‘How good is good?’

Studies of facility-based childbirth care in southern Mozambique, from the perspectives of women and health providers

SIBONE MOCUMBI
Abstract

Despite the large shift toward facility-based childbirths occurred during the last 15 years in several low resource settings, including in Mozambique, the burden of maternal mortality and morbidity remain considerable. Obstetric fistula is one of the most devastating of all maternal morbidities which still prevalent and is entirely avoidable.

The aim of this thesis was to evaluate and explore the provision of childbirth care, focusing on obstetric fistula as one of its complications, in a rural Mozambican setting of high facility delivery rate.

The four studies constituting this thesis were implemented in Maputo and Gaza provinces, southern Mozambique, between April 2016 and March 2017. We included 4385 women having given birth up to 12 months the study identified from a cohort of women of reproductive age (12-49 years). We identified women with constant urine leakage, assess them clinically, confirm the diagnosis and estimate the incidence of obstetric fistula. In-depth interviews with selected women with and without fistula (n=28), were used to describe the women’s experiences of maternal care and pinpoint those experiences that are unique to women with fistula. During the same cross-sectional survey (n=4385) we also assessed the women’s experiences of care and satisfaction with care during childbirth. We complemented the women’s survey with a survey among 175 health workers of the study area to assess their perception of their work context.

The incidence of fistulae was 1.1 per recently pregnant women (95% CI 0.14-2.16). Delays in receiving definite care at referral hospitals despite having reached the primary health facility in time, were reported by the women who had fistulae. Women without fistula, blamed the fistula condition on women’s physiological and behavioural characteristics. Most (92.5%) of the 4358 women interviewed reported to be satisfied with care during childbirth and would recommend a family member to deliver in the same facility. Women who gave birth in primary level facilities tended to be more satisfied than those gave birth in hospitals, and presence of a companion had a positive influence on the satisfaction, irrespective of age, education and socio-economic background. Health workers rated highly the items on all dimensions of context when asked to evaluate their work context using the Context Assessment for Community Health (COACH) tool, although still above the scale midpoint, the organizational resources dimension had the lowest score.

This thesis demonstrates a high incidence of obstetric fistula despite a high coverage of facility-based childbirths in a rural context where services are generally perceived as adequate by childbearing women and health providers. To reduce maternal morbidity by fistula, major interventions are needed to improve the quality of childbirth care, including complication recognition and decision-making for referral, health facility preparedness as well as to improve the health providers’ work environment.

Keywords: Facility-based childbirth, Obstetric fistula, Satisfaction with care, Health providers, Context assessment, Mozambique

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For all mothers and those to be
“Treating obstetric fistula is like taking a serpent by the tail: you can only control the snake by taking it by the head.”

African quote in De Ridder, D. et al, 2009
List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.


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### Abbreviations

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<th>Full Form</th>
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<tr>
<td>CISM</td>
<td>Manhiça Health Research Centre</td>
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<td>CLIP</td>
<td>Community Level Interventions for Pre-eclampsia</td>
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<td>COACH</td>
<td>Context Assessment for Community Health</td>
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<td>DHS</td>
<td>Demographic and Health Survey</td>
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<td>EBP</td>
<td>Evidence-Based Practice</td>
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<tr>
<td>EmONC</td>
<td>Emergency Obstetric and Neonatal Care</td>
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<td>FIGO</td>
<td>International Federation of Gynecology and Obstetrics</td>
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<td>HC</td>
<td>Health Centre</td>
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<td>HDSS</td>
<td>Health and Demographic Surveillance Systems</td>
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<td>LMIC</td>
<td>Low- and Middle-Income Countries</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>MMR</td>
<td>Maternal Mortality Ratio</td>
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<td>NHS</td>
<td>National Health Service</td>
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<td>PHC</td>
<td>Primary Health Care</td>
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<td>SMI</td>
<td>Safe Motherhood Initiative</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>TBA</td>
<td>Traditional Birth Attendant</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNICEF</td>
<td>United Nations International Children’s Emergency Fund</td>
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<td>UNFPA</td>
<td>United Nations Population Fund</td>
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<td>WHO</td>
<td>World Health Organization</td>
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**Glossary of terms**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Context</td>
<td>Environment or setting in which the proposed change is to be implemented</td>
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<tr>
<td>Incidence proportion</td>
<td>Number of new cases of disease during specified time interval divided by the size of the population initially at risk</td>
</tr>
<tr>
<td>Obstetric fistula</td>
<td>Injury from the delivery with abnormal opening between the woman’s vagina and bladder and/or rectum, through which her urine and/or faeces continually leak</td>
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Preface

Nampula. The third biggest city of Mozambique. It is late night. Hot and humid as usual in the summer season. I wish I could be sleeping at home. Instead, I am working at the maternity unit, training to be an obstetrician and gynaecologist. I arrived the day later for an internship at the central hospital, which was the referral hospital for the north of the country. The ward is crowded, there are two patients in most of the beds to avoid having them lying on the floor. I was taking a break, having a cup of tea with my supervisor, Dr. Vladimir, one of the only three obstetricians the hospital had at that time, when suddenly, one of the midwives entered in the room shouting, “Doctors, emergency!” We ran out to the admission room to find out what was going on. There we found a nine months pregnant woman referred from a rural health center, 150 km away from Nampula. She was on her third day in labor, in a bad condition, gasping for air, and had signs of anemia. After having examined her and starting the first measures to stabilize her condition, a decision was made. “We have to go to the operating theatre to save her,” said Vladimir. Unfortunately, her baby was already dead, the uterus and bladder ruptured. “This big baby obstructed the birth canal, but maybe saved her mother, making compression and preventing further bleeding after the rupture,” said Vladimir. The surgery was difficult, and we had to remove the uterus and repair the bladder. We managed to save her life, but I was sad to discover when examining her, three days after the surgery, that she was leaking urine. She had an obstetric fistula.

One of the questions I have been asking myself, since I started my practice as an obstetrician and gynaecologist in Mozambique fifteen years ago, was why, despite the huge efforts made by the public health authorities and the different stakeholders to increase the number of women who give birth in health facilities, do we still have a high number of women who die of a pregnancy-related cause, or experience acute or chronic diseases, from complications which are mostly preventable? I have been exposed several times to the challenging and stressful event of a death of a mother or a newborn, allowing me to reflect on what went wrong and what I could have done better. One of the troubling experiences I had at the Maputo Central Hospital was entering the gynecology ward when we had groups of ten to twenty women, sometimes more, suffering with fistula waiting for surgical repair. They were arriving from different rural settings, hundreds to thousands of kilometers from Maputo. The first shock was the strong smell of urine in the air, and the difficulty
those women had to look into my eyes, feeling ashamed by their condition. Most of them had been suffering for years and it was easy to see the sadness in their faces, although the fact that being at hospital was, for them, the beginning of hope. These women were coming from low-resource rural settings, and each of them told their own story of suffering during childbirth, the loss of their baby, and the impact that living with fistula had brought to their lives.

The search of answers for the several questions around why negative outcomes such obstetric fistula still occurs and what can be done to prevent it and improve the care during childbirth, led me to begin this research journey in 2015, which took me out of the hospital, out of Maputo city, and allowed me to know the path and challenges that most women face in giving birth in Mozambique.
Introduction

The birth of a new baby is a natural process and an important and joyful social event, both for the individual family and the community. Although most women experience a normal childbirth, and most babies are born healthy, skilled childbirth care is essential for all births. Complications during childbirth, however, cannot be predicted. For this reason, one critical strategy for reducing maternal morbidity and mortality is ensuring that every baby is delivered with the assistance of a skilled birth attendant, which, generally, might include a medical doctor, nurse or midwife [1]. The presence of a skilled birth attendant also contributes to reducing the risk of stillbirth or death due to intrapartum-related complications by about 20 percent [2].

The strategies to improve childbirth care and the SDG3 agenda

Over the last four decades, leaders of the maternal health movement have succeeded in persuading the world that no women should die unnecessarily in pregnancy or childbirth. Safe births have become a women’s rights issue [3, 4]. Since the Declaration made at the Alma-Ata International Conference on Primary Health Care (PHC) in 1978 [5], more organized efforts to improve maternal health in low-resource settings have been initiated. However, the majority of the maternal and child health programmes developed since then have almost exclusively been focused on the benefit to the child, with almost no attention given to the factors that were causing women to die, mostly due to limited resources. As an example, the only intervention that has been integrated into the selective PHC approach introduced in 1979 was family planning [6, 7]. The lack of focus on women’s health triggered the seminal article, written by Rosenfield and Mane in 1985, asking ‘where is the M (for mother) in Maternal Child Health?’ in which they called on the different stakeholders to prioritize maternity care, considerably reduce maternal morbidity and mortality and perinatal mortality, and encourage contraceptive practice [8]. That same year, during the conference marking the end of the United Nations (UN) Decade for Women, the World Health Organization (WHO) announced that 500,000 women were dying each year from obstetric complications [9]. The International Safe Motherhood Conference, held in Nairobi in 1987, was the
starting point of the Safe Motherhood Initiative (SMI), which called for a four-part strategy to improve maternal health outcomes, as follows:

1. adequate primary health care and an adequate share of available food for females from infancy to adolescence, and universally available family planning;
2. good prenatal care, including nutrition, with early detection and referral of those at high risk;
3. the assistance of a trained person at all births; and
4. access to the essential elements of obstetric care for women at higher risk [10].

Following the Nairobi conference, donors, UN agencies and governments seized upon two elements of the SMI: antenatal care focusing on screening women at risk of complications, and training of traditional birth attendants to improve delivery care at the community level. They then prioritized their funding and support to match these strategies [11]. One such prioritized programme was the ‘Mother Baby Package’ [12]. However, the underlying risk approach, which suggests that complications could be predicted during antenatal care, was later questioned, as many of the risk factors used, such as maternal height, had a very low predictive value for complications [13, 14]. At the 1997 Conference marking the 10th anniversary of the programme, two of the key action messages about safe motherhood – ‘Every pregnancy faces risk’ and ‘Ensure skilled attendance at delivery’ – implicitly recognized the failure of the previous approaches, and helped shift to a strategy which prioritizes interventions designed to increase women’s access to facility-based childbirth care, especially for life-threatening complications [11]. In the same year, the concept of Emergency Obstetric Care (EmOC) was introduced by the WHO, the United Nations International Children’s Emergency Fund (UNICEF) and the United Nations Population Fund (UNFPA) [15] as a critical component of any programme to reduce maternal mortality [16].

When the eight Millennium Development Goals (MDGs) were established in 2000, the fifth goal (MDG5), to “improve maternal health”, set a target to reduce maternal mortality ratios by 75% by 2015 [17]. Progress has been made globally in reducing maternal mortality, with an estimated decline of the maternal mortality ratio from 385 per 100 000 livebirths in 1990 to 216 per 100 000 in 2015 [18]. This major reduction is largely due to improvements in LMIC, but most preventable maternal deaths continue to happen to the poorest women in the world [19]. The large shift toward facility-based childbirths that has occurred in Africa during the last 15 years – with a more substantial increase in the public sector in rural areas – has not led to the predicted improvement in health outcomes [20]. In fact, high maternal mortality (maternal mortality ratio [MMR] >100 deaths per 100 000 live births) still occurs, particularly in Sub-Saharan Africa, where the highest-ever ratio was reported in 2015.
(546; 80% uncertainty interval [UI] 511 - 652) [18], presenting a major chal-
gen to one of the cornerstones of the Sustainable Development Goals (SDG) agenda: reducing inequities, and “leaving no one behind”.

The SDG, which followed the MDG in 2016, will continue to focus on reducing maternal mortality – the unfinished MDG 5 agenda. Goal number 3 of the SDGs, “to ensure healthy lives and promote well-being for all at all ages”, explicitly deals with health problems, including maternal and newborn health issues: it aims to reduce, by the year 2030, the global MMR to less than 70 per 100 000 live births [21].

Addressing maternal morbidity: the case of obstetric fistula

While the focus on mortality reduction is maintained in the global maternal health agenda, morbidity is increasingly recognized as an important outcome to be addressed. Under the SDG, universal health coverage, the “survive, thrive, transform” agenda moves beyond reducing mortality and focuses on the importance of maternal morbidity [22, 23].

Maternal morbidity has been described as the base of the iceberg where maternal mortality is the tip [24]. It has often been quoted that, for every woman who dies of a pregnancy-related cause, 20 or 30 others experience acute or chronic morbidity, often with permanent sequelae that compromise their normal functioning [25-27]. The global maternal morbidity burden remains considerable: 27 million morbidity episodes were estimated to occur in 2015 from the most common direct obstetric complications [28]. Many of these complications are entirely avoidable, and these include prolonged and obstructed labour and one of its catastrophic consequences: obstetric fistula, the most devastating of all maternal morbidities [29, 30].

Most commonly, fistulas develop as a result of obstetric trauma, hence the term “obstetric fistulas” [31]. An obstetric fistula is an abnormal opening between a woman’s vagina and bladder and/or rectum, that results in a constant leakage of urine and/or faeces [32]. For more than 90% of the women who experience fistulas, the delivery is associated with stillbirth [33]. Virtually eliminated in high-resource countries, obstetric fistula is still very prevalent in LMIC, where it constitutes a major public health problem. Obstetric fistulas predominantly happen when women do not have access to quality childbirth care and represent an outcome of the failure of health systems to provide accessible and equitable sexual and reproductive health services [8, 9]. It is also an example of inequity: poor women who do not have timely access to safe intrapartum care, mostly those living in rural areas, are the most vulnerable to the risk of obstetric fistula and the subsequent physical and psychological consequences that affect their quality of life [34].
Development of obstetric fistula
The development of obstetric fistula is directly linked to one of the major causes of maternal mortality: obstructed labour; but also to the lack of access to appropriate emergency obstetric care [35-37].

