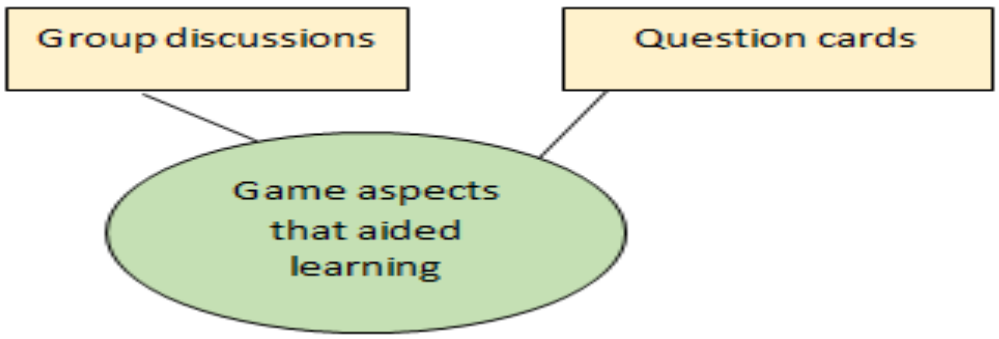


Figure 7-3 Factors that aided learning from the game

7.4.1 Group discussions/peer-to-peer learning

Participants highlighted the importance of discussions amongst peers and reflection during the game. Reflections about experiences shared during discussions facilitated comprehension of the concepts/topics being discussed/listening to each other`s experiences.

We have learnt something through the group discussions like complications in childbirth and eating properly [nutrition]…*also* [=name of P.3] *told us about his experience about losing a baby due to home delivery… we thought along with him and came to a logical conclusion of the matter as well as learning from the experience to allow our wives to give birth in the hospital*. **P.4 – Men`s FGD-I**.

Most importantly, it gave participants the opportunity to hear first-hand information about the risks associated with a home birth in their local community. Sharing experiences appeared to be thought provoking and provided men with an opportunity to consider skilled delivery for their spouses.

7.4.2 Question cards

Participants liked the card messages as they generated discussions and sharing of experiences. They especially liked the cards which were in form of questions as opposed to the statement-cards.

For me, I have loved the question cards in Luganda [=local language]. These have helped us think along together with my colleagues here. I learnt new ideas from the questions that were asked… **P.3- Men`s FGD III**

Observing the game, one of the facilitators mentioned the both negative and positive issues related to the cards. The statements cards had a negative effect in stopping discussions among the participating men whilst the question cards seem to achieve the opposite as these encouraged discussions:

The statement cards kind of killed the discussions as participants would go silent after reading the card and not sure what to do next…but every time they read a card with a question, the discussions kept going on with everyone participating… Male facilitator for the game sessions

Question cards facilitated the sharing of ideas in this setting and getting men to react to each other. The cultural context in the setting where the study was conducted resonates with questions as a way of generating discussions as opposed to statements.

7.4.3 Behavioural change after the game

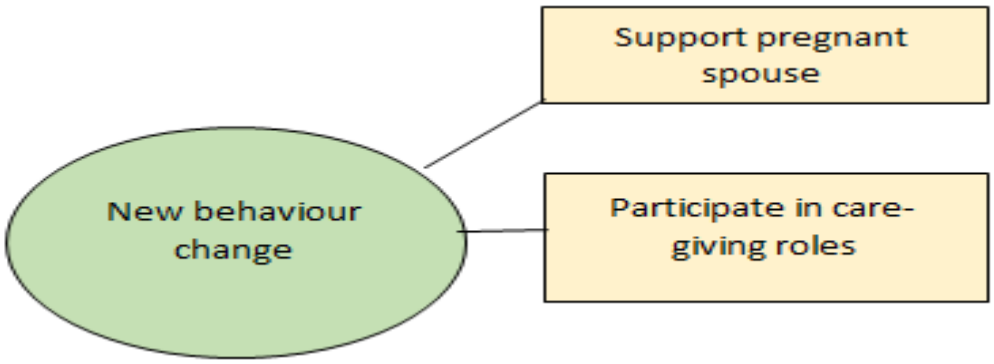


Figure 7-4 Factors associated with behavioural change after the game

Participants also shared how the game compelled them to change their behaviour. Some participants mentioned that they would take on more active

roles to enable their pregnant spouse to access healthcare. These supportive roles included emotional support, care-giving roles, financial support and encouragement to go utilise maternity services (see Figure. 7.4-2)

it's not just a mere game but we learn something even in the short time I have played it…now I have the mind-set that I should change and become more supportive like be there for her, rests from heavy work and ensure she goes to the hospital for checks [antenatal care], even for delivery. **P.1 – Men`s FGD II**

Some spoke about now realising that they had a responsibility to share some of the woman's burden of care:

I have learnt that the man`s responsibility is taking care of his wife during pregnancy. As men, we should play our role and not think that it's only the woman`s burden to carry. **P.9 – Men`s FGD-II**

Others had learnt about reasons behind practical problems and delays in the health care system and perhaps suggested that they might show some more sympathy to their wives:

*This game has opened my eyes to the many things women go through and now I understand why sometimes they take long at the health centre…I do not have to blame her anymore but support her…***P.7 – Men`s FGD I**

After the game, there appeared to be a shift in the mind-set to contribute towards the care for the pregnant spouse and baby away from the traditional gender roles that limit men`s involvement in care-giving roles. Some participants said the game had enabled them to empathise with women rather than getting involved in disagreements due to the time spent at the health facility whilst accessing maternity services.

7.5 Men and women`s perceptions of male involvement in maternity services

The findings in Section 7.4 are presented under three themes; 1) attitudes towards male involvement; 2) men`s roles in maternal health; and 3) barriers to male involvement.

7.5.1 Attitudes towards male involvement

All focus group participants said it was a good thing for men to be involved during both the pregnancy and around childbirth. Participants mentioned the key benefits of male involvement during pregnancy and childbirth such as the arrangement of transport to higher level health facilities, nutrition, prevention of stress, birth preparedness and emotional support (Figure 7.5-1). These basic themes are further discussed below.

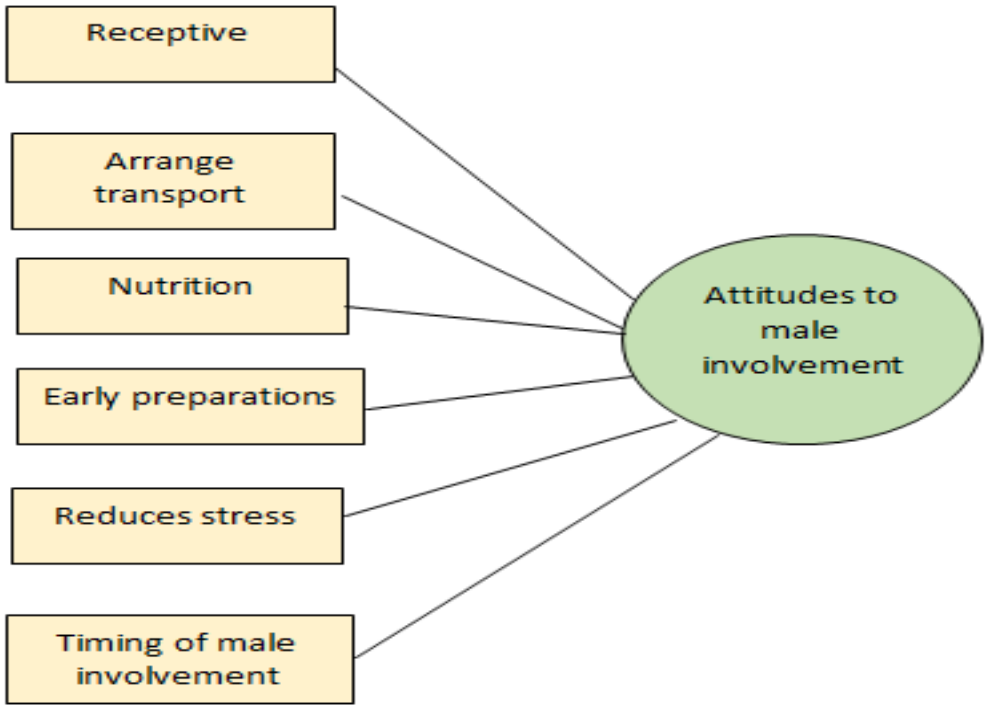


Figure 7-5 Factors associated with attitudes towards male involvement

7.5.2 Arrange transport to higher level health facilities

The presence of male partners at the community health centres appears to facilitate a slightly quicker service by health care providers during antenatal care visits. Pregnant women accessing maternity services with their male partner are attended to first, as explained by one participant:

When he is present [at the health facility] and the midwife sees him around, then they work on me quickly or when you get complications like in child birth and you are supposed to get transport to hospital the clinicians talk to him then he can act quickly. But if he is absent and then you get complications, no one is willing to help until he comes. Most people will not help you unless he is around. **P.4-Women`s FGD**.

This theme is, of course, not just about transport, but more about men's attendance more generally at antenatal care facilities. Transport to higher-level facilities in cases of emergency must be arranged by the husband / immediate family members due to poor ambulance services in the villages. Culturally, decisions around transportation of a pregnant mother are made by the husband and or in consultation with the woman`s husband if away from the community. The presence of male partners avoids delays in reaching a higher-level health facility from the community-based health centres in situations where a pregnant woman has been referred for specialised care.

7.5.3 Nutrition

All women said the benefits of men attending antenatal care clinics involved learning about nutrition in pregnancy. Nutrition education is an important topic discussed by midwives and village health teams during antenatal care sessions as the local/traditional diet is very rich in carbohydrates and limited in micronutrients. In addition, meals in the rural settings are often eaten only twice a day with a number of families only having one major meal a day. Anaemia in pregnancy is quite common in the rural settings

Antenatal checkup will also help to identify whether your diet is poor, maybe you are told that you are sickly, and you just need to have better nutrition, he needs to hear it. **P.7- Women`s FGD**

While at the health facilities, pregnant women are encouraged to increase the micro-nutrient intake and meal frequency. However, pregnant women in the focus groups highlighted challenges around implementing this new information at home.

*We learn a lot during these [antenatal] clinics, and there is no way you can explain what you have learnt to him. Others will listen, understand and act upon the information. Others do not listen. Your husband may say that we women just got too used to eating a lot if you tell him that…***P.3**-**Women`s FGD**

Almost all women suggested it was better for their husbands to hear about the messages on nutrition directly from the health workers to avoid conflicts at home. Increased meal frequency and better consumption of micro-nutrients deviates from the cultural food habits in the community.

7.5.4 Early preparations for the baby

Women also mentioned in the discussions that it is good for men to attend antenatal care sessions as it facilitates early preparations for childbirth. Birth preparedness and complication readiness is a topic discussed during antenatal care sessions in health facilities in Uganda.

It is good for men to come to antenatal care so that they learn how to prepare early enough for the baby to be born. 99% of men think childbirth preparation starts when the woman sits on the labour table. Some men say that they cannot prepare for what they have not yet seen. **P.7-Women`s FGD.**

Early birth preparations involve saving finances for emergencies/health facility expenses, baby clothes and birth kits. Some women mentioned that their husbands were reluctant to prepare for the arrival of the baby until the onset of

labour. Late birth preparations may cause unnecessary delays in reaching a health facility.

7.5.5 Reduces stress when men are involved

Most women said that male partner involvement reduces stress during pregnancy as they can visit the health facility on time without pressure. This pressure could be around time away from the home to attend a clinic or financial pressure. Women said it really helped if their partners gave them money to travel and for lunch. In the rural setting where the study was held, married women need to request permission from the husband or mother-in-law to leave their marital homes. Pregnant women accessing health care in public health facilities spend a considerable amount of time whilst waiting to be attended to, which can be a source of tension/conflict in the home. The tension is reduced once men are involved and or aware of the processes at the health facility.

I have no stress when he [husband] is involved as I can go to the health centre when I want…he gives me money when I need anything during this time. It reduces the stress in explaining why I need to go for antenatal or even when I take long to come back home. **P.1-Women`s FGD**

Involving men facilitates easy movement to the health facility through providing financial assistance as this next extract illustrates:

…he should provide a little money so that she can buy something to eat, or transport fare, at least 500 shillings. But you know you can yawn [due to hunger] when you come to the antenatal clinic. As for me, he came today so I cannot yawn [laughter from group] **P11-Women`s FGD**

Pregnant women have to either walk or use a hired motorcycle (locally known as boda-boda) as means of transport to the health facility. Almost all women in this study were unemployed and were dependent on their husbands for financial assistance. The financial assistance received from husbands is used for expenses incurred whilst seeking care such as transport and food.

7.5.6 Timing of male involvement

Discussions with men and women highlighted concerns around the timing of male involvement. For some husbands, the perceptions of support during the wife`s pregnancy was one arising from a woman`s choice in communicating the help she needed.

… it's not me to decide for her, it is her to tell me what she is feeling and what I need to do to support her during pregnancy and delivery. **P.3-Men`s FGD-2**

Some women also mentioned that the first antenatal care visit was vital for husbands to be present for HIV testing and the last two months of a pregnancy were critical times for husbands to be involved to provide emotional and physical support.

*The last two months of the pregnancy especially the eighth and the ninth months are tough for us and that's where we need men`s help the most…you cannot move as easily as the beginning of the pregnancy. The clinics want our partners during the first antenatal care session for blood testing*. **P.4-Women`s FGD**

Whilst the majority of women were comfortable with men`s physical presence and support during pregnancy, a few women were reluctant about involving their husbands at the onset of labour due to cultural beliefs regarding prolonged labour. For these women, their husbands were involved if a complication arose during the childbirth process.

… it's not me to decide for her, it is her to tell me what she is feeling and what I need to do to support her during pregnancy and delivery. Some women are afraid that if they tell their husbands it is time to deliver, it will make them take long in labour, so they keep quiet and act as if everything is normal…and only communicate when a complication arises. **P.3-Men`s FGD II**

The general attitudes towards male involvement was a positive one across both the men's and women`s focus group discussions. Differences arose in what constitutes male involvement, or the roles men should play during childbirth. Whilst some women welcomed the idea of their husbands being present during

antenatal clinics, one woman preferred the presence of her mother during birth suggesting that she felt more comfortable when her mother was present at the time of delivery as a caregiver.

For me, I want my mother to be there [hospital] *and help me during delivery. I feel better when she is the one helping me in the hospital as my husband has to go and look for money.* **P.12, Women`s FGD**

In Uganda, it is common for pregnant women to either move back to her parent`s home or for a female relative [mother, sister, aunt] to be present/assist with caregiving roles during her stay in hospital and or the immediate postnatal period.

7.6 Men`s roles in maternal health

The context in which this study was conducted was in a village/rural setting. The social dynamics in the Ugandan villages are different from the urban settings, for instance cultural values determine the roles of men and women differently. Women`s roles are related to care-giving roles, farming and home chores. Men`s roles are centred around formal/informal employment with less involvement in care-giving roles as well as practical support in men helping their partners with household chores (Figure 7.6-1).

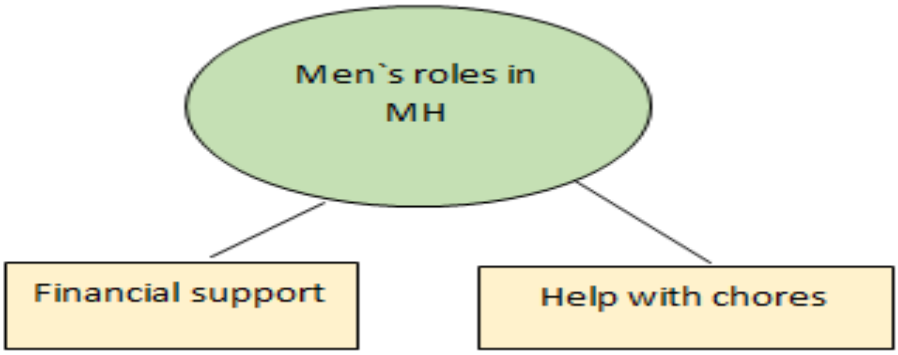


Figure 7-6 Perceptions about men's roles in maternal health

7.6.1 Help with house chores

All women in the focus group discussions expressed a need for men to be involved in household chores especially during pregnancy and on days when they have a clinic/health facility appointment. Traditionally, women engage in farming and home chores like cleaning, cooking and caregiving roles, while men are involved in formal/informal employment (UBOS 2019). Communities lack piped water and women have to collect water in containers/jerrycans from water sources such as bore holes and spring wells for home use. The water and firewood sources are sometimes far from the homes and the majority of women have to walk a long distance

He should help with house chores like fetch water, collect firewood, cook for me or buy the food, bring it home and I cook…I need help when I go to the health center. **P.8-Women`s FGD**

Men, on the other hand, highlighted their roles such as provision of food and family welfare. These roles reflect society`s expectations on men`s responsibilities which are centred around breadwinning and protection of the family

My role is the welfare of the woman, for instance, feeding, her security and other needs. These are things a man should provide for the whole family. **P.7 Men`s FGD-II**

Men also pointed mentioned accompanying their pregnant spouse to hospital as one of the roles men should be involved in. It is common practice for men to organise transport and or accompany pregnant spouse when complications arise in this rural setting. Accompanying the wife during complications or locally known as `taking her to the hospital` is considered a sign of responsibility and public display of taking good care of the wife.

It is our responsibility to take them to the hospital as soon as we notice any changes [meaning complications] even at the beginning because there are some

critical periods like from one month to three months of pregnancy. **P.1 Men`s FGD-II**

Sentiments maybe stronger in the rural areas where gender stereotypes exist regarding men and women`s roles. For instance, culturally men are not supposed to be seen carrying out tasks considered to be a woman`s job such as cooking and cleaning. Men on the other hand considered their roles to be provision of basic needs, organizing transport to health facilities and nutrition. The care burden is often an uphill task for women, especially when pregnant. The contrasts between men and women`s roles/expectations may reflect changing times and the vacuum to address practical needs at home such as men participating in house chores as pregnant women access health services.

7.6.2 Financial support

Participants said financial support was one of the roles of men in maternal health. Husbands provide financial support used for buying baby clothes, food and hospital expenses. The majority of women in the study worked in subsistence farming and was not employed in the formal work sector. These women were financially dependent on their husbands as this extract illustrates:

I need so much from my husband like things to use at home, money for transport and nutrition. I tell him what I want, and he buys it for me since I have no job. **P.3-Women`s FGD**

To prevent this financial dependency, women in the group discussions suggested involvement in income generation activities such as local trade to provide long term solutions for women`s empowerment/self-reliance.

Men should allow their wives to work, some of them don't like it when their wives work [employment]. Let them give us capital to start a business, I have so many needs. I have found baby clothes over there. If I want to buy something, I do not have to bother him [asking for money]. **P.7-Women`s FGD**

The two quotes originated from a discussion that was held on a market day where local traders sell merchandise once a week in the village centre. Women also mentioned men`s financial support in buying baby clothes and other preparations for the unborn baby.

7.7 Barriers to male involvement

This study identified barriers to male involvement as being: misconceptions regarding antenatal care, age related factors, conflict in relationships, and long waiting times at health facilities (see Figure 7.7-1).

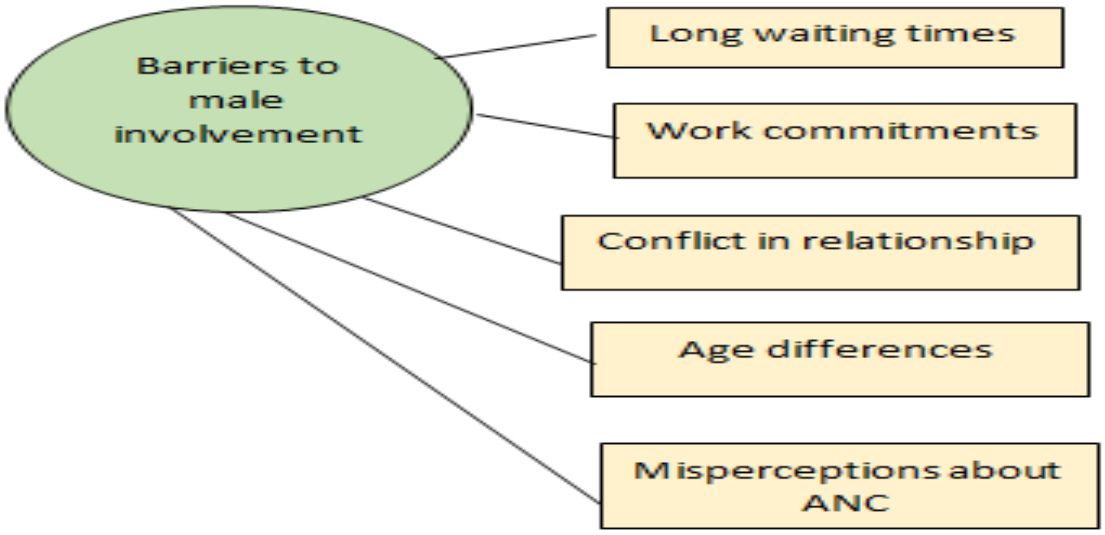


Figure 7-7 Barriers to male involvement in maternal health

7.7.1 Misperceptions about antenatal care

Discussions with men showed there is a misperception regarding the purpose of antenatal clinics. Men`s fear of attending antenatal clinics in this study was largely due to fear of being reprimanded by health workers and local authorities. This fear was further compounded by lack of knowledge regarding the process their women undergo whilst receiving care such as group education, individual assessments, laboratory tests and counselling. This misperception may explain men`s reluctance to accompany pregnant spouses to the health facility.

There are so many men out there who fear to go for antenatal care because they think aaarh, that woman has gone to report me therefore I will not go. They call it reporting in my village area. **P.1-Men`s FGD III.**

Discussions with women revealed men`s attitudes/misconceptions about antenatal care, for instance, men perceived that antenatal care services were not necessary on occasions when a pregnant woman was not sick as opposed to healthy pregnant women utilising antenatal care services. The misconceptions about antenatal clinics deter women from accessing care in the first trimester of pregnancy. Most women in this study attended the first antenatal care at about five months of gestation.

You tell your husband, at 2 or 3 months that you want to go for antenatal care. But his questions are always "What are you suffering from? Even if you try to explain that the checkup done is beneficial, they are always adamant that it is early at 2 or 3 months pregnant. And sometimes you want some transport [money] to go to the health facility, but he says he doesn't have, or he tells you to wait and yet these distances are long. **P.3-Women`s FGD**

The above extract may also highlight other reasons for men`s reluctance such as financial difficulties and the hidden costs involved in seeking maternal health services. Maternal health services are free in lower level health facilities, but individuals incur costs related to transport, food and medical related costs (drugs, gloves, laboratory tests). The out of pocket expenditures places a strain on households especially the husbands who are the sole financiers in this setting.

7.7.2 Age differences

Male participants cited age differences between husband and wife as a reason for not accompanying their pregnant partners to health facilities. There is a social stigma on marital relationships with significant age differences in the community.

Maybe she is too young, and you look way older to be her husband and you are not comfortable appearing alongside each other… even an older woman, you fear to be identified as the man with a very old woman. **P.3-Men`s FGD-I**

Men also cited fear of being arrested by government authorities as a reason for not accompanying their pregnant spouses to health facilities.

Ok, perhaps you made a girl pregnant and now she is living with you at home…you cannot go with her to the health facility even to be seen with her in public as you fear being arrested. **P.9-Men`s FGD-II**

The study was conducted at a time when there was a government crackdown on teenage pregnancies by arresting men in the communities (Nakato 2018).

7.7.3 Conflict in relationship

Participants in the men`s focus group discussion highlighted conflict in marital relationship as a deterrent for accompanying their pregnant spouse to the health facility.

If you go while quarrelling, you do not reach [health facility]. Sometimes you are having misunderstandings at home or the pregnancy is causing her to be bitter or she uses the excuse of being pregnant to abuse you. Is that the kind of woman to go to antenatal care with? **P.2-Men`s FGD-I**

The nature of marital relationship influences men`s behaviour regarding maternal health. The study was conducted in a setting that is deeply conservative and the moral repercussion for unplanned pregnancies is marriage. Which means being pregnant and not being married, or being the partner of an unmarried pregnant woman, was socially and culturally undesirable and acted as a barrier to men (and women).