Available evidence for urogenital fistula in LMIC, has shown that over 95% of genital fistulas are of obstetric aetiology, with over 80% following prolonged neglected obstructed labour that occurs as a result of foetal-maternal disproportion during a delivery [38]. The foetal head (or other presenting part) becomes squeezed into the pelvis, through which it cannot pass, and exerts pressure on the mother’s soft tissues (vagina and bladder and/or vagina and rectum) trapped between the presenting part and the bony pelvis. When the obstructed labour is not relieved by timely caesarean section, the pressure occludes the blood supply to the affected tissues (ischaemia), resulting in tissue necrosis (or death), which then slough away to create an abnormal communication between the vagina and the bladder, leading to a vesico-vaginal fistula and/or between the vagina and rectum, leading to a recto-vaginal fistula. Recto-vaginal fistulas may co-occur with vesico-vaginal fistulas in more severe cases of ischaemia. The incidence of combined fistulas ranges from 5% to 10% [39]. Isolated recto-vaginal fistulas are rare [39]. The foetal-maternal disproportion that causes obstructed labour is due either to a small pelvis (particularly in young, teenage primiparas), reduced pelvic proportions due to disease or injury, an abnormal foetal presentation (transverse lie, shoulder, breech, etc.), or foetal macrosomia.

A second cause of the development of obstetric fistula is iatrogenic injury occurred during delivery such an assisted vaginal delivery (using forceps or vacuum device), a caesarean section or emergency hysterectomy for a ruptured uterus. Recent studies suggest that an increasing proportion of urogenital fistulas in LMIC may be iatrogenic, mainly resulting from caesarean section [40]. A typical case description of iatrogenic injury is that of a woman identified as being in obstructed labour who is promptly transferred to a health facility with capacity to perform a timely caesarean section, delivering a live baby, who then develops a vesico-cervical fistula [40]. In addition to the vesico-cervical fistula, other types of fistulas described in the literature as suggestive to be of iatrogenic origin are the high vesico-vaginal fistula (those located high in the vagina at the level of the vaginal cuff), the vesico-uterine fistula, and the ureterovaginal fistula [40-42].

The risk of iatrogenic fistulas will be dependent on the duration of obstructed labour prior to the caesarean section, the qualifications and skills of the health professional performing the obstetric intervention, and the safety and appropriate equipment of the facility where the childbirth takes place [31, 40].
Risk factors of obstetric fistula

Predisposing factors associated with fistulae are low socioeconomic status with little to no education, malnutrition, child marriage associated with early pregnancy, and for specific regions and countries, severe forms of female genital cutting [43-46]. These factors, in combination with a delay in seeking skilled care, drive the obstetric factors which have been identified, such as: young age, prime parity, height less than 150 cm, home birth, absence of skilled birth attendant and transportation to emergency obstetric care facilities, poor labour progression monitoring without partograph, prolonged duration of labour (i.e., more than 24 h), inadequate surgical capacity, and lack of prenatal care and family planning [31, 33, 44, 45, 47]. Maternal age seems to play a role in the development of fistula and the mean age at fistula occurrence has been documented at 25±6 years [43, 48]. However, this seems to vary from country to country, with, for example, a mean age of 17.8 years in Ethiopia, and 28 years in Nigeria [43, 49]. Although the duration of labour is typically 12–16 h, many studies suggest that the mean duration of labour among women who develop fistula ranged from 2.5 – 4.0 days [47].

Thaddeus and Maine’s three-delays model [50], although developed to conceptualize the reasons and causes of maternal mortality, highlights the importance of mapping the factors that may cause delays in different phases of seeking maternal care [32]. The model divides delays in seeking skilled care into three different phases: delay in the community to decide to seek care (first delay), delay in identifying and reaching medical facility (second delay), and delay in the receipt of adequate and appropriate treatment (third delay). Patterns of importance within the three delays may also differ between settings and over time, with second-delay-related problems, such as find emergency transport, being a large problem in very remote and less developed areas, while third-delay-related problems, such as being given immediate attention by health workers in the hospitals, might be more important in places where there are many deliveries and few health workers [51]. Reasons for not seeking care are varied and depend on aspects such as educational level, socioeconomic status and culture, as well as accessibility to functioning health care facilities [28].

Epidemiology of obstetric fistula

Estimates indicate that two million women suffer from undetected or untreated fistulas globally, and that 50 000 to 100 000 new cases occur each year, mainly in LMIC in sub-Saharan Africa and South Asia [31, 52], where maternal mortality is high [30, 53]. In sub-Saharan Africa alone, an estimate from a population-based survey of severe obstetric morbidity suggested that at least 33 000 new cases occur each year [54, 55]. Yet, most estimates are based on self-reporting, personal communication with surgeons, studies by advocacy
groups, and review of hospital services, for which the relevant denominators, such as the source population and number of births of each are unknown or unreported [35, 56, 57] as they do not provide reliable data. There is a wide variation in the reported incidence rates of obstetric fistula in LMIC; from 0 to 4.09 cases per 1000 childbirths [58]. A systematic review, where only six studies conducted in LMIC were judged to be of sufficient quality, reported a pooled incidence of fistula of 0.09 per recently pregnant woman in the community-based studies, and 0.66 per recently pregnant woman in the hospital-based studies [59]. However, important methodological limitations were highlighted. Firstly, most of the retrieved population-based studies, which were not included in the estimate, reported on self-reported prevalence without physical examination by a trained healthcare provider. Secondly, studies where obstetric fistulas were clinically confirmed were primarily derived from hospitals and thus lacked a denominator and detailed information on the population from which the women originated. Although they are more expensive, community-based surveys provide more comprehensive coverage, better representation of a regional or national population, and more opportunities to collect a wide range of data compared to facility-based studies [60]. However, clinical examination to make a correct diagnosis and to eliminate other causes of incontinence is a necessary step to establish accurate rates of the condition [58, 61, 62].

In Mozambique, the actual incidence and prevalence of obstetric fistula remains unknown [63], but it is estimated that 100 000 women are affected [64]. The Ministry of Health’s National Programme for Fistula Prevention and Treatment in Mozambique reported that 556 women with obstetric fistulas were referred for surgical repair in 2015 [65], which is very far from the estimated number of women in need of surgical treatment. The programme organized campaigns relating to fistula repair throughout the country, placing a particular focus on the northern and central provinces of Niassa, Nampula, Zambezia, and Tete, and in southern Inhambane, where most cases of fistula are registered [64, 66].

Obtaining epidemiologic data on fistula is important to direct programmatic efforts efficiently [67, 68]. In the absence of precise numbers, the reach of a fistula treatment programme will only be expressed by the number of repairs without knowing the number of women in need of treatment [69].

Diagnosis of obstetric fistula

The obstetric history of the woman is the most salient element in the development of an obstetric fistula. It is often stated that fistula patients tend to be young women, women who were malnourished as a child, women who have small, immature pelvises (most commonly primiparas), those with an anteced-
ent history of obstructed labour, prolonged delay in receiving emergency obstetric care, and sometimes those who have undergone delayed caesarean delivery [37].

**Signs and symptoms**
The most common complaint is the continuous leakage of urine per vagina, although small fistulas may present with intermittent wetness. It is not uncommon that these women are discharged from the health facility without being diagnosed and present back later with the symptoms, due to neglect by the staff or due to the women’s perception that the initial urinary leakage is a normal consequence of her difficult delivery [31]. Once the fistula has been established, the continuous leakage of urine will lead to a foul odour, skin deterioration, and a cascade of hygienic and social problems. The constellation of problems that a patient suffering from an obstetric fistula may encounter has been termed the “obstructed labour injury complex” and includes varying degrees of each of the following: urethral loss, stress incontinence, hydronephrosis, renal failure, rectovaginal fistula, rectal atresia, anal sphincter incompetence, cervical destruction, amenorrhea, pelvic inflammatory disease, secondary infertility, vaginal stenosis, osteitis pubis, and foot drop.

**Clinical evaluation**
When examining a woman for whom fistula is suspected, the clinician should look for evidence not only of the fistula, but also of the entire “obstructed labour injury complex”. The psychological impact of the fistula should also never be underestimated.

A pelvic exam with speculum should always be performed in an attempt to locate the fistula and assess the size and number of fistulas. The presence of a vesico-vaginal fistula may be confirmed by instilling a vital blue dye into the bladder per urethra and observing for discoloured vaginal drainage. The differential diagnosis of vesico-vaginal fistula includes urethrovaginal fistula, ureterovaginal fistulas, severe stress urinary incontinence, and, occasionally, simple vaginal discharge.

There is currently no uniform classification system of obstetric fistulas. The two most commonly used in clinical settings are the Goh’s [70] and Waaldijk’s [71] classifications. Both are intended to predict the outcome of the surgery, but, according to Frajzyngier et al. (2013) [72] in an evaluation of five existing classification systems, none had good prognostic value.

**Treatment of obstetric fistula**
Catheter drainage is the initial treatment for most women, when the fistula is recognized early in the clinical treatment course [32, 73]. The surgical approach could be transabdominal or transvaginal. Reported rates of successful closure of obstetric fistulas are high: 84–94% [48]. The prognostic of surgical
repair is associated with duration of the fistula before surgery, prior repair, fistula size, circumferential fistulas or those with urethral involvement, and moderate to severe vaginal scarring [74-76].

Experiences of women with obstetric fistula

Beyond the medical conditions, the social consequences of obstetric fistula are devastating for the women living with fistula. Due to the continuous and uncontrollable leaking of urine and/or faeces, they are often ostracized from their community, divorced, abandoned, and remain childless [77, 78], experiencing a deep sense of loss that has a negative impact on their identity and quality of life [79]. The women may be blamed by the members of their communities, viewing it as a curse or a punishment for sin [80]. They are unable to participate in social gatherings and religious activities as they are often considered to be unhygienic [81].

The majority of the existing studies seem to have intended to highlight the dramatic distress, mostly at a social level, of living with fistula. Few studies have examined the women’s perspectives of the onset of the damage and their coping experiences, even prior to accessing adequate care, as the majority of the researchers exclusively approached those living with the devastating consequences of fistulas, but who were already receiving care or in the process of undergoing surgical repair services at the time of recruitment. Few studies have followed a population approach to allow the identification of untreated cases in the community [34, 77].

Research gaps in obstetric fistula include accurate prevalence and incidence data, interventions to improve access to care, surgical technique, especially for complex cases, and ways to prevent ongoing incontinence, among other areas [48].

Women’s experiences of institutional childbirth and satisfaction with childbirth care

Efforts to improve maternal health globally are often viewed merely as measures to avoid maternal death. While declining mortality can be a useful proxy measure for improved health, when it comes to evaluating the progress toward the goals of the sustainable development agenda, it remains to be explored whether any woman, their family, or their community considers “good maternal health” as simply surviving childbirth. Despite the efforts made to increase the coverage of facility-based childbirths [20, 82], the considerable burden of morbidity that has been observed, including the occurrence of obstetric fistula, raises the issue of the quality of care provided [83] and the need for its evaluation.
Patient satisfaction may serve as a useful indicator of the quality of care [84], and measures of satisfaction can be used to identify specific changes in the structure or process of care that can improve the quality of care in different settings [85]. Satisfaction with care during childbirth is a complex phenomenon consisting of multiple dimensions of satisfaction, as patients may be satisfied with one aspect of care but not with another, and experiences may change across different care providers’ components [86, 87]. A recently published review summarized that the following factors determine satisfaction with care: i) accessibility, ii) good physical environment, iii) cleanliness, iv) availability of drugs, supplies and human resources, v) level of care, vi) privacy and confidentiality, vii) promptness, and viii) adequate emotional support [88]. Moreover, client characteristics, such as education or age, can influence patient satisfaction. Hekkert et al. (2009) [89] recommended, based on a multilevel analysis of patient satisfaction, the adjustment of endpoint values of client satisfaction for age, health status, and education when using such an indicator to compare different services.

While interest in research around experience and satisfaction with care has gained momentum, measurement issues prevail. Increasingly negative experiences, such as abuse and disrespect during birth, are considered to be important factors [90-92]. Women describe being left alone, being pinched or slapped, particular in women who experience fistula [92, 93]. WHO has taken the issue of malpractices in delivery wards up and has published a statement and a call for action [94].

Also, the International Federation of Gynaecology and Obstetrics (FIGO), is committed to supporting mother-baby friendly care during delivery. Key elements are non-discriminatory policies, giving choices for the position, birthing partner, adherence to evidence-based policies, and others [95].

Women typically value facilities that are closer to home and facilities offering supportive care [96, 97], while overcrowding reduces client satisfaction [98]. Still, many women bypass primary facilities on the promise of receiving a better quality of care in higher facilities [99, 100]. Given the policy shift towards recommending childbirth in higher level and better-equipped facilities [101], it is important to increase the evidence base for the circumstances in which this care is provided and to develop an improved understanding of whether such centralized care responds sufficiently to the needs and expectations of mothers and families.

Health providers’ perceptions of the health context: are the providers and health services ready for change?

Poor quality of maternal and newborn care, as evidenced by persistent high mortality and morbidity, including the occurrence of obstetric fistula, despite
the increased coverage of interventions to improve maternal health outcomes, can also be due to a failure to adopt strategies to implement evidence-based practices [14, 15]. Hence, understanding the healthcare context can inform better strategies to attain successful implementation [16]. Deficiencies in obstetric care provision are commonly encountered in LMIC, including in Mozambique [102, 103]. The causes of these insufficiencies are not only related to constrains on human and financial resources, poor health systems, and a lack of infrastructure, but also to failure in translating research knowledge into effective policy and practice [104, 105].

The WHO has repeatedly stated that ‘bridging the know-do gap’ is one of the most important challenges for public health [106] and that it poses the greatest opportunity for strengthening health systems and ultimately achieving equity in global health [106].

Implementation science is defined as “the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and hence, to improve the quality and effectiveness of health care” [107]. There are a number of theoretical frameworks available within the fields of implementation science and quality improvement, commonly often focusing on either the individuals exposed to change or the organization that harbours those individuals. Common to many of these frameworks is the repeated importance of understanding the context in which evidence is implemented [108]. The Promoting Action on Research Implementation in Health Services (PARIHS) framework, supports the notion that successful knowledge translation occurs as a function of an interplay between evidence, context and facilitation [109]. Several tools aimed at assessing such contextual factors, and all based on the PARIHS framework, such as the Alberta Context Tool (ACT) [110], the Context Assessment Index (CAI) [111], and the Organizational Readiness to Change Assessment (ORCA) [112], are being used in several high-income countries, but there has been a lack of appropriate assessment tools designed for use in LMIC settings.

The Context Assessment for Community Health (COACH) tool was developed to assess modifiable aspects of the healthcare context that may influence the implementation of interventions and the integration of EBPs in clinical routines in LMIC [113]. However, being a relatively new tool, there is a need to generate further evidence to establish its reliability and validity in diverse samples and settings.

Health care system in Mozambique

The health system in Mozambique involves the public sector, the private sector and traditional medicine practitioners. The public sector, through the National Health Service (NHS) has the widest geographic and technical coverage. The private sector, includes for-profit (present mostly in urban areas) and
non-profits, represented by national and international non-governmental organizations with strong linkages with the public sector. Traditional medicine practitioners, whose services are widely accepted by communities, offer non-allopathic medicine that is complementary to conventional medicine.

The NHS, which provides more than 90% of the health services [114] is structured in four levels of service provision (Table 1): the primary level, comprises urban and rural health centres which ensure the provision of primary health care, including uncomplicated childbirths; the secondary level, constituted by general, rural, and district hospitals, generally serving more than one district, are the first level of referral for the health centres. They provide all basic and emergency curative health services, and have facilities to manage common complications associated with pregnancy and childbirth, including performing caesarean section; the provincial hospitals, located in the provinces’ capitals, constitute the tertiary level and represent the next referral level offering differentiated care provided by specialists and managing the complications that could not be solved at the secondary level; the central and specialized hospitals which have a regional and national basis constitute the quaternary level and are the highest level of reference, providing specialized and sub-specialized care. Maternal and neonatal health care is provided through this pyramidal delivery system of the NHS. Antenatal, postnatal and childbirth care is mainly provided in health centres which are typically staffed by midwives.

Mozambique has made good progress in reducing the maternal mortality ratio by 36% between 2005 and 2015, however, maternal mortality still stands exceedingly high at 490 deaths per 100 000 live births [115]. Facility delivery has increased from 55% live birth attended by skilled health personnel in 2008 to 75% in 2015. The coverage of antenatal care is 91% of pregnant women attended at least once by a skilled health provider. There are no reliable data on postnatal care coverage.
<table>
<thead>
<tr>
<th>Health Level</th>
<th>Type of health facility</th>
<th>Location</th>
<th>Health cadre</th>
<th>Service offered at each level</th>
<th>Population served</th>
<th>Total of facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Type 2 HC</td>
<td>Village</td>
<td>Nurse/midwife</td>
<td>PHC. Preventive, curative, diagnostic and basic EmONC</td>
<td>7,500 – 20,000</td>
<td>1,252</td>
</tr>
<tr>
<td>I</td>
<td>Type 1 HC</td>
<td>Village/ Administrative post</td>
<td>Clinical officer</td>
<td>All provided by type 2 HC + basic lab and radiology</td>
<td>16,000 – 35,000</td>
<td>280</td>
</tr>
<tr>
<td>II</td>
<td>Rural/ District/ General Hosp</td>
<td>District</td>
<td>Physician (generalist or specialist)</td>
<td>First level of reference + comprehensive EmONC</td>
<td>50,000-900,000</td>
<td>49</td>
</tr>
<tr>
<td>III</td>
<td>Provincial Hosp</td>
<td>Province</td>
<td>Specialist</td>
<td>Second level of reference + comprehensive specialized services</td>
<td>800,000-3,500,000</td>
<td>7</td>
</tr>
<tr>
<td>IV</td>
<td>Central Hosp</td>
<td>National/Regional</td>
<td>Specialist</td>
<td>Highest level of reference + comprehensive super specialized services</td>
<td>&gt;3,500,000</td>
<td>4</td>
</tr>
</tbody>
</table>

**Legend:** HC = Health Centre (rural or urban); Hosp = Hospital; PHC = Primary Health Care; EmONC = Emergency Obstetric and Neonatal Care

**Source:** Ministry of Health [116]
Rationale

The Sustainable Development Goals, set in 2016 and which followed the Millennium Development Goals (MDG), while continuing to focus on reducing maternal mortality, also move beyond this focus to emphasize the importance of maternal morbidity [22, 23]. One of the most unacceptable inequities is the continued occurrence of the most devastating of all maternal morbidities, the obstetric fistula [29, 30]. The literature on biomedical factors has suggested that inequities in the provision of good quality care lead directly to the formation of fistulas, with particular focus placed on prolonged labour and obstructed labour [92, 117]. Attributed in part to the inadequacies of the health systems to provide adequate care to address obstetric complications, there is a clear need to conduct further research on facilities and healthcare provision. Indeed, observations that obstetric fistulas can be due to limited budgets and a different order of priorities [92], suggest the need for exploring health systems and policies in future research. There is need for studies on accurate prevalence and incidence of obstetric fistula, interventions to improve access to care, surgical techniques, especially for complex cases, and ways to prevent ongoing incontinence, among other areas [48]. Moreover, few studies followed a population approach to allow the identification of untreated cases in the community and it is important to increase the evidence base for the circumstances in which care is provided and to develop an improved understanding of whether such centralized care responds sufficiently to the needs and expectations of mothers and families. Besides that, understanding the healthcare context can inform better strategies to attain the successful implementation of evidence-based practices that have failed to be adopted [16]. In the context of the above evidence and the research gaps that have been identified, the following questions are raised in this thesis: (1) What are the extent and circumstances of being injured during birth and developing an obstetric fistula? (2) How good is the care provided during facility-based childbirth from the perspective of the users? and (3) Is the work context in the health facilities enabling the implementation of evidence-based practices?
Aims

The overall aim of this thesis is to evaluate and explore the provision of childbirth care, and to address obstetric fistula as one of its complications, in a setting of high health facility delivery rate in the Maputo and Gaza provinces, Mozambique. The following specific objectives were formed to achieve this:

1. To describe the problem of obstetric fistulas in rural areas of Southern Mozambique, by:
   a. estimating the incidence of obstetric fistulas among women who recently gave birth, and describing their clinical characteristics and care, and the outcome after surgical repair.
   b. describing the unique experiences of women living with obstetric fistula, and exploring the perceptions of fistula and attitudes towards women with fistula among women not living with fistula.
2. To address the women’s experiences of care and satisfaction with care during childbirth.
3. To understand how health providers in Mozambique perceive their work context.
Thesis framework

The following framework (Figure 1) has been developed to illustrate the focus of this thesis on obstetric fistula as a proxy for maternal morbidity (Studies I and II), on the women’s experiences of, and satisfaction with, care during childbirth (Study III), and on the health providers’ perceptions of the context (Study IV), as outlined in the background chapter. This thesis was inspired by and incorporates the work of Tunçalp et al. (2015) with its determinants of quality [76], Bergström et al. (2013) with its determinants of the context of care provision affecting quality [109], Thaddeus and Maine (1994) as a basis framework to analyse mortality [42], and Srivastava et al. (2015) to understand women’s satisfaction [81]. The framework addresses the processes around facility-based childbirth care within the context of a health system. The health system creates the structure that enables women’s access to using obstetric services. Eight building blocks for the local system or context dimensions have been identified in this thesis: Organizational resources, Community engagement, Monitoring services for action, Sources of knowledge, Commitment to work, Work culture, Leadership, and Informal payment. The health context is considered as a factor that influences the adoption of appropriate implementation strategies and which also modifies the effectiveness of interventions aimed at improving health providers’ performance. The processes around childbirth care have an impact on the individual-level and facility-level outcomes, as the use of services and outcomes are the result of not only the provision of care, but also of women’s experiences of that care. Evidence on women’s perceptions of and satisfaction with the quality of childbirth care can help to determine the aspects of care that need strengthening. User satisfaction is considered to consist of the ‘patient’s judgement on the quality and goodness of care’ [110]. Furthermore, the quality of care directly influences health-seeking behaviours and has been identified as a key component in the “three delays” model of maternal mortality and near-miss experiences, which includes those women affected by obstetric fistula. Although not the main focus of this thesis, socioeconomic and sociocultural determinants also have a direct influence in the decision to seek health care and, as such, also influence the outcome.

To achieve an effective coverage of health interventions, health services are delivered as function of women’ utilization of care and the quality of care provided.
The experience of the care that a woman receives is seen as a factor that modifies the effect of access on the utilization of health services.

Figure 1. Thesis framework and foci of the four studies
Material and methods

This thesis includes both quantitative and qualitative study designs (Table 2). All studies are based on primary data gathered from the same study setting in southern Mozambique.

Table 2. Overview of the methods used in this thesis

<table>
<thead>
<tr>
<th>Topic</th>
<th>Research question</th>
<th>Study design and data collection</th>
<th>Participants</th>
<th>Analyses</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstetric fistula</td>
<td>What are the extent and circumstances of being injured during birth and developing an obstetric fistula?</td>
<td>Cohort</td>
<td>Women of reproductive age (n = 72,148)</td>
<td>Descriptive statistics, incidence</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phenomenological approach</td>
<td>Women with confirmed obstetric fistula (n=14) and (n=14) women without fistula</td>
<td>Thematic analysis</td>
<td>II</td>
</tr>
<tr>
<td>Experience and satisfaction with care</td>
<td>How good is the care provided during facility-based childbirth from the perspective of the users?</td>
<td>Population-based, cross-sectional survey</td>
<td>Women who recently gave birth (n = 4,385)</td>
<td>Descriptive and analytical statistics, confirmatory factor analysis and regression analysis</td>
<td>III</td>
</tr>
<tr>
<td>Health facility work context</td>
<td>Is the work context in the health facilities enabling the implementation of evidence-based practices?</td>
<td>Facility-based cross-sectional survey</td>
<td>Health workers involved in maternal care (n = 175)</td>
<td>Internal reliability ANOVA</td>
<td>IV</td>
</tr>
</tbody>
</table>
Study setting

Mozambique is located in the Southern Region of Africa, and has borders with Tanzania (North), Malawi, Zambia and Zimbabwe (West), and South Africa and Swaziland (South). The country has an area of 799,380 km², with a long eastern shoreline on the Indian Ocean (Figure 2). The studies were implemented within an established research setting of the Community Level Interventions for Pre-eclampsia (CLIP) trial (NCT01911494), covering households in rural areas of Maputo and Gaza provinces, Southern Mozambique [118].

![Map of Southern Africa with the study setting location in Mozambique](image_url)

*Figure 2. Map of Southern Africa with the study setting location in Mozambique*

The trial derived from the research infrastructure of the demographic surveillance site of the Manhiça Health Research Centre (CISM) [119]. A baseline census was conducted as part of the CLIP trial, covering households with women of reproductive age from 12 to 49 years, to clearly identify the study population, their households, age, membership of every household, fertility, and mortality related to study participants and other demographics characteristics. All households were visited twice yearly to register new events including women who had given birth in the year prior to the household visit.
The study area covered selected rural areas, identified as part of the CLIP trial [120], in six districts in southern Mozambique (Figure 3): Bilene, Chibuto, Chokwe, and Xai-Xai districts (in Gaza province), Magude and Manhiça districts (in Maputo province). These are largely impoverished areas where the predominant occupation is agriculture. Livestock rearing, informal trading, handicraft and migrant labour (mainly to South Africa) are other sources of income.