*We men also fear health workers. Sometimes it was an accident that you made the woman pregnant and you fear to be seen with her in public, yet you`re not married*. **P.1-Men`s FGD-II**

Some unmarried men expressed fear of being embarrassed during group education sessions by health workers as a reason for not accompanying their pregnant spouse to the health facility.

7.7.4 Work commitments

Participants in the women`s focus group cited work commitments and obligations as a reason for low male involvement. Some women said their husbands were not able to accompany them to the health facility due to work engagements outside the home/community.

Mine is far, I stay with his paternal aunt. Most of my husband's work is far from home and I spend some time without seeing him like about 3 months. **P.10-Women`s FGD**

Some women however spoke about husbands being with them at home, but these women often still could not get their husband to come along. This may suggest a group of men that may not be involved/reluctant to accompany their spouses to the health facility as the following extract illustrates:

I left my husband at home sleeping as I was coming to the health centre [laughter from group]. He just refused to come. **P.9-Women`s FGD**

Work commitments may deter some men from being involved/physically accompanying their spouses to the health facility to access maternity services.

7.7.5 Long waiting times at the health facility

Participants complained of long waiting times at the health facility during antenatal care visits as a reason for low male involvement. Some women said it was difficult to convince their partners to come due to the hours spent waiting at the health facility.

I think the midwives are few so by the time you are served, you have been here for a very long time. My husband came the last time, but he got fed up because we took long to get served. He refused to come back. Even when I tried to convince him about the goodness of a government health facility, he has become adamant. He says he will come back at birth. **P.2-Women`s FGD**

Having a man present is more than just having psycho-social support for the woman, because there are often long waiting times in some of the health facilities.

The presence of male partners at the clinic tends to speed up the process while attending public maternity care facilities.

When he is present [at the health facility] and the midwife sees him around, then they work on me quickly **P.4-Women`s FGD**

Staff shortages deter men and women from accessing maternity services. For example, there was only one midwife attending to all women in the antenatal clinic on the day of the focus group discussion.

We grow tired of these long lines and waiting times. If I have come twice, I get weary of the process…why should we come when we feel no sickness. **P.4-Women`s FGD**

Some women suggested only coming back to the antenatal clinics when they are sick and require medical attention. This may suggest a limited understanding of the preventive and educational nature of antenatal care sessions.

7.8 Chapter summary

Data generated using focus group discussions provided an in-depth exploration of the changes in men`s perceptions and practices upon engaging with the *Whose Shoes*? board game on topics related to maternal health. It also enabled discussions with women on their perceptions of male involvement in maternal health. The *Whose Shoes*? board game appears to be particularly promising in its ability to engage men on topics regarding pregnancy/childbirth complications, health facility birth and nutrition.

The findings suggest that it is critical to target men with health education messages to improve women`s access to maternal health services and wellbeing. Women in rural Uganda are particularly vulnerable due to limited/no education, poverty and cultural norms that increase inequities in accessing healthcare. Involving men in maternal health facilitates access to maternal health services through financial support, nutrition in pregnancy and physical support for instance accompanying spouse to the health facility and or help with care-giving roles at

home. This enables women to seek maternity care as well as have adequate rest during pregnancy and after childbirth. Male involvement does have a different meaning for women and men, and both genders interpreted their involvement or lack thereof differently. The interpretations of what constitutes male involvement by both genders appears to be drawn from gendered norms in society (men) and from practical needs during pregnancy/after childbirth (women). The next chapter (eight) syntheses the findings from the fieldwork and relate these to broader contextual factors as presented in the literature.

Chapter 8 Discussion

8.1 Introduction

The key themes discussed in this chapter are: socio-demographic characteristics of participants, general intervention design and structure, men`s roles in maternal health and effect of *Whose Shoes?* board game on knowledge. The themes evolved from reflecting on the objectives of the study and interpretation of qualitative and quantitative data (Creswell 2014). For instance, findings are synthesised, compared and contrasted and discussed in more detail in relation to the relevant literature on the issue or issues. This chapter also includes sections on reflexivity, strengths and limitations of the study.

8.2 Socio-demographic characteristics of participants in the study

In this study, women were younger, less likely to be educated and engaged in subsistence farming compared to men. Qualitative findings highlighted age differences (older men in a marriage relationship with younger women) as a point of concern and a deterrent for men to be actively involved during pregnancy. The age differences between men and women are not unusual in rural Uganda, as women tend to marry at a younger age to older men in the community (UNICEF 2014; UBOS 2017). According to the Uganda demographic and health survey report 2016, an estimated 90% of women living in rural areas are involved in farming and literacy rates are higher in men compared to women. On average more men were employed compared to women in this study. Data from the focus groups held with women and men reiterate the fact that men were involved in paid work/employed and women undertook unpaid work (care-giving roles/farming).

8.3 General intervention design and structure

8.3.1 Colour

The first sub-theme related to the theme ‘General intervention design and structure’ is colour. The participants particularly disliked the colour yellow (Section 7.3.1.3) because of its association with the ruling party. A study by

Kumar (2017) regarding the psychology of colour in influencing consumer behaviour stresses that individual's associate colour with meaning, which may vary depending on factors such as gender, age, personality and cultural context. This same study further suggests that colour can be used to influence consumer perceptions and emotions in marketing (Kumar 2017). The concept of colour became a subject of intrigue during data collection in Uganda, which had not come up during the pre-testing in the pilot study held in the United Kingdom (see Chapter four). People in Uganda have long associated colours with political affiliations, for instance; yellow is a symbol for the National Ruling Movement (NRM) and government in power since 1986; blue is linked to Forum for Democratic Change (locally known as FDC); green is associated with Democratic Party (DP) and more recently; red is associated with the People Power Movement, an activist group prominent with its defiance campaigns against the ruling government. This group rose to prominence in 2017 (Kakaire 2018) plunging the country between two colour-lines: red (as a symbol for all forms of political opposition) versus yellow (ruling government). Data collection commenced in 2018 at the peak of government crackdown of individuals associated with the People Power Movement and arrests of men in communities/health facilities believed to have impregnated teenage girls. This created an environment of suspicion and fear palpable during the study period and for almost the entire year of 2018. This may explain the disdain associated with the colour yellow in the study. Most participants did not want to choose the yellow cards and shoes on the board game whilst all participants wanted to choose the red colour. Participants had to be reminded several times about the purpose of the game and emphasised that it was not in any way related to politics. This fear and distrust was also evident in the quantitative part of the study where men were reluctant to give their true age or background information before the game was played (Table 6.1). However, the use of a male facilitator who was very enthusiastic and homourous eased the tension and created a conducive environment for learning. Male participants easily related with him including discussing other matters beyond the scope of the study. Reeves et al. (2016)

reports that facilitators can use a range of facilitation techniques including; providing effective instruction before the interprofessional education, enthusiasm, humor, empathy, shared reflection among others to promote collaborative learning.

8.3.2 Duration of play

The duration of the *Whose Shoes*? board game was on average one hour of play time. This play time is similar to studies reported in a systematic review by Gauthier et al. published in 2019 that noted duration of play varied between five minutes, one hour and two hours in a single session. Selected card messages (due to time constraints) were used to generate discussions on pregnancy/childbirth and male involvement. There appeared to be mixed feelings about the time taken to play the game with some participants suggesting that the game should be reduced whilst others suggesting the game should not be reduced but rather select one topic and have a lengthy discussion. One participant wanted all the cards to be read and discussed which would signal the completion of the game to his satisfaction. The act of choosing cards on some topics rather than covering all the cards may have prompted some participants to think that the game was not completed. In the pilot study, time taken to play the game was not raised by the participants. However, the researcher noted that participants did carry on discussing experiences after the one-hour game session as well as making comparisons between the UK and Ugandan contexts. The pilot study raised the issue of `hard-hitting` messages as illustrated in this extract,

“The messages must be hard hitting and relevant in that it has to give people food for thought like when a man says traditionally, we have always done things this way, the questions [content] become tailored to the fact that…a man needs to change” (Ladur et al. 2018, p.6).

Consequently, the feasibility study in Uganda designed messages that prompted discussions and reflections regarding individual/community behaviour (Section 7.3.1.1 and 7.3.3). The tailored messages contributed to an increase in knowledge discussed in Section 8.4 and proposed change in behaviour (Section

7.3.3). Laisser et al. (2018) note that card scenarios/content in the Crisis game provided opportunities for midwives to reflect on their actions for instance their role in women acquiring puerperal sepsis and solutions to promote safe motherhood in clinical settings.

8.4 Men`s roles in maternal health

The first sub-theme related to Men's roles in financial support of their wives (Figure 7.6-1).

8.4.1 Financial support

Financial support was a recurrent theme in all the focus group discussions (see Section 7.6.2). Men described their primary role during the wife`s pregnancy/delivery as mainly constituting of financial support. Financial support was a mechanism through which men professed their support/love to their spouse and reinforced their position as head of the household. This financial support was in the form of providing money for transport to health facility, buying food while at the health facility and paying for medical related expenses (drugs, laboratory/medical bills, delivery kit, emergency care/referrals). In addition, women suggested it was the man`s responsibility to meet their financial needs, buy baby clothes and delivery kits. Public health facilities in Uganda often lack basic delivery supplies and pregnant women are required to carry along a delivery kit locally known as mama kit (polythene bag, cotton wool, gloves razor blades and soap) at the time of delivery (Morgan et al. 2017). Buying delivery kit, baby essentials and financial savings is part of birth preparedness and complication readiness. However, some women mentioned that their husbands were reluctant to prepare for the arrival of the baby until the onset of labour.

The quantitative findings showed an increase in the number of men who reported the health facility as the planned place of delivery for their pregnant wife although this was not statistically significant (Table 6.2). Late birth preparations may cause unnecessary delays in reaching a health facility. Community expectations on men to provide financial support during the entire maternity care process has placed

considerable pressure on men to meet the out of pocket expenditures (Greenspan et al. 2019). Approximately 37% of health care expenditure in Uganda is individual household's out-of-pocket spending (Ministry of Health 2013). Financial support as a man`s role has been reported in many other studies (Mkandawire and Hendriks 2019; Greenspan et al. 2019; Nuhu 2018; Mahiti et al. 2017; Morgan et al. 2017; Lowe et al. 2017; Dumbaugh et al. 2014).

8.4.2 Help with house chores

Quantitative findings identified asking for support from family and arranging for someone to help with house chores as a man`s role in delivery (Table 6.4). In contrast, focus group discussions with women stressed the need for men to be actively involved in house chores during pregnancy and on days when they have a clinic/health facility appointment. The study was conducted in rural Uganda where deep-rooted cultural values determine roles for women and men in the household. Women`s roles include farming, cooking, fetching water and firewood (used for cooking), garden work and care-giving roles. It is worth noting that most rural communities lack piped water and clean water for home use is collected from communal boreholes and protected springs away from households. Women often travel a distance of 1 kilometer up to 5 kilometers in search of water in addition to other responsibilities at home. These roles can be demanding for pregnant women especially in the last trimester and hence the need for male support in undertaking these tasks to ensure adequate rest from the heavy workload. This finding may also reflect changing times as a result of advocacy initiatives encouraging men to get involved in work originally designated to women only (home chores) and promote cooperation between men and women in the home (Mkandawire and Hendriks 2019). A similar study conducted in the villages in Eastern Uganda reported heavy workload as problem during pregnancy and the postnatal period (Morgan et al. 2017). Morgan et al. (2017) cited the need for men to help out with house chores to lessen the heavy work (digging, fetching water) in order to enable women access maternity services. When men are involved in home chores/care-giving roles, women have adequate rest during pregnancy and

opportunity to access maternity services in a timely manner (Muloongo et al. 2019). A study in Tanzania reported on men`s view that women should have adequate rest during the postpartum period but only a handful of men took the initiative to engage in home chores (Mahiti et al. 2017). Support with home chores was relegated to other female members of the family until a time when the wife was able to resume her responsibilities after childbirth (Mahiti et al. 2017). Social norms influence the roles men and women are involved in at home (Dumbaugh et al. 2014; Lowe 2017). Findings from the pilot study reiterated the need to engage men in villages in Uganda using Whose Shoes? board game to address the social norms and advocate for shared responsibility amongst couples (Ladur et al. 2018).

8.4.3 Arrange transport to higher level health facilities

Quantitative findings highlighted arranging for transport as a man`s role during pregnancy and childbirth (Tables 6.3 and 6.4). This finding was re-echoed in the focus group discussions held with women (see Section 7.5.2). The presence of men at health facilities during delivery was linked to a quicker referral process in cases of emergency. Men`s physical presence would avoid delays in decision making and would ensure a suitable means of transport (car) is identified and paid for quickly. The means of transport to lower level health facilities (Health Centre III and IV) was by walking and or use of a hired motorcycle (locally known as boda-boda). However, the health facilities are inadequately equipped to handle emergencies which are referred to higher level health facilities (district hospitals or regional hospitals). Transport to higher level facilities is arranged by the husband including finding a suitable means of transport and meeting all the costs involved due to lack of ambulance services in the villages (Morgan et al. 2017). Greenspan and colleagues (2019) reported on husbands assisting partners reach maternity care through coordination of transport logistics in rural Tanzania. The lack of ambulance services is not unique to rural communities in Uganda alone but similar to other countries in Sub Saharan Africa (Ganle and Dery 2015; Greenspan et al. 2019).

8.4.4 Nutrition

Nutrition during pregnancy was an issue that was recurrent in the focus group discussions by women (Section 7.5.3) and emphasised during antenatal care visits. Pregnant women were encouraged by midwives/village health team workers to increase meal frequency and consumption of fruits and vegetables locally available in the villages. According to the Uganda Health and Demographic Survey 2016, anaemia is a major concern among pregnant women contributing to poor birth outcomes and maternal mortality. One third (32%) of women aged 15-45 years in Uganda are anaemic (UBOS 2018). Anaemia is included as one of the topics discussed during group health education talks during antenatal care sessions (Chowfla et al. 2018). A poster with pictures of local foods rich in iron and or what constitutes a balanced diet is shown to the women in attendance followed by further discussions on food preparation/hygiene. The researcher attended some of the antenatal group sessions (Bulera Health Centre III) and observed reactions from the women including whispers to one another following the midwife led discussions on nutrition. A key concern for some of the women was how to implement the nutrition information received at home given that; 1) decision on what to eat at home was made by the husband; and 2) husband bought the food to be cooked by the women which would require convincing their spouses absent from the health facility that day. Several women suggested if men were present to hear about the information about nutrition directly from the midwife/health workers to facilitate easy implementation at home. These findings should be interpreted within the broader socio-cultural context where the responsibility to provide food at home including nutritious food rests upon men whilst women`s roles centre around food preparation (Kansiime et al. 2017; Morgan et al. 2017; Muloongo et al. 2019). The Ugandan diet is largely composed of macro nutrients such as cassava, sweet potatoes, plantains, rice and sorghum (GOV 2011). Pulses, nuts and green vegetables complement the diet which is very poor in micronutrient - rich foods. According to the Food and Agriculture Organization report (FAO) (2010), meals in rural communities are largely monotonous (one staple and one sauce/relish) and dependent on food grown in

farms/bought from wet markets (FAO 2010). This same report notes that majority of rural families consume two meals a day (lunch and dinner) with no breakfast or snacks between meals. During periods of food shortage for instance during planting seasons/before harvests, several rural families/urban poor may have one meal a day. At risk groups such as children, pregnant and breastfeeding mothers tend to follow the same diet/meal frequency as the rest of the family members irrespective of their physiological status which would necessitate an improved diet with emphasis on quality and meal frequency (FAO 2010). Social norms dictate food prioritisation among household members thereby allocating the nutrient rich (animal/fish) foods in favour of male adults in the household followed by children and lastly the women (GOV 2011). Food distribution/prioritisation patterns in households may pose a problem during food insecurity/food stress contributing to inadequate dietary intake especially for pregnant women (UBOS 2007). It is worth noting that food frequency, prioritisation and micronutrient intake varies between urban and rural places of residence and regions in Uganda. For instance, in urban areas, families tend to have three meals a day (breakfast, lunch and dinner) with snacks between meals and higher consumption of micronutrient rich foods (FAO 2010). Government of Uganda developed an action plan to improve nutrition and family wellbeing in the country. A key strategy outlined in the government's nutrition action plan has been to address gender and socio-cultural issues affecting maternal and child nutrition through; male involvement in nutrition programmes and advocacy on reducing women`s workload during pregnancy/ breastfeeding periods (GOV 2011). Although there is strong government commitment towards involvement of men to improve nutrition at household level, in practice nutritional programs solely target women during antenatal visits/immunisation days. This creates a gap in implementation of nutrition related knowledge at home and thus the concerns raised by pregnant women in this study. Mkandawire and Hendriks (2018) raised similar sentiments highlighting the importance of providing men with knowledge on nutrition which enables men to make informed decisions on food choices, purchases and dietary intake.

8.5 Effect of *whose shoes?* board game on knowledge

The London-based pilot study observed a change in men`s perspective regarding pregnancy and recommended game-content to place emphasis on shared responsibility/decision-making. The feasibility study in Uganda showed that engaging men in playing the Whose Shoes? Board game resulted in an increase in ability to identify three danger signs in pregnancy, knowledge of complications during childbirth, and joint decision making (Table 6.2) This is a promising finding that may reflect the impact of educational games on short term retention of knowledge. Elsewhere, board games have been shown to be effective in knowledge acquisition by participants (Andrade et al. 2008; Whittam and Chow 2017). For instance, an RCT study held in Kampala randomised patients in an intervention arm (board game) and standard care/health talk in the control arm found a statistically significant increase in uptake of knowledge between arms of 3.2 points ($p < 0.001$) (Wanyama et al. 2012). Similarly, an educational board game to improve labour-monitoring skills in three African countries showed a proficiency in completing and interpreting the partograph (10/10 scores) (Lavender et al. 2019). This same study reported midwives being able to recognise obstructed labour and make appropriate referrals three months after the board game intervention (Lavender et al. 2019).

8.6 My reflections

In Uganda I noticed some behavioural changes during fieldwork on interpersonal relations / communication between couples and nutrition. During recruitment and data collection, I made a mental note of interactions between couples as they came into access health services and or participate in the study. Conducting the *Whose Shoes?* game in Luganda, the participants` local language removed barriers and facilitated a supportive environment for discussion (Long et al. 2015). In addition, playing the game outside the health facility setting enabled participants to express their views/experiences comfortably without pressure (Long et al. 2015). The study was held in a hall across the health facility separated by a road and an open market nearby. Couples/pregnant women came to the

health facility by walking or used a hired motorcycle for transport. There were instances when the husband and wife (couple) walked separately and rarely talked to each other. Sometimes the husband walked ahead of the wife and vice versa. After the game, the men in particular appeared to adopt a more caring attitude seen in the way they waited for the spouse, inquired after her health and asked her to take a seat on the grass/veranda as they arranged for a motorcycle to either take both of them or the pregnant spouse home. Some walked home side by side whilst talking to each other. It was exciting to see pregnant women in the study access maternity services/return for appointment visits on schedule. Sometimes the women came back unaccompanied and other times, they came back as a couple. The differences between the visits (before and after the game) were vivid; the women had expressed their frustrations at having to explain at greater depth to their husbands the reasons for seeking antenatal services when they were not “physically sick” (Section 7.5.5) and sometimes denied the opportunity to go to the health facility. Reflecting on the discussions/interactions I had with women during the focus groups, they appeared less stressed /relaxed when they returned for the antenatal care visits. This was attributed to husbands being aware of what happens in antenatal clinics and they did not have to explain or be worried in case of delays whilst at the health facility (7.7.1). Nutrition was a recurrent topic throughout the study discussed in Sections 7.5.3 and 8.3 above. It was interesting to see some men buying green leafy vegetables/beef from a nearby market on their way home after the game. One can only hope that the new knowledge and adoption of new behaviour will be more permanent rather than short term.

8.7 Contribution to knowledge

There is a wealth of studies exploring perceptions and barriers of male involvement in maternal health however, few studies have dwelt on the aspect of what works and what doesn`t work. The use of the *Whose Shoes?* board game in Uganda was the first of its kind, using a game as a health promotional tool specifically looking at knowledge and uptake of maternal health services by

women in a low-income setting. Studies on the use of board games in health are few and as far as I can see there are none available examining the contribution of male partners in promotion of safe motherhood. The study conducted in Uganda provided knowledge on experiences of using educational board games to engage men in maternity services in a low-income country context. Utilisation of maternal health services in low-income countries provides a platform through which pregnant women can access skilled care essential for better health outcomes for mothers and babies.

The *Whose Shoes?* board game used the health belief model designed to address individual behaviours impacting on health outcomes. The health belief model addresses the individual`s perceptions of the threat posed by a health problem (susceptibility, severity), the benefits of avoiding the threat and factors influencing the decision to act (barriers, cues to action and self-efficacy) (Glanz and Rimer 2005). The game provided a platform for men to collectively learn from each other whilst in group discussion and to reflect on individual actions regarding maternal health behaviour (presented in Chapter Seven). The self-examination of actions propelled men in the study to consider adopting a more active and supportive role during their spouses' pregnancy and childbirth period, however, this was not assessed further to ascertain whether intended behaviour was carried out accordingly.

8.8 Reflexivity

Reflexivity in research refers to the process of critical reflection regarding the type of knowledge produced from research and how knowledge is generated (Guillemin and Gillam 2004). This same study suggests that researchers should be aware of all the potential influences and critically reflect on their role throughout the research process (Guillemin and Gillam 2004). To address this the researcher adapted the framework for reflexivity proposed by Ramani et al. (2018). This framework identifies two types of reflexivity; personal and epistemological that researchers can use to reflect on their research at each stage/research journey.

Explanations of the framework and how the researcher applied it to the research process are provided in Table 8.1 below.

Table 8-1 Reflexivity in the research process

Personal reflexivity	Epistemological reflexivity
Research approach	
Researchers reflecting on how their own beliefs and assumptions influence their study and on how the study in turn, affects the researchers themselves	**Researchers reflecting on their approach to knowledge generation**
Maternal health/ women`s wellbeing in LIC settings is an area within Public Health that I am very passionate about and recognise the many challenges as well as my inability to address all of them. This passion and interest in maternal health/women`s wellbeing contributed towards choosing an area of study that impacts on women`s wellbeing/reduction of maternal mortality. My interest in male involvement in maternal health is based largely on prior work experience having witnessed the benefits of involving men as partners to promote improved wellbeing for the family. The scholarly	The research approach (pragmatism) and research design (mixed methods) adopted in this doctoral study is discussed in Chapter 5 of the thesis. The researcher reflexively thought about the research questions and the distinct methods required to address the overall aim of the study. The critical thinking was always backed up by extensively reading literature on mixed methods, qualitative/quantitative research and in discussion with supervisors. Key questions included; what type of mixed methods, rationale for choosing a mixed methods study and point of integration (Johnson et al. 2007; Tariq and Woodman 2010). These

influence in this area of research was supported by authors such as Greene et al. (2004) whose background paper paved the way for international agencies to recognise male involvement in maternal health as strategy to improve women`s wellbeing in settings where women`s position/status have rendered `women alone` programs less effective in improving their health. I was aware of my personal circumstances and did try to bracket personal feelings as much as possible. I received professional support which helped me to cope and carry on with research in maternal health. The study initially set out to assess male involvement and maternal mortality, which was not taken further than the initial supervisory meetings/discussions due to the complexities around studying maternal mortality. Firstly, it would have been complex to prove/conclude with certainty that changes in maternal mortality/lack of therein were soley as a result of the PhD study. Secondly,	questions are answered in Chapter 5 of the thesis.

following discussion with my supervisors I decided to focus on an area within maternal health that was less challenging given my personal loss. These decisions were made at the beginning of the PhD program in 2016 and I did receive the support needed to embark on the PhD program. Maternal health remains an area of research I am passionate about and I used the motivation to engage participants and policy makers accordingly I have also thought about being female and Ugandan and the influences it might have had on the study, such as female participants making assumptions of information considered as “obvious”. This was minimised through probing / encouraging women to be explicit or explain concepts discussed in the study. The researcher also reflected upon being female and conducting research with men in rural Uganda / cultural context. A male research assistant helped to facilitate discussions with men.	