The health care system consists of 38 health facilities organized in a pyramidal system: at the base, 32 health centres (HC) provide primary health care (including antenatal care and assistance to normal birth). The HC are classified into two types, I and II. Type II (previously named dispensaries) include the smallest facilities. They are designed to attend between 7500 and 20 000 inhabitants and are staffed at least by three nurses (one should be a midwife) and one auxiliary nurse. They offer outpatient services, including reproductive and child health services and uncomplicated deliveries. Type II HCs serve areas with between 16 000 and 35 000 inhabitants. The health care team is larger and more qualified. The team includes a medical officer and at least six nurses (two of which should be midwives), one professional with basic qualifications for the pharmacy, one for the laboratory, and one for the radiology section, and six auxiliary nurses. At the next level, the secondary level, there are five referral hospitals (four rural and one district hospital) with
capacity for surgical interventions. The provincial hospital of Xai-Xai is at the tertiary level. It is the referral hospital for all the other health facilities and receives the more complicated cases. The institutional births coverage for the area during the study period was between 70.7% and 88.3%.

Methodology – Studies I and III

Design:
For study I, we identified women who gave birth within the CLIP trial’s cohort of women of reproductive age (12-49 years). In this trial, pregnant women were identified and followed based on six-monthly household surveillance. Those women who gave birth during the follow up period of 12 months, between June 1st 2015 and May 31st 2016 and registered in the Manhiça Health Demographic and Surveillance System (HDSS) CLIP trial dataset were retrieved. Thus, we visited all women at home, to identify those with urine leakage and to invite them to be examined at hospital. We used the confirmed cases of obstetric fistula to estimate the incidence.

For Study III, we used a cross-sectional survey, carried out in a population of recently pregnant women to ask them about their experiences and satisfaction with the care provided during childbirth.

Participants:
The participants were recently pregnant women defined as women who gave birth during the 12 months before the start date of the study (June 1st 2016). They were identified through an ongoing cohort of women of reproductive age enrolled in the CLIP trial. A sample of 3700 births was calculated to have sufficient power to describe the fistula incidence, with a 95% confidence interval of 0.1 – 0.2. The retrieval of the births registered in the Manhiça HDSS CLIP trial dataset, having occurred during the 12 months before the start date of the study, produced a list of 4441 women. As the total number was close to the necessary number calculated for the sample, all of the women on the list were approached to participate in the survey.

Instrument:
A modular questionnaire investigating key socio-demographic characteristics, birth outcomes, morbidity (including fistulas), women’s experiences and their satisfaction with care provided during childbirth was used. Questions addressing fistulas were adapted from the United Nation Population Fund (UNFPA) proposal on obstetric fistula for the existing Demographic and Health Survey
(DHS) fistula module questionnaire [121]. Women’s experiences and satisfaction with the care provided during childbirth were assessed using a questionnaire building on published sequences previously used to measure it [122, 123]. The questions relating to satisfaction included elements of structure, process, and outcome, as well as events of disrespect and abuse. Structural elements included the type of health facility, its cleanliness, and the availability of medicines. Process determinants included interaction with health care providers, provision of respect and privacy, and companion support [124, 125]. Overall satisfaction with the services was the main outcome. We used a 5-point Likert scale to measure women’s level of satisfaction (1-Very dissatisfied, 2-Dissatisfied, 3-Neutral 4-Satisfied, 5-Very satisfied).

The questions were translated from English to Portuguese and the questionnaire was pre-tested and piloted before application, to ensure that the questions were clear and understandable. The questionnaire was programmed using ODK Collect version 1.4.6 [126, 127] to be used on a tablet. Data from the clinical assessment of the women with suspected fistulas were collected through an observation form.

Data collection:

The method of data collection used was based on the process in use by the Manhiça HDSS at CISM, which facilitated the follow-up of all women surveyed. Data were collected at household level between June 1st and October 28th 2016, by 13 experienced female data collectors and 12 field supervisors who had been trained for two weeks on the protocol, the data collection forms, and the administration of informed consent. Special focus was placed on the appropriate approaches to take when asking sensitive questions and on when to communicate the Portuguese questions in the local language (Changana). Attention was taken not to have anyone but the women present during the interviews. All data captured through questionnaires were transferred electronically on a weekly basis to the CISM for data entry and management using REDCap [128].

Data collectors were monitored by the field supervisor to ensure their compliance with the study protocol. The supervisors performed random second interviews with 1% of the women to test the quality of the data and to determine whether the data collectors needed re-training. Once a week, the primary investigator and the data management team reviewed both the completed questionnaire and the database to check for missing answers, duplications and inconsistencies, and, if needed, the data collector was sent back to the field to gather data where corrections and clarifications were necessary. All interviewed women who answered “Yes” to the question “Have you AFTER your last pregnancy ever experienced a constant leakage of urine or stool from your vagina during the day and night?” were revisited at home and
referred to the Manhiça District Hospital for clinical examination for appropriate diagnosis and treatment. The primary investigator completed a standardized history and clinical examination. A dye test was performed with methylene blue. The diagnosis of fistula was confirmed by observation of urine leakage and clear visualization of the fistula. The fistula was classified according to the Waaldijk classification [68, 71, 129]. Women with confirmed fistulas were invited for an in-depth interview to provide narratives.

All women with confirmed fistulas were referred to the Maputo’s Central Hospital Department of Obstetrics and Gynaecology for surgical repair. The assessment of continence after the repair was completed by asking about any involuntary urine leakage and by conducting a cough test.

Data analyses:

For Study I, the incidence proportion, with 95% confidence interval, was determined by calculating the number of confirmed fistula cases as a proportion of the surveyed women who had given birth within 1 year prior to the interview. Descriptive statistics for each woman were obtained from the database.

For Study III, the statistic software R (version 3.4.3) was used for all analysis [130]. Descriptive statistics were performed to identify associations between socio-demographic determinants and childbirth characteristics using chi-square tests, setting a significance level of 5%. Adapted from the framework of satisfaction with care during childbirth [88], we defined the analysis within three dimensions: overall satisfaction, interaction with providers, and provision of respect. A confirmatory factor analysis was then fit to the data and scores for each of the dimensions were estimated for all individuals from the factor analysis model. The rationale behind choosing to conduct the factor analysis was to reduce the total number of questions to a few dimensions that could be used for regression modelling. The comparative fit index for the confirmatory factor analysis was 0.98, and the root mean squared error of approximation was 0.08, indicating an acceptable fit to the data. Women who had been referred to a higher-level health facility or who had been admitted for caesarean section (and consequently had been attended at more than one facility) were excluded from the analysis, as it was not possible to identify to which health facility they were addressing their satisfaction level. Robust linear models [131] were used to assess associations between the different dimensions of satisfaction and the independent variables.
Methodology – Study II

Design:
A qualitative study using a phenomenological approach was carried out, which, through the use of in-depth interviews, aimed at gaining a detailed understanding of women’s experiences of being injured during delivery, resulting in an obstetric fistula, and their suffering [132].

Participants:
For this study, we selected women diagnosed with obstetric fistula confirmed by clinical examination from a population of participants in Study I, and any woman not included in Study I but who lived within the study area and who had approached the health facility on their own initiative to report symptoms suggestive of fistula. Further, we purposively selected women from the same population and with similar characteristics and matched age and neighbourhood, but who did not have a history of fistula. The latter were included in order to capture the uniqueness of the experience of healthcare among women diagnosed with obstetric fistula by contrasting their experiences with those of women without an obstetric fistula diagnosis.

Data collection:
The in-depth interviews (IDI) were collected between August 2016 and March 2017. Two female interviewers conducted interviews supervised by a senior social science researcher. Each interview was one-on-one, between one interviewer and the respondent, and in the most private environment possible. The IDIs followed a piloted topic guide of open-ended questions (Appendix 1) to allow participants to openly share their experiences with minimal interruption and to allow this process to generate narrative-type answers [133]. Although the guides were written in Portuguese, data collection was conducted primarily in Changana, the dominant local language within the study area. All audio-recorded interviews were transcribed verbatim. Those conducted in Changana were simultaneously translated to Portuguese during the transcription process.

Data analyses:
Qualitative data analysis was performed using NVivo version 11.0 (QSR International Pty. Ltd. 2014). A preliminary coding structure was developed, based on the interview guide questions and the pre-determined themes generated from the literature and discussions among the project researchers (deductive coding). A thematic analysis was conducted based on a combination of deductive and inductive coding [134]. Data were coded by two researchers
and one outsourced coder, each working independently on their respective NVivo projects. Coding was performed by identifying units of text that were meaningful to the study objectives and linking them with the preliminary codes. At a later stage, new themes identified in the text were linked to additional codes that either branched out from the predetermined codes or constituted completely new ideas (inductive coding).

Methodology – Study IV

Design:
A cross-sectional survey was carried out in all 38 health facilities of the six districts of the study area with the aim of investigating the comprehensibility and the internal reliability of the Context Assessment for Community Health (COACH) tool and to use it to describe the healthcare context as perceived by health providers involved in maternal care.

Participants:
Healthcare providers involved in maternal care who had worked in the targeted facilities for at least 12 months before the study were invited to participate. From a total of 273 eligible respondents (between doctors, medical officers, nurses, midwives and auxiliaries’ nurses), we were able to interview 175 (64% response rate).

Instrument:
The COACH tool is a questionnaire with 49 items that measure eight dimensions of context and sub-dimensions of context, as illustrated in Table 3. The tool has been developed to assess the modifiable aspects of the healthcare context that theoretically influence the implementation of evidence [135] and is available in English, Bangla, Vietnamese, Lusoga, isiXhosa and Spanish [136]. Items for seven of the eight dimensions (see Table 3 for the definitions) measure agreement with statements that theoretically reflect a context supportive of change. Items on these dimensions were measured on a five-point Likert scale (ranging from ‘strongly disagree’ to ‘strongly agree’). For the Sources of knowledge dimension, respondents indicate for each of five knowledge sources whether the source is available, and, where available, the frequency of its use (never, rarely, occasionally, frequently and almost always). In addition to the 49 original COACH items, we used seven demographic questions (age, gender, professional qualification, year professional qualification obtained, health facility, department (if applicable) and number of years working at the current facility).
Table 3. Definitions of COACH dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Sub-dimensions</th>
<th>Definition*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational resources</td>
<td>Human resources, Space, Communication and transport, Medicines and equipment, Financing</td>
<td>The availability of resources that allow an organization (unit) to adapt successfully to internal and external pressures</td>
</tr>
<tr>
<td>Community engagement</td>
<td></td>
<td>The mutual communication, deliberation and activities that occur between community members and an organization (unit)</td>
</tr>
<tr>
<td>Monitoring services for action</td>
<td></td>
<td>The process of using locally derived data to assess performance and plan how to improve outcomes in an organization (unit)</td>
</tr>
<tr>
<td>Sources of knowledge</td>
<td></td>
<td>The availability and use of sources of knowledge in an organization (unit) to facilitate best practice</td>
</tr>
<tr>
<td>Commitment to work</td>
<td></td>
<td>The individual’s identification with and involvement in a particular organization (unit)</td>
</tr>
<tr>
<td>Work culture</td>
<td>Culture of learning and change, Culture of responsibility</td>
<td>The way ‘we do things’ in an organization (unit) reflecting a supportive work culture</td>
</tr>
<tr>
<td>Leadership</td>
<td></td>
<td>The actions of a formal leader in an organization (unit) to influence change and excellence in practice achieved through clarity and engagement</td>
</tr>
<tr>
<td>Informal payment</td>
<td>Informal payment, Nepotism, Accountability</td>
<td>Payments or benefits given to individual(s) in an organization (unit), which are made outside the officially accepted arrangements, to acquire an advantage or service</td>
</tr>
</tbody>
</table>

Translation process

The COACH tool was translated from English to Portuguese following Brislin’s model, as summarized by Yu et al. (2008) [137], which was conducted in four phases: (1) Forward translation (English to Portuguese) by bilingual professional translator, (2) Review of the translated tool by a monolingual reviewer who did not know and did not have access to the English version, (3) Backward translation (Portuguese to English) by another bilingual professional translator, and (4) Comparison of the original version and the backward-translated version, focusing on its conceptual clarity to reach to a good Portuguese version of the tool.
Response process
This process was designed to uncover any difficulties in understanding the instructions or items in the tool. The Portuguese version was then administered to six health providers representing the target population, through structured interviews. In each interview, the primary investigator introduced the tool, then the respondents were asked to read and answer the full tool. Afterwards, they were asked to say whether they had any difficulty in understanding its content. Attention was paid to each respondent’s level of understanding and how they rated their agreement with the items. Identified problems were grouped using Conrad and Blair’s taxonomy [138], which addresses five types of problems: lexical problems, inclusion/exclusion problems, temporal problems, logical problems, and computational problems. Identified problems were then translated to English and categorized, based on their magnitude of the problem’s effect on the data: prominent versus minor problems. All identified problems were also discussed in relation to the underlying cause of the problem, i.e., the content of the item or those related to the Portuguese translation. Based on the findings from this process, the final Portuguese version of the COACH tool was developed for data collection.

Data collection
Data were collected between April and June 2016. The COACH tool has primarily been self-administered [139]. However, we opted to collect data through structured interviews to maximize response and item response rates. An interview guide was designed to ensure that the data collection was structured and that clear, complete and unambiguous statements were obtained. A research assistant with extensive experience of conducting qualitative research was recruited and trained to undertake that data collection. The interviewer was external to the health system which was considered important for enabling the respondents in feeling comfortable providing their responses, and also to address any potentially sensitive issues during the interview. The interviews were undertaken in private rooms of the health units, to ensure comfort and privacy. All respondents were assured that all collected data would be kept confidential.

Data analysis
Data were entered in OpenClinica software, version 3.1 [140]. The seven scaled dimensions include 40 positively worded items and six negatively worded items. Scores of negatively worded items (items 44–49) were reversed in the analyses. The mean value of the scores for the items within each dimension was calculated to generate scores of each scaled dimension [141]. The five non-scaled items from the Sources of knowledge dimension, focus on
availability and use of different sources of knowledge. The response options include: *not available*, followed by a five-point frequency scale asking about the frequency of using the sources of knowledge available for respondents (i.e., *never, rarely, occasionally, frequently*, and *almost always*). Scores from the non-scaled items were recoded into 0 (*not available, never and rarely*), 0.5 (*occasionally*), and 1 (*frequently and always*). The overall score of the dimension was calculated by adding the items’ recoded scores together.

Internal consistency and reliability (Cronbach’s $\alpha$) analyses were carried out to develop the dimensions, removing the items where necessary. Once satisfactory reliability was demonstrated, items within dimensions were summed, and descriptive analysis (minimum and maximum scores, means and standard deviations) of dimensions performed. R software (version 3.3.1) [130] was used for these analyses. Individual-level data were aggregated within districts and one-way analysis of variance (ANOVA) with the post-hoc Tukey HSD test performed for each dimension, using the district as the group variable.

Ethical considerations

Ethical approval was granted by the Bioethics Review Joint Committee of the UEM Faculty of Medicine and Maputo Central Hospital (CIBS FM&HCM/33/2015, dated 28 August 2015). For Studies I, II and III, informed consent was obtained from each participant before each interview, and, for illiterate participants, a literate witness was involved in conducting the consent process. The participant’s fingerprint was taken, and the consent form was signed by the witness and the data collector. Women with obstetric fistula who presented at the health centre themselves because of their awareness of the study, but who did not fulfil the study inclusion criteria, were offered treatment, together with the study participants diagnosed with obstetric fistula.

For Study IV, written informed consent was obtained from each participant before the interview. They were informed that their questionnaire responses would remain anonymous and were assured that all collected data would be kept confidential and would have no influence on their employment contracts. Privacy during the interviews was ensured by using private rooms in the health unit. Arrangements for the timing of the data collection were made at the respondent’s convenience throughout the study.
Results

Study I

We interviewed 4358 recently pregnant women of the 4441 retrieved from the Manhiça HDSS dataset, representing a 98% response rate. Of the 83 women who were not interviewed, 18 did not agree to participate, nine had died, and the remaining 56 were not contactable after two attempts, mainly because they travelled, changed their area of residence, or were not available for other reasons. Of the 30 women who reported urinary incontinence on the questionnaire, 28 went on to attend at the Manhiça District Hospital for clinical examination by the gynaecologist. The examination confirmed obstetric fistula (all vesico-vaginal) in five of the 28 women.

These five cases of obstetric fistula were confirmed. The incidence proportion was 1.1 per 1000 recently pregnant women (95% CI 0.14–2.16).

The five women diagnosed with fistula were aged between 20 and 29 years; three were primiparas. Two of them had a height of less than 150 cm. None were seropositive for the human immunodeficiency virus.

There were three cases of type I vesico-vaginal fistula (intact urethra); the other two were type II (involving the urethral closing mechanism). Three of them were judged to be of ischaemic origin, one potentially iatrogenic (injury during the caesarean section procedure), and one probably a combination of the two.

Four of the five women were in labour for more than 24 hours. All used a taxi or car to reach the primary level of care. One woman stayed for two weeks at the maternity waiting home before labour started. Despite having sought care on time, all women reported having experienced a secondary delay in the transfer to secondary level of care. Further, two reported delays in the decision-making process to perform operative delivery at secondary level. Four had a caesarean delivery. None had a surviving child, four had had stillbirths, and one child died within a few days.

All women rated their index labour as very difficult when asked about their delivery experiences. However, none of them felt they had been humiliated or treated disrespectfully and none of the five interviewed women reported having experienced any physical abuse.

The women admitted for caesarean section noticed the onset of urine leakage 1 to 2 days after the surgery, while the others, who had had a vaginal
delivery, noticed 5 days after. They considered having fistula as being disas-
trous, but none were aware that fistula is treatable and none of the women
received counselling on this before discharge.

Four of the women were offered fistula repair during our study; one not
because of psychiatric disease. The four women were referred to a tertiary
hospital, and the fistulas were successfully closed. Only one of the three
women who came for the third-month follow-up reported incontinence and
was scheduled for a second surgical intervention. The other two were exam-
ined and confirmed as having no breakdown in the surgical repair.

In addition to the five women diagnosed with fistula, a further nine women
came voluntarily to the study hospital in Manhiça seeking care for fistula-like
symptoms. They were observed and a diagnosis of fistula confirmed, but they
were not included in the study because the fistula had happened more than one
year before the study began. All were referred to the same tertiary hospital,
bringing the total number of women who benefited a fistula repair to 13. The
rate of successful closure was 83%.

Study II

In-depth interviews were completed with 14 women diagnosed with fistulas
(five recruited from Study I and nine who had approached the health facility
on their own initiative to report symptoms suggestive of fistula) and 14 women
without fistulas.

Women diagnosed with fistula

Among the group of women diagnosed with fistula, 11 were single. One
woman reported that the condition started 30 years ago. The others reported
having had symptoms for a period ranging from three months to nine years.
For six of the women this was their first baby, nine had had a caesarean deliv-
ery, and 10 experienced a stillbirth. The term “fistula” was rarely known
among the participants, but the condition (referred to as “loss of water” or
“illness of spillage”) was recognized after being prompted on its signs and
symptoms.

All of the interviewed women had attended antenatal consultation visits.
Two of them followed the nurse’s advice to stay at the maternity waiting home
at the primary health care level. Most of the interviewed women had planned
for a health facility delivery, the majority on their own initiative, and others
on the decision of their women friends, mothers-in-law or partners. Planning
included mobilizing money for baby clothes, sanitary pads, and capulanas
(fabrics), and to pay a gratuity to the nurses. All except two (who both gave
birth on their way to the health facility) delivered at a health facility.
Most of the women diagnosed with fistula reported having had an obstructed or prolonged birth, which they attributed to a “blockage of the birth canal” or “baby’s big size”. “I first pushed, they [nurses] instructed me to push, so I pushed, but the baby was not coming out, something was blocking the front [the birth canal]. Then the nurses became worried and said “we don’t know what this is.” Then they called the ambulance. Meanwhile, my mothers [mother and mother-in-law] had gone to see a traditional healer and came back with a remedy that I drank, and after that, the baby was out ...” – Primiparous, Gaza, with fistula for 10 months. Other women attributed the cause of the fistula to “delayed assistance”, “delays in receiving care” and “receiving inappropriate care” at the health facilities. Most of the women diagnosed with fistula were readily referred to an upper-level health facility (usually from primary to secondary level). Some (5/14) were further referred to tertiary level, and most of these women identified with the “multiple referral processes” plus “delayed assistance at higher levels of care”. “I was assisted at [name of secondary-level hospital] ... [When] I arrived, they took a long time before performing my surgery ... if they had operated on me on the same day that I arrived, maybe my baby would have lived because when I arrived there, I was feeling the baby moving...” – Multiparous, Gaza, with fistula for 2 years.

There was also a common perception about an iatrogenic cause, that the “insertion of a urinary catheter” to assist with urinary retention was harmful, and resulted in perforation. “[...] then I stayed there and they inserted a tube into me and when I sat down after removing that tube, I started to have that disease of peeing” – Multiparous, Gaza, with fistula for 2 years.

The women with fistula who delivered at the primary health facilities perceived more prompt and respectful attention compared to that provided at the higher-level facilities. For example, women who were referred to higher-level facilities reported deficient communication with the health care providers, including being shouted at and neither being informed about the procedures they were about to undergo nor the reasons for such procedures, leaving room for self-interpretation. “They just tried to insert a cup [vacuum device] and they could not get the baby out, then they took me to the operating room ...” – Primiparous, Gaza, with fistula for 3 months.

The pregnancy outcome for all except two of the women diagnosed with fistula was stillbirth. Besides the distress due to the fistula itself, the sorrow from experiencing a stillbirth, expressed by them as “no child to bring home”, was recurrent during the interviews. Regarding the perceived causes of stillbirth, a combination of obstetric factors and causes related to health services was identified. One woman diagnosed with fistula understood that her baby was alive upon arrival at the health facility and blamed the death on “delays in performing caesarean section”. “The problem is that when they referred me, they told me that the baby was still alive ...” – Primiparous, Gaza, with fistula for 3 months.
It took the majority of the participants between a few days and two weeks to realize they were leaking urine. Initially, participants viewed it as a normal secretion after delivery, but understood it as a health problem after noticing that the leakage was not ending and was beyond their control. “When I arrived home from the hospital I thought the leakage was the discharge that comes out after giving birth but it was not. Then I started to walk always wet, I was always wet and had to change clothes every time” – Multiparous, Gaza, with fistula for 9 years.

Half of the women with fistula experienced foot-drop, and this seemed to be the trigger for care-seeking at the health facility. Particularly among those, there was also a perception of it being caused by xifula (witchcraft) cast by family members. Most of them underwent physiotherapy and were prescribed pills. Only one woman reported having been referred for surgical repair, but the surgery did not take place due to the unavailability of the doctor. Those who were taking pills, after realizing that the pills were not effective, interrupted the treatment and did not return to the health facility.

The combination of urine leakage, pain, discomfort caused by the skin burns, foot-drop and body weakness reduced the women diagnosed with fistula’s capacity to carry out their basic domestic chores, such as cooking and farming, or, alternatively, were prohibited from doing so because they were considered “unclean”. Women diagnosed with fistula reported having to immediately limit their attendance at social gatherings, such as going to church and participating in funerals. They felt trapped by their situation, not only because of the leakage but also because of the urine smell. Those who continued to attend social and religious events had to modify their behaviour by going repeatedly to the toilet to change the pads, putting plastic on the bed before sleeping, or leaving early. One participant, in tears, said that at the onset of the fistula symptoms she had to move out of the house where she lived due to her own sibling’s discomfort with being around her and the mistreatment she received in relation to this attitude.

More than half of the women living with fistula did perceive the support of their husbands, relatives and community members, as they accompanied them to visit conventional or traditional health care providers, or their husbands provided financial support to seek care. Most women reported not having had sexual intercourse since the onset of the condition. One of them conveyed that her husband considered her to be handicapped because of her condition, considering this a justification to marry a second wife.

Almost all of the interviewed women with fistula revealed that they trusted that one day in the future they would have the needed medical care (surgery) to repair the damage and defeat the condition. They planned to return to their previous social life once the incontinence was resolved. They all hoped to fulfill their dreams of continuing with their schooling, work, and enjoyment of motherhood. Many women expressed an interest in having more children,
once their obstetric fistula has been properly treated. Despite this horrific condition, most women remained positive and trusting. "I will follow by myself [the search for treatment], whether laying down or walking I feel that I will not die like this, I sleep and dream that I will be healed, I will be like other women." – Multiparous, Gaza, with fistula for 3 years.

**Women without fistula diagnosis**

Most of the women without a diagnosis of fistula did not know what it was, but when it was described to them, most recognized it as “the wetness condition” due to uncontrolled loss of urine, which is referred to in local language as *kuhumessa a mati* (loss of water) and *mavadzi ya ku pfhuta* or *mavabji ya ku pfhutela* (illness of spillage). Those women attributed fistula to health system factors, including “delays”, “unassisted delivery” and “inappropriate execution of certain procedures”, such as nurses not pulling the baby correctly. Other causes mentioned by them were “damaged” or “spoiled” uterus, “crossing the legs during expulsion” and having had “multiple sexual partners”. Women without a fistula diagnosis shared some views on the issue of social life and support from the standpoint of third parties, such as citing discriminatory attributions, reflecting the outsider’s perspectives of fistula.

For them, although they acknowledged that it would not be easy to live with a family member with fistula, they stated that they would not reject her and would provide support in seeking treatment because she should not be blamed for being in such a condition, and they expressed sympathy and compassion with their suffering and the risk of abandonment by husbands and relatives.

**Study III**

Of the 4358 recently pregnant women interviewed, 3801 gave birth in a health facility (87.2%). Of the facility deliveries, 0.5% had ventouse and 3.6% had caesarean section. All the women who gave birth in a health facility, were asked about their satisfaction with the care during childbirth. Of these, 23 respondents were excluded due to missing data, leaving 3778 women for the descriptive analysis, while only 3397 were included in the regression analysis, as 309 women had been referred to a higher-level health facility or had been admitted for caesarean section (and consequently attended more than one facility).

The women’s median age was 25 years (range 14 to 49) and 61% were married. More than half had attended primary school, while one-fourth did not have any formal education. Half lived in households belonging to the poorest quintile groups (poor, poorer or poorest households). The parity mean value was 3.0 (SD ± 1.9) previous births. More than half had a 1–5 km of distance
to the nearest primary health facility. To reach the childbirth facility, half walked, and one-third used a taxi bus.

More than three-quarters of the births occurred in primary health facilities and, of these, type II health centres were the most commonly used. Spontaneous vaginal deliveries were the majority (96%), and stillbirths were reported by 2.3% of the women. A companion, partner, mother or mother-in-law was present at more than half of the deliveries.