The research questions were developed through extensive review of the literature on male involvement and health promotional strategies used to reach out to men and in discussion with supervisors. Once the research questions were developed and a proposal written, further feedback was received regarding the questions and methodology from independent reviewers, such as during the initial review submission, and ethics committees at BU and in Uganda prior to data collection. Throughout recruitment, data collection and analysis/write-up, I was guided by the research questions and frameworks highlighted in the chapters of the thesis. I was motivated to conduct credible research that can make a difference whilst minimising potential bias. It might be thought that my personal interests/ tragedy influenced how I conducted research, but I do not believe this to be the case and would like to provide explanations; firstly, considerable time had passed between my personal loss and the data collection. Secondly, the study was conducted in a different part of Uganda, away from my hometown /	

village. The study location was chosen through a process described in Section 5.4. Thirdly, I took care to reflect on how I was interpreting the data and worked closely with my supervisors to limit the potential for bias.	
Sampling strategies	
Researchers should include diverse cases to garner opposing, unique but important opinions and not just typical cases that would generate commonly held opinions Male participants recruited in this study were diverse in terms of socio-demographic characteristics described in Chapter 6 of the thesis. Various participants` opinions/views are included in the findings The study had initially planned to collect data from two districts, but this was not possible due to limited financial resources Female participants were diverse in terms of age, education and occupation with varying views as presented in Chapter 7 of the thesis. This study also included women who were pregnant for the first time) and women who had given birth before in	**Researchers should welcome participants with different perspectives on the subject and participants from multiple realities even if their views contradict existing knowledge** Study findings presented in Chapter 7 include differences in perspectives regarding male involvement as expressed by men and women`s discussions. It further expresses differences in perceptions regarding board games and male involvement within men`s groups and female groups.

order to allow for divergent views. However, analysis focussed on the differences based on gender (men and women) as opposed to age and or parity	
Data sources and collection	
Is the inquiry open-ended? Is a power differential or hierarchy inhibiting expression of alternative perspectives? Are any questions or data being overlooked because of personal beliefs and opinions? The focus group discussion guides were designed to contain open-ended questions to elicit participant views, opinions and expressions. The questions were piloted, and ambiguities resolved through discussions with supervisors. The FGD guides were further reviewed by the research committee in Uganda who are familiar with the study setting and experts in qualitative research Men's and women's discussions were held separately and facilitated by a male research assistant and the female researcher respectively to allow participants to express themselves freely. The focus groups	**Is data collection triangulated (from multiple sources) so that investigator interpretations of findings are justified and to allow for discovery of new concepts linked to study questions?** Data were triangulated from focus group discussions, questionnaires and literature to make the best use of this mixed-methods approach. The data help support the researcher`s interpretation and the PhD findings are linked to the underlying concepts.

were further divided by age and held on separate days	
Data analysis and interpretation	
Researchers immerse themselves in the data, actively look for complimentary and divergent opinions, code using participant`s words and use memos to document assumptions The researcher immersed herself in the data by reading, re-reading transcripts and listening of audio transcripts multiple times. Codes were derived from the data and extracted from the participants' words (Keenan et al. 2005). The researcher analysed complementary and divergent opinions and included both in the final thesis	**Multiple investigators undertake independent analysis ensuring that data interpretation is based on participant`s narratives, then they verify their interpretation with participants (i.e engage in member checking)** Whilst in Uganda, an independent bilingual researcher listened to some of the audio recordings and read the transcripts to double check whether meaning / phrases were captured appropriately Independent analysis was carried out by the PhD supervisors who coded three transcripts out of six transcripts. Supervisors are experts/experienced in qualitative research but less familiar with the Ugandan culture/context and able to give a non-patriotic expert opinion
Findings	
Researchers report how their preconceptions, beliefs, values, position may have influenced the research process	**Researchers report how participant voices raised awareness of existing knowledge of the central concept,**

My prior knowledge of working in maternal health in Uganda helped in navigating community entry channels and minimised hostility/suspicions of `stranger` conducting research in a new community. As a female researcher, women easily identified with me due to the measures taken to minimise the unease/stranger effect. For instance, I was particularly mindful of my dress code and chose outfits/clothing that was `acceptable` in the villages., I spoke Luganda with health workers and participants in the community which contributed to `being accepted`. In addition, I sat on the same bench with pregnant women and engaged in informal talk whilst they waited to be attended to by midwives. This was done to fit into the community context which made participants comfortable around the researcher and less aware of the researcher presence. Engaging in informal talk and sitting on the same bench/chairs enabled the researcher to blend in the community and contributed to women delving right into the discussions and freely expressing their views without `icebreaker` questions	**allowed discovery of new concepts and influenced the storyline** Findings reported in Chapter 7 represent participant voices generated from themes that emerged from the data. The researcher has used as much as possible direct quotes to illustrate points in the thesis to ensure the participants' voices are being heard

The lines between my roles of researcher and public health practitioner were often in conflict when women wanted expert advice on nutrition, family planning and pregnancy related concerns. The questions usually came at the end of the focus groups and women were referred to midwives/health facilities accordingly. The male participants were initially suspicious of the study and female researcher as the period of data collection coincided with a national crackdown (politically instigated arrests) of men in communities. During recruitment, I used community resource persons (health workers) whom participants trusted and provided explanations about the purpose of the study. A male research assistant facilitated the board game and focus groups to allow male participants to freely express themselves and for cultural reasons Whilst interpreting and writing findings of the study, I often reflected on whether the findings portrayed the	

participants voice or my interests, given my personal loss. This thought often took me back into the data to double-check the transcripts, extracts, consider the social cultural context of the study and the research questions. The process of going back and forth in the data, objective feedback from supervisors/researchers and placing findings within wider context of the literature on male involvement in maternal health served to minimise potential researcher bias in the study.	

8.9 Strengths and limitations of the research in this thesis

A key strength of research included in this thesis includes the use of a systematic review (Chapter 3). The systematic nature of reviewing literature involves a structured, rigorous and objective approach used to provide a synthesis of research evidence on a specific topic (van Teijlingen et al. 2011b). Systematic reviews require a thorough, methodical approach with detailed reporting of each stage to ensure transparency (van Teijlingen et al. 2006). The systematic review on perceptions of non-health professionals on educational board games was the first of its kind and provided a synthesis of research evidence on the topic. It followed a detailed methodical approach approach described in Chapter Three of the thesis. However, due to the rigorous screening process, few papers were included (Section 3.2.4). The review identified a gap in knowledge as highlighted that there were no papers found on educational games with men in maternity care. Consequently, this thesis contributed in filling this knowledge gap (Chapters 4 and 7). According to Centre for Reviews and Dissemination (CRD 2009), systematic reviews help to demonstrate what the available research evidence is

and its quality as well as highlighting where knowledge is lacking which can form the basis for future research work.

A second strength in this thesis lies in conducting a good pilot study. This pilot study then formed the basis on which *Whose Shoes?* board game was adapted and made suitable for the Ugandan audience.This pilot study was published in the international journal of *BMC Pregnancy and Childbirth* and has been cited by academics in the UK (Lavender et al. 2019) and globally working on educational games.

A third strength involves the use of mixed methods to collect data and applied community-based research. The use of mixed methods in this study provided an opportunity to address two distinct research questions by means of integrating findings to gain an in-depth understanding from which robust and rigorous conclusions can be drawn (Fiorini et al. 2016). This mixed methods study had a large qualitative component designed to elicit perceptions on male involvement and board games. Quantitative findings were analysed using standardised proceedures in STATA version 13. However, due to the small sample size, a Cronbach`s alpha test was not carried out. The qualitative findings (Chapter Seven) were analysed using thematic analysis with a rigorous process of transcription, data reduction (coding) and theme development (Jugder 2016). The use of a framework to develop themes and analyse qualitative data (section 5.7.2) enabled the researcher to ensure trustworthiness of the findings. In addition, findings (qualitative and quantitative) are interpreted within the wider context of the literature on male involvement in maternal health and educational board games in the health sciences (Sections 8.2–8.5). The research was problem-focussed, context-specific and participants (men) were involved in the change process. An applied community-based research project provided insights into how knowledge was passed on to participants aimed at promotion of healthier pregnancies and uptake of maternal health services by women in Uganda.

The focus group discussions were divided by gender and age to allow participants to share their views without restrictions based on gender/power dynamics. The

use of a facilitator who was a married man with young children and had accompanied his spouse for all antenatal visits including being present in the delivery room served to allay cultural fears and reinforced the possibility of their active involvement during pregnancy. The male facilitator conducted the men`s focus groups, which enabled men to freely express themselves during discussions. In addition, the use of a male facilitater served to minimise bias from the female researcher and generate discussions based on the board game. The researcher notes that the focus group discussions were big, and this posed some challenges in managing group discussions. The researcher encouraged participants to share their views through techniques such as allowing everyone to say something/take turns in speaking, not interrupting others and phones on silent mode. It is noteworthy to highlight the researcher`s knowledge and experience in working with rural communities in Uganda as a strength in this thesis (Section 1.7). The researcher`s experience in qualitative research and prior work with men and pregnant women was an asset as it facilitated community approvals and smooth data collection processes in Uganda. Participants easily related with the researcher who spoke with all participants in Luganda (local language). Communicating with participants in the local language served to make the participants comfortable around the researcher (Photo 5.2) and minimised language barriers in the study. Prior knowledge of working in rural communities was helpful in avoiding situations where participants/communities would prove hostile which may involve issues such as dress code, inappropriate language (respectful communication) and ignoring community approvals/channels. In Uganda, rural communities are less hostile to `outsiders` once they have been introduced by someone they know/community leader such as local leaders or health workers resident in those communities. The researcher was introduced to participants (pregnant women/couples) by the midwife during antenatal visits.

It is worth noting that although families in Uganda have an element of collective decision making where other members of the extended family/community are involved; it is equally patriarchal in nature and husbands are key decision-makers in a home (Nyakato and Rwabukwali 2013). The board game engaged husbands

who are key decision makers and have considerable influence/power within the cultural context of communalism in Uganda. The study was conducted in rural Uganda where resources are limited, and it is duly acknowledged that financial challenges may limit men`s ability to support their pregnant spouses in terms of seeking healthcare. The Government of Uganda provides free medical services in communities. For instance, Bulera Health Centre III, where pregnant women in this study accessed maternity services, is free and situated within a walking radius of 5 kilometres for majority of households. However, costs incurred whilst seeking healthcare such as drugs, referrals and transport are met by individuals. Out of pocket expenditure on health is a problem acknowledged by government of Uganda and is yet to be addressed (MOH 2019). However, individual households have developed mechanisms to mitigate financial limitations through collectively contributing towards medical bills, acquiring loans and selling properties in Uganda (Nabatanzi 2019).

Lastly, although there was an increase in planned likelihood for a health facility birth this was not a statistically significant finding. Possible explanations for this finding could be due to the method of recruitment and selection that may have introduced an element of selection bias. Recruitment of participants was carried out at a health facility after pregnant women had accessed antenatal care services which may have implied that they were planning to give birth at a health facility. This study did show an increase in planned likelihood for facility birth (8%) although it was small due to the small sample size (N=50). A much larger sample size would be needed to demonstrate a large effect size. However, a larger quantitative study was not possible in the time available in the mixed-methods PhD project. This increase reflects participants' intention (attitudes) to deliver at a health facility which may not necessarily be the actual place of delivery (behaviour) for some of the participants in this study. Nevertheless, the findings provide insight into what kinds of difference could be expected from participants that may already be motivated to take up facility births. In addition, findings provide a baseline for undertaking a power calculation for a larger sample size in a future study with couples recruited from other districts in Uganda. Another

limitation of this study is that it used a non-randomised design (pre and post intervention design). Due to limited resources (finances and time), it was not possible to follow up participants over a longer period of time and only one district was chosen for the study. Randomised control trials are recommended as the gold standard method for health interventions due to its ability to minimise bias/confounders (Eccles et al. 2003). Future work will use a randomised control trial to ascertain the effect of the *Whose Shoes?* board game on long term uptake of maternity services by women in Uganda.

8.10 Achieving the aim and objectives of the study

This doctoral thesis had an overaching study aim and four objectives. It is worth reflecting on whether the aim and objectives of the thesis were addressed and how it was achieved.

Table 8-2 Summary

Aim	**How was it addressed in the thesis**
To explore the contribution of male spousal involvement in facilitating uptake for maternal health services	This was addressed by reviewing the literature on male involvement in maternal health (Chapter 2), conducting primary research (Chapters 6 and 7) and discussing findings within the wider context/literature on maternal health services (Chapter 8).
Objective	**How was it addressed in the thesis**
To conduct a scoping review on male involvement in maternal health in LMICS	A scoping review is presented in chapter 2 of the thesis
To conduct a literature review on the use of board games with non-health professionals	A systematic review is presented in chapter 3 of the thesis
To conduct a pilot study on the use of board games with men in maternal health	A qualitative study (focus group discussion) was conducted with Ugandan men living in London and presented in Chapter 4 of the thesis

To establish the feasibility of using board games as an educational strategy with men in maternal health in Uganda	Mixed methods study (chapters 5-9)
• To assess knowledge before and after engaging with *Whose Shoes?* board game	Researcher administered questionaires with men in Uganda. Findings reported in Chapter 6
• To explore perceptions regarding educational board games and male involvement	Focus group discussions with men and pregnant women. Findings presented in Chapter 7

8.11 Chapter summary

This is the first study to report on the effect of educational games with men in maternal health. This study shows that educational board games are an effective health promotion tool for relaying health information to lay persons in the community. It also reinforces the relevancy of targeting men with health education messages to improve women`s access to maternal health services and wellbeing. Although interventions targeting men in maternal health are fraught with controversy (Section 2.13) and must be well thought through prior to implementation, in some contexts such as rural Uganda, involving men plays an important role in facilitating the uptake of maternity services. This thesis notes that women in rural Uganda are particularly vulnerable due to limited/no education, poverty and cultural norms that increase inequities in accessing healthcare. Involving men in maternal health facilitates access to maternal health services through financial support, nutrition in pregnancy and physical support for instance accompanying spouse to the health facility and or help with care-giving roles at home. This enables women to seek maternity care as well as have adequate rest during pregnancy and after childbirth. Male involvement does have different meanings/interpretations for women and men. The interpretations of what constitutes male involvement by both sexes appears to be drawn from

gendered norms in society (men) and from practical needs during pregnancy/after childbirth (women). Despite the different interpretations both men and women in this study were in agreement that male involvement was relevant and should be encouraged in communities in Uganda. The next chapter (nine) provides conclusions and recommendations from the thesis.

Chapter 9 Conclusions and Recommendations

This thesis provides new insights into how a low-technology board game called *Whose Shoes?* can act as a tool for health promotors and community-based health workers to help improve men's involvement in the pregnancy of theoir partner in general and their partner's maternity care in particular.

This chapter presents first the key conclusions drawn from the various elements of this mixed-methods study that make up the thesis and ends with recommendations for three different sets of stakeholders in the maternal health field.

9.1 Conclusions

This PhD started from the premise that it is essential to include both partners (men and women) to facilitate access to maternity services and prevent maternal mortality in Uganda / LICs. Having conducted this mixed-methods study in Uganda this premise still stands as a conclusion. In a patriarchial rural society as found in the study area the roles of men and women are often very prescribed and very uneven.

Taking this inequity into consideration, health education messages/programmes in the field of reproductive health can achieve more, i.e. make greater strides when a woman`s husband is included and/or targeted with maternal health information. For instance, men`s involvement enhances transport arrangements in cases of complications in labour (Section 7.5.2), nutrition in pregnancy (Section 7.5.3) and reduces emotional stress (Section 7.5.5). A particular concern in this PhD study was the men`s misperceptions regarding antenatal services (Section 7.7.1). Men perceived antenatal care services as spaces used by pregnant women to report men rather than simply a place to access a necessary maternity service. This unfortunate misperception reported in this thesis was the first of its kind to be reported in Uganda.

Men`s lack of knowledge regarding antenatal care processes and rationale for women attending antenatal care services was addressed during the *Whose*

Shoes? game sessions. As a board game is low technology and can be played in rural areas without the need for electicity and computer literacy (as online/video games would require). The impact of addressing the misperception on antenatal care services during the board game was vivid during women`s return visits to the health facility (Section 8.5).

This PhD research shows that educational games are a useful strategy to engage men in maternal health. This was the first-time maternal health messages were packaged through the medium of a board game targeting male spouses in Uganda. This PhD thesis showed in the pilot study that the *Whose Shoes*? board game was acceptable to a group of Ugandan men living in London (Chapter 4). Conducting a good pilot study in a different country (UK) from the main study site (Uganda) shows that pilot studies can be conducted outside the country where the study is meant to be carried out. The advantages of conducting the pilot study in the UK included prevention of contamination of the study site and effective use of limited resources. It is possible for PhD students studying in High-Income Countries to successfully conduct in-country pilot studies prior to undertaking the actual field work for the research in Low-Income Countries. Conducting pilot studies in the country where the university is based, in this case the UK, save on time and travel resources during the course of the PhD training.

After this pilot study the culturally appropriate intervention was taken to Uganda for field testing and was deemed to be acceptable in rural Uganda according to local stake holders (see Section 7.3.1). The *Whose Shoes*? board game was effective in its ability to engage men on topics regarding pregnancy/childbirth complications, health facility birth and nutrition (Chapter 6). The majority of Uganda`s population resides in the rural areas (Section 1.2) and having an acceptable board game to the rural population points to its relevancy to other parts of the country and, potentially, other LICs. The *Whose Shoes?* board game is a validated game designed to address broad issues on quality of health care in the UK (Phillips 2009). This game was specifically adapted for maternal health and to suit the Ugandan context. The board game dwelt on specific aspects

regarding utilisation of maternity services but can be extended in future studies to explore quality of maternity care and / or address health facility-based challenges impacting on maternal health outcomes.

Implementation of the *Whose Shoes?* board game was sensitive to culture, language and limited resources affecting LICs such as Uganda. First, the content of the game was tailored to address social cultural factors impeding access to maternal health services by women. A safe space/ platform was created to discuss and reflect on individual and or society`s behaviour towards pregnant women/maternal health. For instance, the discussions on home births and workload during pregnancy/ hinged on gendered roles society accrues to men and women and the impact on maternal health (Section 7.6.1 and Section 8.3.2). These discussions were not only an `eye-opener` to deeply rooted cultural stereotypes affecting uptake of maternity services but provided opportunities for intentions to change behaviour.

Secondly, the board game was all inclusive in its use of Luganda (local language) and made it suitable for both literate and illiterate persons and or across the socio-economic status reflective of the Ugandan society. Although the game was played by only men in various age groups, it can be extended for both sexes in its future use. Thirdly, colours in the game (red, yellow, blue and green) enhanced teamwork which facilitated learning. It is important to consider all details or aspects of a board game including seemingly little things like colours and their social meanings prior to implementation on a large scale. The *Whose Shoes?* board game was easy to set up (required a table or flat surface) and transport to and from the study site. This game can be scaled to other parts of Uganda / Africa with minimal resources needed for implementation.

Lastly, lessons learnt from piloting and field testing of *Whose Shoes?* board game are relevant in planning the use of board games in maternal health for various communities in Uganda and beyond. This research assessed knowledge and attitudes over a short period of time and with a small sample size. Future studies need to follow up participants of the board games over a longer period of time

and utilise a large sample size. Future observational studies need to assess changes in attitudes (intention to change behaviour) and changes in actual behaviour change in communities.

9.2 After thoughts on COVID-19 and maternal health services

This thesis is presented at a time when the world is facing a global pandemic caused by Corona Virus Disease 2019 (COVID-19). COVID-19 was first discovered in Wuhan city, Hubei province in China on 31 December 2019 and has spread to almost all countries in the world. Uganda registered its first case on 21 March 2020. Stringent lockdown measures were introduced thereafter such as closure of businesses, restrictions on social gatherings, curfew hours and suspension of public transport (motor cyclists, buses/taxis) creating travel difficulties for health workers and pregnant women/families (Pellangro et al. 2020). Although mortality rates for COVID-19 appear to be low in Uganda, the indirect effects on mortality from maternal health service disruption might be higher, although this has not yet been quantified (Roberton et al. 2020). Movement restrictions exacerbated by reduced transport availability and the real or perceived threat of prosecution for travelling during curfew hours reduced physical access to health facilities (Kasule et al. 2020). COVID-19 and the subsequent response to address the pandemic have affected the provision and utilisation of maternal health services in Uganda (Roberton et al. 2020). Maternal health interventions implemented through community-based campaigns/ channels were paused during lockdown and reduced in scale following the easing of lockdown restrictions. Health workers have reported fewer women attending antenatal clinics during the pandemic citing reasons such as being afraid to visit hospitals for fear of contracting coronavirus, COVID-19 test and the implications of a positive result (mandatory quarantine away from their families) (Roberton et al. 2020). Restrictions of visitors in labour wards has meant that pregnant women have had to experience labour with no family/husbands providing emotional and physical support whist at health facilities (Pallangyo et al. 2020).

Whilst the pandemic has facilitated changes/ adjustments in provision and uptake of maternal health services, it has shed light on the importance of early preparation and readiness for emergencies for those at the helm of service provision and the recipients of maternity services. Findings from this thesis are relevant in the ongoing pandemic in the following ways; Firstly, involving husbands of pregnant women is critical to navigate through the additional challenges brought forth with the pandemic. It is vital for couples to access antenatal care, identify a health facility for birth and buy essential supplies such as delivery kits and baby clothes. Although visitors are restricted in labour wards, men can still play a vital role in facilitating women`s access to maternity services through financial support, nutrition, participating in care-giving roles at home and buying essential supplies needed during delivery as highlighted in Chapter Seven of the thesis. International/local travel disruptions caused by the pandemic have contributed to shortages in medical supplies in health facilities. Pregnant women and their husbands are now compelled to meet the additional costs of buying gloves, masks, delivery kits and or medicines (Kasule et al. 2020). This study reported husbands' intentions to change behaviour and become actively involved in care-giving roles at home. This positive attitude/intended behaviour is timely during the pandemic to allay women`s fears for undertaking a COVID-19 test and encourage appropriate utilisation of maternity services. In addition, men can support pregnant women to take care of the children/home in situations of a positive test result for COVID-19 and are required to self-isolate/ quarantine for fourteen days. Secondly, the *Whose Shoes?* board game can be used as a health educational tool to engage men, community members and health workers on COVID-19 and maternal health. There is need to promote uptake of maternity services whilst adhering to all the precautionary measures in place (Abajobir 2020). The *Whose Shoes?* board game is easy to use and requires less resources as was demonstrated in this study. For instance, *Whose Shoes?* board game was played outdoors/open space area (Photo 5.1) in the villages and can be adapted for use with small groups of six as per COVID-19 guidelines.

9.3 Recommendations

9.3.1 Recommendations for policy makers

Board games were used to relay information on maternal health to men for the very first time and the tool was shown to be both an acceptable and effective way of promoting health related messages. Policy makers need to consider introducing educational board games as an approach to relay health information on maternal health to couples / community members, especially in rural communities. Explanations regarding the rationale for accessing antenatal care visits (in the first trimester) and delivery in health facilities could be given through the medium of a board game facilitated by a health worker/village health team member. The researcher plans to develop a policy brief targeted at the Minister of Health and relevant health entities in-charge of maternal health services in Uganda. To further disseminate research findings to policy makers, presentations will be made to health cluster meetings organised by Ministry of Health (a forum that brings together senior health experts as organised by Uganda`s Ministry of Health).

9.3.2 Recommendations for researchers

Although participants reported the relevancy/usefulness of board games in acquiring knowledge on pregnancy/childbirth, changes in attitudes may not necessarily mean changes in practice/behaviour. The field of maternal health would benefit from future empirical research in the following areas: (1) Educational games in maternal health and (2) Male involvement in maternal health

9.3.2.1 Educational games in maternal health

- Observational studies looking into long-term behavioural changes/aspects such as ethnography and cohort studies. For instance, a three-year follow-up study of educational games with couples to explore changes in attitudes and behaviour of men and women in subsequent pregnancies/births

- A randomized controlled trial would help answer questions on efficacy of board games on improving the uptake of maternity services/skilled birth attendants, and perhaps even maternal and neonatal mortality ratios.
- Future research on board games and quality of care in health facilities. For instance, using *Whose Shoes?* board game to address health system-based challenges contributing to poor uptake of maternal health services

9.3.2.2 Male involvement

- Further research is required to examine the effect of male involvement on women`s autonomy, but also the drivers of such involvement, i.e. how and why men are getting involved (or not).
- Further research is also needed to assess health education interventions aimed at mitigating harmful outcomes of involving men in maternity services.