Overall, 92.5% of the women were satisfied with the services they received, and as many women would recommend that a family member should deliver in the same health facility. Comparably high rates of satisfaction were reported with the cleanliness of the facility, receiving needed medicines during birth, respect and privacy, and support from the care providers during birth. Only about half of the respondents did, however, feel satisfied with the assistance they received to feed their baby (Figure 4).

Ten percent reported having felt abandoned when they needed help. Disrespect or humiliation was reported by 6.3% of the women, being asked for informal payment by 4.2%, and physical abuse by 1.7%. Among the 791 respondents who had any intervention (such as caesarean section or episiotomy), 40.3% reported that they were not asked for consent.

Women who had negative experiences during the process of care (such as disrespect or humiliation, physical abuse, being abandoned when they needed
help, or being asked for informal payment) reported much lower levels of satisfaction when compared to those who had not such experiences for disrespect or humiliation, for physical abuse being abandoned when they needed help, and for informal payment.

Satisfaction was positively associated with marital status, being a subsistence farmer, and those who were illiterate, living close to the primary health facility, having given birth in health centres, and presence of a companion.

Regression analysis showed that women who gave birth in health centres tended to be, overall, more satisfied than those who gave birth in the hospitals. Those who gave birth in type II health centres seemed to be the most satisfied after controlling for age, education and socio-economic index. Women who gave birth in health centres also tended to have higher satisfaction levels with their interaction with providers and the provision of respectful care, compared to those who gave birth in hospitals. The effect of companionship was lower in hospitals than in health centres for all the satisfaction dimension scores (Figure 5).

![Figure 5. Mean difference in the satisfaction dimensions' scores comparing companionship in health centers (HC) and hospitals, in the women’s survey in Maputo and Gaza provinces, Mozambique, 2016](image)

Study IV

A total of 175 out of 244 identified and eligible health providers involved in maternal care in the six districts agreed to participate in the study, yielding a response rate of 72%. The majority of those who responded to the **Context**
Assessment for Community Health (COACH) tool were midwives or nurses, followed by auxiliary nurses. The median age of the participants was 31 years. Four-fifths were women. The majority of the respondents worked at the primary level of care, one-third at the secondary level of care, and 6% at the tertiary level. Most of the participants had worked for less than 5 years in their current facility.

Overall, after the response process, the participants found the COACH tool to be clear and they understood most of the items in the different dimensions. Problems were identified with 11 of the 49 items (six lexical, four logical and one inclusion/exclusion). From those 11 problems, only two were classified as prominent (both logical) and the remaining were classified as minor. The dimensions were near to or exceeded the commonly accepted standard for satisfactory internal reliability for new scales (0.70), except in two dimensions, *Informal payment* (0.68) and *Sources of knowledge* (0.64), where some items were removed to improve the internal reliability.

The health providers revealed a positive perception of their work context. They rated highly the items on all dimensions of context when asked to evaluate their work context using the COACH tool. As illustrated in Figure 6, responses to many items (ranging from 1 to 5) had low variance and were left-skewed (six out the seven dimensions using the 5-point Likert scale had a mean > 4).

![Figure 6](image)

*Figure 6.* Mean scores of the eight dimensions of the COACH tool in the health providers’ survey in Maputo and Gaza provinces, Mozambique, 2016

The *Organizational resources* dimension had the lowest score (mean = 3.2) of all the dimensions. As an example, 54% of the respondents reported that their unit did not have enough human resources, space, communication and
transport and funding that they could allocate based on their needs. Except in the sub-dimension *Medicines and equipment* (mean = 3.9), all of the other sub-dimensions in the *Organizational resources* dimension had mean scores equal or less than 3.2.

The majority of the respondents (over 90%), rated high most of the items in the *Community engagement dimension* (mean score = 4.3), an implicit perception that their facility was in active communication with members of their communities. An average of 89% of respondents agreed with the items of the *Monitoring services for action* (mean = 4.2). Concerning the *Commitment to work dimension*, most (92%) of the respondents agreed with the items *being proud and satisfied to work* and *feeling encouraged to do their best at work* (mean score of 4.4). The high rate of agreement (92%) also observed in the *Work culture dimension* (mean score of 4.4), was, in this regards, an implicit perception of a context with a work culture supportive of learning and change (mean = 4.3), and responsibility (mean = 4.5). Regarding the *Leadership dimension*, more than 80% of the respondents agreed that all the items related their unit leader’s actions to support and influence change and excellence in practice (mean = 4.2). Most of the respondents disagreed with the items of the *Informal payment dimension* (mean reversed score = 4.3). The respondents also had a high level of disagreement with the items describing informal payment (94% disagreement, mean score = 4.3,) and nepotism (75% disagreement, mean score = 4.3). A majority (85.7%) of respondents agreed with two items describing the efforts made by their health facility to stop clients from providing informal payment and to stop health workers from asking clients for informal payment (mean score = 4.3). Regarding the *Sources of knowledge dimension* (mean = 0.7, scale from 0 to 1), only 23% of the respondents reported that clinical practice guidelines and other printed material for work were not available. Of the remaining 77% of respondents, 58% reported that they use clinical practice guidelines or other printed material for work occasionally or almost always.

There were significant differences in the dimension scores between three districts in the *Work culture dimension*, two districts in the *Leadership dimension*, and three districts in the *Informal payment dimension*. 
Discussion

This thesis has investigated the provision of childbirth care and has addressed one of its most devastating complications – obstetric fistula – in the Maputo and Gaza provinces, Mozambique. It estimated the extent and circumstances of the occurrence of obstetric fistula, explored the provision of childbirth care from the women’s perspectives, and the work context from the health care providers’ perspectives.

Our findings indicated, despite the high coverage of women using institutional childbirth, a high incidence of obstetric fistula. Most of the cases related to delays in receiving adequate and appropriate treatment according to what was perceived by the women who were injured with fistula in opposition of those without fistula who cited discriminatory attributions. Most of the women were satisfied with the childbirth care they received, and the prevalence of satisfaction was higher among those who gave birth in primary level health facilities compared to those who gave birth in hospitals, and the support provided by a companion had a positive influence on the level of satisfaction, no matter the woman’s age, education, and socio-economic background. Satisfaction was still found to be high, although to a lesser extent, for those women who reported having had negative experiences, such as disrespect or humiliation, physical abuse, being abandoned when needing help, or being asked for informal payment. Health providers’ perceptions of their work environment was positive. This included all dimensions, despite them having scored lower in the organizational resources dimension.

There now follows an interpretation of the results for each of the research objectives addressed by the four studies in respect of present state-of-the-art of knowledge. Also highlighted are the limitations of the study design and the public health implications of the results.

Maternal morbidity: the case of fistulas

The obstetric fistula incidence of 1.1 per 1000 recently pregnant women we found is higher than the pooled incidence of 0.09 per 1000 recently pregnant women in community-based studies reported in Adler’s systematic review [59] and is close to the fistula incidence of 1.2 per 1000 birth reported in one of the few prospective population–based studies on fistula incidence, which was undertaken in rural West Africa in 1999 [54]. This study, similar to ours,
was completed in a rural area where women are at higher risk of childbirth complications, however, with a much lower proportion of births attended by skilled health personnel (39.6% at that time in West Africa vs 85.0% in Southern Mozambique 2016). Thus, the occurrence of fistula cases in our setting is of concern.

Our findings pinpoint the importance of the clinical examination and confirmation of all women who reported urinary incontinence: 78% of the women who reported incontinence had conditions other than fistula. Similar to our study, a community-based screening for fistulas in Nigeria, using the fistula module questionnaire, found that 53% of the women who reported symptoms did not have a fistula [142].

As described in the literature [43], most of the recently pregnant women identified with fistula were primiparas. Similar to many studies [43, 47], we found that most of the women had a duration of labour of more than 24 h, however, while several studies reported delays in making the decision to seek care (first delay) and reaching a health facility (second delay) as important factors in the development of obstetric fistula [143-145], we found that all women reported delays occurring at health facilities (third delay). This finding was corroborated with the women who reported having experienced delays in the transfer from the primary to the secondary level of care. In fact, facility-based and professional failures led to a lack of timely detection of high-risk labours and in the decision to refer to a hospital with the capability to perform a caesarean section. These findings that some patients are able to reach the facility in a timely manner, although being referred with further delays to other facilities to receive appropriate treatment, are illustrated by other studies conducted in Tanzania, Uganda and elsewhere [92, 93, 146]. Furthermore, delays in reaching the referral hospital, mostly due to the unavailability of ambulances, have been observed, similar to those described by Waiswa et al. (2017) [147] from Southern Tanzania, where there are no ambulances at the primary facility level.

All four foetuses delivered by caesarean section were stillborn. The clinical files with the details of the management of these women were not available, however, it is questionable whether craniotomy, a procedure reported in LMIC [148-150], could have been an alternative method to deliver these babies and to prevent the risk of the complications of an abdominal-route delivery and the risks of rupture of uterine scar during subsequent pregnancies or labour [151, 152].

Three of the five identified fistulas were probably ischaemic in origin (one type I mid-vaginal and two type II, Waaldijk classification [71]). For two women (all type I), the fistulae were high vaginal, close to the cervix, which are presumed to be iatrogenic in aetiology [40]. An iatrogenic aetiology is particularly likely for one case, where the duration of labour was less than 24 hours. A combination of ischaemic and iatrogenic mechanisms could explain the other type I, where the duration of labour was 30h. Although we could not
verify in this study the mechanism involved, there are reports of an increasing proportion of iatrogenic urogenital fistulas in LMIC, primarily in obstetric interventions, especially caesarean section [40, 153], and it might be possible that this was the case in our study.

For those who had the fistula diagnosed at the health facilities after they had given birth and before being discharged, no treatment was proposed at that time. This could be due to the limited availability of fistula repair services and a lack of fistula surgeons, which was reported in several settings in sub-Saharan Africa, including Mozambique, where at least 80% of women diagnosed with fistula are estimated to have no access to fistula repair each year [55]. However, in view of the fact that Mozambique has a special programme on fistula repair, the lack of any information given by providers could also be explained by too little knowledge among health providers on fistulas and options for repair. On the other hand, for those whose condition was not diagnosed before being discharged, lack of adequate postpartum assessment and referral is a concern.

Our rate of successful closure is close to the 84–94% range reported in the literature [48], however, we have to consider that the rate could be lower, as not all of the women who had had surgery repair came for the third-month follow-up.

The narratives we gathered from the women diagnosed with fistula covered their preparedness for the delivery, their experiences of childbirth and perception of the causes of their pregnancy outcomes, the life changes and challenges they experienced, and the strategies they used to cope. Despite the fact that, as reported in studies in Benin and Nigeria [45, 154], antenatal care is an intervention that may prevent obstetric fistula, the women in our study, contrary to the expectation they had when attending antenatal care and planning for health facility delivery, ended up with a doubly poor obstetric outcome – having a fistula and childlessness [155]. This is worse if we take into account that all (except two who gave birth on the way) sought care at a health facility in good time. Opposite to our findings, evidence from other studies [156] report that most of the women with obstetric fistula first attempted to deliver at home before seeking care. The reported experiences of prolonged labour point to the same delays by providers in recognizing the woman’s problem and/or providing appropriate care that we found. Similar concerns were raised in several studies conducted in other sub-Saharan countries [37, 93, 157]. This indicates that women understand that the condition could have been due to prolonged and obstructed labour [33] and that it was worsened by delays at the primary health facility and to take the decision to refer for proper care [158], despite the fact that they have managed to overcome first and second delays. Worse, as previously reported [156, 159], all experienced until they participated in the interview, delay in the diagnosis and treatment of their birth injury (the fourth delay). This calls for further effort at the health system level to improve the quality of birth care and the management of the fistula cases.
Our qualitative findings indicate that women perceive health providers to be at least partially responsible for the fistulas. Their understanding was that it had something to do with the urinary catheterization used to treat urinary retention or by the instruments used during delivery (vacuum device or forceps). Similar explanations were also provided in studies conducted in Tanzania and Uganda [156]. This finding does indicate, at the least, deficiencies in communication between health providers and women seeking care. Yet, this complaint was reported in our study more in regard to the highest-level facilities. At these referral facilities and in concordance with reports from other settings [156, 160], women experienced challenges suggestive of negligence, and some verbal abuse, but not physical abuse, which is of concern and might be considered as a dimension of obstetric violence [161, 162]. However, in contrast to other settings [156, 163], the women with fistula in our study perceived having had more prompt attention and more respect at the primary health facilities.

The symptoms reported by the women we interviewed (urine leakage, pain, discomfort caused by the skin burns, body weakness, drop foot) were similar to findings previously reported in other studies and confirm the disastrous impact that these consequences of obstetric fistula have in their lives, making them unable to carry out their domestic chores or to attend social gatherings [31, 77, 78]. While most of the evidence reports that women with fistula are often ostracized from their community, divorced and abandoned [77, 78, 164], most of the women interviewed in our study expressed that they received some support from husbands and relatives.

Most of the interviewed women without fistulas did not know what fistula was, however, they recognized it when a description was provided. This brings concern about the awareness of obstetric fistula which has been reported to vary between 36% and 58% among women in different rural settings in Africa [165, 166], as low awareness of the condition could also imply low awareness of how to prevent fistula and obtain treatment. Moreover, women without fistulas expressed an ambiguous position concerning their perceptions about the condition of the women diagnosed with fistula. On one hand, they blamed the deficiencies in the provision of health care, and, on the other, they blamed the women themselves, citing discriminatory attributions and misconceptions about the causes of fistula. While showing empathy and support to women suffering with fistula, they did not show opposition to the social, often stigmatizing, restrictions to which these women are subjected. These views provide insights into the society in which the women with fistula live and the need to an increase in the awareness at a societal level about the meaning and implications of living with fistula and the needs of the women with this condition.
Women’s experience of and satisfaction with childbirth care: quality of care

According to the WHO’s vision, quality of care is the extent to which maternal health services provided to individuals and populations improve desired outcomes [83]. The use of the childbirth services and outcomes are the result of not only the provision of care, but also of women’s experiences of that care. Maternal satisfaction is an important indicator for the assessment of the quality of care provided and also one of the most important factors for future utilization of the childbirth services.

Most of the women in our study were satisfied with the care they received during childbirth. This result is in line with previous studies conducted both in low- and middle-income [167-172], and in high-income countries [173-175], which demonstrate high levels of self-reported satisfaction with maternity care.

Questions have been raised as to whether predominantly positive responses are accurate reflections of the perceived quality of the services or a result of various methodological problems related to the measurement of patient satisfaction [176-178]. Several reasons for high satisfaction scores are discussed in the literature. One is the reluctance of the respondents to criticize their care providers [179], and this could have been compounded in our study as the data collectors could be identified as members of the research center (CISM), and the participants may have perceived that they are linked to the health system, resulting in them providing socially desirable responses [177, 180]. The subjectivity of patient satisfaction and its linkage with expectations and outcome could be another reason [87, 181].

In low-resource settings with high maternal mortality, similar to our study, surviving the childbirth themselves with a healthy newborn may have been perceived by the women as an expectation met by the health facility and gave them a good reason for being satisfied. A lack of awareness regarding standards and client rights in a largely low-literacy context has been also suggested [88], and this could have been the case in our study, where one-fourth of the women did not have any formal education. Furthermore, the timing and location of the interview may also have played a role [180, 182]. It has been reported that women tend to report less desirable aspects of the maternity care they received only several months after birth [183], and when assessed about satisfaction within a few days of birth, and/or when they are still staying in the health facility, they may wish to please the interviewer and also may fear retribution or neglect for themselves or their babies [180]. While it is difficult to evaluate the influence of the timing of the interviews in our study (as the women were interviewed within a year after birth), interviewing our participants at home should have limited the influence of the health facility environment in their answers. On the other hand, the high levels of satisfaction reported could have reflected their true feelings about the care received, thanks
to the commitment and devotion of the care providers, despite the lack of resources, as reported by Adolphson et al. (2016) [184].

A majority of the studies on satisfaction investigated the association between maternal satisfaction and the socio-demographic characteristics of the women. Our findings of a positive association with marital status, illiteracy, being subsistence farmer, and living close to the health facility were in line with the findings of Srivastava et al. (2015), who conducted a review of 154 studies on maternal satisfaction from LMIC [88].

While high levels of satisfaction were reported in our study, few women had distinct negative experiences. Those women with negative experiences reported much lower levels of satisfaction and much higher exposure to abuse and mistreatment. The limited number of reports of negative experiences could be related to the lack of awareness regarding standards and client rights, as explained above. Also, as the women in our context were the first generation of women to deliver in a facility, they might perceive some forms of mistreatment as normal [185, 186], and it is known that drivers of mistreatment are perpetuated by social and gender norms at family and community levels [187, 188]. Yet, with relatively few respondents, these reports pinpoint the importance of asking specific questions rather than global ones to disclose dissatisfaction [87] and this aligns with previous reports on dissatisfaction with childbirth care [175].

The method we used to assess the women’s experiences could have influenced the reported levels of mistreatment: while adopting a quantitative approach allows the researchers to gather data from larger samples of study participants and allows them to demonstrate the magnitude of the issue, this method has limited ability to provide insights into the roots of mistreatment, which are better evidenced by qualitative approaches [189]. Moreover, it is possible that our interviewers were not sufficiently trained to ask probing questions to increase the number of reports of abuse and mistreatment, so our reported dissatisfaction levels should be viewed with caution. Whatever the number of respondents reporting negative experiences, this calls attention to the need to address this issue for quality of care improvement. Further research is warranted to address the magnitude and the causes of mistreatment and abuse.

Satisfaction levels, including satisfaction with the interaction with providers and the provision of respectful care, were highest amongst women who gave birth in health centers compared to those who gave birth in hospitals. The effect of companionship was lower in hospitals than in health centers. Those who gave birth in the smallest health centres (type II) were the most satisfied. Similar findings indicating higher satisfaction in primary care facilities compared to hospitals have been reported in Ethiopia, India and Nepal [98, 167, 190]. One interpretation might be that health centres, despite the low availability of equipment and supplies, and less staff [191, 192], had a lighter load of childbirth, and, therefore, women in these facilities had better opportunities
to receive care in a less crowded labour room with more attention given by the
care providers.

The proximity of the health centres to the women’s homes was positively
associated with satisfaction in our study, in line with previous reports high-
lighting the importance of geographical accessibility for overall satisfaction
[88].

Our results also highlight that having a companion improved women’s sat-
isfaction. This emphasizes the importance of having a person of choice ac-
company the woman during birth, and this is in line with findings from other
studies [90, 171, 193]. In view of the current debate on the safety of childbirth
and the policy shift towards recommending that women deliver in higher level
and better-equipped facilities [194], we consider that our findings underlie
the challenges inherent to balancing the safety of care versus satisfaction with
care. It is important to ensure that every woman delivers in a safe environment
and receives timely and evidence-based care.

Health professionals’ delivery of birth care: work
context

To our knowledge, this was the first study applying the COACH tool in
Mozambique and outside the countries in which it was developed. In order
to conduct the study, we had to translate the tool from the original English ver-
sion to Portuguese. Therefore, we addressed; first, the determination of the
comprehensibility and internal reliability of the translated tool, and second,
we asked the health providers involved in maternal care to evaluate their work
context using the tool.

The response process indicated that the COACH tool was overall under-
stood as proposed and allowed us to identify and address problems in order to
obtain a comprehensible Portuguese version of the tool. Similar findings were
reported by Duc et al. (2016), when developing the Vietnamese translation of
the COACH tool, even though more prominent problems (seven versus two in
our study) were identified [195]. The internal consistency reliability testing
was important to ensure the fit between the dimensions and the respondents’
level of agreement. As previously reported during the development of the
COACH tool [139], the unavailability of internet and e-health/m-health de-
vices could be a reason for the low scoring in the Sources of knowledge di-
mension. The removal of the items in the Sources of knowledge and the Infor-
mal payment dimensions was performed to improve the internal reliability in
these two dimensions [196] and, consequently, we have determined a suffi-
cient internal consistency in the COACH tool, which provides evidence of its
ability to measure its different dimensions.
When asked to use the COACH tool, the health providers rated highly the items on all dimensions, revealing a positive perception of their work context, reflecting it as being ‘supportive of change’. This finding is consistent with previous research in Vietnam using the COACH tool [197], which reported a high rating of the items, with highly homogeneous and left-skewed results.

Of all dimensions, the Organizational resources dimension had the lowest overall score, a finding also reported in Vietnam [197]. We interpret this finding as a possible true perception of low availability of resources in their facilities. This is consistent with previous reports of shortage of equipment and supplies in the national healthcare service in Mozambique [191, 192] and in other LMIC, such as Tanzania, Uganda and Nepal [198-200], which has been recognized as a barrier for the implementation of strategies to improve obstetric care practice [201].

The high agreement observed in the Community engagement and Monitoring services for action dimensions could be a result of the implementation of the strategies of the Mozambican ministry of health which advocates the promotion of active communication between the health facilities and the community, the empowerment and participation of the population in health promotion [202, 203] and also the result of the implementation of monitoring and evaluation activities in all levels of the health system [204].

The high scores observed in the Commitment to work dimension could be surprising if we consider on one hand the previous reports of low salaries found to be particularly demotivating [205], and on other hand the report that health workers in Mozambique have to work in both the public sector and the private sector to achieve a minimum income [206, 207]. However, one could consider that, despite a weak health system with a lack of resources and demotivating salaries, the health professionals are trying to provide empathic and responsive care, as reported in a previous study [184].

Also questionable is the high rate of agreement in the Work culture dimension if we consider the evidence of working context still characterized by health care professionals’ negative attitudes and behaviour (such as absenteeism, corruption, poor communication and authoritarian or frightening attitudes) in Mozambique and other LMIC [208, 209].

The high agreement mean score on the Leadership dimension could be also surprising in a context of low-income countries where health managers in the public sector are often medical, clinical or nursing personnel assigned to this as an extra role and have to balance between clinical and management work, which is often complex and difficult [210]. As previously reported, health managers at the district level are more likely to lack the necessary skills, attitudes, and behaviour needed to perform their leadership. The lack of capacity and skills of the managers have been described as one of the factors affecting the provision of childbirth care [211].

The high rate of disagreement with the Informal payment dimension items, suggesting that low levels of informal facility, was not expected if we consider
the growing evidence of the practice of informal payments in LMIC, including Mozambique [212-214]. Informal payment has been reported in the literature as being difficult to measure directly, especially in LMIC [212, 215].

Methodological considerations

The studies presented in this thesis employed both quantitative and qualitative methods, and used frameworks drawn from several studies, strategies which did support the comprehensive analysis from different angles and aspects. The results should be seen within the specific context where, although the number of facility deliveries has increased, morbidity is still high.

Strengths

One of the major strengths of this thesis was that it employed a population-based design within an established cohort, which minimizes ascertainment bias. The population of women who recently gave birth was identified from a large cohort of pregnant women which was followed over a defined period of time, minimizing the risk of selection bias. The size of the sample and the limited number of non-respondents, thus representative of the population where we conducted the studies (I and III), enhanced the precision of the analysis. The community-based identification of the cases of fistula, in Study I, contrary to previously documented hospital-based recruitment, along with the use of a standardized data collection instrument together with physical examination by a trained healthcare provider, maximized the probability of accurate case identification and should have minimized detection bias. The early case-finding in the first year postpartum was also a strength as it allowed us to capture the beginning of the obstetric fistula early. One significant strength of Study II was the advantage taken to interview virtually all of the women enrolled in obstetric care in this setting, which produced a theoretical generalization of the situation of women affected by fistula in this area. The interviews we conducted with women without fistula allowed us to gain a sense of community perceptions and attitudes. Another strength, related to Studies I–III, was the possibility to interview the women outside of the health facility, which probably minimized the risk of social desirability bias, which has been suggested to reduce the reporting of dissatisfaction and mistreatment when evaluations are done in facilities before discharge [216, 217]. However, this could have affected the perception that, despite not being a health professional, the interviewers who presented themselves as members of the health research centre (CISM), could be somehow related to the health system. The use of a comprehensive theory-based assessment of context to describe the healthcare context from the health providers’ perspective, in Study IV, was another strength of this thesis.
Limitations

This thesis is descriptive in nature and relies on the women and health care providers’ responses, which could increase the probability of response bias. Non-disclosure of fistula-like symptoms was possible (Study I), although unlikely, due to the training that the data collectors received to explain the meaning of urinary incontinence and to explain that treatment would be offered free of charge and that all the information collected would be kept confidential. As two of the 30 women who reported urinary incontinence symptoms did not come for follow-up, a risk of underestimation of the number of fistula cases identified should be considered. Several limitations should be taken into account in relation to the in-depth-interviews with the women affected by fistula (Study II): the emotions evoked during the conversations obliged the interviewer to limit the depth of some discussions to prevent further emotional distress and, consequently, this may have narrowed the potential to obtain in-depth insights into the women’s reported experiences and the meaning of these experiences. Furthermore, women’s perspectives on fistula in general and about their future in particular may have been affected by the fact they were interviewed after being informed about the possibility of being referred for surgical repair.

Cross-sectional studies have been used to understand the prevalence of various conditions, treatments, services or other outcomes and the factors associated with such outcomes. This thesis has used a cross-sectional study design to assess the prevalence of women’s perceptions of, and satisfaction with, the care they received during childbirth, and the health providers’ perceptions of their work context (Studies III and IV). Despite the inherent limitation of cross-sectional studies to determine cause-and-effect relationships, confounding seems unlikely, as the questionnaire we used referred to a previous event. Concerning the women’s survey (Study III), as the interviews were conducted up to one year after giving birth, it is possible that recall bias was present. However, it has been reported that women’s self-reports of mistreatment may be more accurate after they have had some time to process their experiences and if they are interviewed away from the facility where they received childbirth care [189]. Measurement bias is another limitation to consider, although the questionnaire used was adapted from previously validated, pre-tested and piloted instruments. The translation of the questions from Portuguese to the local language during the interviews could have raised information bias. This was addressed by the in-depth training of the interviewers. Concerning the health providers’ survey (Study IV), one important limitation was the high level of negative-skewness and low variation found in the responses to most of the items. The 64% response rate observed could also be a limitation, as important differences could be observed between respondents and non-respondents. Between possible biases in the origin of the response deviation ob-
served, social desirability bias and response bias due to misunderstanding information or refusal to disclose sensitive information, cannot be excluded. Further, despite the tool having been administered via an individual structural interview to maximize response and item-response rates, questions remain concerning the item’s meaning for each respondent and how this influenced the respondent’s answer. Moreover, this high skewness and low variability brings concerns about the effectiveness of the COACH tool in disentangling the modifiable aspects of context in this particular setting.