9.3.3 Recommendations for non-governmental organisations

In Uganda, maternal health programmes are largely funded/implemented by non-governmental organisations with support from the Government (monitoring and supervision). This PhD recommends to such organisations to target both men and women to break the cycle of inequities and context-specific factors impeding access to maternal health services from women in Uganda/LMICs. Programmes that target women alone are limiting as they ignore the social context in which women live (Section 2.5). The health messages and or interventions aimed at improving maternal health outcomes (safe motherhood) can achieve greater momentum when a woman`s immediate family/male partner is involved. A short summary of findings will be prepared and shared with programme implementers through the NGO-Forum, (a consortium of non-governmental organisations in Uganda). The researcher will organise a dissemination workshop for district health officials, participants and health workers in the community to share findings in the local language.

References

Abajobir, A., 2020. *Africa can`t let maternity care slide during the coronavirus pandemic* [online]. African Population and Health Research Center. Available from: https://theconversation.com/africa-cant-let-maternity-care-slide-during-the-coronavirus-pandemic-136424 [Accessed

Aborigo, R. A., Reidpath, D. D., Oduro, A. R. and Allotey, P., 2018. Male involvement in maternal health: Perspectives of opinion leaders. *BMC Pregnancy Childbirth*, 18 (1), 3.

Acharya, D., Bell, J., Simkhada, P., van Teijlingen, E. and Regmi, P., 2010. Women`s autonomy in household decision-making: A demographic study in Nepal. *Reproductive Health*, 7 (15).

AK, S., 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22, 63-75.

Aliyu, M. H., Sam-Agudu, N. A., Shenoi, S., Goga, A. E., Ramraj, T., Vermund, S. H. and Audet, C. M., 2019. Increasing male engagement in the prevention of vertical transmission of HIV: What works in sub-Saharan Africa? *British Medical Journal*, 365, l1965.

Andrade, D., de Mello, F., Scochi, S. and Fonseca, M., 2008. Educational games: Training of community healthcare agents on children`s respiratory diseases. *Acta Paulista De Enfermagem*, 21 (3), 444-448.

Attride-Stirling, J., 2001. Thematic networks: An analytic tool for qualitative research. *Qualitative Research*, 1, 385-405.

Baid, H. and Lambert, N., 2010. Enjoyable learning: The role of humour, games and fun activities in nursing and midwifery education. *Nurse Educ Today*, 30 (6), 548-552.

Baldor, R., Field, T. and Gurwitz, J., 2001. Using the "Question of Scruples" game to teach managed care ethics to students. *Aca Med*, 76, 510-511.

Bettany-Saltikov, J., 2012. *How to do a Systematic Literature Review in Nursing: A Step-by-Step Guide* [online].

Blakely, G., Skirton, H., Cooper, S., Allum, P. and Nelmes, P., 2008. Educational gaming in the health sciences: Systematic Review. *Journal of Advanced Nursing*, 65 (2), 259-269.

Bochennek, K., Wittekindt, B., Zimmermann, S. and Klingebiel, T., 2007. More than mere games: A review of card and board games for medical education. *Medical Teacher*, (29), 941-948.

Bradshaw, M. (Ed.). 2004. *Effective Learning: What teachers need to know*. 3rd edition. London: Jones and Bartlett Publishers.

Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), 77-101.

Brindle, S., Douglas, F., van Teijlingen, E. and Hundley, V., 2005. Midwifery research: Questionnaire surveys. *MIDWIVES*, 8 (4).

Browne, R., 1995. On the use of a pilot sample for sample size determination. *Stat Med*, 14, 1933-1940.

Burghardt, K., Bowman, M., Hibino, M., Opong-Owusu, B., Pokora, T., Reeves, K. and Vile, K., 2013. Using educational games to promote the seeking of a pharmacist and to teach key medication use messages: Results from an inner city health party. *Research in Social and Administrative Pharmacy*, 9, 542-552.

Cambridge, 2019. Cambridge dictionary.

Campbell, O. and Graham, W., 2006. Lancet maternal survival steering group. Strategies for reducing maternal mortality: Getting on with what works. *Lancet*, 368, 1284-1299.

Campbell, W., Merrick, T. and Yazbeck, A., 2006. *Reproductive Health: The missing Millennium Development Goal*. Washington: World Bank.

CASP, 2018. *Critical Appraisal Skills Programme (CASP), Qualitative Checklist* [online]. Available from: https://casp-uk.net/casp-tools-checklists/ [Accessed

Chimatiro, C. S., Hajison, P., Chipeta, E. and Muula, A. S., 2018. Understanding barriers preventing pregnant women from starting antenatal clinic in the

first trimester of pregnancy in Ntcheu District-Malawi. *Reproductive Health*, 15 (1), 158.

Chowfla, A., Namajji, C., Chilashvili, T., Hermida, J., Karamagi, E. and Holschneider, S., 2018. *Improving management of anemia among pregnant women. Testing changes and guidance from East Central Uganda*. Kampala, Uganda.

Coil, D. A., Ettinger, C. L. and Eisen, J. A., 2017. Gut check: The evolution of an educational board game. *PLoS Biology*, 15 (4), e2001984.

Contractor, S., Shahabuddin, A., Waldman, L., George, A. and Morgan, R., 2016. The Role of Men in Improving Maternal Health. [online]. 15/07/2017. Available from: http://resyst.lshtm.ac.uk/news-and-blogs/role-men-improving-maternal-health [Accessed

CRD, 2009. *Systematic reviews. CRD`s guidance for undertaking reviews in health care*. University of York: Centre for Reviews and Dissemination.

Creswell, J. W., 2003. *Research design. Qualitative, quantitative and mixed methods approaches*. 2 edition. Thousand Oaks, California: Sage Publications.

Creswell, J. W., 2014. *Research design. Qualitative, quantitative and mixed methods approaches*. 4th edition. Thousand Oaks, California: SAGE.

Davis, J., Luchters, S. and Holmes, W., 2012. Men and maternal and newborn health: benefits, harms, challenges and potential strategies for engaging men. Compass: Women's and Children's Health Knowledge Hub. Melbourne, Australia.

de Bernis, L., Sherratt, D., AbouZahr, C. and Van Lerberghe, W., 2003. Skilled attendants for pregnancy, childbirth and postnatal care. *British Medical Bulletin*, 67, 39-57.

Defo, K. B., 1997. Effects of socioeconomic disadvantage and women`s status on women`s health in cameroon. *Social Science and Medicine*, 44 (7), 1023-1042.

Desclaux, A. and Alfieri, C., 2009. Counselling and choosing between infant feeding options: Overall limits and local interpretations by health care

providers and women living with HIV in resource-poor countries (Burkina Faso, Cambodia, cameroon). *Social Science and Medicine*, 69, 821-829.

Dumbaugh, M., Tawiah-Agyemang, C., Manu, A., Asbroek, G., Kirkwood, B. and Hill, Z., 2014. Perceptions of, attitudes towards and barriers to male involvement in newborn care in rural Ghana, West Africa: A qualitative analysis. *BMC Pregnancy and Childbirth*, 14 (269).

Dutta, M., Kapilashrami, M. and Tiwari, V., 2004. Knowledge, awareness and extent of male participation in key areas of reproductive and child health in an urban slum of Delhi. *Health and Population, Perspectives and Issues*, 27 (2), 49-66.

Eccles, M., Grimshaw, J., Campbell, M. and Ramsay, C., 2003. Research designs for studies evaluating the effectiveness of change and improvement strategies. *Quality and Safety in Health Care*, 12 (1), 47-52.

Ezezika, O., Oh, J., Edeagu, N. and Boyo, W., 2018. Gamification of nutrition: A preliminary study on the impact of gamification on nutrition knowledge, attitude, and behaviour of adolescents in Nigeria. *Nutrition and Health*, 24 (3), 137-144.

FAO, 2010. *Uganda nutrition profile. Nutrition and consumer protection division*. Kampala, Uganda: Food and Agriculture Organization.

Fayemi, M., Momoh, G., Oduola, O, Delano, G., Ladipo, O. and Adebola, O., 2011. Community based distribution agents, approach to provision of family planning information and services in five Nigerian States: A mirage or a reality? *African Journal of Primary Health Care & Family Medicine*, 3 (1).

Fernandes, C., Martins, M., Gomes, B., Gomes, J. and Goncalves, L., 2016. Family Nursing Game: Developing a board game. *ESC Anna Nery*, 20 (1), 33-37.

Fiorini, L., Griffiths, A. and Houdmont, J., 2016. Mixed methods research in the health sciences: A review. *Malta Journal of Health Sciences*.

Fisher, D., Khashu, M., Adama, E. A., Feeley, N., Garfield, C. F., Ireland, J., Koliouli, F., Lindberg, B., Nørgaard, B., Provenzi, L., Thomson-Salo, F. and

van Teijlingen, E., 2018. Fathers in neonatal units: Improving infant health by supporting the baby-father bond and mother-father coparenting. *Journal of Neonatal Nursing*, 24 (6), 306-312.

Fonseca, L., Scochi, C. and De Mello, D., 2002. Health education for puerperal women in neonatal rooming-in: knowledge acquisition with an educational game. *Rev Lat Am Enfermagem*, 10 (2), 166-171.

Forbes, F., Wynter, K., Wade, C., Zeleke, B. M. and Fisher, J., 2018. Male partner attendance at antenatal care and adherence to antenatal care guidelines: secondary analysis of 2011 Ethiopian demographic and health survey data. *BMC Pregnancy Childbirth*, 18 (1), 145.

Gabrysch, S. and Campbell, O., 2009. Still too far to walk. Literature review of the determinants of delivery service use. *BMC pregnancy and childbirth*, 9 (34), 1471 - 2393.

Ganle, J., Obeng, O., Segbefia, A., Mwinyuri, V., Yeboah, J. and Baatiema, L., 2015. How intra-familial decision-making affects women's access to, and use of maternal healthcare services in Ghana: A qualitative study. *BMC Pregnancy and Childbirth*, 15.

Ganle, J. K. and Dery, I., 2015. 'What men don't know can hurt women's health': a qualitative study of the barriers to and opportunities for men's involvement in maternal healthcare in Ghana. *Reproductive Health*, 12, 93.

Ganle, J. K., Dery, I., Manu, A. A. and Obeng, B., 2016. 'If I go with him, I can't talk with other women': Understanding women's resistance to, and acceptance of, men's involvement in maternal and child healthcare in northern Ghana. *Social Science and Medicine*, 166, 195-204.

Gauthier, A., Kato, P., Bul, K., Dunwell, I., Walker-Clarke, A. and Lameras, P., 2019. Board games for health: A systematic literature review and meta-analysis. *Games for Health Journal*, 8 (2).

Gibson, V. D., M, 2013. Criticality: The experience of developing an interactive educational tool based on board games. *Nurse Education Today*, 33, 1612-1616.

Glanz, K. and Rimer, B., 2005. Theory at a glance. A guide for health promotion. United States department of health and human services, National institute of health.

Gontijo, D., Vasconcelos, A., Monteiro, J., Facundes, L., Trajano, F. and de Lima, S., 2016. Occupational therapy and sexual and reproductive health promotion in adolescence: A case study. *Occupational Therapy International*, 23, 19-28.

GOV, 2011. *Uganda nutrition action plan 2011-2016. Scaling up multi-sectoral efforts to establish a strong nutrition foundation for Uganda`s development*. Kampala, Uganda: Government of Uganda.

GOV, 2014. *The state of Uganda population report 2014. Harnessing Uganda`s demographic dividend for socio-economic transformation*. Kampala, Uganda.

Graham, W., Bell, J. and Bullough, C., 2001. Can skilled attendance at delivery reduce maternal mortality.

Greene, M. and Biddlecom, A., 2000. Absent and Problematic Men: Demographic accounts of male reproductive roles. *Demography*, 26, 81-115.

Greene, M., Mehta, M., Pulerwitz, J., Wulf, D., Bankole, A. and Singh, S., 2004. Involving men in reproductive health: Contributions to development. Background paper to the report, public choices, private decisions. Sexual and Reproductive Health and the Millennium Development Goals.

Greenspan, J. A., Chebet, J. J., Mpembeni, R., Mosha, I., Mpunga, M., Winch, P. J., Killewo, J., Baqui, A. H. and McMahon, S. A., 2019. Men's roles in care seeking for maternal and newborn health: a qualitative study applying the three delays model to male involvement in Morogoro Region, Tanzania. *BMC Pregnancy Childbirth*, 19 (1), 293.

Guba, E., 1981. Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology*, 29 (2), 75-91.

Guillemin, M. and Gillam, L., 2004. Ethics, reflexivity and ethically important moments in research. *Qualitative Inquiry*, 10 (2), 261-280.

Hong, Q., Pluye, P., Fabregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M., Griffiths, F., Nicolau, B., O`Cathain, A., Rousseau, M. and Vedel, I., 2019. Improving the content validity of the mixed methods appraisal tool: A modified e-Delphi study. *Journal of Clinical Epidemiology*, 49-59.

Hooper, R., 2017. *Justifying sample size for a feasibility study. National Institute for Health Research. Research Design Service.* [online]. London, UK: Available from: 20/06/2017].

Ireland, J., Khashu, M., Crescutti-Butler, L., van Teijlingen, E. and Hewitt-Taylor, J., 2016. Experiences of fathers with babies admitted to neonatal care units: A review of the literature. *Journal of Neonatal Nursing*, 22 (4), 171-176.

Jegede, S., 2009. African ethics, health care research, community and individual participation. *Journal of Asian and African studies*, 44 (2), 239-253.

Jennings, L., Muzi, N., Cherewick, M., Hindin, M., Mullany, B. and Ahmed, S., 2014. Women`s empowerment and male involvement in antenatal care: Analyses of Demographic and Health Surveys (DHS) in selected African countries. *BMC Pregnancy and Childbirth*, 14 (297), 1471-2393.

Johnson, B., Onwuegbuzie, J. and Turner, A., 2007. Toward a definition of mixed methods research. *Journal of mixed methods research*, 1, 112-133.

Johnson, R. and Onwuegbuzie, J., 2004. Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33 (7), 14-26.

Jugder, N., 2016. The thematic analysis of interview data: An approach used to examine the influence of the market on curricular provision in Mongolian higher education institutions.

Julious, S., 2005. Sample size of 12 per group rule of thumb for a pilot study. *Pharm Stat*, (4), 287-291.

Kabakyenga, J., Ostergren, P., Turyakira, E. and Pettersson, K., 2012. Influence of birth preparedness, decision-making on location of birth and assistance by skilled birth attendants among women in South-Western Uganda. *PLos One*, 7 (4).

Kakaire, S., 2018. Bobi Wine: The making of people power. *The Observer*. Available from: https://observer.ug/news/headlines/58538-bobi-wine-the-making-of-people-power [Accessed 20/01/2020].

Kamal, I., 2002. Field experiences in involving men in safe motherhood.

Kansiime, N., Atwine, D., Nuwamanya, S. and Bagenda, F., 2017. Effect of Male Involvement on the Nutritional Status of Children Less Than 5 Years: A Cross Sectional Study in a Rural Southwestern District of Uganda. *Journal of Nutrition and Metabolism*, 2017, 3427087.

Karim, K., 2001. Assessing the strengths and weaknesses of action research. *Nursing Standard*, 15 (26), 33-35.

Kasule, A., Asara, H. and Tiko, J., 2020. *Seeking maternity care in a pandemic: Navigating travel restrictions* [online]. White Ribborn Alliance. Available from:https://www.whiteribbonalliance.org/seeking-maternity-care-in-a-pandemic-navigating-travel-restrictions/ [Accessed 25/09/2020].

Kaushik, V. and Walsh, C. A., 2019. Pragmatism as a research paradigm and its implications for social work research. *Social Sciences*, 8 (9), 255.

Kawungezi, P., AkiiBua, A, Aleni, A., Chitayi, M., Niwaha, A., Kazibwe, A., Sunya, E., Mumbere, E., Mutesi, C., Tukei, C., Kasangaki, A. and Nakubulwa, S., 2015. Attendance and Utilization of Antenatal Care (ANC) Services: Multi-Centre Study in Upcountry Areas of Uganda. *Open J Prev Med*, 5 (3), 132–142.

Kaye, D., Kakaire, O., Nakimuli, A., Osinde, M., Mbalinda, S. and Kakande, N., 2014. Male involvement during pregnancy and childbirth: Men`s perceptions, practices and experiences during the care for women who developed childbirth complications in Mulago hospital, Uganda. *BMC Pregnancy Childbirth*, 14 (54).

Keenan, K. and van Teijlingen, E., 2004a. The quality of qualitative research in family planning and reproductive health care. *Journal of Family Planning and Reproductive Health Care*, 30 (4), 257-259.

Keenan, K. and van Teijlingen, E., 2004b. The quality of qualitative research in family planning and reproductive health care. *Journal of Family Planning and Reproductive Health Care*, 30 (4), 257-259.

Kennedy, A., Semple, L., Alderson, K., Bouskill, V., Karasevich, J., Riske, B. and van Gunst, S., 2017. Don`t push your luck! Educational family board (not bored) game for school-age children living with chronic conditions. *Journal of Pediatric Nursing*, 35, 57-64.

Khan, K., Wojayla, D., Gulmezoglu, A. and Look, P., 2006. World Health Organization Systematic Review of Causes of Maternal Deaths. *Lancet*, 367, 1066-1074.

Khazaal, Y., Chatton, A., Prezzemolo, R., Zebouni, F., Edel, Y., Jacquet, J., Ruggeri, O., Burnes, E., Monney, G., Protti, A., Etter, J., Khan, R., Cornuz, J. and Zullino, D., 2013. Impact of a board-game approach on current smokers: A randomized controlled trial. *Substance Abuse Treatment, Prevention, and Policy*, 8 (3).

Kiwanuka, S., 2015. Male Involvement in Maternal Health: Helpful or Harmful? [online]. 20/06/2017.Available from: https://www.mhtf.org/2015/01/30/male-involvement-in-maternal-health-helpful-or-harmful/ [Accessed

Kolb, D., 1984. *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.

Kuhn, T., 1996. *The structure of scientific revolutions*. 3 edition. Chicago: University of Chicago Press.

Kululanga, L., Sundby, J. and Chirwa, E., 2012. Male Involvement in Maternity Health Care in Malawi. *African journal of reproductive health*, 16 (1).

Kumar, J. S., 2017. The psychology of colour Influences consumers' buying behaviour – A diagnostic study. *Journal of Business Management*, 16 (4), 1-13.

Kyomuhendo, G., 2003. Low Use of Rural Maternity Services in Uganda: Impact of Women's Status, Traditional Beliefs and Limited Resources. *Reproductive Health Matters*, 11 (21), 16-26

Ladur, A., 2011. *Factors influencing male involvement in prevention of mother-to-child transmission services in Khayelitsha, Cape Town, South Africa.* (Master`s Degree in Public Health). University of Cape Town.

Ladur, A., Colvin, C. and Stinson, K., 2015. Perceptions of Community Members and Healthcare Workers on Male Involvement in Prevention of Mother-To-Child Transmission Services in Khayelitsha, Cape Town, South Africa. *PL0S ONE*, 10 (7).

Ladur, A. N., van Teijlingen, E. and Hundley, V., 2018. `Whose Shoes?` Can an educational board game engage Ugandan men in pregnancy and childbirth? *BMC Pregnancy Childbirth*, 18 (1), 81.

Laisser, R., Chimwaza, A., Omoni, G., McGowan, L., Maclean, G., Wakasiaka, S. and Lavender, T., 2018. Crisis: An educational game to reduce mortality and morbidity. *African Journal of Midwifery and Women's Health*, 13 (2), 1-6.

Lancaster, G., Dodd, S. and Williamson, P., 2004. Design and analysis of pilot studies: Recommendations for good practice. *J Eval Clin Practice*, 307-312.

Lavender, T., Omoni, G., Laisser, R., McGowan, L., Wakasiaka, S., Maclean, G. and Chimwaza, A., 2019. Evaluation of an educational board game to improve use of the partograph in sub-Saharan Africa: A quasi-experimental study. *Sexual and Reproductive Healthcare*, 20, 54-59.

Lennon, L. and Coombs, W., 2005. The good-bye to denque game: Debriefing study. *Simulation and Gaming*, 36 (4), 499-517.

Lewis, S., Lee, A. and Simkhada, P., 2015. The role of husbands in maternal health and safe childbirth in rural Nepal: A qualitative study. *BMC Pregnancy Childbirth*, 15, 162.

Lincoln, Y., Lynham, S. and Guba, E. (Eds.), 2011. *Paradigmatic controversies, contradictions and emerging confluences*. Thousand Oaks, California: SAGE.

lliyasu, Z., Abubakar, I., Galadanci, H. and Aliyu, M., 2010. Birth preparedness, complication readiness and father`s participation

maternity care in a Northern Nigerian Community. *African Journal of Reproductive Health*, 14 (1), 21.

Long, L., Caruso, A., Mamani, M., Camacho, G., Vancraeynest, K. and Freeman, C., 2015. Developing games as a qualitative method for researching menstrual hygiene management in rural Bolivia. *Waterlines*, 34 (1).

Lowe, M., 2017. Social and cultural barriers to husbands`involvement in maternal health in rural Gambia. *Pan African Medical Journal*, 27 (255).

Mack, N., Woodsong, C., MacQueen, M., Guest, G. and Namey, E., 2011. *Qualitative research methods: A data collector`s field guide*. North Carolina, USA: Family Health International.

Magoma, M., Requejo, J., Campbell, OMR, Cousens, S. and Filippi, V., 2010. High antenatal care coverage and low skilled attendance in a rural Tanzanian district: a case for implementing a birth plan intervention. *BMC Pregnancy and Childbirth*, 10 (13), 1471-2393.

Mahiti, G. R., Mbekenga, C. K., Kiwara, A. D., Hurtig, A. K. and Goicolea, I., 2017. Perceptions about the cultural practices of male partners during postpartum care in rural Tanzania: A qualitative study. *Glob Health Action*, 10 (1), 1361184.

Maman, S., Moodley, D. and Groves, A. K., 2011. Defining male support during and after pregnancy from the perspective of HIV-positive and HIV-negative women in Durban, South Africa. *Journal of Midwifery and Womens Health*, 56 (4), 325-331.

Midhet, F. and Becker, S., 2010. Impact of community-based interventions on maternal and neonatal health indicators: Results from a community randomized trial in rural Balochistan, Pakistan. *Reproductive Health*, 7, 30.

Mkandawire, E. and Hendriks, S. L., 2018. A qualitative analysis of men's involvement in maternal and child health as a policy intervention in rural Central Malawi. *BMC Pregnancy Childbirth*, 18 (1), 37.

Mkandawire, E. and Hendriks, S. L., 2019. "The role of the man is to look for food": Lessons from men's involvement in maternal and child health programmes in rural Central Malawi. *PLoS One*, 14 (8), e0221623.

MOH, 2009. *Uganda, Ministry of Health statistical abstract 2008/09*. Kampala, Uganda: Ministry of Health.

MOH, 2013. *National health accounts report* [online]. Kampala, Uganda: Ministry of Health. Available from:

MOH, 2015a-a. Health sector development plan 2015/16-2019/20. Kampala, Uganda: Ministry of Health.

MOH, 2015a-b. *National village health teams (VHT) assessment in Uganda*. Kampala, Uganda: Ministry of Health.

MOH, 2015b-a. *Annual health sector performance report: Financial year 2014/2015*. Kampala, Uganda: Ministry of Health.

MOH, 2015b-b. *Human resources for health bi-annual report. Improving human resources for health evidence for decision making 2014-2015*. Kampala, Uganda: Ministry of Health.

MOH, 2015c. *Annual health sector performance report: Financial year 2014/2015*. Kampala, Uganda: Ministry of Health.

MOH, 2015d. *Human resources for health bi-annual report. Improving human resources for health evidence for decision making 2014-2015*. Kampala, Uganda: Ministry of Health.

MOH, 2016. *Uganda hospital and health centre IV census survey 2014.*

MOH, 2019. *Annual Health Sector Performance Report*. Kampala, Uganda: Ministry of Health.

Mohlala, B., Boily, M. and S., G., 2011. The forgotten half of the equation: randomized controlled trial of a male invitation to attend couple voluntary counselling and testing. *AIDS*, 25 (12), 1535-1541.

Morfaw, F., Mbuagbaw, L., habane, L., Rodrigues, C., Wunderlich, A. and Nana, P., 2013. Male involvement in programs of mother to child transmission of HIV: A systematic review to identify barriers and facilitators. *Systematic Reviews*, 2 (5).

Morgan, R., Tetui, M., Muhumuza Kananura, R., Ekirapa-Kiracho, E. and George, A. S., 2017. Gender dynamics affecting maternal health and health care

access and use in Uganda. *Health Policy and Planning*, 32 (suppl_5), v13-v21.

Mullany, B. C., Becker, S. and Hindin, M. J., 2007. The impact of including husbands in antenatal health education services on maternal health practices in urban Nepal: results from a randomized controlled trial. *Health Eduction Research*, 22 (2), 166-176.

Mullick, S., Kunene, B. and Wanjiru, M., 2005. Involving men in maternity care: Health service delivery issues. *Agenda Special Focus*.

Muloongo, H., Sitali, D., Zulu, J. M., Hazemba, A. N. and Mweemba, O., 2019. Men's perspectives on male participation in antenatal care with their pregnant wives: a case of a military hospital in Lusaka, Zambia. *BMC Health Services Research*, 19 (1), 463.

Mushi, D., Mpembeni, R. and Jahn, A., 2010. Effectiveness of community based safe motherhood promoters in improving the utilization of obstetric care. The case of Mtwara Rural District in Tanzania. *BMC Pregnancy & Childbirth*, 10, 14-14 11p.

Nabatanzi, V., 2019. Most Ugandans sell assets to pay medical bills - survey. *The New Vision*.

Nabudere, H., Asiimwe, D. and Amandua, J., 2012. *Improving access to skilled attendance at delivery*. Kampala, Uganda: Regional East African Community Health (REACH).

NPA, 2013. *Uganda Vision 2040.*

NRM, 2010. *Constitution of the national resistance movement (NRM)*. Kampala, Uganda.

Nyakato, C. and Rwabukwali, C., 2013. Couple relations, decision-making hierarchy and use of maternal health care in rural Uganda. *European Academic Research*, 1 (6).

Nyakato, V. and Rwabukyali, C., 2013. Couple Relations, Decision-making Hierarchy and Use of Maternal Health Care in Rural Uganda. *European Academic Research*, 1 (6).

Okitika, T. A., Barnabas, R. V., Rue, T., Weisman, J., Harris, N. A., Orenstein, W. A. and Wasserheit, J. N., 2015. "Polio eradication" game may increase public interest in global health. *Games Health Journal*, 4 (3), 195-201.

Olympio, P. and Alvim, N. A. T., 2018. Board games: Gerotechnology in nursing care practice. *Revista Brasileira de Enfermagem*, 71 Suppl 2, 818-826.

Onchong`a, J., Were, T. and Osero, J., 2016. Knowledge, perception and level of male partner involvement in choice of delivery site among couples at coast level hospital, Mombasa County, Kenya. *African Journal of Reproductive Health*, 20 (1).

Pallangyo, E., Nakate, M., Maina, R. and Fleming, V., 2020. The impact of COVID-19 on midwives` practice in Kenya, Uganda and Tanzania: A reflective account. *Midwifery*, 89 (102775).

Parkhurst, J. and Ssengooba, F., 2009. Assessing access barriers to maternal health care: measuring bypassing to identify health centre needs in rural Uganda. *Health Policy & Planning*, 24 (5), 377-384 378p.

Pearson, M. and Marshall, J., 2014. Exploring father`s influence on their partner`s choice regarding place of birth. *MIDIRS Midwifery Digest*, 24 (2).

Peneza, A. K. and Maluka, S. O., 2018. 'Unless you come with your partner you will be sent back home': Strategies used to promote male involvement in antenatal care in Southern Tanzania. *Global Health Action*, 11 (1), 1449724.

Phillips, G., 2016. *Whose shoes? board game* [online]. Available from: http://nutshellcomms.co.uk/product/ [Accessed 31/05/2016].

Pon, A. K. L., 2010. My wonderful life: A board game for patients with advanced cancer. *Illness, Crisis & Loss*, 18 (2), 147-161.

Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K. and Duffy, S., 2006. Guidance on the conduct of narrative synthesis in systematic reviews. A product from the ESRC methods programme.

Ramani, S., Konings, K., Mann, K. and van der Vleuten, C., 2018. A guide to reflexivity for qualitative researchers in education. *Academic Medicine*, 93 (1257).

Rapley, T., 2011. Ethics and recording data. In: Doing conversation, discourse and document analysis. *Sage Research Methods*, 24-33.

Redshaw, W. and Henderson, J., 2013. Father`s engagement in pregnancy and childbirth:Evidence from a national survey. *BMC Pregnancy and Childbirth*, 13 (70), 1471-2393.

Reece, M., Hollub, A., Nangami, M and Lane, K., 2010. Assessing male spousal engagement with prevention of mother-to-child transmission (PMTCT) programs in Western Kenya. *AIDS Care*, 22 (6), 743-750.

Reeves, S., Pelone, F., Hendry, J., Lock, N., Marshall, J., Pillay, L. and Wood, R., 2016. Using a meta-ethnographic approach to explore the nature of facilitation and teaching approaches employed in inter professional education. *Medical Teacher*, 38 (12), 1221-1228.

Regmi, P., Waithaka, E., Paudyal, A., Simkhada, P. and van Teijlingen, E., 2016. Guide to the design and application of online questionnaire surveys. *Nepal Journal of Epidemiology*, 6 (4), 640-644.

Richardson, D. and Birge, B., 1995. Teaching physiology by combined passive (pedagogical) and active (andragogical) methods. *Am J Physiol*, (268), S66-S74.

Roberton, T., Carter, E., Chou, V., Stegmuller, A., Jackson, B., Tam, Y., Sawadogo-Lewis, T. and Walker, N., 2020. Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: A modelling study. *Lancet Global Health*, 8, e901-908.

Sahip, Y. and Turan, J., 2007. Education for expectant fathers in work places in Turkey. *Journal of Biosocial Science*, 39, 843–860.

Saunders, M., Lewis, P. and Thornhill, A., 2009. *Research methods for business students*. New York, United States of America: Pearson.

Sensalire, S., Isabirye, P., Karamagi, E., Byabagambi, J., Rahimzai, M. and Calnan, J., 2019. Saving mothers, giving life approach for strengthening health systems to reduce maternal and newborn deaths in 7 scale-up districts in Northern Uganda. *Global Health: Science and Practice*, 7.

Sharma, S., Kc, B. and Khatri, A., 2018. Factors influencing male participation in reproductive health: A qualitative study. *Journal of Multidisciplinary Healthcare*, 11, 601-608.

Sharma, S., Teijlingen, E., Belizan, J., Hundley, V., Simkhada, P. and Sicuri, E., 2016. Measuring what works: An impact evaluation of women`s groups on maternal health uptake in rural Nepal. *PLoS ONE*, 11 (5).

Shenton, A., 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22, 63-75.

Shimazaki, A., Honda, S., Dulnuan, M., Chunanon, J. and Matsuyama, A., 2013. Factors associated with facility based delivery in Mayoyao, Ifugao Province, Phillippines, Asia. *Pacific Family Medicine*, 12 (5).

Siddaway, A., Wood, A. and Hedges, L., 2019. How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses and meta-syntheses. *Annual Review of Psychology*, 70, 747-770.

Sim, J. and Lewis, M., 2012. The size of a pilot study for a clinical trial should be calculated in relation to considerations of precision and efficiency. *J Clin Epidemiol*, 65, 301-308.

Sim, J. and Waterfield, J., 2019. Focus group methodology: some ethical challenges. *Quality & Quantity*, 53 (6), 3003-3022.

Simkhada, B., Van Teijlingen, E., Porter, M. and Simkhada, P., 2008. Factors affecting the utilization of antenatal care in developing countries: systematic review of the literature. *Journal of Advanced Nursing*, 61 (3), 244–260.

Singh, D., Lample, M. and Earnest, J., 2014. The involvement of men in maternal health care: Cross-sectional, pilot case studies from Maligita and Kibibi, Uganda. *Reproductive Health*, 11 (68).

Smith, P., Morrow, R. and Ross, D., 2015. *Field trials of health interventions: A tool box.* 3rd edition. Oxford, UK: OUP Oxford.

Snilstveit, B., Oliver, S. and Vojtkova, M., 2012. Narrative approaches to systematic review and synthesis of evidence for international development policy and practice. *Journal of Development Effectiveness*, 4 (3).

Sternberg, P. and Hubley, J., 2004. Evaluating men's involvement as a strategy in sexual and reproductive health promotion. *Health Promotion International*, 19 (3), 389-396.

Tariq, S. and Woodman, J., 2010. Using mixed methods in health research. *Journal of the Royal Society of Medicine Short Reports*, (0), 1-8.

Thaddeus, S. and Maine, D., 1994. Too far to walk: Maternal mortality in context. *Social Science & Medicine*, 38 (8), 1091-1110.

Tokhi, M., Comrie-Thomson, L., Davis, J., Portela, A., Chersich, M. and Luchters, S., 2018. Involving men to improve maternal and newborn health: A systematic review of the effectiveness of interventions. *PLoS One*, 13 (1), e0191620.

Traore, A., Querre, M., Brou, M., Leroy, V., Desclaux, B. and Desgrees, A., 2009. Couples, PMTCT programs and infant feeding decision-making in Ivory Coast. *Social Science and Medicine*, 69 (6), 830-837.

Tufte, T., 2005. *Entertainment-education in development communication: Between marketing behaviors and empowering people*. Argentina: NORDICOM.

Turan, J. M., Tesfagiorghis, M. and Polan, M. L., 2011. Evaluation of a community intervention for promotion of safe motherhood in Eritrea. *Journal of Midwifery and Womens Health*, 56 (1), 8-17.

Tweheyo, R., Lule, J., Tumwesigye, N. and Sekandi, J., 2010. Male partner attendance of skilled antenatal care in peri-urban Gulu district, Northern Uganda. *BMC Pregnancy and Childbirth*, 10 (53).

UBOS, 2007. *Uganda demographic and health survey 2006*. Kampala, Uganda: Uganda Bureau of Statistics.

UBOS, 2012. *Uganda demographic survey 2011.*

UBOS, 2016. *The national population and housing census 2014.*

UBOS, 2017. *The National Population and Housing Census 2014 - Education: A means for Population Transformation in the Thematic Report Series*. Kampala, Uganda: Uganda Bureau of Statistics.

UBOS, 2018. *Uganda demographic and health survey 2016.*

UBOS, 2019. *Gender issues in Uganda: An analysis of gender based violence, asset ownership and employment*. Kampala, Uganda: Uganda Bureau of Statistics and Ministry of Gender, Labour and Social Development.

UNDP, 2015. *Uganda country gender assessment*.

UNFPA, 2004a. *Maternal mortality update 2004. Delivering into good hands*. United Nations Population Fund.

UNFPA, 2004b. *Programme of action. Adopted at the international conference on population and development, Cairo, 5-13 September 1994*.

UNFPA, 2006. *Maternal and Neonatal Health in East and South-East Asia*. United Nations Population Fund.

UNFPA, 2014. *The state of the world`s midwifery 2014: A universal pathway. A woman`s right to health*. USA: United Nations Population Fund.

UNICEF, 2007. *The state of the world`s children: Chapter 2. Equality in the household*. Geneva, Switzerland: United Nations Children`s Fund.

UNICEF, 2014. *Ending child marriage: Progress and Prospects*. New York, USA: United Nations Children`s Fund.

van der Stege, H. A., Hilberink, S. R., Bakker, E. and van Staa, A., 2016. Using a board game about sexual health with young people with chronic conditions in daily practice: A research into facilitating and impeding factors. *Sexuality and Disability*, 34 (3), 349-361.

van der Stege, H. A., van Staa, A., Hilberink, S. R. and Visser, A. P., 2010. Using the new board game SeCZ TaLK to stimulate the communication on sexual health for adolescents with chronic conditions. *Patient Education and Counselling*, 81 (3), 324-331.

van Teijilingen, E. and Hundley, V., 2001. The importance of pilot studies. (35).

van Teijlingen, E. and Forrest, K., 2004. The range of qualitative research methods in family planning and reproductive health care. *Journal of Family Planning and Reproductive Health Care*, 30, 171-173.

van Teijlingen, E., Napper, M., Bruce, J. and Ireland, J., 2006. Systematic reviews in midwifery. *MIDWIVES The official journal of the Royal College of Midwives*, 9 (5).

van Teijlingen, E. and Pitchforth, E., 2006. Focus group research in family planning and reproductive health care. *Journal of Family Planning and Reproductive Health Care*, 32 (1), 30-32.

van Teijlingen, E., Simkhada, B., Porter, M., Simkhada, P., Pitchforth, E. and Bhatta, P., 2011a. Qualitative research and its place in health research in Nepal. *Kathmandu University Medical Journal*, 9 (36), 301-305.

van Teijlingen, E. R. and Hundley, V., 2001. The importance of pilot studies. *Social Research Update* [online], (35).

van Teijlingen, E. R., Simkhada, B., IReland, J., Simkhada, B. and Bruce, J., 2011b. Evidence-based health care in Nepal: The importance of systematic reviews. *Nepal Journal of Epidemiology*, 1 (4), 114-118.

van Teijlingen, E. R. and Simkhada, P. P., 2012. Ethical approval in developing countries is not optional. *Journal of Medical Ethics*, 38 (7), 428-430.

Varkey, L., Mishra, A., Das, A., Ottolenghi, E., Huntington, D. and Adamchak, S., 2004. Involving men in maternity care in India.

Villar, J. and Bergsjo, P., 2002. *WHO programme to map best reproductive health practices: WHO Antenatal Care Randomized Trial: Manual for the implementation of the new model*.

Waite, L. and Cook, J., 2011. Belonging among diasporic African communities in the UK: Plurilocal homes and simultaneity of place attachments. *Emotion, Space and Society*, 4 (11), 238-248.

Wanyama, J. N., Castelnuovo, B., Robertson, G., Newell, K., Sempa, J., Kambugu, A., Manabe, Y. C. and Colebunders, R., 2012. A randomized controlled trial to evaluate the effectiveness of a board game on patient`s knowledge uptake of HIV and sexually transmitted diseases at the

infectious diseases institute, Kampala, Uganda. *Journal of Acquired Immune Deficiency Syndromme*, 59 (3).

Whittam, M. and Chow, W., 2017. An educational board game for learning and teaching burn care: A preliminary evaluation. *Scars, Burns and Healing*, 3 (1), 1-5.

WHO, 2004. Making pregnancy safer: the critical role of the skilled attendant. A joint statement by WHO, ICM and FIGO.

WHO, 2012a. *The WHO Application of ICD-10 to deaths during pregnancy, childbirth and the puerperium: ICD-MM*.

WHO, 2012b. *Addressing the challenge of women`s health in Africa: Report of the commission on women`s health in the African region*. Brazzaville, Congo: World Health Organization.

WHO, 2015a. *Health in 2015 from MDGs, Millennium Development Goals to SDGs, Sustainable Development Goals*. Geneva, Switzerland: World Health Organisation.

WHO, 2015b. *WHO Recommendations on health promotion interventions for maternal and newborn health 2015.* Geneva, Switzerland: World Health Organization.

WHO, 2016. *World Health Statistics 2016. Monitoring health for the SDGs, Sustainable Development Goals*. Geneva, Switzerland: World Health Organization.

WHO, 2018. *Uganda: Country cooperation strategy at a glance* [online]. World Health Organization. Available from: 21/10/2020].

Wiener, L., Battles, H., Mamalian, C. and Zadeh, S., 2011. Shop talk: A pilot study of the feasibility and utility of a therapeutic board game for youth living with cancer. *Support Care Cancer*, 19 (7), 1049-1054.

Wikipedia, 2019. *Ludo board game* [online]. Available from: https://en.wikipedia.org/wiki/Ludo_(board_game) [Accessed 02/09/2019].

Wild, J., 2005. New fathers, work and parenthood. *Midwives*, 8 (5), 226-227.

Wildman, S. and Reeves, M., 1996. The utilization and evaluation of a simulation game in pre-registration nurse education. *Nurse Educ Today*, 16, 334-339.

Yargawa, J. and Leonard-Bee, J., 2015. Male involvement and maternal health outcomes: Systematic review and meta-analysis. *Journal of Epidermiol Community Health*, 69, 604-612.

Yargawa, J. and Leonardi-Bee, J., 2015. Male involvement and maternal health outcomes: Systematic review and meta-analysis. *J Epidemiol Community Health*, 1-9.

Yeoman, A. and Storey, N., 2016. Encouraging intense and creative debate: The care certificate game. *British Journal of Healthcare Assistants*, 10 (12).

Zagal, J. P., Rick, J. and Hsi, I., 2006. Collaborative games: Lessons learned from board games. *Simulation & Gaming*, 37 (1), 24-40.

Appendices

Appendix 1 Data extraction form for included studies

Structured literature review: Perceptions and acceptability of educational board games in health

1	Author and date
	Pon, AKL, 2010
2	Publication title
	My wonderful life: A board game for patients with advanced cancer
3	Extracted by / Date extracted
	Alice Ladur / 25/10/2019
4	Review objective
	To explore perceptions and acceptability of educational board games as a health promotional tool
5	Outcomes assessed in the paper
	• Board game characteristics • Duration and location • Health topic/area covered • Positive/ negative game experiences, likes / dislikes • Helpful / not helpful in facilitating learning • Stand-alone intervention or as part of a multi-component program
6	Methodology
	Qualitative paper – semi-structured interviews conducted immediately after the game
7	Findings

	• Stand-alone intervention as a therapeutic strategy for end of life cancer patients/death preparation for individuals and family. Adult patients at a hospice facility in Shenzhen, China • Safe space to talk about difficult subject/emotions impending death • Opportunity to find closure/reconciliation, hope and a sense of control and distraction from pain (helpful aspects of the game) • Enhanced positive thoughts/participants were relaxed • Teamwork • Participants undertook some actions after the game followed up by the facilitator
8	Author`s conclusions
	A relatively good paper – author provides method used and questions asked Nothing is said about ethics, data analysis processes though the game and rationale is candidly described
9	Quality appraisal
	Moderate

Appendix 2 Quality appraisal tools

Appendix 2.1 CASP tool for qualitative research

Study: Pon 2010, My wonderful life: A board game for patients with advanced cancer

Category	Checklist	Yes	No	Can't tell
General questions	Was there a clear statement of the aims of the research?	X		
	Is a qualitative methodology appropriate?	X		
	Further appraisal is not feasible or appropriate when the answer is NO or CAN`T TELL to one or both screening questions			
Specific questions	Was the research design appropriate to address the aims of the research?	X		
	Was the recruitment strategy appropriate to the aims of the research?	X		
	Was the data collected in a way that addressed the research issue?	X		
	Has the relationship between researcher and participants been adequately considered?			X
	Have ethical issues been taken into consideration?	X		
	Was the data analysis sufficiently rigorous?			X
	Is there a clear statement of findings?	X		
	How valuable is the research?	X		

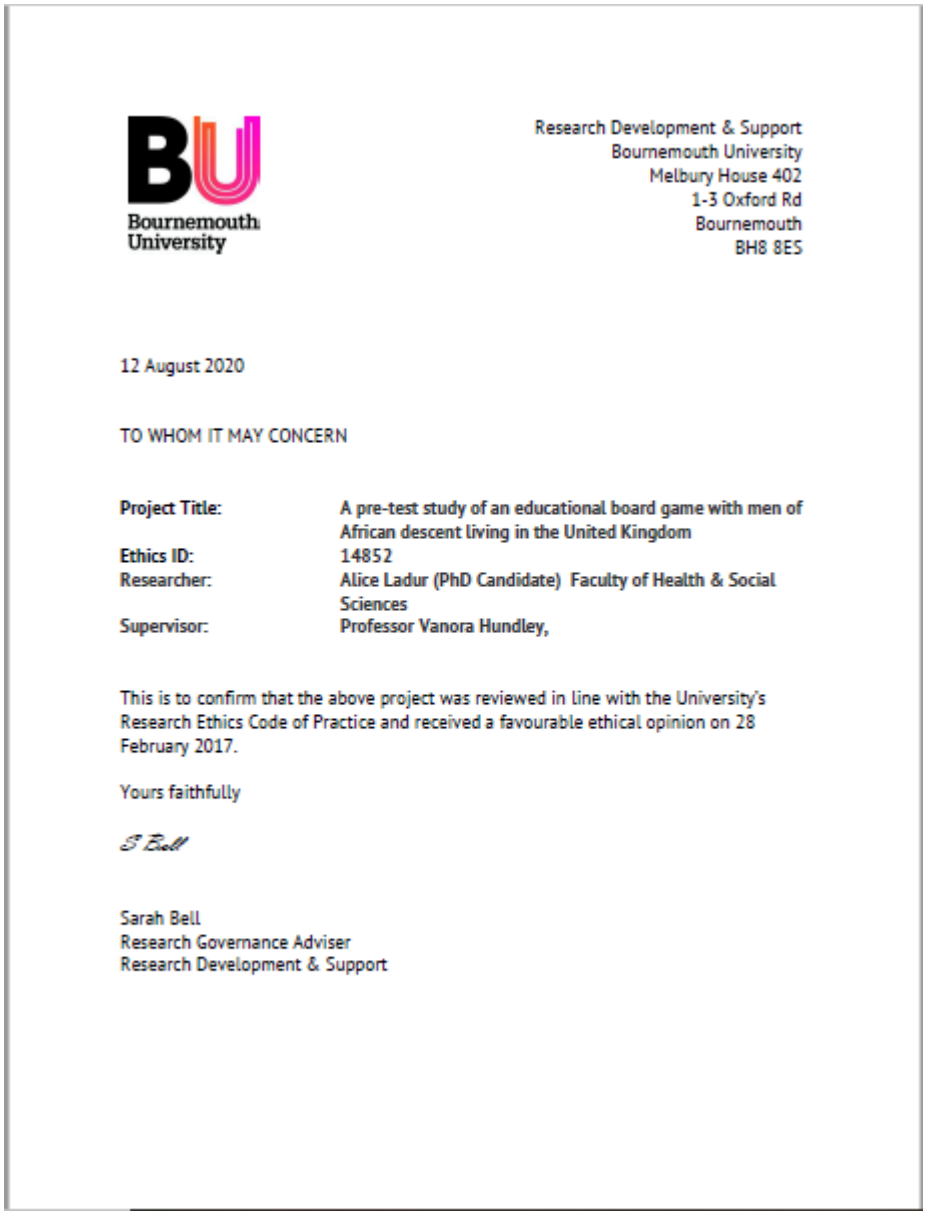
Appendix 2.2 Mixed Methods Appraisal Tool

Study: Iliyasu et al. 2010. Birth preparedness, complication readiness and father`s participation maternity care in a Northern Nigerian Community

Mixed methods	Methodological quality criteria	Yes	No	Can't tell	Comments
Screening questions (general)	Are there clear research questions	X			
	Do the collected data allow to address the research questions?	X			
	Further appraisal is not feasible or appropriate when the answer is NO or CAN`T TELL to one or both screening questions				
Specific questions	Is there an adequate rationale for using a mixed methods design to address the research question?			X	
	Are the different components of the study effectively integrated to answer the research question?	X			
	Are the divergencies and inconsistencies between quantitative and qualitative results adequately addressed?			X	
	Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	X			

Appendix 3 Pilot study in London

Appendix 3.1 BU ethics approval letter



Research Development & Support
Bournemouth University
Melbury House 402
1-3 Oxford Rd
Bournemouth
BH8 8ES

12 August 2020

TO WHOM IT MAY CONCERN

Project Title:	**A pre-test study of an educational board game with men of African descent living in the United Kingdom**
Ethics ID:	**14852**
Researcher:	**Alice Ladur (PhD Candidate) Faculty of Health & Social Sciences**
Supervisor:	**Professor Vanora Hundley,**

This is to confirm that the above project was reviewed in line with the University's Research Ethics Code of Practice and received a favourable ethical opinion on 28 February 2017.

Yours faithfully

S Bell

Sarah Bell
Research Governance Adviser
Research Development & Support

Appendix 3.2 Participant information sheet

A pre-test study of an educational board game with men of African descent living in the United Kingdom

Participant information sheet

We would like to invite you to take part in a research project. Before you make a decision, you need to understand why the research is being done and what it will involve. Please take time to read the following information carefully and ask questions if anything is not clear or you would like more information. Please take time to decide whether or not to take part.