Generalizability and transferability

Generalizability refers to the extent to which findings from a study apply to a wider population or to different contexts [218]. While such consideration is also made in qualitative research, it is commonly referred to as transferability, defined as the degree to which the results are transferable or relevant to other contexts or settings.

The community-based estimated obstetric fistula incidence reported in Study I, is representative of a rural setting in southern Mozambique, with high number of facility births. It is possible to underestimate the incidence of obstetric fistula in other areas of the country, or in similar settings in LMIC, that have less coverage of institutional deliveries and where first and second delays may occur.

In the assessment of qualitative data, it is important to consider reflexively what the role of the researcher is in generating and analysing their data and their influence on the findings. Participants in Study II may have been affected by social desirability as the interviewers were linked to the team who offered the possibility of treatment for the fistula condition. The results of the study refer to the specific context of the Mozambican health system, but similar experiences are expected in other low-income settings with similar socio-cultural and health system context. However, the transferability of the results, taking into account the nature of the methodology, should ultimately be determined by the reader.

The results of the two cross-sectional surveys in this thesis (Studies III and IV) were both characterized by a high level of negative-skewness and low variation in the responses to most of the items. While suggesting high satisfaction with childbirth care and a positive perception of the context being ‘supportive of change’, consideration of the generalisability of these results should be made with caution, in regard to the nature of the limitations and the effect of the possible biases that have been identified.
Suggestions for future research

The four papers that form the basis of this PhD thesis all derived from a huge undertaking involved in the numerous and varied data collected. However, there is also a responsibility to our informants and the research community to conduct further analysis and manuscript writing.

Self-reported postpartum outcomes such as perceived health and pain in relation to birth experience, delivery complications and mode of delivery is one topic that that demands to be explored in this setting.

Birth care has been assessed in this thesis by the perspectives of the women and the health care providers. The method of data collection we employed enables us to combine the perceived quality of care as assessed by the users and the perceived health context as assessed by the health workers. The results of further analysis of these data will be included in a forthcoming paper.

There are several aims in this PhD thesis where applied qualitative methodology could have added value. The appalling stories gathered from the voices of the women suffering with fistulas do imply the value of qualitative research methodology for understanding suboptimal care. For future research, a mixed-method design should be considered when addressing satisfaction of care, mistreatment and abuse. The low variation in the data from the health workers about the health context indicates that using mixed-methods (quantitative and qualitative combined) might have added value.

Quality of birth care is at the core of this PhD thesis. The data collection derived from the Manhiça HDSS, one of the most research-active health demographic surveillance sites in sub-Saharan Africa. This provides a unique opportunity for population-based studies to further focus on quality of care in the referral hospitals and the health centres. The next development should include computerized health care registration of pregnancy, delivery complications, and interventions as indicators of quality of care from a population perspective. Collecting and analysing these data can potentially address issues related to adherence to guidelines. Referral cases should be followed in this setting by a special protocol, for example, recording and follow-up of any instances of obstructed labour would give valuable input for informing quality improvement initiatives. This setting had a low caesarean rate. Still required is to follow by study protocol the process leading to a caesarean, as well as any pre-operative and post-operative complications.

The high number of potential iatrogenic fistulas should trigger more research in other settings to investigate the proportion of fistulas that are potentially of iatrogenic origin and their potential causes, which will facilitate the review of safety and operational processes when performing a Caesarean section operation.
Conclusions and recommendations

Conclusions

1. Despite the fact that a large majority (80%) of women delivered in health facilities and those women were satisfied with the childbirth service, the incidence of fistula was high at 1.1 per 1000 recently pregnant woman. Two of the identified fistulas probably had an iatrogenic co-aetiology where some damage to the bladder might have happened during the Caesarean section.

2. Interviews with women who had a fistula suggest that delays in recognition of complications at lower-level facilities, together with delays in arranging transport and receiving care at the referral hospital, contributed to the large number of fistulas. Those women without fistula had little insight into the problem and expressed a puzzling position of both blaming the poor quality of health care provision and the attitudes of the women themselves, while having sympathy for those suffering from the condition.

3. The level of satisfaction with the childbirth service was higher in women who were assisted in primary care facilities and the presence of a companion had a positive influence.

4. Health providers perceive their working environment as being supportive of change, except that they complain about a lack of organisational resources and that current levels of drugs and supplies are not meeting their needs.

Recommendations

The findings revealed above suggest that facility delivery becomes a norm in the respective rural society and that services are generally perceived as being adequate by childbearing women. However, to reduce maternal complication and mortality, major investments beyond offering basic care in primary facilities are now needed:

1. Complication recognition and decision-making for referral need to be improved at primary facilities.

2. Primary facilities and referral hospitals need to be better connected so that referral can be made in a timely manner.
3. Emergency preparedness in referral hospitals will need to be improved in hospitals so that women being referred can be attended promptly.

4. Postpartum care should be improved both at primary and referral level, including the early detection and management of obstetric fistula, and adequate referral for fistula repair coupled with the promotion of community awareness of the problem.

5. Quality improvement of childbirth care at all levels should include interventions to improve the interactions with providers, and the provision of respectful and supportive care.

6. In view that health providers generally feel positive about their work environment according to the survey, they should be receptive to quality improvement work and training investment. However, resource constraints in equipment and supplies must be address concurrently.
A assistência atempada ao parto por profissionais de saúde qualificados e o acesso a cuidados obstétricos de emergência são considerados elementos-chave para a prevenção da mortalidade e morbilidade maternas. Nos últimos 15 anos, tem-se observado nos países em desenvolvimento incluindo Moçambique, uma grande mudança no sentido do aumento do número de partos assistidos em unidades de sanitárias; contudo, os níveis de mortalidade e morbilidade materna permanecem ainda consideráveis. De facto, a mortalidade materna continua inaceitavelmente elevada, particularmente na África Subsaariana, onde se observou em 2015 um rácio de mortalidade materna de 546 por cada 100 mil nados vivos. Este valor, o mais elevado no mundo, contrasta com os 12 por 100 mil nascidos vivos observados em países desenvolvidos. Por outro lado, o peso global da morbilidade materna permanece consideravelmente alto. Estima-se que 27 milhões de episódios de morbilidade ocorreram em 2015 como resultado das complicações obstétricas directas mais comuns. Muitas dessas complicações são totalmente evitáveis, incluindo o trabalho de parto arrastado e/ou obstruído e uma de suas consequências mais catastróficas: a fístula obstétrica.

O objectivo desta tese foi de avaliar e explorar a provisão de cuidados obstétricos numa área rural com elevada cobertura de partos institucionais, dando enfoque a fístula obstétrica que é uma das complicações a ainda prevalentes.

Os quatro estudos que constituem esta tese foram realizados em seis distritos das províncias de Maputo e Gaza, no sul de Moçambique, que constituíram a área do Estudo de Intervenção ao nível Comunitário para Pré-Eclâmpsia (estudo CLIP). A colheita de dados decorreu entre Abril de 2016 e Março de 2017. Foram incluídas 4385 mulheres que tiverem parto nos 12 meses anteriores a data de início do estudo e que foram seleccionadas a partir da coorte de mulheres em idade reprodutiva (12-49 anos) do estudo CLIP. As mulheres que reportaram queixa de incontinência urinária foram clinicamente avaliadas de modo a confirmar o diagnóstico de fístula obstétrica e estimar a partir do total de casos, a respectiva incidência (Estudo I). Foram realizadas entrevistas em profundidade a um grupo (n = 28) que incluía mulheres com e sem fístula, com o objectivo de descrever as experiências vividas durante a gravidez e parto e identificar aquelas experiências que são exclusivas para as
mulheres com fístula (Estudo II). Foi efectuado um estudo transversal usando entrevistas estruturadas das 4385 mulheres que tiveram parto, com o objectivo de se avaliar as experiências vividas com relação aos cuidados recebidos durante o parto e o grau de satisfação tido com o mesmo (Estudo III). Por último foi feito outro estudo transversal (Estudo IV), que consistiu em entrevistas a 175 profissionais de saúde materna na área de estudo, usando a ferramenta de Avaliação do Contexto para a Saúde da Comunidade (ferramenta COACH), de modo a avaliar o grau de percepção do seu contexto de trabalho.

A incidência de fístula obstétrica foi de 1,1 por cada 1000 mulheres recentemente grávidas (IC 95% 0,14-2,16). Embora o trabalho de parto arrastado e obstruído tenha sido a causa mais comum de fístula obstétrica, foram identificados em dois casos, possível causa iatrogênica.

Relatos de trabalho de parto arrastado, demora em receber cuidados nos hospitais para onde foram transferidas, apesar de terem chegado a tempo nas unidades do nível primário de atenção (centros de saúde), foram comuns no discurso das mulheres com fístula, ao contrário daquele das mulheres sem fístula que consideraram as mulheres com fístula como culpadas da sua própria condição, dadas as suas características fisiológicas e comportamentais. As mulheres com fístula relataram o impacto negativo da sua condição na vida quotidiana, resultando em dificuldades em realizar actividades domésticas e participar em funções sociais.

A maioria (92,5%) das 4358 mulheres entrevistadas relatou estar satisfeita com os cuidados recebidos durante o parto e recomendaria qualquer membro da sua família a ter o parto na mesma unidade sanitária. Especificamente, 94,7% ficaram satisfeitas com a limpeza da unidade, 92% relatarem terem ficado satisfeitas com a sua interacção com os profissionais de saúde, mas apenas 49,8% se sentiram satisfeitas com a ajuda recebida para darem de amamentar ao seu bebê. As mulheres que tiveram experiências negativas durante o parto tais como humilhação ou falta de respeito (6,3%), abuso físico (1,7%), abandono (10,0%) ou solicitação de pagamento informal (4,2%), relataram menor nível de satisfação quando comparadas com aquelas que não tiveram tais experiências (68,5% vs 93,5%). Comparativamente às mulheres que tiveram partos em hospitais, as mulheres que os tiveram nos centros de saúde referiram estar mais satisfeitas com os cuidados recebidos, e que a presença de um acompanhante da sua escolha durante o parto influenciou positivamente o grau de satisfação - independentemente da idade, educação e contexto socioeconómico.

Os profissionais de saúde incluídos no ultimo estudo revelaram uma percepção positiva do seu contexto de trabalho ao atribuir aos itens da ferramenta COACH, classificações acima da média da escala em todas as oito dimensões. Seis das sete dimensões com escala de classificação de 1 a 5 tiveram uma média superior a 4. A única dimensão com média inferior a 4 foi a dos Recursos organizacionais (com média de 3,2). A dimensão com escala
de 0 a 1 Fontes de conhecimento teve também classificação positiva (média de 0,7).

Os resultados desta tese demonstram alta incidência de fistula obstétrica, em uma área com alta cobertura de partos institucionais. Apesar disso, os serviços são considerados adequados pelas mulheres que os utilizam. No entanto, para reduzir a morbidade materna por fistula, sugerem-se intervenções de melhoria de qualidade da assistência ao parto, nomeadamente o reconhecimento atempado do parto arrastado, prontidão e manejo adequado dos casos uma vez feita a referência a níveis superiores de atenção, bem como melhorar o contexto de trabalho dos profissionais de saúde na área de recursos organizacionais.

Esta tese levanta a questão da qualidade dos cuidados obstétricos prestados. Sugerem-se futuros estudos com enfoque para a qualidade dos cuidados nos centros de saúde e hospitais e para a aderência as normas e condutas. Em vários dos objectivos desta tese, a aplicação de métodos qualitativos poderia ter tido um valor adicional. Os relatos obtidos das mulheres que tiveram parto demonstraram o valor dos métodos de pesquisa qualitativa para a percepção do nível dos cuidados prestados. Para estudos futuros, sugere-se considerar o uso de métodos mistos de pesquisa para avaliar o grau de satisfação com os cuidados prestados, e situações de falta de respeito, maus tratos e abusos. O assunto de possível iatrogenicidade na origem das fistulas obstétricas deverá merecer futura investigação no sentido de se perceber a proporção de fistulas iatrogênicas e suas potenciais causas, o que facilitará a revisão dos procedimentos de técnica e segurança ao se efectuar as cesarianas.
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Appendix

Appendix 1. In-depth Interview Guide

How was your experience with your last birth?
- How old were you when you became pregnant?
- Did you have any problem during your pregnancy?
- Did you get an antenatal card?

Could you tell us about your childbirth experience?
- What symptoms did you perceive before your labour started?
- Did you sought any kind of healthcare when the labour pain started?
- Did you have any complication?
- What was the result of the pregnancy?

How did you get to the health facility?
- How was your experience in the health facility?
- Have you experienced any delay in receiving care or to attend you?

Could you tell me about the problem you had after your last childbirth?
- How did you feel when you realized that you had this complication?
- How does this problem affect your daily life?
- Did you seek healthcare when the symptoms started?

What do you think might have caused this problem?
- Do you think that your problem could have been avoided? How?
- How does the community perceive a woman with a fistula?

How do you see your future after the fistula repair?
- Do you know how to solve this fistula problem?
- Do you think you can have children?
- What do you think that can help you to start a new life after the surgical repair?
- What are your dreams, expectations for the next 5 years from now?
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