The researcher

My name is Alice Ladur and I am a postgraduate research student at Bournemouth University (BU). I am exploring the use of education board games with men in promotion of safe motherhood. I am keen on learning about your experiences playing the game, and whether this method of learning has made an influence on your decision to support pregnant women to give birth at a health facility.

I have chosen this subject because there is evidence suggesting that men influence decisions on women`s ability to seek healthcare services when pregnant. Giving birth at a health facility may ensure safe delivery for pregnant woman and her baby.

I would like to learn about your experiences engaging with the game such as:

- What is good/bad
- How useful / not useful the messages on the cards are
- Whether this type of learning is helpful in knowing more about pregnancy/childbirth and what you will/not do with information received.

By sharing your experiences and views on the game, we will gain a better understanding on how to use this method of learning with men to support more

women to give birth in a health facility. In addition, your views will help us to design messages for a game to be tested in Uganda.

Why have I been invited to take part?

You have been invited to take part because you are a father and of African descent. This study seeks to explore perceptions and experiences of using a board game to educate men on safe motherhood.

Do I have to take part?

It is entirely upon you to decide whether or not to take part. If you do decide to take part, it would be great. However, if you change your mind, you can leave the study any time up to the point where data are processed without giving a reason and without your decision impacting on your social environment.

What do I have to do?

You will play a board game with a group of men for about one hour. After the game, you will respond to questions as part of a group discussion for about thirty minutes. This discussion will be audio recorded for purposes of writing a report only.

Will my taking part in this study be kept confidential?

All information that is collected about you will be kept confidential. You will not be identifiable in any of the reports or publications. The audio tapes will not be heard by anyone other than the research team. Data will be stored on password protected computers and will be destroyed on completion of the study in accordance with data storage regulations as set out by Bournemouth University.

What will happen to the results of the study?

It is hoped that this study will provide feedback to the content of a board game to be implemented in Uganda. A written report without any personal information linking you to the study may be published for purposes of sharing findings with a

research audience. With your permission we could provide you with a summary of the findings.

What if there is a problem?

If you have questions about any aspects of this study, you can speak to me and I will try to answer your questions. If you wish to raise a formal complaint you can do so by contacting Professor Steve Tee, Dean, Faculty of Health and Social Sciences. All contact details are indicated below.

Contact details for further information or to make a complaint

Researcher

Alice Ladur

Phone: 01202 965007 Email: aladur@bournemouth.ac.uk

Principal Supervisor

Dr Zoe Sheppard

Phone: 01202 962216 Email: zsheppard@bournemouth.ac.uk

Dean, Faculty of Health and Social Sciences

Professor Steve Tee

Email: researchgovernance@bournemouth.ac.uk

THANK YOU FOR TAKING THE TIME TO READ THIS INFORMATION SHEET

Appendix 3.4 Participant agreement form

Please initial here

I have read and understood the participant information sheet for the above research project

I confirm that I have had the opportunity to ask questions

I understand that my participation is voluntary

I understand that I am free to withdraw up to the point where the data are processed and become anonymous, so my identity cannot be determined

Whilst playing the game, I am free to withdraw without giving reason and without there being any negative consequences to my decision

Should I not wish to answer any particular question(s) after the game, I am free to decline

I understand that taking part in the research will include being audio recorded but that these recordings will be deleted once transcribed

I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with research materials and I will not be identified or identifiable in the outputs from the research

I agree to take part in the above research project

Name of participant: Date: Signature:

Name of researcher: Date: Signature:

Contact details for further information

Researcher: Alice Ladur, Phone: 07422514985, Email: aladur@bournemouth.ac.uk and **Principal Supervisor:** Dr Zoe Sheppard, Phone: 01202 962216, Email: zsheppard@bournemouth.ac.uk

Appendix 3.5 Focus group discussion guide

- What aspects of the game did you find most useful in aiding your understanding about topics discussed?

Probe: group discussion amongst men, cards/messages

- Were there any parts that were unclear/not relevant?
- What benefits did you experience upon engaging with the game?

Probe: new knowledge

- What did you like/dislike about the game?
- Is there anything you would have changed about the game?
- What will you do differently with regards to pregnancy and childbirth for women?

Thank you for your time!

End of interview

Appendix 3.6 Transcript

A pre-test study of an educational board game with men of African descent living in the United Kingdom

Interviewer: Alice Ladur Date: 04/03/2017 Duration:

Interviewer: I Participant: P

START

I: What aspects of the game did you find most useful in aiding your understanding about topics discussed?

P4: The shoe is a core point, it has ignited my thoughts to stand in the shoes of women, to walk in her shoes

P2: What I look at [consider] is that if there were people, it has opened my understanding [thinking] and even others although we talk about it, we sometimes overlook it but the way the questions were phrased and the learning… [Picks up a shoe and asks group] what is this called?

P1: crocs [shoe]

P2: the learning aids used of the shoe has ignited my thoughts or ignites others to stand in the shoes of different people especially now as men. This particular research [game] brings men`s attention to not just overlook women`s issues especially pregnant women but to go deeper to think about it. I think it raises up… several men father children, take them to school but in his thoughts, he has never really stepped into the shoes of women. So, for me the aspect of… much as the questions are very good, I like this learning aid [picks up a shoe and raises it up]

P1: yes [nods his head in agreement] walk in my shoes

P2: yes, you chose the best. I think we need to stand, encourage people urrh all men everywhere especially in Uganda or Africa to stand in the shoes of women

P1: but even though this game let us say it is targeted for the African man, now for us who are here, much as it has been helpful, [turns to P3 and asks him a question] I don't know whether your children were born in this country [UK]

P3: yes

P1: okay, you will find that generally we who are here [UK], the perspective we have will be different from the ordinary every day Ugandan man that because of the different experiences and environment, you find yourself being part of the whole process whether it`s voluntary or involuntary…no, this is how it`s done here… and you find yourself even not going to work for the next two weeks because you have to be home, you have taken leave days to be home and help your wife basically, you have to help in so many ways. But in Uganda, even though let us say this game was played in Uganda, it would be more fulfilling for a man in Uganda because several men don`t think about such thoughts, now for me, for example, I was here (at his house), we hosted some visitors [couple] and I was in the kitchen washing plates and the husband came to me and these are our friends, he said, [mimics in raised voice] `eeh! [an expression of surprise used locally in UG], my grandfather may turn in his grave [phrase used to express deviation from a social norm] when he finds me standing by the kitchen sink washing up utensils` now, he could have said this as a joke but later his wife told my wife that ` I hope your husband isn't doing that because there are visitors`. And my wife told her, `no, he does wash utensils, loads up the washing machine, presses the clothes and cleans the house`. Such things, now, for us as men, we can relate to that. I never saw my father ever wash utensils, never saw him holding a broom, never saw him pressing clothes, that he was changing diapers?! Now for us here, we`ve been blessed that we can view life from that perspective. But you will find that this same game is taken to Kampala or Mukono and you find men to play the game, it would be more eye opening to them. because you will find that for them…when a woman gives birth, I know about it when she comes back with a baby, or when am picking her up from the hospital. That is where his role starts as a man and also when he wakes up in the night because the baby is

crying, the woman is tired as she has been with the other children… let me pick her up and carry her or place in the car and drive around with the baby so that the wife can have some rest. So, I think even us here, it has helped us except that most of us here can relate on the same level because we know, we`ve been there, we do it and the environment we live in, is normal… [for men to be involved]. But, now if you shift it to Uganda, for so many men, it would be something new, they wouldn't relate to it for most of the questions, they wouldn't relate to them. A woman has her role and level, pregnancy is hers to deal with and as a man, I come in to boast about being a father to the child and that is it.

P2: for me, it is this shoe that I picked because even for that woman who is not at the hospital, when you stand in her shoes and you want to talk with the man to understand the plight of this woman…

P3: The significance of the shoe as my colleague has emphasized is that for many of us even in daily life situations, we do not place ourselves in the shoes of others. This particular game brings men`s attention to not just overlook women`s issues especially pregnant women but to go deeper to think about it as several men father children, take them to school but in his thoughts, he has never really stepped into the shoes of women. There is a saying that goes, never criticise a man until you in his shoes for a mile. Therefore, it is significant in that way that when you see a person going through a situation and you don't know what they are going through… it is not that the man does not see what the woman goes through; she wakes up early and from morning till sunset she`s busy, fetching water, cooking food, looking after the children. He sees all of that, it is not like he doesn't see it all but what does he do about it?

P2: I have a question I have remembered that has made me to think about because what we have talked about has brought that other aspect of not having a health centre to go to which is okay. But this shoe has a symbol and I stand to be corrected. With this shoe, it is not that everyone has to be fine and able to access a health centre. There are people out there with different socio economic

status in an intimate relationship. Love relationships are not so much about what is around you…remember we talked about pregnancy and men`s experiences…

P1: sorry for cutting you short, I think for me what I have picked from this game which is most important is about perspective and mind set. And that is why I was saying that if you went deep in the villages like in mukono or even in Kampala, all your trying to aim for is a change in perspective and mind set. It has just come to mind when we are talking now that a man may risk his wife to give birth in a banana plantation – why not because he has no money to take the wife to the health centre but because he does not want other people to see the wife naked. I think what is important is perspective but also the mind set of you as a man – in your selfishness as a man you do not want others to see your wife naked even when she is giving birth at the health facility because It is a cultural mind set

I: you have mentioned the change in mind set or perspective. What aspects of the game has aided in the change of mind set/perspective?

P4: when we were playing the game, the dice I threw, took me to the poet`s corner and the poem I ended up picking said [picks up card and re reads poem to the group with a lot of emphasis] ` let us work together… they used the phrase of `people and not roles, talking about real scenarios`. We are here talking about real life scenarios happening in Kitgum, Gulu, Soroti, Masaka… [districts in Uganda]

P1: P3 comes from Luwero and not Masaka [group bursts out in laughter]

P2: I agree, it is real scenarios, no doctor, no medicine, a woman is pregnant, vulnerable. She has to give birth. If I look at the fact that all this is true but as for me, this one [lifts up shoe again]… whether you went to school or not or whether whoever assisted with the delivery, did that in a health facility or banana plantation, I want a man to `wear` [walk] the shoes of this woman. For me I think that is where I have been going around in circles [as a point of emphasis]…whether it is a man from China or anywhere else, I want him to hear that this woman is pregnant…my colleague spoke about mind set, I want him to

change his mind set, put on a woman`s shoes, know about her experiences and support one another as we are in this together. If we work on changing our mind sets as men especially in Uganda that when a woman becomes pregnant, from that day we `wear` the same shoe and it becomes my responsibility as well.

P1: that is the most important thing. The shoe is a core point. In addition, Alice asked a question on what we have learnt from the game/discussion. Let us say that, almost you are preaching to the converted. Since we have lived in this country and also been here for long, we already got a new perspective irrespective of what we had that a man does not do this and that. Now, we all do things differently but the question is, you have gone to Mpigi at P3`s home, what mind set would people have will this game change their mind set because in Uganda, the culture is that a woman`s role is in the kitchen. When we grow up, we are taught about the way to view women as being beneath the man and we grow up knowing that directly or indirectly, she has her place in society and she has to do this and that. So, I believe that is the biggest hindrance in addition to the culture in that even if one plays the game… because all these men that neglect their wives know what they are doing but are they willing to walk in her shoes? It's one thing to tell him that your wife is going through a lot of pain but are they willing, would they be ready to embrace the change because those are the most important things. A man will come forward and agree with you by saying oh yes, we need to help women but to him, help means I will find a maid to help with chores, help means leaving behind 10,000 Uganda shillings for shopping. So, from my perspective, what I have learnt and what I have seen, I will agree that as men here, we`ve all walked that road.

P4: You will find that generally we who are here [UK], the perspective we have will be different from the everyday Ugandan man because of the different experiences and environment. In Uganda, it is not that men do not know, all we have spoken about are known to them and am sure about it perhaps they do not know the pain a woman goes through because they are absent at health facilities. As a game, it has been…[pause] no, not eye opening because we already know

this and we have been acting on it. But, imagine in a different setting like Gulu or Mbale, it would be mind opening but the game a lone might not necessarily make the change. I do not know what would maybe that constant sensitisation in that men receive constant information on how to support their wives; go into theatre with them, go to the labour ward, see what she goes through

P2: I don't know whether I could use the word I have learnt because you [gestures to P1] already said that the game is already `preaching to people who have converted` but as for me, what I have learnt or what I have considered is that this research [game] has brought to my attention that we need health workers who are professionals to come and make a difference. On the poem, it said, 'doing this for change and real change. When you want change, they will have professional strategies, it is people to change culture. Media is also changing culture. Social media, social networks are changing culture, with health workers spearheading contextually relevant strategies for change. Have clear objectives as to what you want to achieve and say at the end of this session, men should be aware of the advantages of walking in women`s shoes, they should be aware of the importance of going to antenatal care with the wife. But the thing I have learnt now is that there is a great need even in the UK but in Uganda, an African man, there is a big need if this poem [reads it aloud] `change, real change if is to come to our communities.

P1: and real change starts with you [points at each of the men in the group]. Even if you are a man in Nakapiripit (one of the remote districts in Uganda). Another suggestion I would have, you see this game, if you take it to Uganda, it must be more hard hitting if that makes sense. Now, these questions you have been asking… it has to be hard hitting and relevant in that it has to give people food for thought like what P3 was saying that a man will say that traditionally, we have always done things this way, the questions become more tailored. For example, you could have asked a question that do you ever sit with your wife and ask her about menstrual experiences or just talk to her. She will tell you about her back that is strained carrying firewood or washing up utensils through that, you

appreciate what she goes through. Like we have said, a man will see his wife carrying firewood and not be bothered because that is her role/work but when a man walks in a woman`s shoes and he knows that her back is damaged because of that firewood then for a man, that change will come. You will appreciate that if you value this person and love them, you are going to change. So, I think as a concept it is very good but then it has to be more hard hitting that if I place someone in that position, it gives them a chance to think. A woman does not complain but she suffers in silence but it does not remove the fact that a man needs to change.

I: Any other suggestions to make this game have more impact?

P3: the game has some general positives across the board that in all societies, people have to be informed. If you shift it to Uganda, for so many men, it would be something new. Pregnancy is hers to deal with and as a man, I come in to boast about being a father to the child and that is it. There is a great need for change to come to our communities.

P2: we need to engage into the minds of African men the beauty of looking after a pregnant woman, what would be the results to make them like it, to embrace it

P1: this game would have even more impact if it involved women and am going to tell you why. When we are in Uganda, like how we grew up… these things are for men and they had gentlemen`s clubs and then you find that when a woman has sat next to you over there…having a game where a woman can speak her mind. It`s a game remember that and we are not in a family setting, a woman can speak her mind. Now, you the man involved in the game, you see it from the woman`s perspective coming from a woman and they bring a question… it would be a very good game if both men and women are playing it and we are talking about the same things. You will be shocked by their perspectives which we already know but it would be quite interesting for the man to hear what the woman is saying

P2: It is good but unfortunately by the time it ends, you may end up causing division in between families and may end up with people comparing themselves.

P1: It doesn't have to be couples; it could be any females joining the discussion, so as people not coming from the same family. We all agree that we almost face the same challenges. It shouldn't be necessarily couples.

P3: The messages must be hard hitting and relevant in that it has to give people food for thought like when a man says traditionally, we have always done things this way, the questions become tailored to that.

Thank you all!

End of interview

Appendix 3.7 Template outline (data analysis)

1) What aspects of the game aided understanding?

a) Shoe

- Virtual symbol
- Motivational
- Captures attention
- Inspires
- Challenges
- Ignited my thoughts to stand in the shoes of others
- Walk in my shoes

b) Learning aids used

Visual symbols

c) Questions

- Poem
- People & not roles
- Discussions based on real life scenarios/experiences

2) Benefits/advantages of the game

- draws men`s attention about women`s issues
- deeper reflection/thinking about women`s issues
- Eye opening
- Can be used across all groups/socio-econ status
- Can be used with those who haven't gone to school
- Enables change in mind set
- Enables change in perspective
- The need for health workers who are professionals

3) Views/experiences about the game

- I like the learning aid of a shoe
- Yes, you chose the best
- It has been helpful
- Differences in perspective - UK vs UG contexts
- Would be more helpful if game played in UG
- Preaching to the converted
- Already has a new mind set
- The concept is very good

4) Suggestions/recommendations

- This game is more relevant in UG
- Should be played in UG
- Should be played in the rural setting
- Context/place is important
- Men should be aware of benefits of M.I
- Messages should be more hard hitting
- Messages should give people food for thought

5) Actions to be taken away

- We need to stand in the shoes of women
- Change of mind set
- Put on a woman`s shoe
- Know her experiences
- Support one another & team work
- Real change starts with `you`
- Engage with men on benefits of M.I in pregnancy

Appendix 4 The Ugandan study

Appendix 4.1 BU ethics approval

Bournemouth University

Research Ethics Checklist

Reference Id	16334
Status	Approved
Date Approved	18/10/2017

Researcher Details

Name	Alice Ladur
Faculty	Faculty of Health & Social Sciences
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, DEng)
Course	Postgraduate Research - HSC
Have you received external funding to support this research project?	No
Please list any persons or institutions that you will be conducting joint research with, both internal to BU as well as external collaborators.	Professor Vanora Hundley, Professor Edwin van Teijlingen

Project Details

Title	`Whose Shoes`. Using board games with men to influence uptake of birth with a skilled attendant in Uganda: A feasibility study
Proposed Start Date of Data Collection	25/09/2017
Proposed End Date of Project	26/02/2018
Original Supervisor	Vanora Hundley
Approver	Research Ethics Panel

Printed On 23/10/2017 08:23:43

Summary - no more than 500 words (including detail on background methodology, sample, outcomes, etc.)
Birth with a skilled birth attendant (SBA) is central to curbing infections and complications contributing to maternal deaths in Low Income Countries (LICs) (WHO 2004) and in Uganda this is more likely when a woman gives birth in a facility. Educational games refer to an instructional method designed to enable participants to learn a skill through play (Blakely et al. 2009). Educational games provide an alternative strategy to commonly used health promotion approaches such as health talks to present information, which may be considered unpopular as they challenge social constructions of gender roles embedded in tradition and culture. The proposed intervention utilises an existing board game that will be adapted for use in Uganda. The 'Whose Shoes' board game was created by Gill Phillips as a tool to enable service users and policy makers to explore the challenges affecting health and social care in the UK. The game has been played with a variety of maternity service stakeholders including pregnant women and their partners. The rationale behind using the 'Whose Shoes' game in Uganda is to engage with men as agents of positive change, exploring opportunities to improve uptake of SBA by women. The aim of this study is to explore the feasibility of using a board game in facilitating women`s uptake of birth with a skilled birth attendant (SBA) in Uganda.Methods The quasi-experimental study will utilise pre-and post-intervention data to determine whether utilising a board game impacts on uptake of SBA birth in a village in Central Uganda. Couples (pregnant women at 16 weeks gestation and their husbands) will be purposively selected from the village. Study participants will be recruited by members of the village health team (VHT). VHTs are community health workers in the villages responsible for health education/identifying pregnant women and signposting them to health services within their areas of operation. Intervention: The board game will be played by men. It has been pilot tested in the UK with men originally from Uganda. The game and interviews will be conducted in Luganda (local language) and held in the afternoon to minimise farm work /health facility interruptions. Context specific cards have been developed to ensure the game is culturally appropriateTwo separate questionnaires and focus group discussions will be administered with couples before and after the game; 1) with men to examine knowledge, attitudes and perceptions of maternity services, 2) with pregnant women on utilisation of maternity services. One Focus group discussion will be conducted with members of the village health team by the researcher to explore experiences in mobilisation and facilitation of the game. Focus groups will be conducted in Luganda and audio-recorded (with permission) verbatim. A proforma form will be used to collect health facility records for the pregnant women such as antenatal care, delivery, postnatal care including near misses and referrals to other health facilities. Quantitative data will be analysed through graphical displays such as graphs, tables to determine appropriate statistical analysis. Qualitative data will be analysed using thematic analysis.

External Ethics Review

Does your research require external review through the NHS National Research Ethics Service (NRES) or through another external Ethics Committee?	No

Research Literature

Is your research solely literature based?	No

Human Participants

Will your research project involve interaction with human participants as primary sources of data (e.g. interview, observation, original survey)?	Yes
Does your research specifically involve participants who are considered vulnerable (i.e. children, those	No

with cognitive impairment, those in unequal relationships—such as your own students, prison inmates, etc.)?	
Does the study involve participants age 16 or over who are unable to give informed consent (i.e. people with learning disabilities)? NOTE: All research that falls under the auspices of the Mental Capacity Act 2005 must be reviewed by NHS NRES.	No
Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited? (i.e. students at school, members of self-help group, residents of Nursing home?)	Yes
Will it be necessary for participants to take part in your study without their knowledge and consent at the time (i.e. covert observation of people in non-public places)?	No
Will the study involve discussion of sensitive topics (i.e. sexual activity, drug use, criminal activity)?	No

Are drugs, placebos or other substances (i.e. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?	No

Will tissue samples (including blood) be obtained from participants? Note: If the answer to this question is 'yes' you will need to be aware of obligations under the Human Tissue Act 2004.	No

Could your research induce psychological stress or anxiety, cause harm or have negative consequences for the participant or researcher (beyond the risks encountered in normal life)?	No
Will your research involve prolonged or repetitive testing?	No
Will the research involve the collection of audio materials?	Yes
Is this audio collection solely for the purposes of transcribing/summarising and will not be used in any outputs (publication, dissemination, etc.) and will not be made publicly available?	Yes
Will your research involve the collection of photographic or video materials?	No
Will financial or other inducements (other than reasonable expenses and compensation for time) be offered to participants?	No

Please explain below why your research project involves the above mentioned criteria (be sure to explain why the sensitive criterion is essential to your project's success). Give a summary of the ethical issues and any action that will be taken to address these. Explain how you will obtain informed consent (and from whom) and how you will inform the participant(s) about the research project (i.e. participant information sheet). A sample consent form and participant information sheet can be found on the Research Ethics website.

Three focus group dicsussions will be separately conducted with women, men and village health teams. Permission to record using an audio digital recorder will be sought prior to conducting the group discussions. Audio recordings will carried out specifically for transcription purposes only. No identifiers to study participants will be included in the transcription/written reports and this will be explained to the participants accordingly. A participant information sheet and participant agreement form is attached. The Village Health Worker (VHT) will identify pregnant women in the village (this is part of their routine work to identify pregnant women and signpost them to health services). The researcher will approach the pregnant women and partners and provide information about the study.

Final Review

Will you have access to personal data that allows you to identify individuals OR access to confidential corporate or company data (that is not covered by confidentiality terms within an agreement or by a separate confidentiality agreement)?	No
Will your research involve experimentation on any of the following: animals, animal tissue, genetically modified organisms?	No
Will your research take place outside the UK (including any and all stages of research: collection, storage, analysis, etc.)?	Yes
Does the country in which you are conducting research require that you obtain internal ethical approval (i.e. beyond that required by Bournemouth University)?	Yes

Please use the below text box to highlight any other ethical concerns or risks that may arise during your research that have not been covered in this form.
During the fieldwork phase, local support will be sought from a research mentor based in Uganda. For safety purposes, all travel to and from the district/villages will be during day times only. Regular communication will be maintained with family, research mentor and supervisors while in Uganda. During field visits, friends and family members will be informed on destination/likely return dates/times with telephone numbers. A male facilitator will be used while out in the villages to minimise the risk of the female researcher working alone with a group of male participants. The research activity will be held in a public venue such as village courtyard with the local authorities informed about the research activity. The village courtyard is an open place within the village surrounded by homes chosen for its convenient location and used for village meetings/health education activities. The researcher will engage in a full risk assessment of their personal safety working with their BU supervision team.

Appendix 4.2 Ethics approval by Makerere university school of public health, Uganda

MAKERERE UNIVERSITY

P.O. Box 7072 Kampala Uganda
Website: www.musph.ac.ug

Tel: 256 414 532207/543872/543437
Fax: 256 414 531807

COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH
HIGHER DEGREES, RESEARCH AND ETHICS COMMITTEE

March 02nd, 2018

Alice Norah Ladur
PhD student
Bournemouth University

Re: Approval of a study Proposal titled: Using Board games with men to facilitate uptake of skilled birth attendants in Uganda: A feasibility study

This is to inform you that, the MakSPH - Higher Degrees, Research and Ethics Committee (HDREC) has granted approval to the above referenced study, the HDREC reviewed the proposal using the expedited review criteria and made some suggestions and comments which you have adequately incorporated:

Please note that your study protocol number with HDREC is 566. Please be sure to reference this number in any correspondence with HDREC. Note that the initial approval date for your proposal by HDREC is 27th/02/2018, and therefore approval expires at every annual anniversary of this approval date. The current approval is therefore valid until: **26th/02/2019**.

Continued approval is conditional upon your compliance with the following requirements:

1) No other consent form(s), questionnaire and/or advertisement documents should be used. The consent form(s) must be signed by each subject prior to initiation of any protocol procedures. In addition, each subject must be given a copy of the signed consent form.

2) All protocol amendments and changes to other approved documents must be submitted to HDREC and not be implemented until approved by HDREC except where necessary to eliminate apparent immediate hazards to the study subjects.
3) Significant changes to the study site and significant deviations from the research protocol and all unanticipated problems that may involve risks or affect the safety or welfare of subjects or others, or that may affect the integrity of the research must be promptly reported to HDREC.
4) All deaths, life threatening problems or serious or unexpected adverse events, *whether related to the study or not*, must be reported to HDREC in a timely manner as specified in the National Guidelines for Research Involving Humans as Research Participants.

1

Makerere University School of Public Health
Valid Thru:
26 FEB 2019
Higher Degrees, Research and Ethics Committee

- Please complete and submit reports to HDREC as follows:

a) For renewal of the study approval – complete and return the continuing Review Report – Renewal Request (Form 404A) at least 60 days prior to the expiration of the approval period. The study cannot continue until re-approved by HDREC.

b) Completion, termination, or if not renewing the project – send a final report within 90 days upon completion of the study.

- Finally, the legal requirement in Uganda is that all research activities must be registered with the National Council of Science and Technology. The forms for this registration can be obtained from their website www.uncst.go.ug. Please contact the Administrative Assistant of the Higher Degrees, Research and Ethics Committee at wtusiime@musph.ac.ug or telephone number (256)-393 291 397 if you encounter any problems.

Yours sincerely,

Dr. Suzanne Nyanuka
Chairperson: Higher Degrees, Research and Ethics Committee

Enclosures:

a) A stamped, approved study documents (informed consent documents):

Appendix 4.3 Participant information sheet – women

Introduction

We would like to invite you to take part in a research project. Before you make a decision, you need to understand why the research is being done and what it will involve. Please take time to read the following information carefully and ask questions if anything is not clear or you would like more information. Please take time to decide whether or not to take part.

The researcher

My name is Alice Ladur and I am a postgraduate research student at Bournemouth University (BU) in England. I am conducting a study on uptake of maternity services in Mityana district.

This subject is important because there is evidence suggesting that giving birth at a health facility may ensure safe delivery for the pregnant woman and her baby. Literature also shows that men influence decisions on women`s ability to seek healthcare services when pregnant.

By sharing your experiences and views on uptake of maternity services, we will gain a better understanding on how to support more women to give birth in a health facility.

Why have I been invited to take part?

You have been invited to take part because you are expecting a baby and live in Mityana district.

Do I have to take part?

It is entirely upon you to decide whether or not to take part. If you do decide to take part, it would be great. However, if you change your mind, you can leave the study any time up to the point where data are processed without giving a reason and without your decision impacting on your social environment.

What do I have to do?

You will be invited to participate in a group discussion with other women and respond to questions as part of a group discussion for about one hour. This discussion will be audio recorded with your permission.

How will my information be kept?

All the information we collect about you during the course of the research will be kept strictly in accordance with the Data Protection Act 1998. You will not be identified in any reports or publications without your specific consent. All personal data relating to this study will be held for one year after the award of the degree. BU will hold the information we collect about you in hard copy in a secure location and on a password protected network held electronically.

Except where it has been anonymised, we will restrict access to your personal data to members of the research team. The information collected about you may be used in an anonymous form to support other research projects in the future and access to it in this form will not be restricted.

Contact for further information

If you have questions about any aspects of this study, you can contact, Alice Ladur, Phone: +256782067006, Email: aladur@bournemouth.ac.uk .

In case of complaints

If you have any concerns regarding this study, you can contact Dr Suzanne Kiwanuka, Chairperson, Internal Review Board, Makerere University, Phone: +256 701 888 163/+256 312 291 397, Email: skiwanuka@musph.ac.ug.

You can also contact Professor Stephen Tee, Executive Dean, Bournemouth University, Email: researchgovernance@bournemouth.ac.uk.

Thank you for considering taking part in this research project

Appendix 4.4 Participant information sheet – men

Introduction

We would like to invite you to take part in a research project. Before you make a decision, you need to understand why the research is being done and what it will involve. Please take time to read the following information carefully and ask questions if anything is not clear or you would like more information. Please take time to decide whether or not to take part.

The researcher

My name is Alice Ladur and I am a postgraduate research student at Bournemouth University (BU) in England. I am conducting a study on uptake of maternity services in Mityana district.

I would like to learn about your experiences engaging with the game like whether this type of learning is helpful in knowing more about pregnancy/childbirth.

This subject is important because there is evidence suggesting that men influence decisions on women`s ability to seek healthcare services when pregnant. Giving birth at a health facility may ensure safe delivery for pregnant woman and her baby.

By sharing your experiences and views on the game, we will gain a better understanding on how to use this method of learning to support more women to give birth in a health facility.

Why have I been invited to take part?

You have been invited to take part because you are an expectant father and live in Mityana district. This study seeks to explore perceptions and experiences of using a board game to educate men on safe motherhood.

Do I have to take part?

It is entirely upon you to decide whether or not to take part. If you do decide to take part, it would be great. However, if you change your mind, you can leave the

study any time up to the point where data are processed without giving a reason and without your decision impacting on your social environment.

What do I have to do?

You will play a board game with a group of men for about one hour. After the game, you will respond to questions as part of a group discussion for about thirty minutes. This discussion will be audio recorded with your permission.

How will my information be kept?

All the information we collect about you during the course of the research will be kept strictly in accordance with the current Data Protection Act. You will not be identified in any reports or publications without your specific consent. All personal data relating to this study will be held for one year after the award of the degree. BU will hold the information we collect about you in hard copy in a secure location and on a password protected network held electronically.

Except where it has been anonymised, we will restrict access to your personal data to members of the research team. The information collected about you may be used in an anonymous form to support other research projects in the future and access to it in this form will not be restricted.

Contact for further information

If you have questions about any aspects of this study, you can contact, Alice Ladur, Phone: +256782067006, Email: aladur@bournemouth.ac.uk

In case of complaints

If you have any concerns regarding this study, you can contact the Chairperson, Internal Review Board, Makerere University, Dr Suzanne Kiwanuka, Phone: +256 701 888 163/+256 312 291 397, Email: skiwanuka@musph.ac.ug. You can also contact the Executive Dean, Bournemouth University, Professor Stephen Tee, Email: researchgovernance@bournemouth.ac.uk

Thank you for considering taking part in this research project

Appendix 4.5 Researcher administered questionnaire – men (pre- intervention)

Preamble

My name is Alice Ladur and I am a postgraduate student at Bournemouth University in England. I am conducting a study on uptake of maternity services in Mityana district. By sharing your views, we will gain a better understanding on how to support more women to give birth in a health facility. You have been invited to take part because your wife is pregnant. All the answers you give will be confidential. The questions will take about 30 minutes. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, please let me know and I will go on to the next question or you can stop the interview at any time. If you have any concerns regarding this study, you can contact Professor Stephen Tee, Email: researchgovernance@bournemouth.ac.uk

Do you have any questions? YES/ NO May I begin the interview now? YES/ NO

Participant does not agree to be interviewed. **End**

Participant agrees to be interviewed. **Proceed**

	General Information	Response	
	Identifier no.		
1	Date of interview		
2	Village		
3	Age (years)		
4	Tribe		
5	Highest level of education (including vocational skills)	1) None	
		2) P.7	

		3) O.Level	
		4) A. Level	
		5) Tertiary	
		6) University	
6	Current marital status	1) Single	
		2) Married	
7	Occupation	1) Farmer	
		2) Employed	
		3) Unemployed	
	Awareness of danger signs in pregnancy		
8	What are some of the health problems that can occur during pregnancy that may be harmful to a pregnant woman? Tick all that apply	1) Vaginal bleeding	
		2) Severe/continuous vomiting	
		3) Severe headache	
		4) Swelling of fingers, legs, face	
		5) Convulsions	
		6) Severe pain in lower abdomen	
		7) Water breaks before time of delivery	
		8) Blurred vision	
		9) Anaemia/lack of blood	
		10) I don't know	
	Awareness of danger signs during child birth		
9	What are some of the health problems that can occur during childbirth that may be harmful to a pregnant woman? Tick all that apply	1) Excessive vaginal bleeding	
		2) Swelling of fingers, legs, face	
		3) Convulsions	
		4) Prolonged labour over 12 hours	

		5) Paleness or feeling very tired	
		6) I don't know	
	Birth preparedness and complication readiness		
10	What are some of the roles of men in preparation of pregnant woman`s delivery? Tick all that apply	1) Arrange for transport in case of an emergency/delivery	
		2) Ask for family support	
		3) Identify a health facility for delivery	
		4) Ensure wife is attended to by a trained health worker	
		5) Save money for childbirth/referral	
		6) Buy mama kit and baby supplies	
		7) Accompany wife to health facility for delivery	
		8) I don`t know	
	Health facility delivery		
11	Where should a pregnant woman give birth from?	1) Home	
		2) Health facility	
12	Who decides where a pregnant woman should give birth from?	1) Husband only	
		2) Husband and wife	
13	Who should assist a pregnant woman to deliver her baby? Tick all that apply	1) Doctor	
		2) Clinical officer/medical assistant	
		3) Nurse/midwife	
		4) Traditional birth attendant	
		5) I don't know	
	Antenatal care		

14	What takes place when a pregnant woman goes for antenatal care? Tick all that apply	1) HIV testing	
		2) Urine sample taken	
		3) Blood sample taken	
		4) Weight measurement	
		5) Injection in the arm (tetanus)	
		6) Preparation for childbirth	
		7) I don't know	
15	Have you ever accompanied your wife for antenatal care?	0) No	
		1) Yes	
16	Who makes decisions about healthcare in the home?	1) Husband	
		2) Husband and wife jointly	

Thank you for your time

Appendix 4.6 Researcher administered questionnaire – men (post-intervention)

Preamble

My name is Alice Ladur and I am a postgraduate student at Bournemouth University in England. I am conducting a study on uptake of maternity services in Mityana district. By sharing your views, we will gain a better understanding on how to support more women to give birth in a health facility. You have been invited to take part because your wife is pregnant. All the answers you give will be confidential. The questions will take about 30 minutes. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, please let me know and I will go on to the next question or you can stop the interview at any time. If you have any concerns regarding this study, you can contact Professor Stephen Tee, Email: researchgovernance@bournemouth.ac.uk

Do you have any questions? YES/ NO May I begin the interview now? YES/ NO

Participant does not agree to be interviewed. **End**

Participant agrees to be interviewed. **Proceed**

	General Information	Response
	Identifier no.	
1	Date of interview	
2	Village	
3	Age (years)	
4	Tribe	
5	Highest level of education (including vocational skills)	1) None
		2) P.7

		3) O.Level
		4) A. Level
		5) Tertiary
		6) University
6	Current marital status	1) Single
		2) Married
7	Occupation	1) Farmer
		2) Employed
		3) Unemployed
	Awareness of danger signs in pregnancy	
8	What are some of the health problems that can occur during pregnancy that may be harmful to a pregnant woman? Tick all that apply	1) Vaginal bleeding
		2) Severe/continuous vomiting
		3) Severe headache
		4) Swelling of fingers, legs, face
		5) Convulsions
		6) Severe pain in lower abdomen
		7) Water breaks before time of delivery
		8) Blurred vision
		9) Anaemia/lack of blood
		10) I don't know
	Awareness of danger signs during child birth	
9	What are some of the health problems that can occur during childbirth that may be harmful to a pregnant woman? Tick all that apply	1) Excessive vaginal bleeding
		2) Swelling of fingers, legs, face
		3) Convulsions
		4) Prolonged labour over 12 hours

		5) Paleness or feeling very tired
		6) I don't know
	Birth preparedness and complication readiness	
10	What are some of the roles of men in preparation of pregnant woman`s delivery? Tick all that apply	1) Arrange for transport in case of an emergency/delivery
		2) Ask for family support
		3) Identify a health facility for delivery
		4) Ensure wife is attended to by a trained health worker
		5) Save money for childbirth/referral
		6) Buy mama kit and baby supplies
		7) Accompany wife to health facility for delivery
		8) I don`t know
	Health facility delivery	
11	Where should a pregnant woman give birth from?	1) Home
		2) Health facility
12	Who decides where a pregnant woman should give birth from?	1) Husband only
		2) Husband and wife
13	Who should assist a pregnant woman to deliver her baby? Tick all that apply	1) Doctor
		2) Clinical officer/medical assistant
		3) Nurse/midwife
		4) Traditional birth attendant
		5) I don't know
	Antenatal care	

14	What takes place when a pregnant woman goes for antenatal care? Tick all that apply	1) HIV testing
		2) Urine sample taken
		3) Blood sample taken
		4) Weight measurement
		5) Injection in the arm (tetanus)
		6) Preparation for childbirth
		7) I don't know
15	Have you ever accompanied your wife for antenatal care?	0) No
		1) Yes
16	Who makes decisions about healthcare in the home?	1) Husband only
		2) Husband and wife jointly

Thank you for your time!

Appendix 4.7 Focus group discussion guide – men

1. What aspects of the game did you find most useful in aiding your understanding about topics discussed? Probe: group discussion amongst men, cards/messages

2. What benefits did you experience upon engaging with the game?

3. What will you do differently with regards to pregnancy and childbirth for women? Probe: new knowledge

4. What did you like/dislike about the game?

5. Is there anything you would have changed about the game?

6. What is your view on male involvement in pregnancy and childbirth?

7. How can men support women during pregnancy and childbirth?

Thank you for your time!

End of interview

Appendix 4.8 Focus group discussion guide – women

1. What is your view regarding male involvement during pregnancy and childbirth?
2. In what ways/circumstances should men be involved during pregnancy and childbirth?
3. What is the role of men in pregnancy and childbirth?
4. What are the barriers/challenges to men being involved during pregnancy and childbirth?
5. How can men support women during pregnancy and childbirth?
6. Is there anything else you want to say regarding male involvement during pregnancy and childbirth?

Thank you for your time!

End of interview

Appendix 4.9 Translated instruments (Luganda)

Ekiwandiiko ekiwa olukusa – abaami (Consent form men)

Obubaka eri omwetabi

Twagala okukwaniriza okwetaba mu kunonyereza kuno. Nga tonnasalawo, olina okutegeera lwaki okunonyereza kuno kukolebwa ne ebirimu. Tukusaba otwaale obudde okusoma obubaka buno wammanga n'obwegendereza era obuuze ebibuuzo singa ekintu kyonna sikirambulukufu oba wandyagadde ku bisingaawo. Tukusaba otwaale obudde okusalawo oba onetaba mu oba nedda.

Omunonyerezi

Erinnya lyange nze Alice Ladur era nga ndi muyizi anonyereza eyatikkirwako edda anonyereza asomera ku Bournemouth University (BU). Ndi mu kwekenenya omugaso gw'okukozesa obuzanyo bwa kaadi obuyigiriza mu basajja mu kutumbuula obulama bw'abanakazadde. Neesunga okuyiga akazanyo kano bwe mukasanzeemu, era oba enkoola eno ey'okuyiga erina kyekyusizza mu kusalaawo kwo okuwagira abakyala eb'embuto okuzaalira mu ddwaliiro.

Naalonze omulamwa guno kubanga waliwo obukakafu obulaga nti abaami bakosa okusalawo ku busobozi bw'abakyala okunoonya obujjanjabi nga baali lubuto. Okuzaalira mu ddwaliiro kusoboola okukola ekinene mu kuzaala okutakosa omukyala ow'olubuto n'omwana we.

Njagala okumanya engeeri gy'osanze akazanyo kano, okugeza oba okuyiga nga kuno kuyamba okumanyisa ebisingawo ku lubuto / okuzaala ne bbiki by'onokola/by'otokole n'okumanya kw'ofunye.

Bw'onogabana engeri gy'osanzemu akazannyo kano n'endowoozaya ku kko, tujja kufuna okutegeera okusingaawo ku ng'eri y'okukozesaamu enkoola eno ey'okuyiga mu basajja okusoboola okuyamba abakyala okw'eyongera okuzaliira mu ddwaliiro.

Lwaki mpitiddwa okwetabaamu?

Oyitiddwa okwetabaamu kubanga mukyalawo anatera okuzaala ate nga otuula mu disitulikiti y'eMitiyana. Okunonyereza kuno kulubirira okutegeera engeri abasajja gy'ebalowooza era gy'ebasanze akazanyo ka kkaadi mu kuyigiriza ku bwanakazadde obutakosa.

Nnina okwetabaamu?

Kiri eri ggwe okusalawo okwetabaamu oba nedda. Bw'olondawo okwetabaamu, kijja kuba ky'ansuusso. Wabula, bw'okyuusa endowoozayo, osoboola okuva mu kunonyereza kuno essaawa yonna okutuuka ebikuuŋŋanyizibwa w'ebituunulirwa nga towadde nsonga ate nga okusalawo kwo tekukosezza nkoleganayo n'abantu ab'akwetoloodde.

Kiki ky'ennina okukola?

Ojja kuzannya akazanyo ka kkaadi n'ekibinja ky'abaami okumala essaawa ng'emu. Akazanyo bwe kanaggwa, ojja kudaamu ebibuuzo nga kitundutundu ky'okwereganya ne baami banno okumala eddakiika nga amakumi asatu. Okw'ogereganya kuno kujja ku likodingibwa okusobozesa okuwandiika lipoota yokka.

Okwetaba kwange mu kunonyereza kuno kunakumibwa nga kwa kyama?

Ebikukwatako byonna ebinakuŋŋanyizibwa bijja kukumibwa nga bya kyama. Tojja kusobola kusongebwaako ngalo mu lipoota yonna oba obutabo abunakubibwa. Ebirikondingiddwa tebijja kuwulirwa muntu yenna okujjako ekibinja ekinonyereza. Ebinakuŋŋanyizibwa bijja kuterekebwa ku komputa ezisibiddwa era bijja kusimuulwa okunonyereza nga kuwedde okusinziira ng'amateeka agafuga okutereka ebinakuŋŋanyizibwa mu kunonyereza agabagibwa Bournemouth University bwe gaali.

Bbiki ebinatuuka ku biva mu kunonyereza?

Kisubiirwa nti okunonyereza kuno kujja kukomyaawo obubaka obukwata ku kukozesa obuzanyo bwa kkaadi mu baami n'okwenyigira mu kulabirira banakazadde kwa abakyala. Lipoota ewandikiiddwa etalina bikukwatako

eby'obuntu ebikukwataganya n'okunonyereza kuno esobola okufulumizibwa ng'omulamwa gwayo kwe kugabana ebizuliddwa n'abanonyereza abalala. Bwoba otukkirizza, tusobola okukuwa mu bumpimpi ebinaba bizuliddwa.

Omunonyereza

Alice Ladur, Essimu: +256782067006 Email: aladur@bournemouth.ac.uk

Ssinga wabaawo obuzibu?

Bwoba olina ebibuuzo eby'ekuusa ku kitundu kyonna eky'okunonyereza kuno, osobola okwogera nange era nja kugezaako okuddamu ebibuuzo byo. Bwoba olina ebibuuzo byonna eby'ekuusa ku ddembe lyo ng'omwetabi, tuukirira Dr Suzanne Kiwanuka, Essimu: +256 701 888 163/+256 312 291 397, Email: skiwanuka@musph.ac.ug. Oba, Professor Stephen Tee, Email: researchgovernance@bournemouth.ac.uk

Okulangirira awamu nekinkumu/omukono

Nze nkakasa nti NZIKIRIZA mubugunjufu okwenyigira mumusomo guno: ‘Engato Zaani’. Okozesa emizanyo za meza/bodi n’abaami okulungamya okuzala ngo yambibwa no musawo omutendeke mu Uganda: Omusomo ogwenjawulo.

Omukono gwadamu..…… Enaku zomwezi……..……

Ekinkumu/omukono gwa nonyereza……. Enaku zomwezi……...

WEBALE OKUTWALA OBUDDE OKUSOMA OBUBAKA OBUULI MU KIWANDIIKO KINO

Ekiwandiiko ekiwa olukusa – abakyala (Consent form – women)

Ennyanjula

Twagala okukwaniriza okwetaba mu kunonyereza kuno. Nga tonnasalawo, olina okutegeera lwaki okunonyereza kuno kukolebwa ne ebirimu. Tukusaba otwaale obudde okusoma obubaka buno wammanga n'obwegendereza era obuuze ebibuuzo singa ekintu kyonna sikirambulukufu oba wandyagadde ku bisingaawo. Tukusaba otwaale obudde okusalawo oba onetabamu oba nedda.

Omunonyereza

Erinnya lyange nze Alice Ladur era nga ndi muyizi anonyereza eyatikkirwako edda anonyereza asomera ku Bournemouth University (BU) Ndi mu kwekenenya omugaso gw'okukozesa obuzanyo bwa kaadi obuyigiriza mu basajja mu kutumbuula obulama bw'abanakazadde. Neesunga okumanya by'oyiseemu eby'etololeera ku nkozesa y'okulabirira banakazadde n'okwenyigira kw'abaami mu kuyita mu kiseera ky'olubuto/ ky'okuzaala.

Naalonze omulamwa guno kubanga waliwo obukakafu obulaga nti okuzalira mu ddwaliiro kusobola okuyamba okusumululwa okutakosa ali olubuto n'omwanawe. Ebiwandiiko eby'enjawulo nabyo bilaga nti abasajja bakosa obusobozi bw'abakyala okusalawo okunoonya obujjanjabi nga baali lubuto.

Bw'onogabana by'oyiseemu n'endowoozayo ku kw'enyigira mu kulabirira banakazadde /okwenyigira kw'abaami, tujja kufuna okutegeera okusingaawo ku ngeri y'okuyamba abakyala okweyongera okuzaalira mu ddwaliiro.

Lwaki mpitiddwa okwetabaamu?

Oyitiddwa okwetabaamu kubanga oli lubuto ate nga otuula mu disitulikiti y'eMitiyana.

Nnina okwetabaamu?

Kiri eri ggwe okusalawo okwetabaamu oba nedda. Bw'olondawo okwetabaamu, kijja kuba ky'ansuusso. Wabula, bw'okyuusa endowoozayo, osoboola okuva mu

kunonyereza kuno essaawa yonna okutuuka ebikuuŋŋanyizibwa w'ebituunulirwa nga towadde nsonga ate nga okusalawo kwo tekukosezza nkoleganayo n'abantu ab'akwetoloodde.

Kiki ky'ennina okukola?

Ojja kuddamu ebibuuzo ebinabuuzibwa omunonyereza omukyala okumala eddakika nga amakumi asatu.

Ojja kwanirizibwa okw'enyigira mu kwogereganya ne bakyala banno era oddemu ebibuuzo nga kitundutundu mu kwogeregaganya kuno okumala essaawa ng'emu. Okw'ogereganya kuno kujja ku likodingibwa okusobozesa okuwandiika lipoota yokka.

Okwetaba kwange mu kunonyereza kuno kunakumibwa nga kwa kyama?

Ebikukwatako byonna ebinakuŋŋanyizibwa bijja kukumibwa nga bya kyama. Tojja kusobola kusongebwaako ngalo mu lipoota yonna oba obutabo abunakubibwa. Ebirikondingiddwa tebijja kuwulirwa muntu yenna okujjako ekibinja ekinonyereza. Ebinakuŋŋanyizibwa bijja kuterekebwa ku komputa ezisibiddwa era bijja kusimuulwa okunonyereza nga kuwedde okusinziira ng'amateeka agafuga okutereka ebinakuŋŋanyizibwa mu kunonyereza agabagibwa Bournemouth University bwe gaali.

Bbiki ebinatuuka ku biva mu kunonyereza?

Kisubiirwa nti okunonyereza kuno kujja kukomyaawo obubaka obukwata ku kukozesa obuzanyo bwa kkaadi mu baami n'okwenyigira mu kulabirira banakazadde kwa abakyala. Lipoota ewandikiiddwa etalina bikukwatako eby'obuntu ebikukwataganya n'okunonyereza kuno esobola okufulumizibwa ng'omulamwa gwayo kwe kugabana ebizuliddwa n'abanonyereza abalala. Bwoba otukkirizza, tusobola okukuwa mu bumpimpi ebinaba bizuliddwa.

Ssinga wabaawo obuzibu?

Bwoba olina ebibuuzo eby'ekuusa ku kitundu kyonna eky'okunonyereza kuno, osobola okwogera nange era nja kugezaako okuddamu ebibuuzo byo. Alice

Ladur, Essimu: +256 782 067 006, Email: aladur@bournemouth.ac.uk. Bwoba olina ebibuuzo byonna eby'ekuusa ku ddembe lyo ng'omwetabi, tuukirira Dr Suzanne Kiwanuka, Essimu: +256 701 888 163/+256 312 291 397, Email: skiwanuka@musph.ac.ug. Oba, Professor Stephen Tee, Email: researchgovernance@bournemouth.ac.uk

Olukusa okwetaba

Njagala okunoonya olukusalwo okwetaba mu kunonyereza kuno. Okkiriza okutuwa olukusa okwetaba mu kunyonyereza kuno? 1 = Wewaawo 2 = Nedda

Oba wewaawo, weyongereyo mu kitundu ekiddako wammanga ekyasanguza okuwa olukusa okwetaba.

Okwasanguza n'okussaako omukono

Nze mpa OLUKUSA N'OKUMANYA okwetaba mu kunonyereza okuyitibwa kuuno

Ekinkuumu/Omukono gw'omwetabi ……. …Ennaku z'omwezi ……

Omukono gw'abuuza……. Ennaku z'omwezi …….

Ebibuuzibwa – abaami ng'essomo terinabaawo (pre-intervention)

Erinnya lyange ye nze **Alice Ladur** nga ndi munoonyereza mu ttendekero erya Borunemouth University e Bungereza. Ndi mukunoonyereza ku ngeri ki abakyaala gyebakozesaamu obujjanjabi bw'abembuto e Mityana. Bw'onoogabanako naffe mukino, tuweebwa enkizo okutegeerera ddala bulungi engeri gye tusobola okuyambamu abakyaala okuzaalira mu ddwaaliro ettongole. Oyitiddwa okweetaba mukunoonyereza kuno kubanga mukyaala wo ali lubuto. Ogenda kubuuzibwa ebibuuzo okumala eddakiika nga amakumi asatu (30). Byonna byogenda okuddamu tebiibulirwe muntu mulala yenna okujjako oyo akubuuza yekka. Tekikukakatako kubeera mukunoonyereza kuno. Wabula tukusaba busabi tukkanye naawe obeeremu, kubanga endowoozayo nkulu nnyo gyetuli mukunoonyereza kuno. Bw'onaabuzibwa ekibuuzo n'otoyagala kukiddamu, oli waddembe okusaba omunoonyereza akite adde ku kirala, ssinakindi okukomya okunoonyereza kuno wonna w'oyagalidde. Bw'oba olina obutali bumativu oba ekitakusanyusizza kyonna, owereddwa ebbeetu okukibulirako mukyaama, Omukenkufu (Prof) **Stephen Tee** ku mutuku gwa yintaneeti gunno Email: researchgovernance@bournemouth.ac.uk

Olina ekibuuzo kyonna? **Ye** / **Nedda**

Oli mweetefuteefu okuddamu ebibuuzo? **Ye** / **Nedda**

Omweetabi takkiriza okukuddamu. **KOMA AWO**

Omweetabi akkiriza okukuddamu. **GENDA MUMAASO**

	Ebikukwatako Eby'olukale	Okuddaamu kwo	
	Identifier		
1	Ennaku z'omwezi z'odiddemu bino		
2	Ekyalo		
3	Emyaka egy'obukulu		
4	Kabira		

5	Okusoma kwo okw'awaggulu (Nga kwotadde n'ebyemikono)	1) Tewali	
		2) Eky'omusanvu	
		3) Siniya ey'okuna	
		4) Siniya ey'omukaaga	
		5) Tendekero ly'emikono	
		6) Yunivasite	
6	Enyimirirayo mu by'amaka	1) Nkyali nzekka	
		2) Ndi mufumbo	
7	Omulimu gwo	1) Ndi mulimi	
		2) Nekozesa/Nkola	
		3) Sikola	
	Okumanya kw'obubonero obutiisa mu b'embuto		
8	Buzibu ki obw'ekuusa ku bulamu mu kiseera ky'olubuto obusoboola okukosa omukazi ali olubuto? **<u>Londako (√) bwonna by'omanyi</u>**	1) Okuva omusaayi mu bitundu eby'ekyaama	
		2) Okusesemasesema okutakutula	
		3) Okulumwa omutwe okwamanyi	
		4) Okuzimba engalo, ebigere ne mumaso	
		5) Okukankana	
		6) Obulumi mu lubuto	
		7) Okuggya kw'amazi ng'ekiseera ky'okuzaala tekinnatuuka	
		8) Obuzibu mukulaba	
		9) Omusaayi omutono	
		10) Obulala (butubuliire)	
		11) Simanyi	

	Okumanya kw'obubonero obutiisa mu kuzaala		
9	Buzibuki obwekuusa ku bulamu obubaawo **mukuzaala** obusobola okukosa omukazi ali olubuto? **<u>Londako (√) bwonna by'omanyi</u>**	1) Okuva omusaayi mu bitundu byekyama okungi	
		2) Okuzimba kw'engalo, ebigere, n'emumaso	
		3) Okukankana	
		4) Okulwa mu leeba okuyisa essawa kkumi n'abbiri	
		5) Okwelukirira oba okuwuliira obukoowu obungi	
		6) Obulala (butubuliire)	
		7) Simanyi	
		6) Simanyi	
	Okwetegeka mu kuzaala n'okuba obulindala singa obuzibu bwonna bubaawo		
10	Bintuki abami bye basobola okukola nga betegekera okuzaala kw'abakyala baabwe? **<u>Londako (√) byonna by'omanyi</u>**	1) Okukwasaganya eby'entambula singa wabaawo obuzibu bwonna / mukuzaala	
		2) Okusaba obuyambi bw'ab'oluganda	
		3) Okufuna edwaliiro ery'okuzaliramu	
		4) Okufuba okulaba nti mukyala we okolebwako omujjanjabi omutendeke	
		5) Okutereka ssente ez'okukozesebwa mu kuzaala / okwongerwayo	
		6) Okuguula mama kit n'ebikozesebwa eby'abaana abakazaliibwa	
		7) Okugenda n'emukyalawo mu ddwaliiro ng'agenda okuzaala	

		8) Ebirala (bitubuliire)	
	Okuzaliira mu ddwaliiro		
11	Omukyala ow'olubuto yandizalidde wa?	1) Waaka	
		2) Mu ddwaliiro	
12	Ani asalawo omukyala ow'olubuto weyandizalidde?	1) Omwami yekka	
		2) Omukyala yekka	
		3) Omwami n'omukyala	
	Okumanya kw'obubonero obutiisa oluvanyuma lw'okuzaala okumala wiiki nga mukaaga		
13	Ani yandiyambye omukyala ow'olubuto mukuzaala omwanawe? Londako (√) bonna by'omanyi	1) Omusawo	
		2) Omujjanjabi/omuyambi w'abajjanjabi	
		3) Nansi / Omuzalisa omutendeke	
		4) Omuzaliisa ow'ekinnansi	
		5) Omulala (Mutubulire)	
		6) Simanyi	
	Okufiibwaako kw'ab'embuto		
14	Biiki ebibaawo omukyala ali olubuto bw'agenda mu ddwaliiro okufuna okufiibwaako kw'ab'embuto? Londako (√) bonna by'omanyi	1) Okukeberebwa akuwaka ka mukenenya	
		2) Okugyibwaako ssampolo y'omusulo	
		3) Okugyibwaako ssampolo y'omusaayi	
		4) Okupiima obuzito	
		5) Okukubibwa empiiso mu mukono (okugemebwa tatanansi)	
		6) Okutegekebwa okuzaaala	

		7) Ebirala (bitubulire)	
		8) Simanyi	
		1) Wewaawo	
		2) Simanyi	
15	Waali owerekeddeko mukyalawo ng'agenda mu kufiibwaako kw'ab'embuto?	0) Nedda	
		1) Wewaawo	
	Obuvunanyizibwa bw'abaami		
16	Ani akoola okusalaawo ku **ku by'obujjanjabi** mu maaka?	1) Omwami	
		2) Omukyala	
		3) Omwami n'omukyala bombi	
		4) Omulala (mutubulire)	
17	Ani asalaawo engeri ssente z'emukola bw'ezikozesebwaamu?	1) Omwami	
		2) Omukyala	
		3) Omwami n'omukyala bombi	
18	Menyaayo kko ku buvunanyizibwa bw'abaami ng'omukyala ali lubuto? Londako (√) bonna by'omanyi	1) Okuzaamu amaanyi mukyalawe okugenda mu ddwaliiro	
		2) Okuwerekera mukyalawe okufuna okufiibwaako kw'ab'embuto	
		3) Afuba okulaba nti mukyalawe alya emmere erimu ebirisa byonna	
		4) Agabirira obuyambi bw'ensimbi	
		5) Afunayo omuntu okuyamba ku mirimu gy'ewaka	

		6) Amanyi ekyokukola ssinga obuzibu bubaawo mu kiseera ky'olubuto	
		7) Obulala (butubulire)	
	Okukozesa akazanyo ka kkaadi		
19	Oyogeraki ku kukozesa kw'akazannyo ka kkaadi ng'ekikozesebwa mukuyiga ku by'obulamu?		

Webale okutuwa obudde

Enkomerero y'okubuzibwa

Ebibuuzibwa – abaami ng'essomo liwedde (post intervention)

Preamble

Erinnya lyange ye nze **Alice Ladur** nga ndi munoonyereza mu ttendekero erya Borunemouth University e Bungereza. Ndi mukunoonyereza ku ngeri ki abakyaala gyebakozesaamu obujjanjabi bw'abembuto e Mityana. Bw'onoogabanako naffe mukino, tuweebwa enkizo okutegeerera ddala bulungi engeri gye tusobola okuyambamu abakyaala okuzaalira mu ddwaaliro ettongole. Oyitiddwa okweetaba mukunoonyereza kuno kubanga mukyaala wo ali lubuto. Ogenda kubuuzibwa ebibuuzo okumala eddakiika nga amakumi asatu (30). Byonna byogenda okuddamu tebiibulirwe muntu mulala yenna okujjako oyo akubuuza yekka. Tekikukakatako kubeera mukunoonyereza kuno. Wabula tukusaba busabi tukkanye naawe obeeremu, kubanga endowoozayo nkulu nnyo gyetuli mukunoonyereza kuno. Bw'onaabuzibwa ekibuuzo n'otoyagala kukiddamu, oli waddembe okusaba omunoonyereza akite adde ku kirala, ssinakindi okukomya okunoonyereza kuno wonna w'oyagalidde. Bw'oba olina obutali bumativu oba ekitakusanyusizza kyonna, owereddwa ebbeetu okukibulirako mukyaama, Omukenkufu (Prof) **Stephen Tee** ku mutuku gwa yintaneeti gunno Email: researchgovernance@bournemouth.ac.uk

Olina ekibuuzo kyonna? **Ye** / **Nedda**

Oli mweetefuteefu okuddamu ebibuuzo? **Ye** / **Nedda**

Omweetabi takkiriza okukuddamu. **KOMA AWO**

Omweetabi akkiriza okukuddamu. **GENDA MUMAASO**

	Ebikukwatako Eby'olukale	Okuddaamu kwo	
	Identifier		
1	Ennaku z'omwezi z'odiddemu bino		
2	Ekyalo		
3	Emyaka egy'obukulu		

4	Kabira		
5	Okusoma kwo okw'awaggulu (Nga kwotadde n'ebyemikono)	1) Tewali	
		2) Eky'omusanvu	
		3) Siniya ey'okuna	
		4) Siniya ey'omukaaga	
		5) Tendekero ly'emikono	
		6) Yunivasite	
6	Enyimirirayo mu by'amaka	1) Nkyali nzekka	
		2) Ndi mufumbo	
7	Omulimu gwo	1) Ndi mulimi	
		2) Nekozesa/Nkola	
		3) Sikola	
	Okumanya kw'obubonero obutiisa mu b'embuto		
8	Buzibu ki obw'ekuusa ku bulamu mu kiseera ky'olubuto obusoboola okukosa omukazi ali olubuto? Londako (√) bwonna by'omanyi	1) Okuva omusaayi mu bitundu eby'ekyaama	
		2) Okusesemasesema okutakutula	
		3) Okulumwa omutwe okwamanyi	
		4) Okuzimba engalo, ebigere ne mumaso	
		5) Okukankana	
		6) Obulumi mu lubuto	
		7) Okuggya kw'amazi ng'ekiseera ky'okuzaala tekinnatuuka	
		8) Obuzibu mukulaba	
		9) Omusaayi omutono	
		10) Obulala (butubuliire)	

		11) Simanyi	
	Okumanya kw'obubonero obutiisa mu kuzaala		
9	Buzibuki obwekuusa ku bulamu obubaawo **mukuzaala** obusobola okukosa omukazi ali olubuto? **<u>Londako (√) bwonna by'omanyi</u>**	1) Okuva omusaayi mu bitundu byekyama okungi	
		2) Okuzimba kw'engalo, ebigere, n'emumaso	
		3) Okukankana	
		4) Okulwa mu leeba okuyisa essawa kkumi n'abbiri	
		5) Okwelukirira oba okuwuliira obukoowu obungi	
		6) Obulala (butubuliire)	
		7) Simanyi	
	Okwetegeka mu kuzaala n'okuba obulindala singa obuzibu bwonna bubaawo		
10	Bintuki abami bye basobola okukola nga betegekera okuzaala kw'abakyala baabwe? **<u>Londako (√) byonna by'omanyi</u>**	1) Okukwasaganya eby'entambula singa wabaawo obuzibu bwonna / mukuzaala	
		2) Okusaba obuyambi bw'ab'oluganda	
		3) Okufuna edwaliiro ery'okuzaliramu	
		4) Okufuba okulaba nti mukyala we okolebwako omujjanjabi omutendeke	
		5) Okutereka ssente ez'okukozesebwa mu kuzaala / okwongerwayo	
		6) Okuguula mama kit n'ebikozesebwa eby'abaana abakazaliibwa	
		7) Okugenda n'emukyalawo mu ddwaliiro ng'agenda okuzaala	
		8) Ebirala (bitubuliire)	

	Okuzaliira mu ddwaliiro		
11	Omukyala ow'olubuto yandizalidde wa?	1) Waaka	
		2) Mu ddwaliiro	
12	Ani asalawo omukyala ow'olubuto weyandizalidde?	1) Omwami yekka	
		2) Omukyala yekka	
		3) Omwami n'omukyala	
	Okumanya kw'obubonero obutiisa oluvanyuma lw'okuzaala okumala wiiki nga mukaaga		
13	Ani yandiyambye omukyala ow'olubuto mukuzaala omwanawe? Londako (√) bonna by'omanyi	1) Omusawo	
		2) Omujjanjabi/omuyambi w'abajjanjabi	
		3) Nansi / Omuzalisa omutendeke	
		4) Omuzaliisa ow'ekinnansi	
		5) Omulala (Mutubulire)	
		6) Simanyi	
	Okufiibwaako kw'ab'embuto		
14	Biiki ebibaawo omukyala ali olubuto bw'agenda mu ddwaliiro okufuna okufiibwaako kw'ab'embuto? Londako (√) bonna by'omanyi	1) Okukeberebwa akuwaka ka mukenenya	
		2) Okugyibwaako ssampolo y'omusulo	
		3) Okugyibwaako ssampolo y'omusaayi	
		4) Okupiima obuzito	
		5) Okukubibwa empiiso mu mukono (okugemebwa tatanansi)	
		6) Okutegekebwa okuzaaala	
		7) Ebirala (bitubulire)	
		8) Simanyi	

15	Waali owerekeddeko mukyalawo ng'agenda mu kufiibwaako kw'ab'embuto?	0) Nedda	
		1) Wewaawo	
	Obuvunanyizibwa bw'abaami		
16	Ani akoola okusalaawo ku **ku by'obujjanjabi** mu maaka?	1) Omwami	
		2) Omukyala	
		3) Omwami n'omukyala bombi	
17	Ani asalaawo engeri ssente z'emukola bw'ezikozesebwaamu?	1) Omwami	
		2) Omukyala	
		3) Omwami n'omukyala bombi	
18	Menyaayo kko ku buvunanyizibwa bw'abaami ng'omukyala ali lubuto? Londako (√) bonna by'omanyi	1) Okuzaamu amaanyi mukyalawe okugenda mu ddwaliiro	
		2) Okuwerekera mukyalawe okufuna okufiibwaako kw'ab'embuto	
		3) Afuba okulaba nti mukyalawe alya emmere erimu ebirisa byonna	
		4) Agabirira obuyambi bw'ensimbi	
		5) Afunayo omuntu okuyamba ku mirimu gy'ewaka	
		6) Amanyi ekyokukola ssinga obuzibu bubaawo mu kiseera ky'olubuto	
		7) Obulala (butubulire)	
	Okukozesa akazanyo ka kkaadi		
19	Bintu ki mu kazanyo bye wasanga nga by'ebyasinga okuba eby'omugaso mu kukuyamba okutegeera emiramwa egy'asimbibwa?	1) Okwogereganya mu kibiinja	
		2) Kkaadi z'ebibuuzo	
		3) Ebitontome	
		4) Kkaadi z'obubaka	

		5) Ebirala (bitubulire)	
20	Bbiki bye wayagala /by'otayagala ku kazanyo kano?		
21	Bbiki by'onokola obulala ku bikwaata ku lubuto n'okuzaala kw'abakazi?		
22	Waliiwo ekirala kyewandyagadde okwogera ku kazanyo kano?		

Webale okutuwa obudde

Enkomerero y'okubuzibwa

Okukubaganya ebirowoozo (FGD guide - men)

1. Bintu ki mu kazanyo bye wasanga nga by'ebyasinga okuba eby'omugaso mu kukuyamba okutegeera emiramwa egy'asimbibwa? Buuza: Okukubaganya ebirowoozo mu basajja, kkaadi/obubaka.
2. Bbiki bwewafunamu olw'okwetaaba mu kazanyo kano?
3. Bbiki by'onokyusaamu ku bikwata ku lubuto n'okuzaala kw'abakyala? Buuza: amagezi amagya
4. Biiki bye wayagala/by'otayagala ku kazanyo?
5. Waaliwo kyonna kye wandikyusizza mu kazanyo?
6. Olina ndowoozaki gy'olina ku kw'enyigira kw'abaami mu kiseera ky'olubuto n'okuzaala?
7. Abaami basoobola batya okuyamba abakyala okuyita mu lubuto n'okuzaala?

Webale okutuwa obudde!

Enkomerero y'okubuzibwa

Okukubaganya ebirowoozo (FGD guide - women)

1. Biiki by'onokyusaamu ku bikwata ku lubuto n'okuzaala kw'abakyala? Buuza: amagezi amagya
2. Biiki bye wayagala/by'otayagala ku abaami mu kubeerawo eri abakyala mu kiseera ekyo kuzaala no lubuto?
3. Waaliwo kyonna kye wandikyusizza mu kazanyo?
4. Olina ndowoozaki gy'olina ku kw'enyigira kw'abaami mu kiseera ky'olubuto n'okuzaala?
5. Abaami basoobola batya okuyamba abakyala okuyita mu lubuto n'okuzaala?

6. Waali wo ekilala kyoyangala okwongereza ko?

Webale okutuwa obudde!

Enkomerero y'okubuzibwa

Appendix 4.10 Data analysis (initial codes)

FGD.1

Male involvement in MCH	
Barriers to male involvement	unplanned pregnancies
	forced marriages/moral repercussion of pregnancy
	age differences/social stigma too young vs too old & vice versa
	conflict in relationship
	legal repercussion/fear of being arrested
	polygamous relationships
	financial priorities
	rude health workers
Men`s response to delayed medical appointments/waiting	blame, accusations
Aspects of the game that facilitated learning	
Discussions	Listening to each other`s experiences
	reflections
	sharing experiences
Perceptions about the game	
	mixed feelings about the colours and time taken to play the game
Likes about the game	
	fun
	educative
dislikes about the game	

	colours (yellow)
	game takes too long to play fully
actions/what will be done differently after game	
	consider pregnant partner
Any suggestions	
	Whose Shoes? Should replace the local game Ludo

FGD II

Male involvement in MCH	
Women may not want husbands involved	Cultural beliefs/male involvement associated with prolonged labour & pains
	want to give birth at home
	only communicate when a complication arises
women`s choice	woman makes decision to inform husband or not
men`s roles	accompany wife to health facility
	love & emotional support
	spousal communication
	man`s responsibility to take care of pregnant wife/health
	take care of pregnant woman
	provision of basic needs/security
preference of home births by women	fear of caesarean delivery
	rude / ill treatment by midwives
	silence/not tell husband her delivery date

	treated with dignity and care whilst giving birth at home
	woman`s choice to give birth at home
Barriers to male involvement	Health facilities only want men at delivery when it is a complicated birth
	attitude
Aspects of the game facilitated learning	
Discussions	sharing experiences
Perceptions about the game	
Likes about the game	
educative	not just a mere game but learning
interactive	allows even shy people to speak freely/encourages participation
discussions	simple to understand/both literate & illiterate can follow
relevant messages	talks about relevant messages in our community/health matters
	fun yet educative
	cannot doze while playing the game
	encourages peer-to-peer learning
reflection	causes people to reflect about their actions
dislikes about the game	
	colours (yellow)
	game takes too long to play fully/time factor
new behaviour after game	
	change in mindset

	take care of pregnant woman/special attention to her
	man`s roles
	be role models in the community

FGD III

Male involvement in MCH	
	financial support/provision of basic needs
	man`s responsibility to take care of family
	accompany wife for ANC/delivery
	fear of attending ANC clinics/legal repercussions
Aspects of the game facilitated learning	
Discussions	Listening to each other`s experiences
	reflections
question cards	
Perceptions about the game	
	mixed feelings about the colours and time taken to play the game
Likes about the game	
educative	its wonderful, interactive
relevant messages	important health issues in the family/maternal health
	safe space to share experiences/ask for advice
question cards	generates discussion/allows for wide discussions
peer learning	peer learning
	cards in the local language
dislikes about the game	

	colours (yellow)
	game takes too long to play fully
	poems were logical & needed a lot of thinking
new behaviour after game	
	built confidence/empowerment to seek health services
	take care of pregnant wife
	early preparations for delivery
	leaving money at home to support wife/family
	shared decision making at home
	accompany wife to health facility
	emotional support and care for wife
	go early to health facility/need arises
Any suggestions	
	choose topics for particular days to discuss effectively
	have joint sessions with female partners/wives
	Replace the yellow colour in the board game
	game should be promoted and used in health promotion in other areas

Appendix 4.11 Paper trail during fieldwork in Uganda

Field notess during fieldwork in Uganda	Changes made/way forward
Pre-test of questionnaires Feedback received included; questionnaire was too long, some questions were irrelevant	Some questions were removed such as; postnatal care, delivery location, educational games in the (pre-test questionnaire), type of delivery, assistance at birth and referrals Place of delivery was rephrased to planned place of delivery. Data from health facility records was not captured following recommendations from Ethics committee in Uganda
Recruitment Recruitment at Health Centre III took place on Mondays, Tuesdays and Thursdays Consent form Men were suspicious of the consent form and perceived it as a government strategy to collect their signatures and have them arrested	Changed to Thursdays the designated day for antenatal care. The other days were quiet with one or two women coming in for maternity services The purpose of the study and consent form was explained, allowing participants to ask questions and take it home and read it carefully or ask someone they trust in the community to read it aloud for them